



# Quarterly Report

April through June 2016

Penta Wood Products Superfund Site

Wisconsin Department of Natural Resources



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## 1. Introduction

GHD Services Inc. (GHD) prepared this Quarterly Report (Report) for the Penta Woods Products Superfund Site (Site) in Siren, Wisconsin on behalf of Wisconsin Department of Natural Resources (WDNR). The Site location is shown on Figure 1.1, and the Site plan is shown on Figure 1.2. This Report presents the results of the activities conducted at the Site during April through June 2016 including:

- Surveying (Section 2)
- Groundwater monitoring and sampling (Section 3)
- Residential well sampling (Section 4)
- Microcosm Study (Section 5)
- Bio-Trap Study (Section 6)
- Waste management and disposal (Section 7)
- Continuing Obligations and Inspections (Section 8)
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- Recommendations (Section 10)
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## 2. Surveying

As documented in the Semiannual Report – July through December 2015 (GHD, February 2016), several wells were repaired, which included adjustments to the well casings. During April 2016, a Wisconsin licensed surveyor, Kemper & Associates, Inc. (Kemper) of New Brighton, Minnesota, surveyed all well locations and top of casing elevations at the Site. All survey data is provided in Appendix A. These surveyed well elevations and locations were utilized to generate groundwater contours from the April 2016 groundwater monitoring data as discussed in Section 3.

In addition, to the well survey, Kemper reviewed survey data obtained during the soil excavation and remedial activities in 2000. Some excavation areas were surveyed following the soil cleanup work as reported in the Remedial Action Report (CH2MHILL, December 2000). These areas were surveyed by Kemper at that time. Kemper provided GHD with all 2000 soil excavation survey data and confirmed that the horizontal coordinate system and vertical datum are the same as the new well survey data. This information will be evaluated and utilized to develop a shallow soil and sediment sampling plan to fill data gaps and delineate the limits of constituent concentrations remaining at levels potentially exceeding applicable criteria at the Site.





### 3. Groundwater Monitoring and Sampling

Baseline groundwater monitoring and sampling was conducted at the Site in April 2016 based on the scope of work provided in the Remediation System Shutdown Pilot Study Work Plan (GHD, November 2015). Sampling was completed in general accordance with the Field Sampling Plan (FSP) (CH2M HILL, November 1999 and November 2010) and Quality Assurance Project Plan (QAPP) (CH2M HILL, February 2005) with subsequent addendums (most recent is Addendum No. 6 dated July 2014). The primary purpose of the baseline event was to confirm the dissolved plume size and extent and the concentration distribution at the Site after operation of the remediation system. The objectives of the groundwater monitoring at the Site included:

- To monitor flow direction and hydraulic gradient through the measurement and assessment of groundwater levels
- To monitor the natural attenuation of the plume through collection and chemical analysis of groundwater samples from monitoring wells
- To monitor long term improvement in groundwater quality through the collection and chemical analysis of groundwater samples from monitoring wells
- To monitor compliance with groundwater cleanup standards for the Site (State of Wisconsin ch. NR 140 Enforcement Standards)
- To monitor potential impact to residential wells through collection and chemical analysis of water samples from targeted residential wells

#### 3.1 Groundwater and LNAPL Level Monitoring

Groundwater and Light Non-Aqueous Phase Liquid (LNAPL) levels were measured in thirty-three (33) monitoring wells and twenty-two (22) extraction well casings at the Site on April 4, 2016. The groundwater and LNAPL elevation data along with recent well survey data are summarized in Table 3.1. Historical LNAPL thickness data are included in Appendix B.

Groundwater elevation contours were inferred from the April 4, 2016 measurement data. Unconfined aquifer (upper portion) contours are shown on Figure 3.1. Semiconfined aquifer (lower portion) groundwater contours are shown on Figure 3.2. The contours indicate that the groundwater gradient is relatively flat and represent non-pumping conditions following shutdown of the remediation system and groundwater extraction pumps (November 2015). The inferred groundwater flow direction toward the northwest may be attributed the wetland acting as a groundwater recharge source in the vicinity of the Site with increased snow-melt and rain conditions during March and April 2016.

LNAPL was present in three monitoring wells (MW18, MW19, and MW20) during the April 2016 monitoring event. Historically, LNAPL has been present in measurable quantities in four monitoring wells (MW10S, MW18, MW19, and MW20). LNAPL thickness measurements are shown on Figure 3.3.

LNAPL was present in five extraction wells (EW05S, EW06S, EW10S, EW12S, and EW14S) with casings screened in the unconfined (upper) aquifer during the April 2016 monitoring event. This is



consistent with previous monitoring during the remediation system operation. LNAPL thickness measurements are shown on Figure 2.3.

Although not present at a measurable thickness, LNAPL was observed on the monitoring equipment at extraction well EW07S. Groundwater and LNAPL levels were not previously measured in this extraction well since the casing was not accessible due to the presence of a glued fitting over the top of the well casing. An absorbent sock was installed in the well casing to recover the LNAPL and confirm whether LNAPL re-enters the well. The absorbent sock was removed from the well in May 2016. The well will be monitored for the presence of LNAPL during the next quarterly event scheduled for July 2016.

LNAPL was also present in one extraction well (EW06D) with a casing screened in the semiconfined (lower) aquifer during the April 2016 event. Groundwater and LNAPL levels were not previously measured in the extraction wells screened in the semiconfined (lower) aquifer since the casings were not accessible due to the presence of the submersible pumps and piping. It is possible that LNAPL entered this extraction well casing during pumping and when pumping was discontinued in November 2015, the water level rose inside the casing and trapped the LNAPL above the screened interval. An absorbent sock was installed in the well casing to recover the LNAPL and confirm whether LNAPL re-enters the well without pumping. The absorbent sock was removed from the well in May 2016. The well will be monitored for the presence of LNAPL during the next quarterly event scheduled for July 2016. LNAPL was not observed in any other extraction wells with casings screened in the semiconfined (lower) aquifer during April 2016.

### 3.1.1 Vertical Gradients

Vertical hydraulic gradients were calculated between the semiconfined and unconfined aquifers to evaluate vertical flow between the two aquifers. The vertical gradient was calculated at monitoring wells MW10/MW10S, MW12/MW16, and MW23/MW9 (see Figures 3.1 and 3.2). The vertical gradient was determined by taking the difference in groundwater elevations divided by the difference in mid screen elevations of the wells listed above.

Groundwater at the Site flows from the unconfined aquifer downward to the semiconfined aquifer. The vertical gradients at the site range from 0.006 ft/ft (MW10/MW10S) to 0.018 ft/ft (MW12/MW16). As expected, these values have decreased compared to historical values since groundwater elevations are not influenced by groundwater extraction from the semiconfined aquifer.

## 3.2 Groundwater Sampling

This groundwater sampling event was conducted from April 4 through 20, 2016 and consisted of collecting groundwater samples from twenty-eight (28) monitoring wells (MW1, MW2, MW3, MW5, MW6, MW6S, MW7, MW8, MW9, MW10, MW10S, MW11, MW12, MW13, MW15, MW16, MW17, MW21, MW22, MW23, MW24, MW25, MW26, MW27, MW28, MW29, MW30, and MW31) and ten (10) extraction wells (EW02D/S, EW03D/S, EW04D/S, EW05D, EW07D, EW10D, EW11D/S, EW12D, EW13D/S, EW14D). Wells MW18, MW19, MW20, EW05S, EW06D/S, EW07S, EW10S, EW12S, and EW14S were not sampled due to the presence of LNAPL in the wells. Wells MW4 and MW14 were not sampled due to obstructions or damage to the wells. Groundwater samples were collected using low flow purge and sample protocol. As part of the well stabilization process, the



groundwater was measured in the field for the following parameters: pH, temperature, specific conductance, dissolved oxygen (DO), oxidation-reduction potential (ORP), iron, and sulfide. The parameters DO, ORP, iron and sulfide are used to help evaluate the groundwater geochemical conditions at the well. The groundwater purging and sampling data are summarized in Table 3.2.

The groundwater samples were collected and analyzed for the following compounds: pentachlorophenol (PCP); naphthalene; benzene, toluene, ethylbenzene, and xylene (BTEX), natural attenuation parameters, and select dissolved metals. The natural attenuation parameters included alkalinity, chloride, hardness, nitrate, sulfate, total organic carbon, and methane. The results of the natural attenuation parameters were evaluated to confirm the groundwater reduction-oxidation conditions at the Site and if the groundwater conditions are favorable for biodegradation. The select dissolved metals included arsenic, copper, iron, manganese, and zinc. The metals samples were filtered in the field through a 0.54 micron filter. The groundwater sample analytical data are summarized in Table 3.3.

All groundwater samples were shipped via commercial courier under standard chain of custody procedures to TestAmerica Laboratories (TestAmerica) in North Canton, Ohio for analysis. Copies of laboratory reports are included in Appendix C.

The following sections present a discussion of the groundwater sample analytical data and the Wisconsin Chapter NR140 preventative action limits (PAL) and enforcement standards (ES). Historical data are included in Appendix B.

### 3.2.1 Naphthalene and BTEX Analytical Data

The April 2016 naphthalene and BTEX analytical data are summarized in Table 3.3. Naphthalene was detected in one monitoring well (MW29) and four extraction wells (EW05D, EW10D, EW12D, and EW13D) at concentrations that exceeded the PAL of 10 micrograms per liter ( $\mu\text{g/L}$ ) (Table 3.3). Naphthalene concentrations did not exceed the ES of 100  $\mu\text{g/L}$ .

With the exception of benzene in well EW03S, BTEX was not detected at concentrations that exceeded the ESs or PALs. Benzene was detected in well EW03S at a concentration of 0.70  $\mu\text{g/L}$ , which exceeded the PAL of 0.5  $\mu\text{g/L}$  but not the ES of 5  $\mu\text{g/L}$ .

### 3.2.2 PCP Analytical Data

The April 2016 PCP analytical data are summarized in Table 3.3. PCP was detected in twenty-nine wells (MW1, MW3, MW5, MW6, MW6S, MW9, MW10, MW10S, MW12, MW13, MW27, MW28, MW29, MW30, EW02D/S, EW03D/S, EW04D/S, EW05D, EW07D, EW10D, EW11D/S, EW12D, EW13D/S, and EW14D) at concentrations exceeding the PAL of 0.1  $\mu\text{g/L}$ . Of those twenty-nine wells, the PCP concentrations in twenty wells (MW5, MW6, MW10, MW10S, MW12, MW28, MW29, EW02D, EW02S, EW03D, EW03S, EW04D, EW04S, EW05D, EW10D, EW11D, EW12D, EW13D, EW13S, and EW14D) exceeded the ES of 1.0  $\mu\text{g/L}$ . Figure 3.4 shows the PCP concentrations in the unconfined (upper) aquifer wells. Figure 3.5 shows the PCP concentrations in the semiconfined (lower) aquifer wells.

Based on a review of the April 2016 baseline analytical data, it appears that the elevated PCP concentrations (i.e., greater than 1,000  $\mu\text{g/L}$ ) are limited to the immediate vicinity of the LNAPL area



in the unconfined and semiconfined aquifers. The extent of PCP concentrations exceeding the ES (1 µg/L) appear to be within the Penta Wood property boundaries. However, the extent is not defined to the southeast and east of the LNAPL area. Repair and collection of groundwater samples from wells MW4 and MW14 will help delineate the extent of PCP in the semiconfined aquifer.

### 3.2.3 Dissolved Arsenic Analytical Data

The April 2016 dissolved arsenic analytical data are summarized in Table 3.3. Arsenic was detected in eight wells (MW2, MW25, EW03D, EW05D, EW10D, EW12D, EW13D, and EW13S) at concentrations exceeding the PAL (1 µg/L) and one well (EW13S) at a concentration exceeding the ES (10 µg/L). Figure 3.6 shows the arsenic concentrations in the unconfined (upper) aquifer wells. Figure 3.7 shows the arsenic concentrations in the semiconfined (lower) aquifer wells. Arsenic concentrations exceeding the ES/PAL criteria are primarily limited to the LNAPL area and CAMU.

### 3.2.4 Other Dissolved Metals Analytical Data

The April 2016 dissolved metals analytical data are summarized in Table 3.3. Zinc and copper were not detected above the PAL or ES in any of the twenty-eight monitoring wells and fifteen extraction wells.

Iron was detected in twenty-seven wells at concentrations exceeding the PAL (150 µg/L) and twenty wells at concentrations exceeding the ES (300 µg/L).

Manganese was detected in twenty-six wells at concentrations exceeding the PAL (25 µg/L) and twenty-three wells at concentrations exceeding the ES (50 µg/L). The ES for iron and manganese are considered secondary health based standards that are based on aesthetics (i.e., odor and taste).

### 3.2.5 Natural Attenuation Parameters Analytical Data

The natural attenuation results are provided in Table 3.3. The results generally show elevated levels of nitrate and sulfate and low concentrations of TOC and methane. These results in combination with the field stabilization parameters of DO, ORP, iron, and sulfide (Table 3.2) show that the groundwater beneath the Site is aerobic to slightly anaerobic because DO values are greater than 1 mg/L and ORP values are positive at the majority of wells outside the immediate vicinity of the LNAPL area in both the unconfined and semiconfined aquifers. A more detailed assessment of natural attenuation will be conducted during the microcosm and bio-trap studies in 2016 and 2017 (refer to Sections 5 and 6).

## 4. Residential Well Sampling

On April 5, 2016, water samples were collected from six residential wells located near the Site and the onsite water supply well (DW01) in general accordance with the FSP and QAPP. The six residential wells included:

- 8713 Daniels 70 (RW1)



- 8627 Daniels 70 (RW2)
- 8454 Daniels 70 (RW3)
- 8526 Daniels 70 (RW4)
- 8783 Daniels 70 (RW5)
- 8542 West Doctor Lake Road (RW6)

The onsite water supply well serves the remediation equipment building. The water is used for sanitary facilities in the building and maintaining the remediation equipment but is not ingested by workers. The residential well and onsite water supply well locations are shown on Figure 4.1. The samples were analyzed for PCP, BTEX, and naphthalene. The well purging and sampling data are summarized in Table 3.2. The residential well sample analytical data are summarized in Table 4.1. Historical residential and onsite water supply well PCP data are included in Appendix B.

#### 4.1 Residential Well Sample Analytical Data

PCP, Naphthalene, and BTEX were not detected in any of residential wells (Table 4.1). These results are similar with historical residential well sample analytical data.

Naphthalene was detected at an estimated concentration of 0.14 µg/L in the onsite supply well DW01, which is less than the PAL (10 µg/L) and the ES (100 µg/L). PCP and BTEX were not detected in the onsite supply well sample.

The laboratory report and the data validation memo are presented in Appendix D.

## 5. Microcosm Study

A microcosm study was initiated in accordance with the Remediation System Shutdown Pilot Study Work Plan (GHD; November 2015). The objectives of this laboratory study are to gather the data necessary to:

- Determine whether natural attenuation of PCP is occurring at the Site
- Determine whether natural attenuation is occurring under aerobic conditions, anaerobic conditions, or both
- Determine a Site-specific biodegradation rate for PCP

During the drilling and well installation activities in November and December 2015, soil and groundwater samples were collected at borehole SB1. Borehole SB1 is located downgradient of the LNAPL where the groundwater is expected within the aerobic (i.e., oxygen rich) zone. Borehole/well MW29 is located closer to the LNAPL and elevated PCP concentrations where the groundwater is expected within the anaerobic (i.e., oxygen poor) zone. Both locations are shown on Figure 1.2. Soil samples were collected from boreholes SB1 and MW29 during drilling in December 2015. A groundwater sample was collected from borehole SB1 during drilling in December 2015. A groundwater sample was collected from well MW29 during April 2016. All samples were submitted



to the GHD Innovative Technology Group (ITG) laboratory located in Niagara Falls, New York for the microcosm study.

Upon arrival at the laboratory, the soil and groundwater samples were analyzed for the following parameters to provide a characterization of baseline conditions for the study:

- pH
- PCP
- Diesel range organics
- Ammonia-nitrogen
- Orthophosphate-phosphorus
- Total and dissolved metals (groundwater)
- Total metals (soil)

Microcosms were set up to assess the potential for natural attenuation of PCP under aerobic and aerobic conditions using soil and groundwater samples collected at the Site. After 0, 3, 6, and 12 months, duplicate microcosms for each treatment will be sacrificed and the soil and groundwater samples would be analyzed for PCP. Depending on the results, additional testing may be conducted at extended durations.

Initial groundwater and soil characterization analytical data are summarized in Tables 5.1 and 5.2, respectively. PCP was detected in SB1 and MW29 groundwater at concentrations of 87 µg/L and 1,430 µg/L, respectively. Total petroleum hydrocarbons (TPHs) were detected in SB1 and MW29 groundwater at concentrations of 0.176 milligrams per liter (mg/L) and 1,540 mg/L, respectively. PCP was detected in SB1 and MW29 soil at concentrations of 0.502 mg/kg and 61 mg/kg, respectively. TPHs were not detected in SB1 soil and were detected in MW29 soil at a concentration of 153 mg/kg. These results were sufficient to proceed with the microcosm study.

The first 3-month groundwater and soil microcosm analytical data are summarized in Tables 5.3 and 5.4, respectively. Comparison of the microcosm study startup and 3-month PCP and TPH concentrations shows that levels were reduced indicating that both were degraded under aerobic conditions.

A groundwater sample was collected from well MW29 and submitted to the GHD ITG in April 2016. The sample was combined in the laboratory with the soil sample collected during the drilling for this well and microcosms were started. The first 3-month period testing on the MW29 microcosms will be performed in July 2016. Subsequent microcosm analytical data will be provided in the future quarterly reports.

Following completion of microcosm study, the data will be compiled and evaluated. An assessment will be made of the potential for natural attenuation with estimated degradation rates of PCP at the Site, which can be used to project groundwater cleanup times.



## 6. Bio-Trap Study

A bio-trap study was initiated in accordance with the Remediation System Shutdown Pilot Study Work Plan (GHD; November 2015) in April 2016. Bio-traps baited with <sup>13</sup>C labelled PCP were obtained from Microbial Insights of Knoxville, Tennessee. Bio-traps were installed in wells MW9, MW20, MW29, and EW11S in April 2016. The bio-traps were retrieved from the wells after approximately 30 days on May 23, 2016 and returned to Microbial Insights for laboratory analysis. Following completion of bio-trap analyses, the data will be compiled and evaluated. An assessment will be made of the potential for natural attenuation with estimated degradation rates of PCP at the Site. Updates will be provided in subsequent reports.

## 7. Waste Management and Disposal

Historical hazardous waste disposal is summarized in Appendix B. The following sections discuss management and disposal of the primary waste streams including decommissioning sludge, debris, and soil cuttings; spent carbon; and recovered LNAPL and water.

### 7.1 Decommissioning Sludge, Debris, and Soil Cuttings

Sludge and debris from the remediation system decommissioning and soil cuttings from drilling and well installation were generated at the Site during November 2015 through January 2016. On February 18, 2016 a total of 15,212 pounds of material was removed from the Site and transported to the Clean Harbors Lambton facility located in Corunna, Ontario, Canada under Profile No. CH81542B for treatment and disposal. Waste disposal documentation, including the Uniform Hazardous Waste Manifest (Tracking Number 008772291 FLE). The certificate of disposal, along with other documentation is provided in Appendix E.

### 7.2 Spent Carbon

Spent carbon was generated during treatment of dissolved PCP in the extracted groundwater. Spent carbon was removed during the system decommissioning activities during January 2016. On February 11, 2016 a total of 34,877 pounds of spent carbon was removed from the Site and transported to the Clean Harbors Lambton facility located in Corunna, Ontario, Canada under Profile No. CH81546B for treatment and disposal. Waste disposal documentation, including the Uniform Hazardous Waste Manifests (Tracking Numbers 008772294 FLE and 008772295 FLE). The certificate of disposal, along with other documentation is provided in Appendix E.

### 7.3 Recovered LNAPL and Water

No LNAPL or water was disposed of during April through June 2016. Disposal documentation was provided in the previous Quarterly Report – January through March 2016 (GHD; May 2016).





## 8. Continuing Obligations and Inspections

The WDNR has implemented Institutional Controls (ICs) at the Site in the form of Continuing Obligations (COs). COs are legal requirements designed to protect public health and the environment in regard to contamination that remains on a property, and COs still apply after a property is sold. The Long-Term Response Action Operation and Maintenance Plan (O&M Plan) – Addendum No. 1 (GHD; November 9, 2015) effectively serves as an Institutional Control Implementation and Assurance Plan (ICIAP). This section documents the COs in addition to inspections required by the O&M Plan (GHD; July 22, 2015)

### 8.1 Continuing Obligations

On July 6, 2015 the WDNR provided a letter approving the Remedial Actions with Continuing Obligations (WDNR BRRTS Activity #02-07-000532, FID #: 807050310). That letter approved the remedies which have been implemented at the Site and specified the condition with which any current or future owner of the property must comply to ensure that the Site does not pose a threat. These conditions or COs meet the intent of the ICs required by the Record of Decision for the Site.

CO maintenance consists of periodic monitoring and reporting to confirm that Site security is in place and providing protection as intended and that use of the land is restricted to maintain the integrity and functional effectiveness of the Site remedy.

Maintenance activities consist of periodic review of the property and COs by WDNR, notifications to new land owners or lessees, and continuing education for land owners and property users through annual updates and information. There was no transfer of ownership during the current monitoring period.

To facilitate monitoring of the COs, roles and responsibilities, schedules, corrective actions, and reporting requirements were performed as follows:

1. Periodic monitoring was conducted whenever WDNR or its contractors or other representatives were present at the Site.
2. Prohibition of use of the Site real estate is evaluated and updated on an annual basis (minimum frequency). This evaluation determined:
  - a. The selected remedy (i.e. remediation system shutdown pilot study and associated monitoring) remains in place and remains effective
  - b. Site security remains effective and real estate use meets the stated objectives and performance goals and provides protection required by the response
3. Evidence was not observed of the following improper uses:
  - a. Removal of the existing barrier or cover
  - b. Replacement with another barrier or cover
  - c. Excavating or grading of the land surface
  - d. Filling on covered or paved areas



- e. Plowing for agricultural cultivation
- f. Construction or placement of a building or other structure
- g. Changing the use or occupancy of the property to a residential exposure setting, which may include certain uses, such as single or multiple family residences, a school, day care, senior center, hospital, or similar residential exposure setting

An inspection of continuing obligations items was completed on April 7, 2016 and a copy of the continuing obligations inspection form is included in Appendix F.

## 8.2 Inspections

Additional inspections required by the O&M Plan (GHD; July 22, 2015) were conducted during this monitoring period. The results of the inspections are as follows:

- The CAMU area fence is in satisfactory condition and does not require repairs; the CAMU fence gates will be closed and locked following the baseline groundwater sampling event in April 2016
- The CAMU area surface soils/vegetation were frozen/dormant during this monitoring period and do not require repairs; erosion, subsidence, and ponding water were not observed on the CAMU

A site well inspection was completed on April 4, 2016 and a copy of the well inspection form is included in Appendix F.

## 9. Potential Remediation System Restart

Should the system need to be restarted during or after the remediation system shutdown pilot study, many items will need to be completed to properly resume operations. A list of items that would need to be completed includes:

- Connect all piping, replace tank manhole covers and pumps that were disconnected during decommissioning that will be needed for future operations
- Repair drill holes in building piping for piping to be used as part of future operations (3 holes were drilled in piping to drain fluids in the DAF room during decommissioning)
- Install existing groundwater extraction well pumps and new riser piping in selected wells
- Install existing LNAPL skimming pumps in selected wells
- Replace heat trace/insulation on recovered LNAPL pipe between oil/water separator and storage tank
- Replace controller for LNAPL tank heater
- Repair/reline carbon vessels
- Install new granular activated carbon
- Procure treatment system supplies (i.e. filter bags, etc.)



Additional items to be potentially considered should a restart of the system be required:

- Repair/install new building heating and ventilation system
- Clean forcemains
- Redevelop extraction wells
- Install/replace underground storage tank (UST) high level alarm and program the programmable logic controller (PLC) to shutdown system upon high-high level
- Reprogram the PLC if only filtration/GAC treatment are necessary and exclude all pre-treatment operations including the dissolved air flotation and rotary drum vacuum filter subsystems
- Repair/replace magnetic flowmeters
- Resize carbon vessels for 30-50 gallons per minute (gpm) groundwater pumping rate
- Redesign/replace tanks for backwash only in the GAC room
- Install remote monitoring capabilities
- Procure water pre-treatment chemicals (ferric sulfate and sodium hydroxide), if needed
- Consider placing a tank for LNAPL storage within the RDVF room instead of replacing controller for existing LNAPL tank heater

## 10. Recommendations

The following actions are recommended for the Site during the next reporting period:

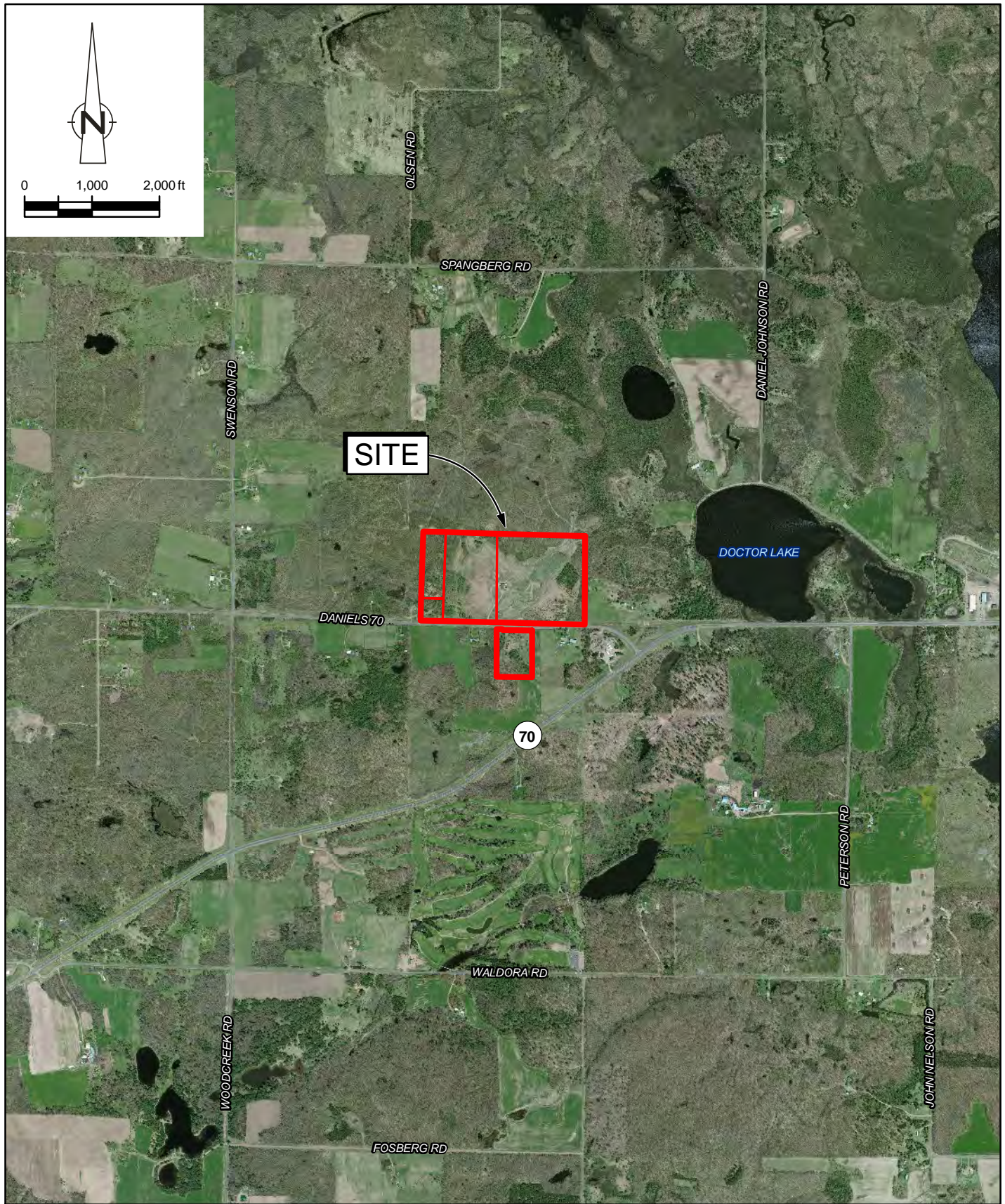
- Continue microcosm study laboratory analyses and evaluation
- Analyze bio-trap data from wells MW9, MW20, MW29, and EW11
- Conduct quarterly groundwater monitoring and sampling during July 2016
- Develop a shallow soil and sediment sampling plan
- Repair wells MW4 and MW14 and collect groundwater samples to obtain baseline analytical data and assess whether additional wells are necessary to delineate the extent of PCP in the semiconfined (lower) aquifer
- Collect groundwater samples from wells EW07S and EW06D during July 2016 if LNAPL is not present to obtain baseline analytical data
- Include wells MW23, MW25, and EW13S in future quarterly groundwater sampling events as notified to USEPA in a GHD letter dated June 30, 2016
- Prepare and submit required monthly and quarterly reports



## 11. Certification

The current actions at the Site remain protective of human health and the environment based on an evaluation of the current data. Implementation of the pilot study contingency plan outlined in the Remediation System Pilot Study Work Plan (GHD; November 13, 2015) is not necessary at this time.





Source: DigitalGlobe 2011



PENTA WOOD PRODUCTS SUPERFUND SITE  
 SIREN, WISCONSIN  
 QUARTERLY REPORT

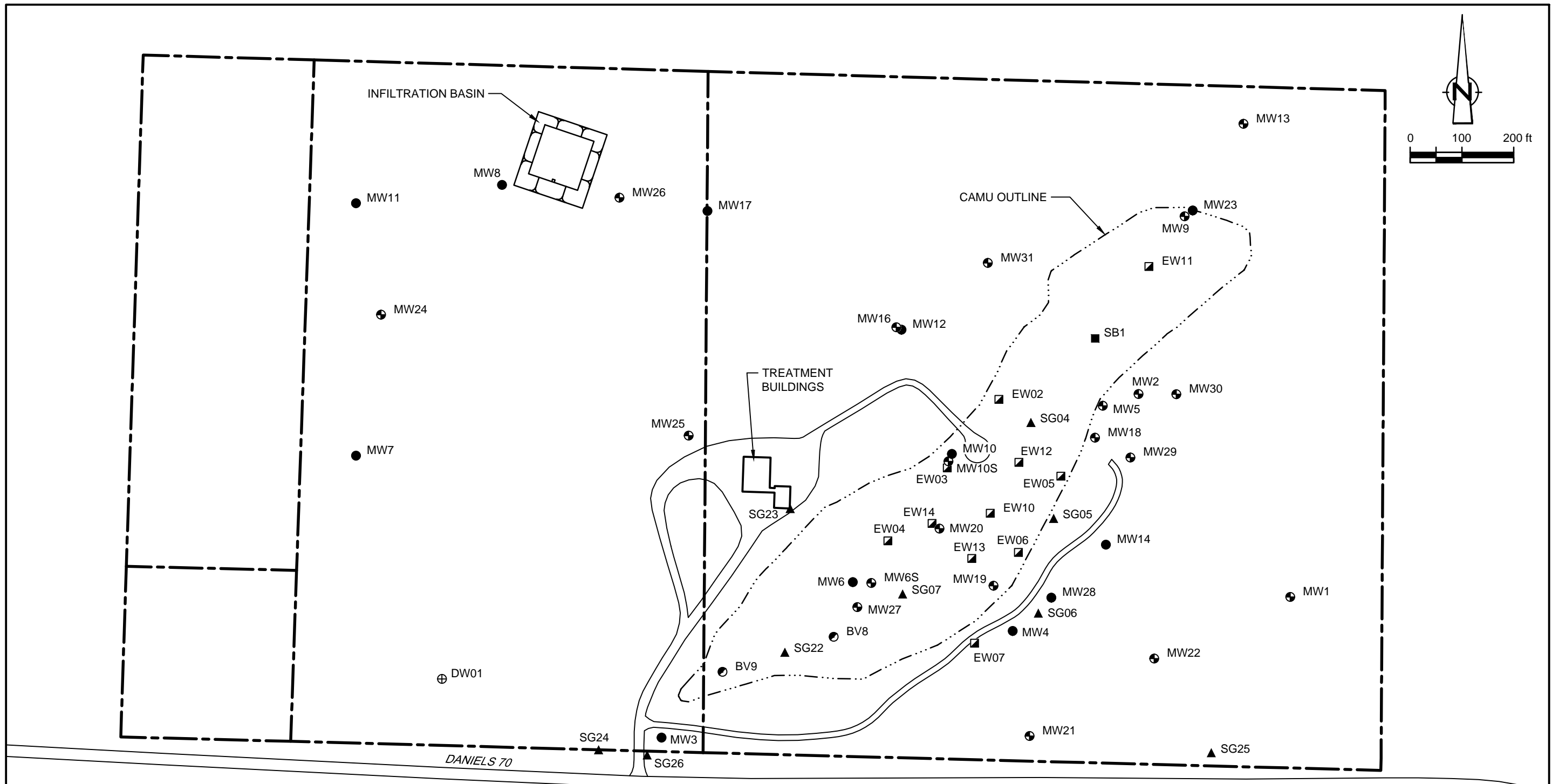
SITE LOCATION

086165-03-13

Jul 18, 2016

FIGURE 1.1





- LEGEND**
- PARCEL BOUNDARY
  - ▣ EW11 EXTRACTION WELL NEST
  - BV09 BIOVENTING WELL
  - ▲ SG05 SOIL GAS WELL NEST
  - ⊕ UNCONFINED MONITORING WELL LOCATION
  - SEMICONFINED MONITORING WELL LOCATION
  - ⊕ WATER SUPPLY WELL LOCATION
  - SOIL BORING LOCATION

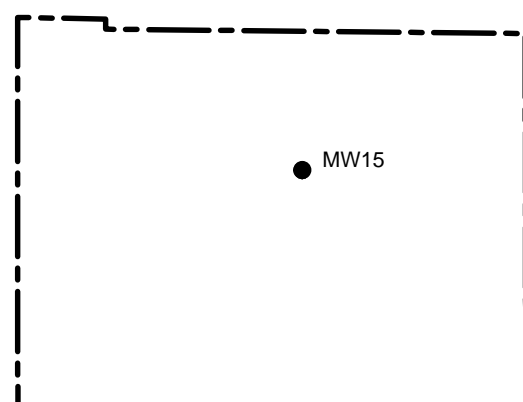


figure 1.2  
 SITE PLAN  
 PENTA WOOD PRODUCTS SUPERFUND SITE  
 Siren, Wisconsin



SOURCE: KEMPER AND ASSOCIATES, INC. SURVEY DATED MAY 2016 (WISCONSIN BURNETT COUNTY COORDINATE SYSTEM NAD83, 1996).

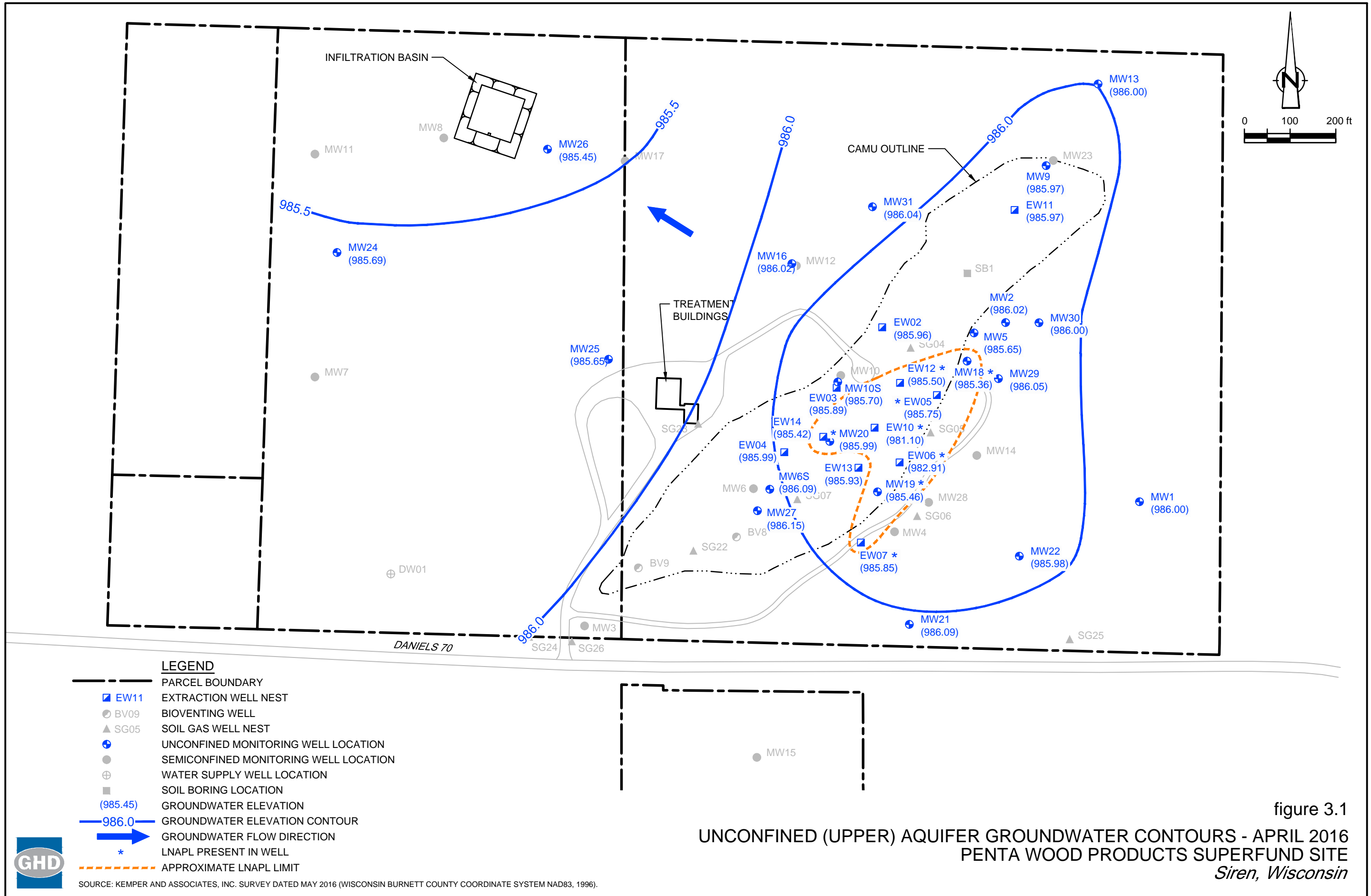
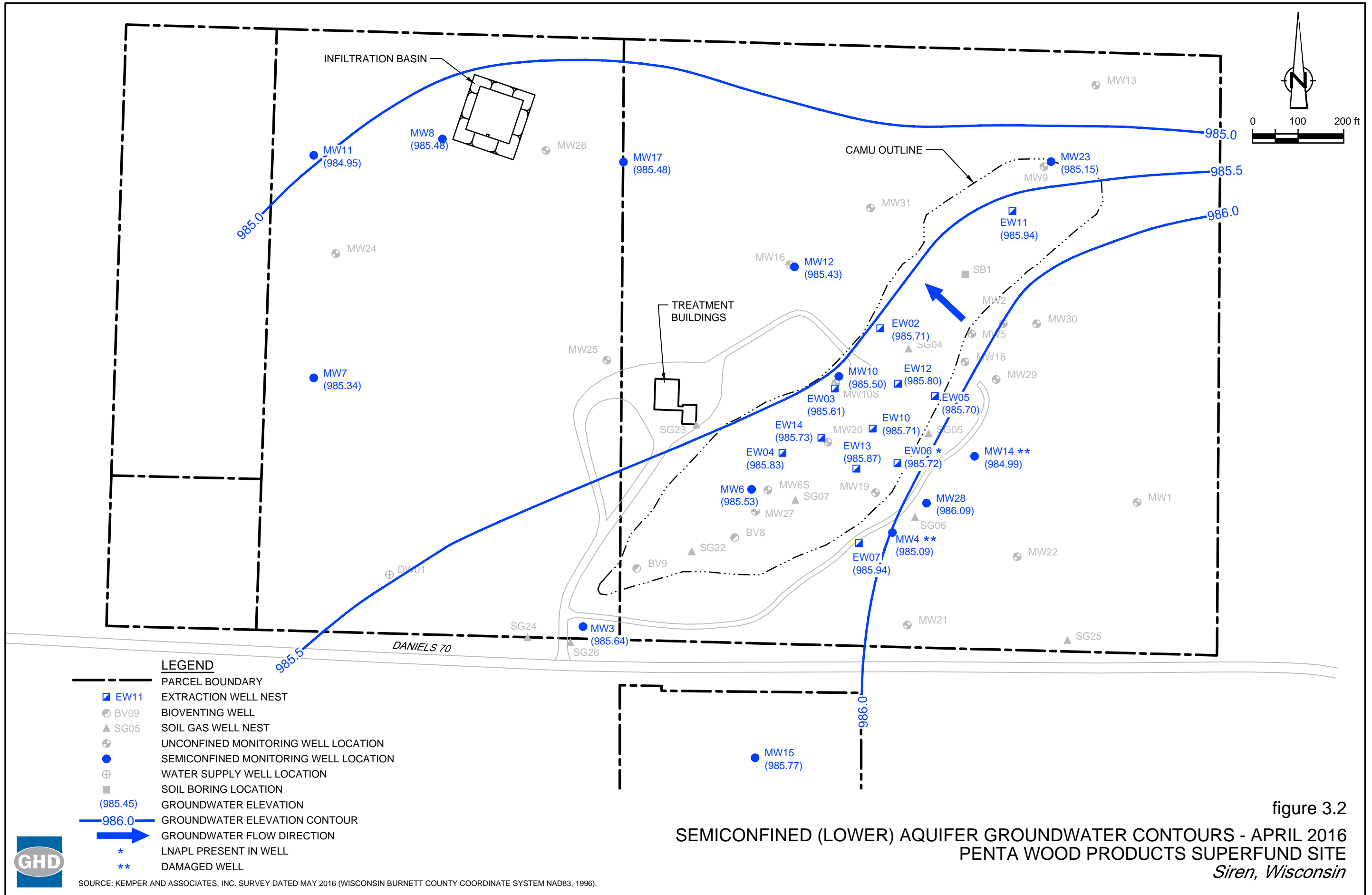
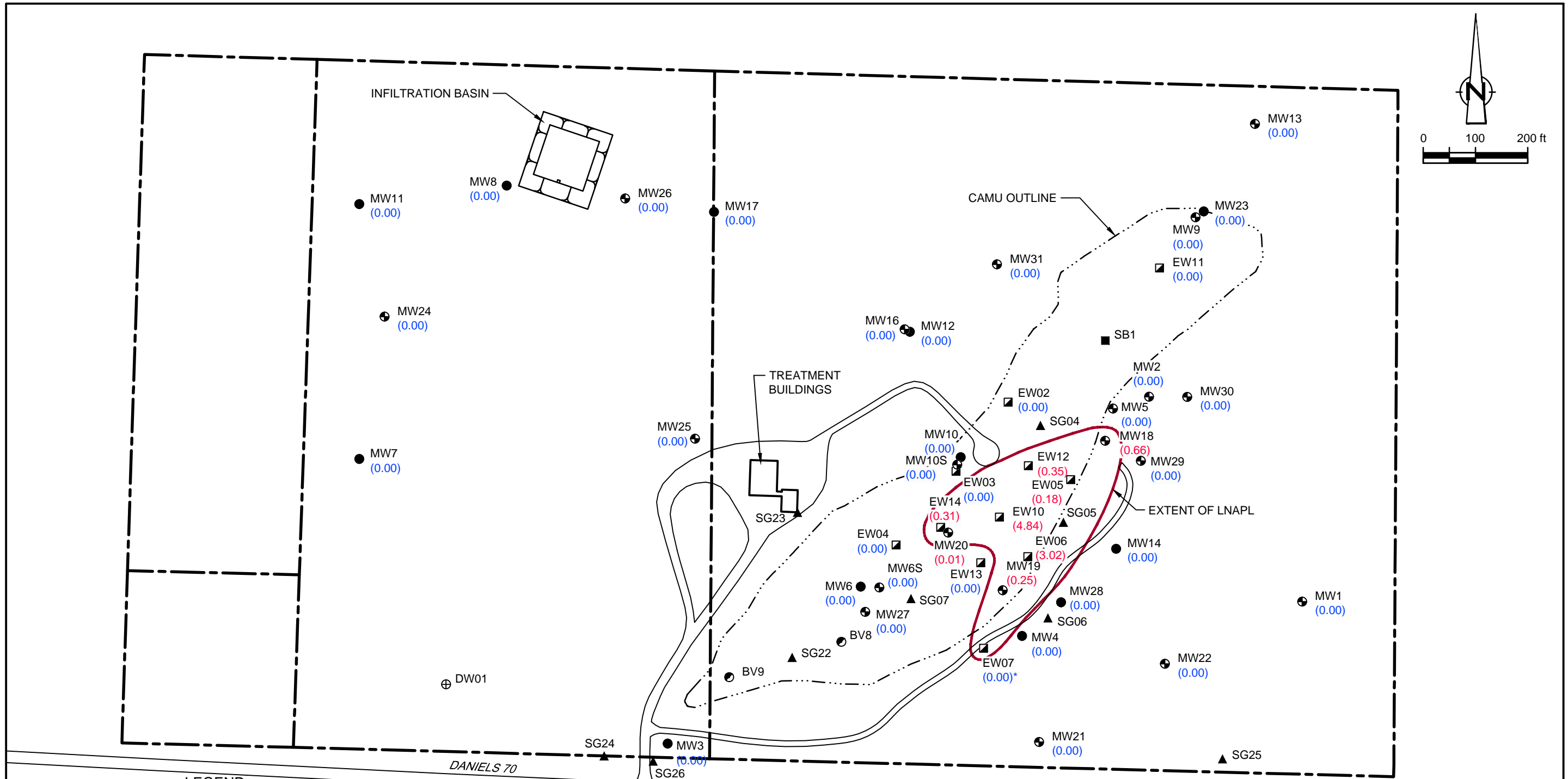


figure 3.1  
 UNCONFINED (UPPER) AQUIFER GROUNDWATER CONTOURS - APRIL 2016  
 PENTA WOOD PRODUCTS SUPERFUND SITE  
 Siren, Wisconsin





SOURCE: KEMPER AND ASSOCIATES, INC. SURVEY DATED MAY 2016 (WISCONSIN BURNETT COUNTY COORDINATE SYSTEM NAD83, 1996).



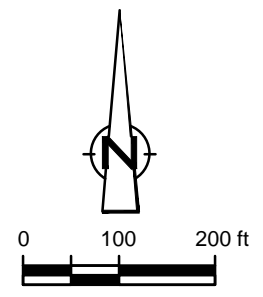
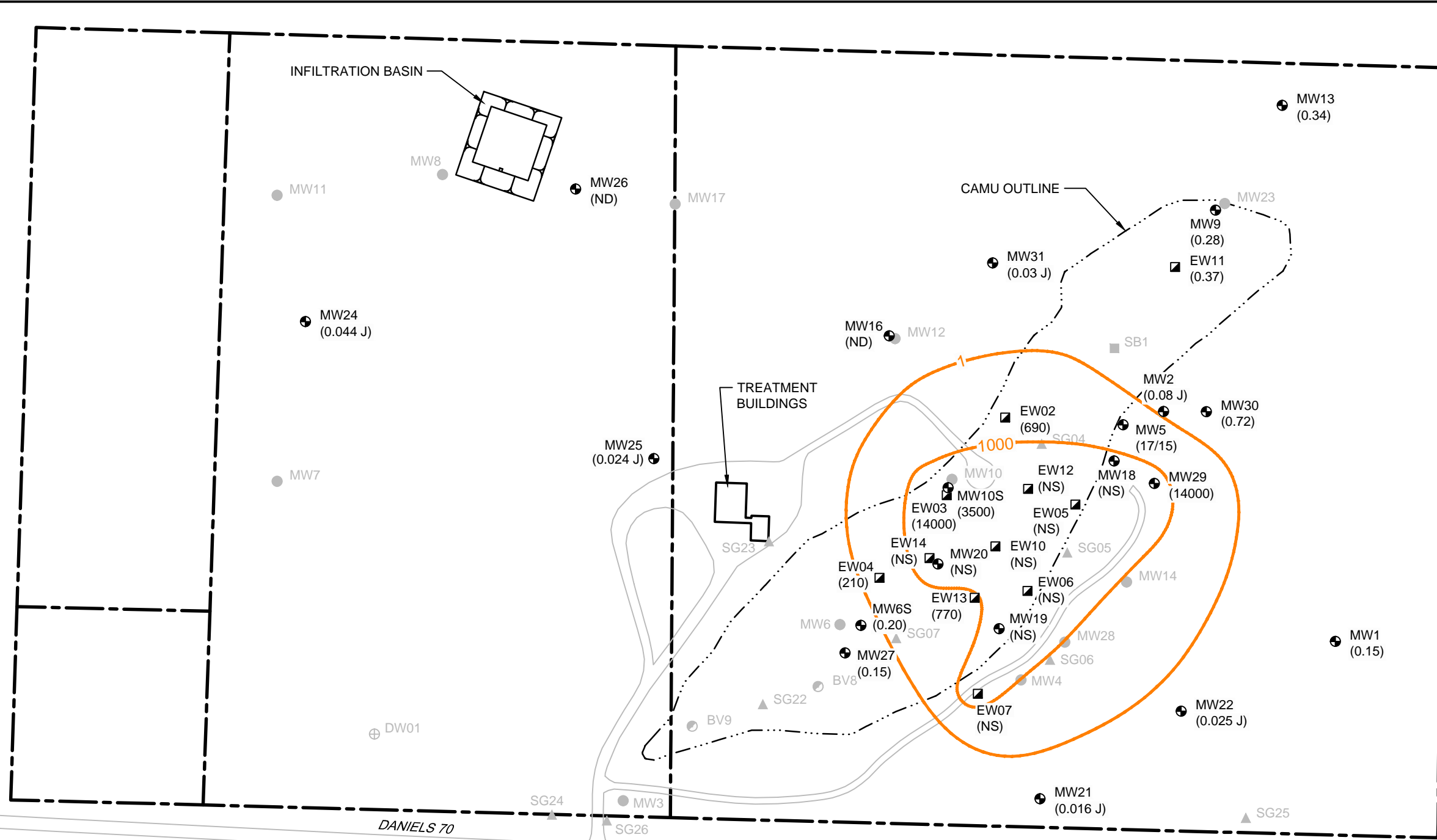
**LEGEND**

- PARCEL BOUNDARY
- ▣ EW11 EXTRACTION WELL NEST
- BV09 BIOVENTING WELL
- ▲ SG05 SOIL GAS WELL NEST
- ⊕ UNCONFINED MONITORING WELL LOCATION
- SEMICONFINED MONITORING WELL LOCATION
- ⊕ WATER SUPPLY WELL LOCATION
- SOIL BORING LOCATION
- (0.00) LNAPL NOT PRESENT
- (0.24) LNAPL THICKNESS (FEET)
- EXTENT OF LNAPL
- \* LNAPL PRESENT IN WELL AT THICKNESS LESS THAN 0.01 FT

SOURCE: KEMPER AND ASSOCIATES, INC. SURVEY DATED MAY 2016 (WISCONSIN BURNETT COUNTY COORDINATE SYSTEM NAD83, 1996).

figure 3.3  
 LNAPL THICKNESS - APRIL 2016  
 PENTA WOOD PRODUCTS SUPERFUND SITE  
 Siren, Wisconsin





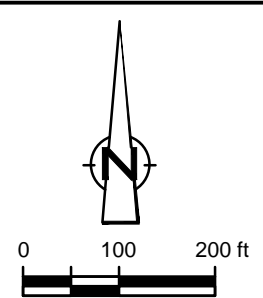
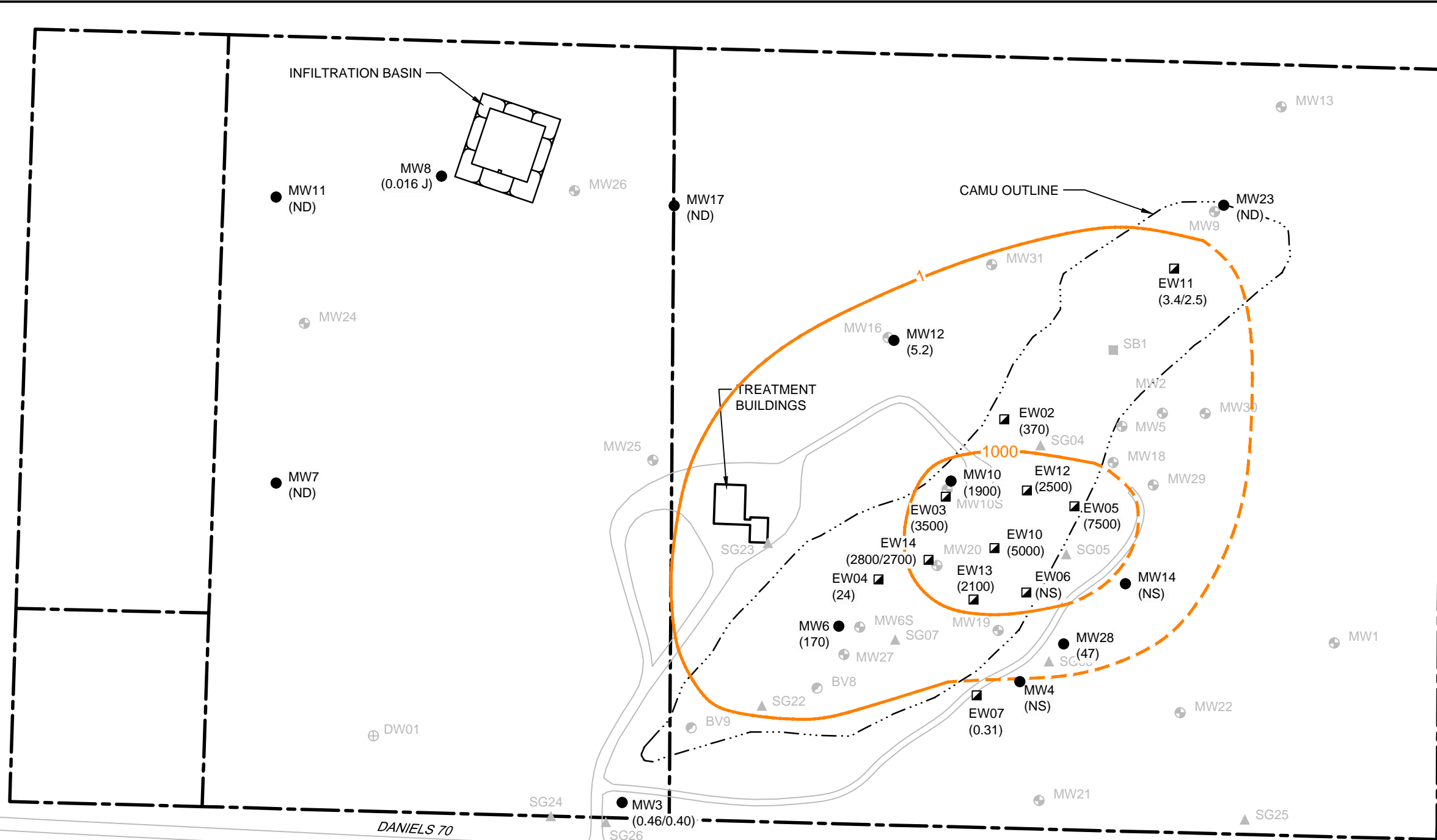
**LEGEND**

---	PARCEL BOUNDARY
◻ EW11	EXTRACTION WELL NEST
● BV09	BIOVENTING WELL
▲ SG05	SOIL GAS WELL NEST
●	UNCONFINED MONITORING WELL LOCATION
○	SEMICONFINED MONITORING WELL LOCATION
⊕	WATER SUPPLY WELL LOCATION
■	SOIL BORING LOCATION
(17/15)	UNCONFINED MONITORING WELL CONCENTRATION
1	UNCONFINED MONITORING WELL CONCENTRATION
ND	NOT DETECTED
NS	NOT SAMPLED
J	ESTIMATED VALUE

UNCONFINED (UPPER) AQUIFER PENTACHLOROPHENOL CONCENTRATIONS - APRIL 2016  
 PENTA WOOD PRODUCTS SUPERFUND SITE  
 Siren, Wisconsin



SOURCE: KEMPER AND ASSOCIATES, INC. SURVEY DATED MAY 2016 (WISCONSIN BURNETT COUNTY COORDINATE SYSTEM NAD83, 1996).



**LEGEND**

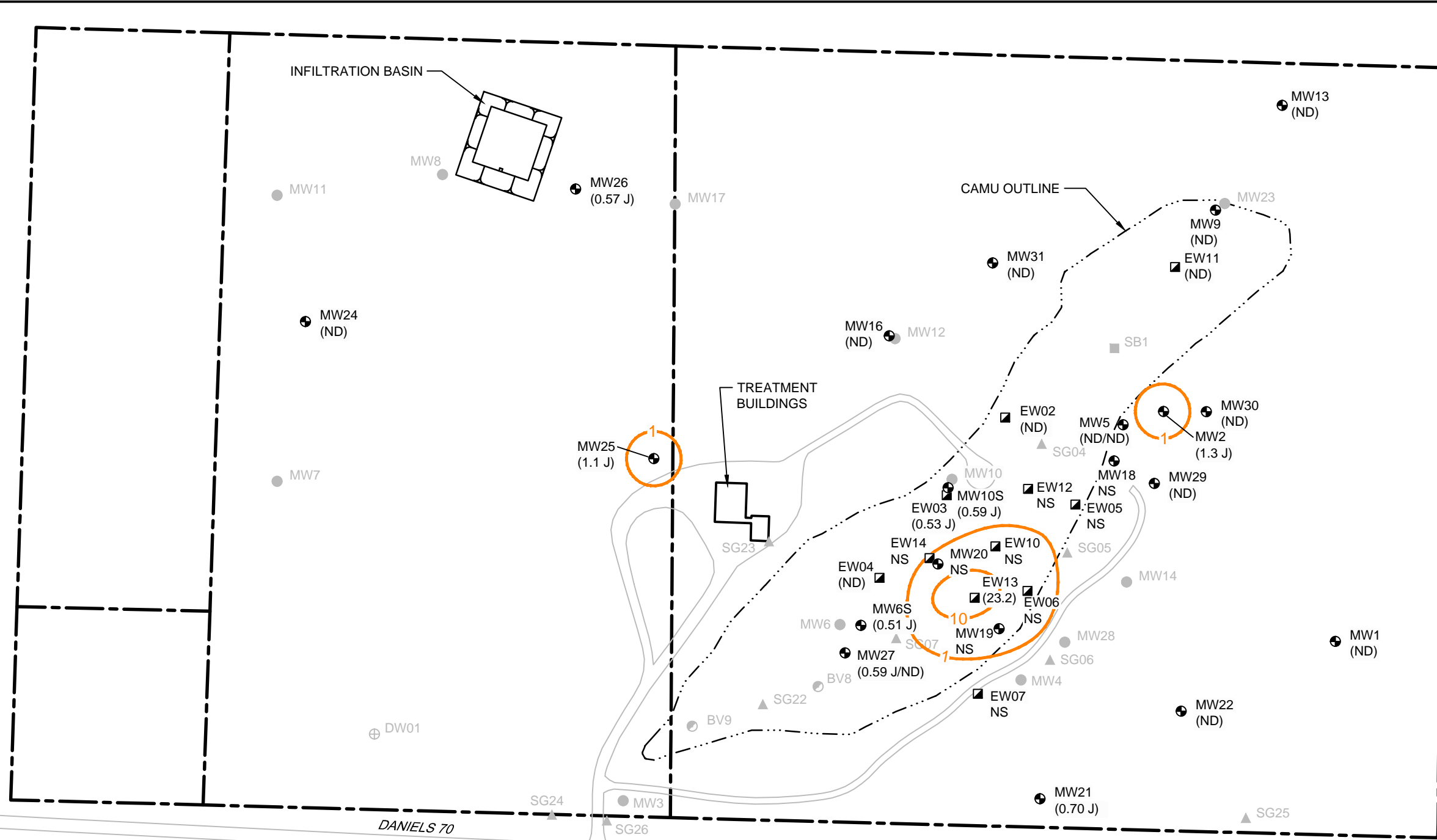
---	PARCEL BOUNDARY
█ EW11	EXTRACTION WELL NEST
● BV09	BIOVENTING WELL
▲ SG05	SOIL GAS WELL NEST
⊕	UNCONFINED MONITORING WELL LOCATION
●	SEMICONFINED MONITORING WELL LOCATION
⊕	WATER SUPPLY WELL LOCATION
■	SOIL BORING LOCATION
(2800/2700)	UNCONFINED MONITORING WELL CONCENTRATION
1	SEMICONFINED MONITORING WELL CONCENTRATION
ND	NOT DETECTED
NS	NOT SAMPLED
J	ESTIMATED VALUE

SEMICONFINED (LOWER) AQUIFER PENTACHLOROPHENOL CONCENTRATIONS - APRIL 2016  
 PENTA WOOD PRODUCTS SUPERFUND SITE  
 Siren, Wisconsin

figure 3.5



SOURCE: KEMPER AND ASSOCIATES, INC. SURVEY DATED MAY 2016 (WISCONSIN BURNETT COUNTY COORDINATE SYSTEM NAD83, 1996).



**LEGEND**

---	PARCEL BOUNDARY
█ EW11	EXTRACTION WELL NEST
● BV09	BIOVENTING WELL
▲ SG05	SOIL GAS WELL NEST
⊕	UNCONFINED MONITORING WELL LOCATION
●	SEMICONFINED MONITORING WELL LOCATION
⊕	WATER SUPPLY WELL LOCATION
■	SOIL BORING LOCATION
(17/15)	ASBESTOS MONITORING WELL LOCATION
1	ASBESTOS MONITORING WELL LOCATION
ND	NOT DETECTED
NS	NOT SAMPLED
J	ESTIMATED VALUE

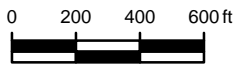
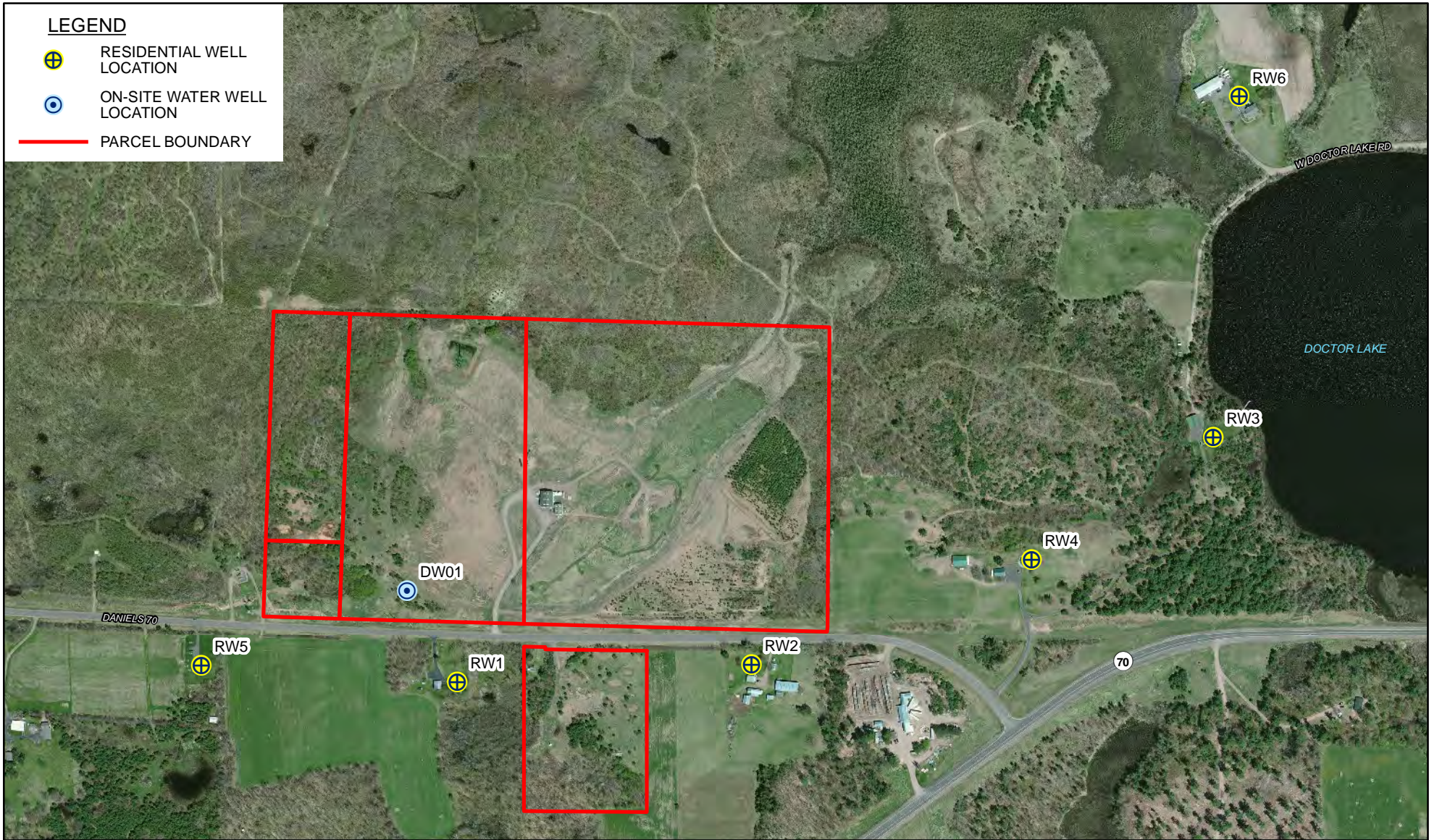
SOURCE: KEMPER AND ASSOCIATES, INC. SURVEY DATED MAY 2016 (WISCONSIN BURNETT COUNTY COORDINATE SYSTEM NAD83, 1996).

figure 3.6  
**UNCONFINED (UPPER) AQUIFER ARSENIC CONCENTRATIONS - APRIL 2016**  
**PENTA WOOD PRODUCTS SUPERFUND SITE**  
*Siren, Wisconsin*









PENTA WOOD PRODUCTS SUPERFUND SITE  
SIREN, WISCONSIN  
QUARTERLY REPORT

RESIDENTIAL WELL LOCATIONS

086165-03-13  
Jul 18, 2016

FIGURE 4.1



Table 3.1

**Groundwater and LNAPL Level Monitoring Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet btoc)	Depth to LNAPL (feet btoc)	Groundwater Elevation (feet AMSL)	LNAPL Elevation (feet AMSL)	LNAPL Thickness (feet)
<b>Semiconfined Aquifer (Lower)</b>							
MW3	4/4/2016	1129.44	143.80	ND	985.64	NA	0.00
MW4	4/4/2016	1087.74	102.65	ND	985.09	NA	0.00
MW6	4/4/2016	1109.11	123.58	ND	985.53	NA	0.00
MW7	4/4/2016	1096.25	110.91	ND	985.34	NA	0.00
MW8	4/4/2016	1091.13	105.65	ND	985.48	NA	0.00
MW10	4/4/2016	1089.01	103.51	ND	985.50	NA	0.00
MW11	4/4/2016	1085.48	100.53	ND	984.95	NA	0.00
MW12	4/4/2016	1080.91	95.48	ND	985.43	NA	0.00
MW14	4/4/2016	1078.37	93.38	ND	984.99	NA	0.00
MW15	4/4/2016	1127.09	141.32	ND	985.77	NA	0.00
MW17	4/4/2016	1084.43	98.95	ND	985.48	NA	0.00
MW23	4/4/2016	1017.45	32.30	ND	985.15	NA	0.00
MW28	4/4/2016	1083.52	97.43	ND	986.09	NA	0.00
EW02D	4/4/2016	1083.00	97.29	ND	985.71	NA	0.00
EW03D	4/4/2016	1089.48	103.87	ND	985.61	NA	0.00
EW04D	4/4/2016	1101.09	115.26	ND	985.83	NA	0.00
EW05D	4/4/2016	1076.99	91.29	ND	985.70	NA	0.00
EW06D	4/4/2016	1083.39	97.67	97.60	985.72	985.79	0.07
EW07D	4/4/2016	1087.52	101.58	ND	985.94	NA	0.00
EW10D	4/4/2016	1088.55	102.84	ND	985.71	NA	0.00
EW11D	4/4/2016	1048.19	62.25	ND	985.94	NA	0.00
EW12D	4/4/2016	1086.41	100.61	ND	985.80	NA	0.00
EW13D	4/4/2016	1092.88	107.01	ND	985.87	NA	0.00
EW14D	4/4/2016	1098.28	112.55	ND	985.73	NA	0.00

Table 3.1

**Groundwater and LNAPL Level Monitoring Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Top of Casing Elevation (feet)	Depth to Groundwater (feet btoc)	Depth to LNAPL (feet btoc)	Groundwater Elevation (feet AMSL)	LNAPL Elevation (feet AMSL)	LNAPL Thickness (feet)
<b>Unconfined Aquifer (Upper)</b>							
EW02S	4/4/2016	1082.25	96.29	ND	985.96	NA	0.00
EW03S	4/4/2016	1088.66	102.77	ND	985.89	NA	0.00
EW04S	4/4/2016	1101.01	115.02	ND	985.99	NA	0.00
EW05S	4/4/2016	1077.04	91.29	91.11	985.75	985.93	0.18
EW06S	4/4/2016	1083.61	100.70	97.68	982.91	985.93	3.02
EW07S <sup>1</sup>	4/4/2016	1087.49	101.64	ND	985.85	NA	0.00
EW10S	4/4/2016	1088.72	107.62	102.78	981.10	985.94	4.84
EW11S	4/4/2016	1047.23	61.26	ND	985.97	NA	0.00
EW12S	4/4/2016	1086.31	100.81	100.46	985.50	985.85	0.35
EW13S	4/4/2016	1092.88	106.95	ND	985.93	NA	0.00
EW14S	4/4/2016	1098.32	112.90	112.59	985.42	985.73	0.31
MW1	4/4/2016	1072.27	86.27	ND	986.00	NA	0.00
MW2	4/4/2016	1065.03	79.01	ND	986.02	NA	0.00
MW5	4/4/2016	1071.39	85.74	ND	985.65	NA	0.00
MW6S	4/4/2016	1108.35	122.26	ND	986.09	NA	0.00
MW9	4/4/2016	1019.58	33.61	ND	985.97	NA	0.00
MW10S	4/4/2016	1090.12	104.42	ND	985.70	NA	0.00
MW13	4/4/2016	1005.81	19.81	ND	986.00	NA	0.00
MW16	4/4/2016	1081.95	95.93	ND	986.02	NA	0.00
MW18	4/4/2016	1071.96	86.60	85.94	985.36	986.02	0.66
MW19	4/4/2016	1087.96	102.50	102.25	985.46	985.71	0.25
MW20	4/4/2016	1098.16	112.17	112.16	985.99	986.00	0.01
MW21	4/4/2016	1095.82	109.73	ND	986.09	NA	0.00
MW22	4/4/2016	1084.65	98.67	ND	985.98	NA	0.00
MW24	4/4/2016	1084.04	98.35	ND	985.69	NA	0.00
MW25	4/4/2016	1095.25	109.60	ND	985.65	NA	0.00
MW26	4/4/2016	1086.87	101.42	ND	985.45	NA	0.00
MW27	4/4/2016	1110.96	124.81	ND	986.15	NA	0.00
MW29	4/4/2016	1070.24	84.19	ND	986.05	NA	0.00
MW30	4/4/2016	1048.98	62.98	ND	986.00	NA	0.00
MW31	4/4/2016	1076.34	90.30	ND	986.04	NA	0.00

## Notes:

- 1 - LNAPL was present in well EW07S at a thickness less than 0.01 foot on 4/4/2016  
btoc - Feet below top of casing  
feet AMSL - Feet above mean sea level  
NA - Not applicable  
ND - LNAPL was not detected in a measurable quantity

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW1	4/12/2016	W-160412-PS-MW-01	10:35	0.2	6.63	10.57	197	170	23.71	42.7	-	-	-
			10:40	2.5	7.02	10.81	195	138	12.89	21.3	-	-	-
			10:45	5.0	7.15	11.49	194	138	11.21	7.4	-	-	-
			10:50	7.5	7.18	11.44	194	135	10.71	3.9	-	-	-
			10:55	10.0	7.22	11.41	193	136	10.23	0.5	ND	ND	ND
MW2	4/14/2016	W-160414-PS-MW-02	9:30	3.5	5.82	11.58	104	253	5.18	197	ND	1.3	ND
MW3	4/5/2016	W-160405-PS-MW-03 W-160405-PS-MW-33 (duplicate)	11:00	1.0	7.71	10.07	570	-78	0.00	172	-	-	-
			11:05	2.0	7.61	11.10	568	-54	0.80	133	-	-	-
			11:10	3.0	7.48	11.97	579	-27	2.69	83.7	-	-	-
			11:15	4.0	7.41	12.25	585	-22	2.67	70.1	-	-	-
			11:20	5.0	7.40	12.22	585	-22	2.60	69.3	-	-	-
			11:25	6.0	7.40	12.21	585	-22	2.61	68.5	ND	9.0	ND
MW5	4/7/2016	W-160407-PS-MW-05 W-160407-PS-MW-35 (duplicate)	11:10	1.0	7.01	12.40	292	-99	7.16	22.7	-	-	-
			11:15	2.0	7.01	12.41	293	-99	7.08	22.7	-	-	-
			11:20	3.0	7.00	12.38	292	-99	7.01	22.3	0.2	1.8	ND
MW6	4/19/2016	W-160419-PS-MW-06	16:05	1.5	7.80	12.75	704	-178	0.00	20.1	-	-	-
			16:10	3.0	7.76	12.73	730	-166	0.00	15.2	-	-	-
			16:15	4.5	7.62	12.69	762	-128	0.00	0.0	-	-	-
			16:20	6.0	7.59	12.70	760	-122	0.00	0.0	NM	NM	NM
MW6S	4/19/2016	W-160419-PS-MW-6S	11:50	3.5	6.67	9.25	97	200	5.71	598	ND	0.1	ND
MW7	4/6/2016	W-160406-PS-MW-07	10:30	1.0	7.47	9.46	450	-5	5.09	0.0	-	-	-
			10:35	2.5	7.36	10.53	491	-67	5.77	NM	-	-	-
			11:30	NM	NM	NM	NM	NM	NM	NM	ND	2.0	ND

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW8	4/11/2016	W-160411-PS-MW-08	13:10	1.4	8.03	9.78	5440	-250	20.41	35.5	-	-	-
			13:15	3.2	7.96	11.77	635	-189	13.05	33.7	-	-	-
			13:20	5.0	7.86	12.16	687	-132	7.32	24.8	-	-	-
			13:25	6.8	7.73	12.28	740	-85	1.67	15.3	-	-	-
			13:30	8.6	7.67	12.12	776	-58	0.00	10.3	-	-	-
			13:35	10.4	7.64	12.05	782	-42	0.00	7.1	-	-	-
			13:40	12.2	7.63	11.99	787	-32	0.21	5.5	-	-	-
			13:45	14.0	7.64	11.98	779	-37	0.36	6.1	ND	0.6	ND
MW9	4/13/2016	W-160413-PS-MW-09	11:00	10.0	5.66	11.60	156	198	7.96	13.6	ND	0.6	ND
MW10	4/7/2016	W-160407-PS-MW-10	10:30	1.5	7.52	10.83	454	-181	0.00	25.9	-	-	-
			10:35	3.0	7.50	11.72	454	-180	0.00	25.0	-	-	-
			10:40	4.5	7.49	12.37	451	-179	0.00	23.9	-	-	-
			10:45	6.0	7.49	12.46	450	-179	0.00	22.0	-	-	-
			10:50	7.5	7.48	12.63	449	-181	0.00	21.9	ND	1.8	ND
MW10S	4/18/2016	W-160418-PS-MW-10S	16:15	5.0	6.83	12.35	239	-20	1.20	67.4	-	-	-
			16:20	10.0	6.64	12.28	232	6	0.00	20.2	-	-	-
			16:25	15.0	6.62	12.28	232	8	0.00	16.6	-	-	-
			16:30	20.0	6.62	12.28	232	9	0.00	15.2	ND	0.1	ND
MW11	4/11/2016	W-160411-PS-MW-11	11:45	0.5	7.10	9.94	690	178	0.60	35.0	-	-	-
			11:50	1.5	7.35	10.69	8730	101	2.19	8.0	-	-	-
			11:55	2.5	7.44	12.33	8850	77	2.31	11.2	-	-	-
			12:00	3.5	7.48	12.70	8850	74	2.12	9.9	-	-	-
			12:05	4.5	7.49	12.82	8830	72	1.89	7.8	-	-	-
			12:10	5.5	7.49	12.98	8840	71	1.75	6.3	-	-	-
			12:15	6.5	7.49	13.24	8820	74	1.72	5.6	ND	0.1	ND
MW12	4/6/2016	W-160406-PS-MW-12	9:35	1.0	7.49	10.85	609	52	5.32	15.5	-	-	-
			9:40	2.0	7.42	12.77	628	39	4.36	26.0	-	-	-
			9:45	3.0	7.31	14.21	669	31	4.30	39.8	-	-	-
			9:50	4.0	7.30	14.26	671	31	4.26	39.5	-	-	-
			9:55	5.0	7.24	14.47	691	30	4.31	39.3	ND	0.2	ND
MW13	4/13/2016	W-160413-PS-MW-13	9:45	3.5	5.83	9.73	172	217	3.89	102.0	ND	8.0	ND

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW15	4/5/2016	W-160405-PS-MW-15 (MS/MSD)	9:20	1.5	7.42	12.47	497	82	8.45	16.6	-	-	-
			9:25	3.0	7.53	13.48	494	76	7.55	14.8	-	-	-
			9:30	4.5	7.57	12.71	493	77	7.08	14.4	-	-	-
			9:35	6.0	7.57	12.74	491	69	7.29	13.7	-	-	-
			9:40	7.5	7.57	12.75	491	69	7.26	13.8	ND	ND	ND
MW16	4/6/2016	W-160406-PS-MW-16	9:35	4.5	7.86	9.75	81	139	9.29	79	ND	0.4	ND
MW17	4/5/2016	W-160405-PS-MW-17	13:55	0.8	7.65	11.25	550	58	3.10	13.5	-	-	-
			14:00	1.6	7.64	12.29	569	51	3.11	18.3	-	-	-
			14:05	2.4	7.64	12.77	570	45	3.24	20.4	-	-	-
			14:10	3.2	7.64	12.84	570	44	3.26	20.3	-	-	-
			14:15	4.0	7.64	12.85	570	44	3.26	20.4	ND	ND	ND
MW21	4/6/2016	W-160406-PS-MW-21	12:30	1.0	7.21	14.60	401	52	7.44	36.0	-	-	-
			12:35	2.0	7.15	17.37	407	51	7.16	45.1	-	-	-
			12:40	3.0	7.14	17.68	407	52	7.14	46.4	-	-	-
			12:45	4.0	7.04	19.30	407	53	7.59	46.9	-	-	-
			12:50	5.0	7.04	19.49	407	53	7.55	47.4	-	-	-
			12:55	6.0	7.04	19.51	407	53	7.53	47.3	ND	0.2	ND
MW22	4/6/2016	W-160406-PS-MW-22	14:25	3.0	7.49	8.44	117	171	6.57	10.8	ND	0.4	ND
MW23	4/13/2016	W-160413-PS-MW-23	10:35	2.0	7.60	9.20	515	119	6.31	124.0	-	-	-
			10:40	4.5	7.88	9.41	524	97	3.63	101.0	-	-	-
			10:45	7.0	7.92	9.46	525	94	2.89	90.4	-	-	-
			10:50	9.0	7.93	9.48	524	96	2.51	64.0	-	-	-
			10:55	11.5	7.94	9.51	524	98	2.28	50.6	-	-	-
			11:00	14.0	7.94	9.53	524	98	2.11	33.2	-	-	-
			11:05	16.5	7.95	9.54	524	96	1.95	18.8	ND	0.1	ND
MW24	4/7/2016	W-160407-PS-MW-24	11:25	0.8	6.95	13.07	398	97	9.01	126	-	-	-
			11:30	1.7	6.79	15.24	400	87	6.12	84.1	-	-	-
			11:35	2.5	6.74	15.69	400	85	5.28	88.0	-	-	-
			11:40	3.3	6.70	15.94	400	88	4.76	68.9	-	-	-
			11:45	4.2	6.68	15.89	400	89	4.62	68.1	-	-	-
			11:50	5.0	6.66	15.76	398	85	4.50	60.2	ND	1.3	ND

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW25	4/11/2016	W-160411-PS-MW-25	15:50	4.5	7.68	12.10	229	103	5.70	NM	ND	1.0	ND
MW26	4/5/2016	W-160405-PS-MW-26	13:05	1.5	7.24	10.87	391	69	6.51	55.7	-	-	-
			13:10	3.0	7.15	12.30	407	54	NM	30.8	-	-	-
			13:15	4.5	7.15	12.30	406	54	NM	30.7	-	-	-
			13:20	6.0	7.14	12.30	407	53	NM	30.4	ND	0.2	ND
MW27	4/7/2016	W-160407-PS-MW-27	9:50	0.7	7.55	13.85	431	43	9.37	37.4	-	-	-
			9:55	1.3	7.59	18.21	426	36	9.07	94.2	-	-	-
			10:00	2.0	7.62	17.09	422	28	9.05	87.1	-	-	-
			10:05	2.6	7.62	16.79	423	27	9.00	82.3	-	-	-
			10:10	3.3	7.61	16.60	421	27	8.96	80.1	ND	0.8	ND
MW28	4/6/2016	W-160406-PS-MW-28	13:25	0.6	7.70	11.92	282	-21	1.50	25.6	-	-	-
			13:30	1.3	7.71	12.37	284	-23	1.54	25.6	-	-	-
			13:35	2.5	7.71	12.41	284	-23	1.56	25.6	ND	Trace	ND
MW29	4/13/2016	W-160413-PS-MW-29	15:00	2.5	6.52	13.17	226	-39	0.00	700.0	-	-	-
			15:45	5.0	6.61	13.20	231	-48	0.00	253.0	-	-	-
			15:50	7.5	6.62	13.25	232	-56	0.00	98.0	-	-	-
			15:55	10.0	6.62	13.26	233	-60	0.00	48.0	ND	9.0	ND
MW30	4/13/2016	W-160413-PS-MW-30	14:15	3.0	6.34	10.89	203	97	1.28	381	-	-	-
			14:20	6.0	6.43	10.82	206	84	0.41	182	-	-	-
			14:25	9.5	6.45	10.79	209	82	0.00	84.0	-	-	-
			14:30	12.5	6.45	10.75	210	84	0.00	27.3	-	-	-
			14:35	16.0	6.44	10.74	211	85	0.00	12.0	ND	0.2	ND
MW31	4/12/2016	W-160412-PS-MW-31	9:13	3.0	6.51	12.09	255	61	11.04	40.3	-	-	-
			9:20	6.0	6.83	11.91	254	64	10.62	0.0	-	-	-
			9:25	8.0	6.99	11.80	253	64	10.26	0.0	-	-	-
			9:30	10.0	7.07	11.77	252	72	10.32	0.0	-	-	-
			9:35	13.0	7.14	11.76	252	70	10.22	0.0	ND	ND	ND
DW01	4/5/2016	W-160405-PS-DW-01 (MS/MSD) W-160405-PS-RW-07 (duplicate)	15:11	225.0	7.81	7.88	546	NM	NM	NM	NM	NM	NM

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
EW02D	4/14/2016	W-160414-PS-EW-02-D	14:55	10.0	6.99	12.20	164	-105	0.56	451	-	-	-
			15:00	20.0	7.04	12.27	168	-113	0.00	272	-	-	-
			15:05	30.0	7.02	12.28	171	-94	0.00	113	-	-	-
			15:10	40.0	7.02	12.27	182	-75	0.00	50.6	-	-	-
			15:15	50.0	6.98	12.29	189	-56	0.00	31.5	-	-	-
			15:20	60.0	6.98	12.28	190	-51	0.00	20.6	-	-	-
			15:25	70.0	6.96	12.20	194	-43	0.00	13.1	ND	5.1	ND
EW02S	4/14/2016	W-160414-PS-EW-02-S	15:50	4.0	6.74	11.96	138	58	0.62	5.5	-	-	-
			15:55	14.0	6.61	11.95	139	74	0.36	0.2	-	-	-
			16:00	24.0	6.45	11.90	141	89	0.00	0.0	-	-	-
			16:05	34.0	6.41	11.85	141	94	0.16	0.0	-	-	-
			16:10	44.0	6.38	11.86	141	89	0.01	0.0	ND	ND	ND
EW03D	4/18/2016	W-160418-PS-EW-03-D	14:20	NM	7.32	12.40	297	-241	6.38	0.0	-	-	-
			14:25	NM	7.55	12.42	297	-291	2.01	0.0	-	-	-
			14:30	NM	6.79	12.34	332	-141	1.57	0.0	-	-	-
			14:35	NM	6.85	12.11	337	-158	0.82	0.0	-	-	-
			14:40	NM	6.90	12.09	342	-166	0.09	0.0	-	-	-
			14:45	NM	6.91	12.06	349	-169	0.00	0.0	-	-	-
			14:50	NM	6.92	12.05	357	-170	0.00	0.0	ND	5.4	ND
EW03S	4/18/2016	W-160418-PS-EW-03-S	15:05	NM	6.30	13.29	594	33	0.00	25.5	-	-	-
			15:10	NM	6.32	13.75	567	33	0.00	13.6	-	-	-
			15:15	NM	6.33	13.97	560	33	0.00	9.4	-	-	-
			15:20	NM	6.33	14.04	559	33	0.00	7.6	ND	1.5	ND
EW04D	4/18/2016	W-160418-PS-EW-04D	11:35	5.0	7.14	12.63	360	-180	3.40	222	-	-	-
			11:40	10.0	7.09	12.57	358	-153	0.61	94.5	-	-	-
			11:45	15.0	7.03	12.56	354	-129	0.00	44.1	-	-	-
			11:50	20.0	7.00	12.57	354	-116	0.00	31.6	-	-	-
			11:55	25.0	6.99	12.53	355	-104	0.00	21.5	-	-	-
			12:00	30.0	6.96	12.55	354	-97	0.00	22.7	ND	5.1	ND
EW04S	4/18/2016	W-160418-PS-EW-04-S	10:25	2.0	6.43	14.72	270	-42	1.09	217	-	-	-
			10:30	4.0	6.59	14.40	273	-46	0.00	49	-	-	-
			10:35	5.5	6.59	13.80	263	-25	0.00	4.5	-	-	-
			10:40	7.0	6.57	13.83	266	-17	0.00	0.0	-	-	-
			10:45	8.5	6.54	13.83	260	-12	0.00	0.0	-	-	-
			10:50	10.0	6.53	13.83	257	-10	0.00	0.0	ND	0.8	ND



Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
EW05D	4/20/2016	W-160420-PS-EW-05-D	11:40	3.0	6.93	12.71	441	-174	0.00	200	-	-	-
			11:45	6.0	7.12	13.53	443	-187	0.00	132	-	-	-
			11:50	9.0	7.26	13.66	442	-194	0.00	34.6	-	-	-
			11:55	13.0	7.29	13.59	442	-196	0.00	31.0	-	-	-
			12:00	17.0	7.32	13.73	441	-197	0.00	23.5	-	-	-
			12:05	21.0	7.33	13.84	441	-197	0.00	21.6	ND	6.3	ND
EW07D	4/12/2016	W-160412-PS-EW-07D	14:45	4.0	7.66	10.95	385	-54	7.74	200	-	-	-
			14:50	7.0	7.66	10.90	386	-57	4.45	131	-	-	-
			14:55	9.0	7.66	11.50	387	-64	3.16	47.2	-	-	-
			15:00	12.0	7.67	11.71	388	-69	3.30	23.6	-	-	-
			15:05	15.0	7.68	11.78	389	-68	3.03	7.8	-	-	-
			15:10	17.0	7.69	11.70	391	-64	3.24	4.1	ND	2.4	ND
EW10D	4/20/2016	W-160420-PS-EW-10-D (MS/MSD) W-160420-PS-MW-40 (duplicate)	8:50	2.0	7.34	12.67	464	-174	0.00	5.6	-	-	-
			8:55	8.0	7.34	12.72	458	-172	0.00	7.7	-	-	-
			9:00	16.0	7.33	12.71	453	-167	0.00	13.0	-	-	-
			9:05	22.0	7.32	12.75	454	-168	0.00	14.2	-	-	-
			9:10	28.0	7.32	12.76	446	-169	0.00	24.3	-	-	-
			9:15	36.0	7.32	12.84	448	-168	0.00	18.0	ND	6.8	ND
EW11D	4/14/2016	W-160414-PS-EW-11-D (MS/MSD) W-160414-PS-MW-37 (duplicate)	11:05	NM	6.71	9.95	768	171	5.27	> 1000	-	-	-
			11:10	NM	6.74	10.19	735	122	2.62	877	-	-	-
			11:15	NM	6.70	10.17	711	97	1.86	771	-	-	-
			11:20	NM	6.66	10.16	699	79	1.27	325	-	-	-
			11:25	NM	6.65	10.18	698	67	0.74	120	-	-	-
			11:30	NM	6.66	10.19	701	62	0.43	64.5	-	-	-
			11:35	NM	6.70	10.21	721	56	0.16	30.6	-	-	-
			11:40	NM	6.75	10.22	746	52	0.02	27.1	-	-	-
			11:45	NM	6.83	10.21	765	47	0.00	22.5	-	-	-
11:50	NM	6.90	10.21	784	41	0.00	13.4	ND	2.6	ND			
EW11S	4/14/2016	W-160414-PS-EW-11-S	12:35	NM	6.76	10.86	295	109	9.76	224	-	-	-
			12:40	NM	6.56	10.98	303	114	5.40	86.4	-	-	-
			12:45	NM	6.50	10.92	314	105	3.89	61.4	-	-	-
			12:50	NM	6.48	10.89	316	106	3.37	53.0	-	-	-
			12:55	NM	6.47	10.88	319	98	3.35	42.0	-	-	-
			13:00	NM	6.47	10.85	320	95	3.20	36.0	ND	0.6	ND

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
EW12D	4/20/2016	W-160420-PS-EW-12-D	10:20	7.0	7.37	12.34	262	-196	0.00	7.7	-	-	-
			10:25	14.0	7.37	12.55	256	-199	0.00	7.8	-	-	-
			10:30	19.0	7.41	12.85	254	-197	0.00	10.3	-	-	-
			10:35	24.0	7.38	13.60	253	-189	0.00	4.8	-	-	-
			10:40	29.0	7.35	13.59	252	-180	0.00	3.9	-	-	-
			10:45	34.0	7.30	13.57	252	-172	0.00	0.1	-	-	-
			10:50	38.0	7.28	13.63	252	-166	0.00	0.0	0.2	2.6	ND
EW13D	4/19/2016	W-160419-PS-EW-13-D	8:50	5.0	7.44	11.27	516	-340	0.00	19.2	-	-	-
			8:55	10.0	7.81	11.28	516	-337	0.00	11.5	-	-	-
			9:00	15.0	7.89	11.30	516	-331	0.00	7.5	-	-	-
			9:05	20.0	7.88	11.25	515	-319	0.00	5.5	-	-	-
			9:10	25.0	7.74	11.24	515	-292	0.00	3.7	-	-	-
			9:15	30.0	7.63	11.29	510	-266	0.00	2.8	-	-	-
			9:20	35.0	7.54	11.31	506	-253	0.00	2.3	-	-	-
			9:25	40.0	7.45	11.28	499	-239	0.00	1.7	-	-	-
			9:30	45.0	7.40	11.24	498	-234	0.00	2.0	ND	6.2	ND
EW13S	4/19/2016	W-160419-PS-EW-13-S	10:15	3.5	6.79	12.26	858	-143	0.00	94.8	-	-	-
			10:20	6.0	6.79	12.52	842	-138	0.00	133	-	-	-
			10:25	8.5	6.75	12.77	811	-124	0.00	142	-	-	-
			10:30	11.0	6.71	13.00	784	-157	0.00	156	-	-	-
			10:35	12.5	6.64	13.11	772	-106	0.00	218	-	-	-
			10:40	14.0	6.71	13.57	811	-116	0.00	382	-	-	-
			10:45	15.5	6.69	15.40	809	-116	0.00	845	-	-	-
			10:50	DRY	NM	13.21	NM	NM	NM	NM	0.3	9.0	ND
EW14D	4/19/2016	W-160419-PS-EW-14-D	14:30	NM	7.37	12.10	383	-178	0.30	51.9	-	-	-
		W-160419-PS-MW-38 (duplicate)	14:35	NM	7.38	12.00	384	-173	0.00	26.2	-	-	-
			14:40	NM	7.35	12.00	385	-167	0.00	24.1	-	-	-
			14:45	NM	7.36	12.00	381	-166	0.00	22.4	ND	1.6	ND
RW1	4/5/2016	W-160405-PS-RW-01	10:24	30.0	7.50	8.46	848	NM	NM	NM	NM	NM	
RW2	4/5/2016	W-160405-PS-RW-02	10:51	60.0	8.09	8.88	299	NM	NM	NM	NM	NM	
RW3	4/5/2016	W-160405-PS-RW-03	11:45	30.0	7.93	9.62	222	NM	NM	NM	NM	NM	
RW4	4/5/2016	W-160405-PS-RW-04	11:15	15.0	7.48	10.63	451	NM	NM	NM	NM	NM	

Table 3.2

**Groundwater Purging and Sampling Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Location	Date	Sample Identification	Time	Purge Volume (gallons)	pH	Temperature (°C)	Specific Conductance (µS)	ORP (mV)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Total Manganese (mg/L)	Total Iron (mg/L)	Total Sulfide (mg/L)
RW5	4/5/2016	W-160405-PS-RW-05	10:04	45.0	7.93	9.38	352	NM	NM	NM	NM	NM	NM
RW6	4/5/2016	W-160405-PS-RW-06	13:10	45.0	8.05	10.40	188	NM	NM	NM	NM	NM	NM

## Notes:

°C - Degrees Celcius

µS - Micro-Siemens

DUP - Duplicate Sample

FB - Field Blank Sample

mg/L - Milligrams per liter

MS/MSD - Matrix Spike Sample &amp; Matrix Spike Duplicate Sample

mV - Millivolts

ND - Not Detected

NM - Not Measured

NTU - National Turbidity Units

ORP - Oxidation Reduction Potential (ORP) reported in millivolts (mV)

RB - Rinsate Blank

Wells MW18, MW19, MW20, EW5S, EW6D, EW6S, EW7S, EW10S, EW12S, EW14S were not sampled due to the presence of LNAPL

Wells MW4 and MW14 were not sampled due to obstructions or damage

Table 3.3

Groundwater Analytical Data - Monitoring and Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Sample Location	Sample Identification	Sample Date	ES <sup>1</sup>	Alkalinity, total (as CaCO <sub>3</sub> )	Chloride <sup>3</sup>	Hardness, carbonate	Nitrate (as N)	Sulfate <sup>3</sup>	TOC averages	Methane (dissolved)	Arsenic (dissolved)	Copper (dissolved)	Iron (dissolved) <sup>3</sup>	Manganese (dissolved) <sup>3</sup>	Zinc (dissolved) <sup>3</sup>	Pentachlorophenol	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylenes (total)
			PAL <sup>2</sup>	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
<b>Semiconfined Aquifer (Lower)</b>																					
EW02D	W-160414-PS-EW-02-D	4/14/2016		55	12.1	70.6	0.7	8.7	4.8	0.15 J	0.49 J	3.8	299	384	46.7	370	1.7	0.35 U	0.23 U	0.25 U	0.52 U
EW03D	W-160418-PS-EW-03-D	4/18/2016		184	13.4	169	0.035 UH	25.6	10	1.3	2.7 J	9.8	12500 B	1780	398	3500	2.4	0.35 U	0.23 U	0.33 J	3.6
EW04D	W-160418-PS-EW-04-D	4/18/2016		129	16.5	131	1.9	6	5.3	0.33 J	0.49 U	2.2	3060 B	316	172	24	0.16 J	0.35 U	0.23 U	0.25 U	0.52 U
EW05D	W-160420-PS-EW-05-D	4/20/2016		145 B	14.4	171	0.035 U	17	36.7	0.44 J	2.7 J	8.6	8430	1980	372	7500	19	0.35 U	0.95 J	0.79 J	6.7
EW07D	W-160412-PS-EW-07D	4/12/2016		127	23.7	174	6.6 H	8.4	1.2	0.59	0.49 U	1.1 J	122	210	7.3 U	0.31	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
EW10D	W-160420-PS-EW-10-D	4/20/2016		135 B	25.7 F1	180	0.057 JF1	21.8 F1	41.8	1.1	6.5	10.3	3350	2200	81	5000	19	0.35 U	1.8	1.4	12
EW10D (duplicate)	W-160420-PS-MW-40	4/20/2016		136 B	23.9	184	0.060 J	20.3	41	1.3	7.6	12.1	3720	2170	114	4800	19	0.35 U	1.9	1.3	12
EW11D	W-160414-PS-EW-11-D	4/14/2016		187	12.7	282	2	155	1	0.080 U	0.49 U	1.1 J	657	22.6	46.4	3.4	0.063 U	0.35 U	0.23 U	0.25 U	0.52 U
EW11D (duplicate)	W-160414-PS-MW-37	4/14/2016		190	12.8	276	2	198	1.2	0.080 J	0.49 U	0.75 U	825	27.4	55.9	2.5	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
EW12D	W-160420-PS-EW-12-D	4/20/2016		90.0 B	5.4	80.4	0.035 U	6.4	15.7	4	2.2 J	1.3 J	3820	1620	7.3 U	2500	12	0.35 U	0.50 J	0.58 J	7.2
EW13D	W-160419-PS-EW-13-D	4/19/2016		180	15.1	167	0.093 J	2	20.7	1100	1.6 J	0.75 U	7660 B	956	11.7 J	2100	13	0.35 U	0.32 J	0.27 J	4.8
EW14D	W-160419-PS-EW-14-D	4/19/2016		137	12	139	0.48 H	7.2	6.5	4.2	0.49 U	3.4	301	77.4	17.5 J	2800	3.5	0.35 U	0.23 U	0.25 U	2.4
EW14D (duplicate)	W-160419-PS-MW-38	4/19/2016		136	11.9	145	0.48 H	7.1	6.3	3.5	0.49 U	0.75 U	292	77.8	17.2 J	2700	3.1	0.35 U	0.23 U	0.25 U	2.4
MW3	W-160405-PS-MW-03	4/5/2016		224 B	48.2	299	1.4	10.1	0.98 J	4.4	0.49 U	1.4 JB	716	20.4 B	7.3 U	0.46	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW3 (duplicate)	W-160405-PS-MW-33	4/5/2016		221 B	48.6	283	1.4	10	0.94 J	4.2	0.49 U	0.99 JB	514	18.6 B	7.3 U	0.4	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW6	W-160419-PS-MW-06	4/19/2016		183	35	245	10.2 H	26.3	6.2	0.78	0.49 U	5.2	282	5.6	9.0 J	170	0.063 U	0.35 U	0.23 U	0.25 U	0.52 U
MW7	W-160406-PS-MW-07	4/6/2016		212 B	10.3	237	1.7	25.7	0.58 J	13	0.49 U	1.9 JB	5270 B	117 B	36.2 B	0.015 U	0.065 U	0.35 U	0.23 U	0.25 U	0.52 U
MW8	W-160411-PS-MW-08	4/11/2016		174 B	18	421	1.3 H	201	0.26 J	1.5	0.60 J	0.75 U	197 B	10.9 B	7.3 U	0.016 J	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW10	W-160407-PS-MW-10	4/7/2016		162 B	9.8	189	0.035 UH	46.1	8.6 B	290	0.49 U	0.75 U	1350	719	7.3 U	1900 *	4.8	0.35 U	0.53 J	0.46 J	2.9
MW11	W-160411-PS-MW-11	4/11/2016		229 B	18	470	1.6 H	200	0.32 J	0.080 U	0.75 J	0.75 U	32.1 JB	1.9 JB	7.3 U	0.016 U	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW12	W-160406-PS-MW-12	4/6/2016		236 B	10.6	358 F2	1.6	135	0.67 J	0.12 J	0.77 J	1.4 JB	60.1 JB	148 B	7.3 U	5.2	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW15	W-160405-PS-MW-15	4/5/2016		207 B	12.5	312	0.45	6.3	0.49 J	0.080 U	0.70 J	1.7 JB	16.0 U	1.1 U	7.3 U	0.078 J	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW17	W-160405-PS-MW-17	4/5/2016		173 B	13.6	289	3.5	85.4	0.46 J	0.080 U	0.81 J	1.8 JB	16.0 U	1.1 U	7.3 U	0.015 U	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW23	W-160413-PS-MW-23	4/13/2016		197	29.5	255	1.8	7.1	0.62 J	0.080 U	0.58 J	0.75 U	35.1 J	1.1 U	7.3 U	0.015 U	0.063 U	0.35 U	0.23 U	0.25 U	0.52 U
MW28	W-160406-PS-MW-28	4/6/2016		122 B	9.4	125	1.2 H	4.8	1.6 B	0.20 J	0.49 U	0.76 J	29.7 J	2.7 J	7.3 U	47 *	0.065 U	0.35 U	0.23 U	0.25 U	0.52 U

Table 3.3

Groundwater Analytical Data - Monitoring and Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Sample Location	Sample Identification	Sample Date	ES <sup>1</sup>	Chloride <sup>3</sup>	Hardness, carbonate	Nitrate (as N)	Sulfate <sup>3</sup>	TOC averages	Methane (dissolved)	Arsenic (dissolved)	Copper (dissolved)	Iron (dissolved) <sup>3</sup>	Manganese (dissolved) <sup>3</sup>	Zinc (dissolved) <sup>3</sup>	Pentachlorophenol	Naphthalene	Benzene	Toluene	Ethylbenzene	Xylenes (total)
			mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
			-	250	-	10	250	-	-	10	1300	300	50	5000	1	100	5	800	700	2000
			PAL <sup>2</sup>	125	-	2	125	-	-	1	130	150	25	2500	0.1	10	0.5	160	140	400
<b>Unconfined Aquifer (Upper)</b>																				
EW02S	W-160414-PS-EW-02-S	4/14/2016	30	10.5	41.2	1	7	2.7	0.094 J	0.49 U	1.4 J	50.2 J	39.3	7.3 U	690	2.5	0.35 U	0.23 U	0.25 U	0.52 U
EW03S	W-160418-PS-EW-03-S	4/18/2016	88	73.8	220	0.29 H	39.1	59.1	0.15 J	0.53 J	10.8	1050 B	3530	7.3 U	14000	12	0.70 U	0.46 U	0.50 U	5.2
EW04S	W-160418-PS-EW-04-S	4/18/2016	81	9.9	98	0.92	8.1	7.2	0.12 J	0.49 U	2.4	567 B	385	7.3 U	210	0.25	0.35 U	0.23 U	0.25 U	0.52 U
EW11S	W-160414-PS-EW-11-S	4/14/2016	48.6	7	100	8.9	45.1	5.2	0.080 U	0.49 U	3.4	451	63.5	7.3 U	0.37	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
EW13S	W-160419-PS-EW-13-S	4/19/2016	370	20.7	229	0.035 U	9.6	36.6	4.9	23.2	37.7	14100 B	2340	13.8 J	770	2	0.35 U	0.23 U	0.26 J	4.2
MW1	W-160412-PS-MW-01	4/12/2016	79.9 B	5.1	102	0.53	5.2	0.73 J	0.080 U	0.49 U	0.75 U	19.9 JB	1.4 JB	7.3 U	0.15	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW2	W-160414-PS-MW-02	4/14/2016	34.4	0.51 J	49	0.38	1.8	3.6	0.080 U	1.3 J	20.1	6580	171	19.7 J	0.080 J	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW5	W-160407-PS-MW-05	4/7/2016	72.0 B	12.7	113	0.97 H	38	4.6 B	4.3	0.49 U	0.75 U	931	1990	7.3 U	17 *	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW5 (duplicate)	W-160407-PS-MW-35	4/7/2016	71.3 B	12.5	113	0.96	37.6	4.5 B	4.9	0.49 U	0.75 U	940	2070	7.3 U	16 *	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW6S	W-160419-PS-MW-6S	4/19/2016	42	7.4	70.6	4.8	6.3	18.2	0.080 U	0.51 J	4.7	831 B	15.4	7.3 U	0.2	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW9	W-160413-PS-MW-09	4/13/2016	26.6	0.99 J	37.2	1.4	7.3	30.2	0.080 U	0.49 U	1.4 J	33.6 J	1.5 J	7.3 U	0.28	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW10S	W-160418-PS-MW-10S	4/18/2016	102	7.8	92.1	0.035 UH	9.1	9.5	0.080 U	0.59 J	2.6	190 B	388	7.3 U	3500	4.7	0.35 U	0.23 U	0.25 U	2.7
MW13	W-160413-PS-MW-13	4/13/2016	51	1.4	54.9	0.7	3.4	4.2	0.080 U	0.49 U	3.2	449	13.4	7.3 U	0.34	0.065 U	0.35 U	0.23 U	0.25 U	0.52 U
MW16	W-160406-PS-MW-16	4/6/2016	32.6 B	2.2	31.8	0.41	2.6	2.3	0.080 U	0.49 U	1.9 J	168 B	14.6 B	7.3 U	0.015 U	0.11 J	0.35 U	0.23 U	0.25 U	0.52 U
MW21	W-160406-PS-MW-21	4/6/2016	25.9 B	101	83.6	1.8 H	6.8	0.63 JB	0.092 J	0.70 J	1.0 J	22.8 J	1.7 J	7.3 U	0.016 J*	0.063 U	0.35 U	0.23 U	0.25 U	0.52 U
MW22	W-160406-PS-MW-22	4/6/2016	50.8 B	1.3	57.7	0.61 H	2.9	5.3 B	0.080 U	0.49 U	0.92 J	17.5 J	2.2 J	7.3 U	0.025 J*	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U
MW24	W-160407-PS-MW-24	4/7/2016	168 B	9.1	135	1.9	17.4	0.79 JB	0.11 J	0.49 U	3	420	28.4	7.3 U	0.044 J*	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW25	W-160411-PS-MW-25	4/11/2016	33.7 B	37.8	137	2.4	3.8	1.5	0.080 U	1.1 J	17.6 B	6090 B	148 B	12.4 JB	0.024 J	0.064 U	0.35 U	0.23 U	0.25 U	0.52 U
MW26	W-160405-PS-MW-26	4/5/2016	154 B	9.4	183	1.4	36.1	0.26 J	0.15 J	0.57 J	1.5 JB	21.4 JB	58.7 B	7.3 U	0.015 U	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW27	W-160407-PS-MW-27	4/7/2016	137 B	20	113	6.5 F1	14.2	1.9 B	0.092 J	0.59 J	1.9 J	21.1 J	1.1 U	7.3 U	0.15 *	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW29	W-160413-PS-MW-29	4/13/2016	87	4.5	120	0.035 U	6.4	70.2	1.4	0.49 U	6.7	1660	2270	7.3 U	14000	34	0.35 U	0.90 J	0.58 J	7.2
MW30	W-160413-PS-MW-30	4/13/2016	42	3.2	82.3	3.4	32.8	1.2	0.080 U	0.49 U	0.81 J	46.1 J	147	7.3 U	0.72	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U
MW31	W-160412-PS-MW-31	4/12/2016	122 B	0.99 J	125	0.68	4	0.59 J	0.080 U	0.49 U	0.75 U	20.9 JB	7.7 B	7.3 U	0.030 J	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U

Notes:

- <sup>1</sup> - Enforcement Standard (ES) criteria adapted from Table 1 referred to and incorporated by NR 140.10 with except of Iron, Manganese, Zinc, Chloride, and Sulfate (see note 3 below)
- <sup>2</sup> - Preventive Action Limit (PAL) criteria adapted from Table 1 referred to and incorporated by NR 140.10 with except of Iron, Manganese, Zinc, Chloride, and Sulfate (see note 3 below)
- <sup>3</sup> - Enforcement Standard (ES) and Preventive Action Limit (PAL) criteria adapted from Table 2 referred to and incorporated by NR 140.12
- mg/L - Concentrations listed with units of milligrams per liter
- ug/L - Concentrations listed with units of micrograms per liter
- J - Concentration was between the limit of detection and the limit of quantitation
- < - Compound was not detected above the limit of detection
- B - Compound was found in the blank and sample
- F1 - MS and/or MSD recovery is outside acceptance limits
- H - Analysis was performed beyond the specified holding time
- \*
- Concentration exceeds the ES
- Concentration exceeds the PAL

Wells MW18, MW19, MW20, EW5S, EW6S, EW7S, EW10S, EW12S, EW14S were not sampled due to the presence of LNAPL  
Wells MW4 and MW14 were not sampled due to obstructions or damage

Table 4.1

**Groundwater Analytical Data - Residential Wells and Onsite Water Supply Well  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Sample Location	Sample Identification	Date	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
		ES <sup>1</sup>	1	100	5	700	800	2000
		PAL <sup>2</sup>	0.1	10	0.5	140	160	400
DW01	W-160405-PS-DW-01	4/5/2016	0.095 U	0.14 J	0.35 U	0.25 U	0.23 U	0.52 U
DW01 (Dup)	W-160405-PS-RW-07	4/5/2016	0.097 U	0.062 U	0.35 U	0.25 U	0.23 U	0.52 U
RW1	W-160405-PS-RW-01	4/5/2016	0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U
RW2	W-160405-PS-RW-02	4/5/2016	0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U
RW3	W-160405-PS-RW-03	4/5/2016	0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U
RW4	W-160405-PS-RW-04	4/5/2016	0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U
RW5	W-160405-PS-RW-05	4/5/2016	0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U
RW6	W-160405-PS-RW-06	4/5/2016	0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U

## Notes:

<sup>1</sup> - Enforcement Standard (ES) criteria adapted from Table 1 referred to and incorporated by NR 140.10

<sup>2</sup> - Preventive Action Limit (PAL) criteria adapted from Table 1 referred to and incorporated by NR 140.10

ug/L - Concentrations listed with units of micrograms per liter

J - Concentration was between the limit of detection and the limit of quantitation

U - Compound was not detected above the limit of detection

Dup - Duplicate sample

 - Concentration exceeds the ES

 - Concentration exceeds the PAL

Table 5.1

**Initial Groundwater Analytical Data - Microcosm Study  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Parameters	Date Analyzed Units	12/4/2015	4/28/2016
		SB1	MW29
<b>General Chemistry</b>			
pH	S.U.	6.72	6.71
Ammonia-Nitrogen	mg/L	< 1.0	< 1.0
Orthophosphate-Phosphorus	mg/L	1.85	1.45
<b>Semi-Volatile Organic Compounds</b>			
Pentachlorophenol	µg/L	87	1430
<b>Total Petroleum Hydrocarbons</b>			
TPH(C <sub>9</sub> -C <sub>36</sub> )	mg/L	0.176	1540
<b>Total Metals</b>			
Iron	µg/L	27600	10500
Manganese	µg/L	4480	2530
<b>Dissolved Metals</b>			
Dissolved Iron	µg/L	1010	270
Dissolved Manganese	µg/L	3340	2350

## Notes:

< - Compound not detected above the reporting limit  
S.U. - Standard units



Table 5.2

**Initial Soil Analytical Data - Microcosm Study  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Parameters	Date Analyzed Units	12/3/2015	12/3/2015
		SB1	MW29
<b>General Chemistry</b>			
pH	S.U.	7.14	6.65
Ammonia-Nitrogen	mg/kg	ND	ND
Orthophosphate-Phosphorus	mg/kg	27.8	20.5
Percent Moisture	%	7.77	4.45
Percent Solids	%	92.2	95.6
<b>Semi-Volatile Organic Compounds</b>			
Pentachlorophenol	mg/kg	0.502	61
<b>Total Petroleum Hydrocarbons</b>			
TPH(C <sub>9</sub> -C <sub>36</sub> )	mg/kg	< 50	153
<b>Total Metals</b>			
Iron	mg/kg	6880	8330
Manganese	mg/kg	79.9	94.56

## Notes:

- ND - Not detected
- < - Compound not detected above the reporting limit
- J - Estimated value
- S.U. - Standard units
- mg/kg - Milligrams per kilogram
- % - Percent

Table 5.3

**Aerobic Biostudy SB1 Groundwater Analytical Data (3-Month Period) - Microcosm Study  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Parameters	Date Analyzed Units	1/11/2016 Start of Microcosm Study	3-Month Period		
			4/11/2016 Soil and Groundwater	4/11/2016 Soil, Groundwater, and Oxygen	4/11/2016 Soil, Groundwater, Oxygen, and Azide
<b>Semi-Volatile Organic Compounds</b>					
Pentachlorophenol	µg/L	289 / 302	9.29 J / < 50	3.10 J / < 50	362 / 282
<b>Total Petroleum Hydrocarbons</b>					
TPH(C <sub>9</sub> -C <sub>36</sub> )	mg/L	4.61 / 5.10	< 0.5 / < 0.5	< 0.5 / < 0.5	4.45 / 4.28

## Notes:

- < - Compound not detected above the reporting limit
- ug/L - Micrograms per liter
- mg/L - Milligrams per liter
- J - Estimated value

Table 5.4

**Aerobic Biostudy SB1 Soil Analytical Data (3-Month Period) - Microcosm Study  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Parameters	Date Analyzed Units	1/11/2016 Start of Microcosm Study	3-Month Period		
			4/11/2016 Soil and Groundwater	4/11/2016 Soil, Groundwater, and Oxygen	4/11/2016 Soil, Groundwater, Oxygen, and Azide
<b>Semi-Volatile Organic Compounds</b>					
Pentachlorophenol	mg/kg	0.087 J / 0.094 J	< 0.1 / < 0.1	< 0.1 / < 0.1	< 0.1 / < 0.1
<b>Total Petroleum Hydrocarbons</b>					
TPH(C <sub>9</sub> -C <sub>36</sub> )	mg/kg	< 50 / < 50	< 50 / < 50	< 50 / < 50	< 50 / < 50

## Notes:

- J - Estimated value
- < - Compound not detected above the reporting limit
- mg/kg - Milligrams per kilogram

# Appendix A Survey Data

# PENTA WOOD PRODUCTS SITE

TOWN OF DANIELS, WISCONSIN

Well Data (April 2016)



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I hereby certify that this survey, plan or report was prepared by me or under my direct supervision and that I am a duly licensed professional land surveyor under the laws of the State of Wisconsin.



*Mark D. Kemper* 5/16/2016

Mark D. Kemper, PLS S-1944

EXTRACTION WELL NEST	BURNETT COUNTY COORDINATES (NAD 83, 1996)		TOP OF OUTER COVER OF WELL NEST ELEV. (NAVD 88)	TOP OF DEEP INSIDE RISER PIPE ELEV. (NAVD 88)	TOP OF SHALLOW INSIDE RISER PIPE ELEV. (NAVD 88)	ADJACENT GROUND ELEV. (NAVD 88)
	X (Easting)	Y (Northing)				
EW-02	217156.72	154025.62	1083.36	1083.00	1082.25	1080.98
EW-03	217057.05	153893.45	1089.87	1089.48	1088.66	1087.83
EW-04	216942.26	153752.50	1101.17	1101.09	1101.01	1098.70
EW-05	217276.40	153877.33	1077.28	1076.99	1077.04	1075.20
EW-06	217194.49	153730.17	1083.73	1083.39	1083.61	1081.28
EW-07	217109.90	153554.76	1087.65	1087.52	1087.49	1086.61
EW-10	217140.10	153805.85	1088.78	1088.55	1088.72	1087.54
EW-11	217446.43	154282.38	1048.33	1048.19	1047.23	1046.73
EW-12	217195.49	153904.14	1086.81	1086.41	1086.31	1085.09
EW-13	217104.54	153718.35	1093.17	1092.88	1092.88	1091.63
EW-14	217027.64	153786.01	1098.66	1098.28	1098.32	1096.58

MONITORING WELL	BURNETT COUNTY COORDINATES (NAD 83, 1996)		TOP OF OUTER WELL COVER ELEVATION (NAVD 88)	TOP OF INSIDE RISER PIPE ELEV. (NAVD 88)	ADJACENT GROUND ELEVATION (NAVD 88)
	X (Easting)	Y (Northing)			
MW-1	217719.30	153643.97	1072.58	1072.27	1070.89
MW-2	217426.27	154035.87	1065.23	1065.03	1062.48
MW-3	216505.19	153372.18	1130.03	1129.44	1127.99
MW-4	217183.38	153578.15	1087.98	1087.74	1085.12
MW-5	217357.27	154013.33	1071.79	1071.39	1069.66
MW-6	216874.65	153672.58	1109.31	1109.11	1106.21
MW-6S	216910.29	153671.07	1108.65	1108.35	1105.38
MW-7	215915.26	153916.77	1096.68	1096.25	1094.32
MW-8	216197.15	154439.91	1091.57	1091.13	1089.06
MW-9	217515.09	154379.25	1019.87	1019.58	1016.91
MW-10	217065.78	153920.21	1089.46	1089.01	1086.80
MW-10S	217059.18	153905.81	1090.54	1090.12	1087.65
MW-11	215915.08	154404.35	1085.81	1085.48	1081.94
MW-12	216968.68	154160.05	1081.25	1080.91	1078.61
MW-13	217628.75	154557.90	1006.11	1005.81	1003.51

MONITORING WELL	BURNETT COUNTY COORDINATES (NAD 83, 1996)		TOP OF OUTER WELL COVER ELEVATION (NAVD 88)	TOP OF INSIDE RISER PIPE ELEV. (NAVD 88)	ADJACENT GROUND ELEVATION (NAVD 88)
	X (Easting)	Y (Northing)			
MW-14	217363.33	153745.03	1078.71	1078.37	1075.42
MW-15	216882.17	153084.60	1127.56	1127.09	1125.86
MW-16	216958.66	154164.70	1082.14	1081.95	1079.37
MW-17	216593.88	154389.59	1084.80	1084.43	1082.65
MW-18	217342.19	153951.62	1072.30	1071.96	1069.95
MW-19	217146.12	153665.46	1088.24	1087.96	1085.92
MW-20	217041.91	153776.01	1098.82	1098.16	1095.78
MW-21	217215.81	153375.46	1096.53	1095.82	1093.59
MW-22	217456.52	153524.97	1084.86	1084.65	1081.79
MW-23	217530.88	154390.39	1017.60	1017.45	1015.22
MW-24	215963.47	154189.04	1084.72	1084.04	1082.43
MW-25	216557.44	153955.59	1095.68	1095.25	1093.32
MW-26	216423.99	154415.20	1087.45	1086.87	1084.12
MW-27	216883.35	153624.34	1111.18	1110.96	1108.22
MW-28	217257.99	153642.52	1083.94	1083.52	1080.96



MONITORING WELL	BURNETT COUNTY COORDINATES (NAD 83, 1996)		TOP OF OUTER WELL COVER ELEVATION (NAVD 88)	TOP OF INSIDE RISER PIPE ELEV. (NAVD 88)	ADJACENT GROUND ELEVATION (NAVD 88)
	X (Easting)	Y (Northing)			
MW-29	217410.64	153913.27	1070.49	1070.24	1067.92
MW-30	217499.37	154035.49	1049.19	1048.98	1046.78
MW-31	217135.14	154289.06	1076.65	1076.34	1074.08

BIOVENTING WELL	BURNETT COUNTY COORDINATES (NAD 83, 1996)		TOP OF OUTER WELL COVER ELEVATION (NAVD 88)	TOP OF INSIDE RISER PIPE ELEV. (NAVD 88)	ADJACENT GROUND ELEVATION (NAVD 88)
	X (Easting)	Y (Northing)			
BV-8	216837.52	153566.90	1111.06	1111.03	1107.90
BV-9	216622.91	153499.27	1123.33	1123.25	1121.53

Water Supply Well	BURNETT COUNTY COORDINATES (NAD 83, 1996)		ADJACENT GROUND ELEVATION (NAVD 88)
	X (Easting)	Y (Northing)	
	216081.25	153485.72	1108.81
SB-1	217342.82	154143.51	1073.19

SOIL GAS WELL NEST	BURNETT COUNTY COORDINATES (NAD 83, 1996)		ADJACENT GROUND ELEVATION (NAVD 88)
	X (Easting)	Y (Northing)	
SG-04	217218.72	153978.68	1083.41
SG-05	217262.43	15379320%	1076.27
SG-06	217232.96	153610.35	1082.59
SG-07	216970.84	153647.38	1101.02
SG-22	216743.41	153534.68	1119.18
SG-23	216753.77	153812.26	1093.23
SG-24	216383.75	153346.38	1127.18
SG-25	217566.92	153340.77	1085.76
SG-26	216477.52	153336.37	1128.40

Site Benchmark:

Wisconsin Department of Transportation

Station "Siren"

X=216664.33

Y=153201.30

Elev.=1032.50 (NAVD 88)

Located south of subject Penta Wood Site next to  
Wisconsin DNR fire lookout tower

## BURNETT COUNTY

## COORDINATES

(NAD 83, 1996)

## ELEVATION

(NAVD 88)

<u>SURVEY CONTROL POINT</u>	<u>X (Easting)</u>	<u>Y (Northing)</u>	<u>ELEVATION (NAVD 88)</u>
1	216663.96	153497.12	1122.90
2	216131.63	154136.15	1101.52
3	217339.35	154167.83	1071.22
4	216777.12	153048.16	1127.89
5	216265.98	153613.41	1115.50
6	215898.48	153819.90	1096.04
7	217086.74	153817.65	1092.07
8	217097.85	153234.94	1111.95



**KEMPER & ASSOCIATES INC.**  
PROFESSIONAL LAND SURVEYORS

721 OLD HIGHWAY 8 N.W.  
NEW BRIGHTON, MINNESOTA 55112  
651-631-0351  
FAX 651-631-8805  
email: kemper@pro-ns.net  
www.kempersurveys.com

# PENTA WOOD PRODUCTS SITE

## TOWN OF DANIELS, WISCONSIN

### EXTRACTION & MONITORING WELLS (APRIL 2016)

0 50 100  
1 INCH EQUALS 100 FEET

BASIS FOR BEARINGS:  
BURNETT COUNTY  
COORDINATE SYSTEM  
(NAD 83, 1998)

(VIA REAL TIME GPS  
MEASUREMENTS UTILIZING  
MINNESOTA DEPARTMENT  
OF TRANSPORTATION  
WIS NETWORK)

BASIS FOR ELEVATION:  
WISCONSIN DEPARTMENT  
OF TRANSPORTATION  
STATION "SIREN"  
ELEV=1032.50 (NAVD 88)

SECTION 11, T38N, R17W



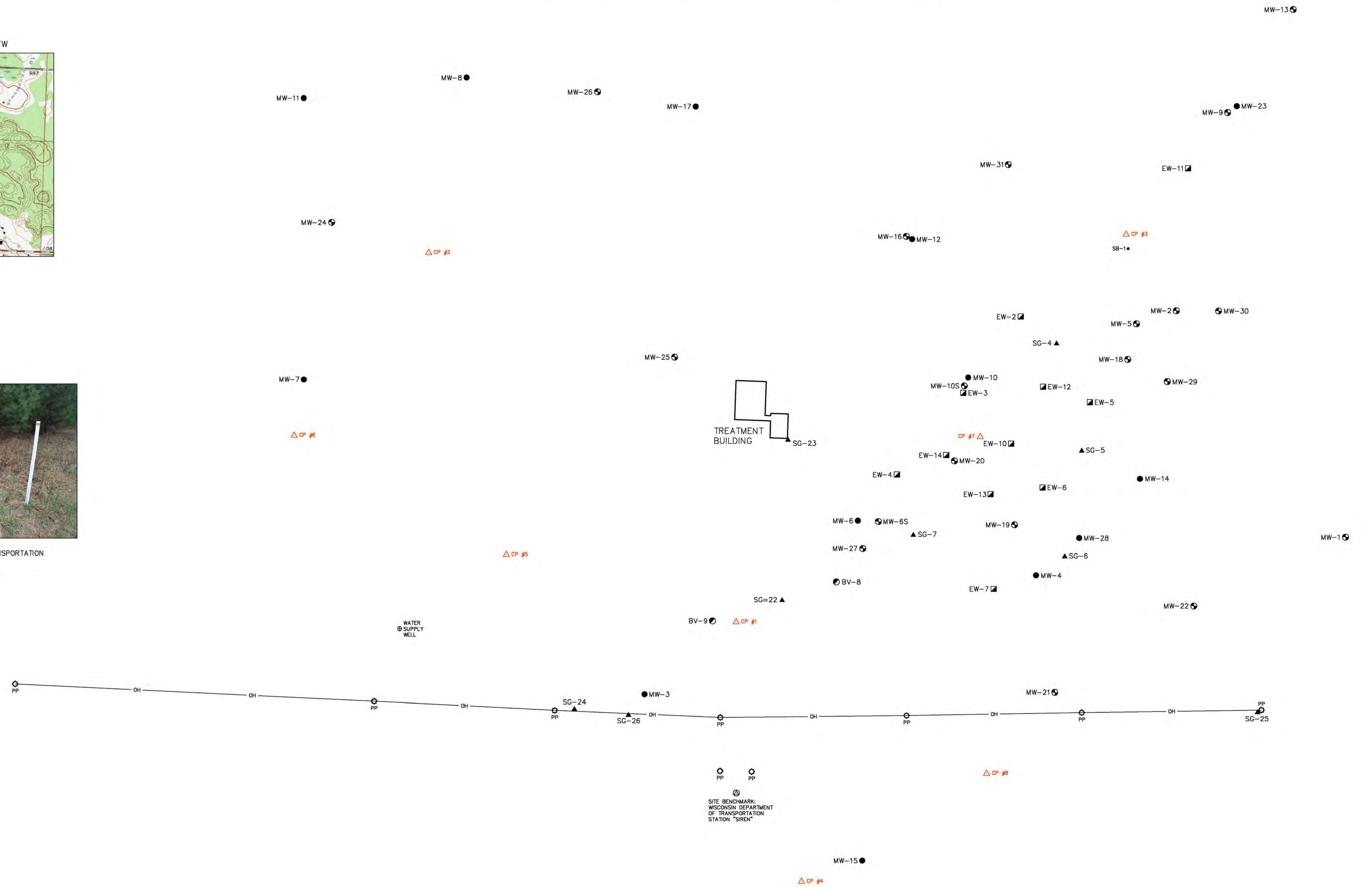
VICINITY MAP  
(NO SCALE)



SITE BENCHMARK:  
WISCONSIN DEPARTMENT OF TRANSPORTATION  
STATION "SIREN"



TREATMENT BUILDING AT PENTA WOOD PRODUCTS SITE



**LEGEND**

- EW □ EXTRACTION WELL NEST
- MW ● UNCONFINED MONITORING WELL
- MW ⊙ SEMICONFINED MONITORING WELL
- BV ● BIOVENTING WELL
- SG ▲ SOIL GAS WELL NEST
- PP ⊙ POWER POLE
- OH — OVERHEAD UTILITY LINES
- CP #1-8 △ SURVEY CONTROL POINT

NOTE: NOT ALL PHYSICAL FEATURES SUCH AS  
BITUMINOUS ROADWAYS, GRAVEL TRAILS, ETC.  
ARE SHOWN ON THIS SURVEY.

SURVEY MEASUREMENTS TAKEN APRIL 21-22, 2016



EXTRACTION WELL NEST



UNCONFINED MONITORING WELL



SEMICONFINED MONITORING WELL



BIOVENTING WELL



SOIL GAS WELL NESTS

PREPARED FOR:  
TIMOTHY REE, P.E.  
CHD  
1801 OLD HIGHWAY 8 N.W., STE. 114  
ST. PAUL, MINNESOTA 55112  
651-639-0913  
CELL 651-592-7697



CERTIFICATION  
I HEREBY CERTIFY THAT THIS SURVEY, PLAN,  
OR REPORT WAS PREPARED BY ME OR  
UNDER MY DIRECT SUPERVISION AND THAT  
I AM A DAILY LICENSED PROFESSIONAL LAND  
SURVEYOR UNDER THE LAWS OF THE STATE  
OF WISCONSIN.

*Mark D. Kemper*  
MARK D. KEMPER, PLS S-1944

DATED THIS 16TH DAY OF MAY, 2016



# Appendix B

## Historical Site Data

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)				
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		
DW01	9/24/03	N	0.5 U	0.05 J		1 U		2		50 UJ			5 UJ		30	1 U	0.25 U	2.5 U	2.5 U	2.5 U		250	66.9		110.8	1.48	2 U		1.5				
DW01	9/24/03	N2	0.5 U			1 U		1 U		50 UJ			5 U		40																		
DW01	5/4/04	N	10.0 U	0.102 UB		0.243 J		61.5 R		194 R	27300		108 R		2710 R	5.00 U	0.109 J	5.00 U	0.153 J	5.00 U		292	49 =		309	1.8 J	7.9 R		1.54 J				
DW01	5/4/04	N2				0.280 J		49.5 R		29.2 R			58.0 R		2590 R																		
DW01	9/22/04	N														5.00 U	0.500 U	5.00 U	5.00 U	5.00 U													
DW01	9/28/04	N		1.08 =																													
DW01	11/1/04	N		0.0962 U																													
DW01	5/11/05	N	2.0 U	0.033 J												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U					260 J								
DW01	9/27/05	N		0.040 J												0.93 UJ	0.50 U	5.0 U	5.0 U	5.0 U													
DW01	5/31/06	N	2.0 U	0.039 J		1.0 UJ		140 J		50 UJ			4.0 UJ		1900 J	0.95 U	0.50 U	5.0 U	5.0 U	5.0 U		270 J	29 J		260 J	1.5 J	6.5		1.1 J				
DW01	9/26/06	N	2.0 UJ	0.11 U		1.0 UJ		100		50 UJ			15 J		1500 J	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		230 J	21 J		230 J	0.67 J	13 J		2.1				
DW01	5/10/07	N	2.0 UJ	0.074 J		1.0 UJ		100		100 UJ			10 UB		620 J	0.95 R	1.0 UJ	1.0 UJ	1.0 UJ	2.0 UJ		400 =	29		320	1.8	17 J		1.0 UB				
DW01	9/19/07	N	2.0 UJ	0.093 UJ		0.63 J		89		100 UJ			2.4 J		1100	0.93 R	1.0 U	1.0 U	1.0 U	2.0 U		250 J	27		330 J	1.5 J	14 J		0.92 J				
DW01	5/20/08	N		0.094 UJ												0.94 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ													
DW01	10/23/08	N	2.0 UJ	0.1 U		2 UJ		205 J		642 J	33000 J		4.6 J		81.2 J	1 U	0.5 U	2.0 U	2.0 U	5.0 U		297 J	29.6		423 J	1.79 J	9.07		44.4				
DW01	6/3/09	N		0.1 U												1.0 UJ	0.5 U	2.0 U	2.0 U	5.0 U													
DW01	10/8/09	N		0.1 UJ												0.994 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ													
DW01	5/19/10	N		0.1 U												1.0 U	0.4 U	5 U	5 U	5 U													
DW01	10/7/10	N		0.1 UJ												0.995 UJ	0.1 U	0.4 U	0.4 U	1 U													
DW01	6/30/11	N		0.1 U												0.999 U	0.1 U	0.4 U	0.4 U	1 U													
DW01	10/18/11	N		0.032 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
DW01	5/23/12	N		0.028 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
DW01	10/18/12	N		0.032 J												0.19 U H	0.50 U	1.0 U	1.0 U	2.0 U													
DW01	5/21/13	N		0.029 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
DW01	10/8/13	N		0.027 J												0.20 U	0.50 U	1.0 U	1.0 U	2.0 U													
DW01	5/13/14	N		0.057 J																													
DW01	9/25/14	N		0.54 J																													
DW01	4/21/15	N		0.023 J												0.060 UJ	0.24 U	0.23 U	0.22 U	0.43 U													
DW01	10/15/15	FD		0 U												0.061 U	0.35 U	0.25 U	0.23 U	0.52 U													
DW01	10/15/15	N		0 U												0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U												
DW01	4/5/16	N														0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U												
DW01	4/5/16	FD														0.095 Jp	0.14 J	0.35 U	0.25 U	0.23 U	0.52 U												
DW01	4/5/16	FD														0.097 Jp	0.062 U	0.35 U	0.25 U	0.23 U	0.52 U												
EW02D	4/14/16	N	0.15 J	0.49 J		3.8		299			384		46.7		370	1.7	0.35 U	0.25 U	0.23 U	0.52 U		55.0	12.1		70.6	0.70	8.7		4.8				
EW02S	4/14/16	N	0.094 J	0.49 U		1.4 J		50.2 J			39.3		7.3 U		690	2.5	0.35 U	0.25 U	0.23 U	0.52 U		30.0	10.5		41.2	1.0	7.0		2.7				
EW03D	4/18/16	N	1.3	2.7 J		9.8		12500 B			1780		398		3500	2.4	0.35 U	0.33 J	0.23 U	3.6		184	13.4		169	0.035 UH	25.6		10				
EW03S	4/18/16	N	0.15 J	0.53 J		10.8		1050 B			3530		7.3 U		14000	12	0.70 U	0.50 U	0.46 U	5.2		88.0	73.8		220	0.29 H	39.1		59.1				
EW04D	4/18/16	N	0.33 J	0.49 U		2.2		3060 B			316		172		24	0.16 J	0.35 U	0.25 U	0.23 U	0.52 U		129	16.5		131	1.9	6.0		5.3				
EW04S	4/18/16	N	0.12 J	0.49 U		2.4		567 B			385		7.3 U		210	0.25	0.35 U	0.25 U	0.23 U	0.52 U		81.0	9.9		98.0	0.92	8.1		7.2				
EW05D	4/20/16	N	0.44 J	2.7 J		8.6		8430			1980		372		7500	19	0.35 U	0.79 J	0.95 J	6.7		145 B	14.4		171	0.035 U	17.0		36.7				
EW07D	4/12/16	N	0.59	0.49 U		1.1 J		122			210		7.3 U		0.31	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		127	23.7		174	6.6 H	8.4		1.2				
EW10D	4/20/16	N	1.1	6.5		10.3		3350			2200		81.0		5000	19	0.35 U	1.4	1.8	12		135 B	25.7 F1		180	0.057 JF1	21.8 F1		41.8				
EW10D	4/20/16	FD	1.3	7.6		12.1		3720			2170		114		4800	19	0.35 U	1.3	1.9	12		136 B	23.9		184	0.060 J	20.3		41.0				
EW10D	4/20/16	RB		0.49 U		0.89 J		16.0 U			1.1 U		7.3 U		0.24	0.065 U	0.35 U	0.25 U	0.23 U	0.52 U													
EW11D	4/14/16	N	0.080 U	0.49 U		1.1 J		657			22.6		46.4		3.4	0.063 U	0.35 U	0.25 U	0.23 U	0.52 U		187	12.7		282	2.0	155		1.0				
EW11D	4/14/16	FD	0.080 J	0.49 U		0.75 U		825			27.4		55.9		2.5	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		190	12.8		276	2.0	198		1.2				
EW11S	4/14/16	N	0.080 U	0.49 U		3.4		451			63.5		7.3 U		0.37	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		48.6	7.0		100	8.9	45.1		5.2				
EW12D	4/20/16	N	4.0	2.2 J		1.3 J		3820			1620		7.3 U		2500	12	0.35 U	0.58 J	0.50 J	7.2		90.0 B	5.4		80.4	0.035 U	6.4		15.7				

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)	
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
EW13D	4/19/16	N	1100	1.6 J		0.75 U		7660 B			956		11.7 J		2100	13	0.35 U	0.27 J	0.32 J	4.8		180	15.1		167	0.093 J	2.0		20.7	
EW13S	4/19/16	N	4.9	23.2		37.7		14100 B			2340		13.8 J		770	2.0	0.35 U	0.26 J	0.23 U	4.2		370	20.7		229	0.035 U	9.6		36.6	
EW14D	4/19/16	N	4.2	0.49 U		3.4		301			77.4		17.5 J		2800	3.5	0.35 U	0.25 U	0.23 U	2.4		137	12.0		139	0.48 H	7.2		6.5	
EW14D	4/19/16	FD	3.5	0.49 U		0.75 U		292			77.8		17.2 J		2700	3.1	0.35 U	0.25 U	0.23 U	2.4		136	11.9		145	0.48 H	7.1		6.3	
MW1	10/9/97	FD	10 U	1		2.3		3.5 U		20 J			1180		3.8		0.1 U	1 U	1 U	1 U		190	16			4.5	5.8		43.5	
MW1	10/9/97	FD2				2 U		70.9							36															
MW1	10/9/97	N	10 U	2		2 U		61.6		20 U			1070		32.8		0.1 U	1 U	1 U	1 U		190	18			6.5	6.3		20	
MW1	10/9/97	N2		2		2 U		2 U							3		0.1 U	1 U	1 U	1 U										
MW1	4/24/01	N	0.11 U	0.1 U		2.4		33		9830			642		16	5.6 U	0.1 U	1 U	1 U	1 U		140	24		218	6.5 =	13		3.89	
MW1	4/24/01	N2	0.11 U			1 U		25 U		25 U			15 U		25 U											6.5				
MW1	9/11/01	N	10 U	0.5		0.7 J		4 J		35 U			0.79 J		3.7 U	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		130	10		170	2.6	8.2 U		3.9	
MW1	9/11/01	N2				1.3		25 U		4000			450		20															
MW1	5/14/02	N				1.4 U		1.6 J		11.2 U			0.48 J		5.4 J															
MW1	8/6/02	N	10.0 U	0.067		1.4 U		7.6 J		1700			180		5.8 J	5 U	1 U	5 U	5 U	5 U		170	7.4		190	0.15 U	7.9		2.6	
MW1	8/6/02	N2	10.0 U	0.063		1.7 J		0.3 U		11 U			0.95 J		3.9 J	5 U	1 U	5 U	5 U	5 U		160	7.3		190	0.15 U	7.7		3.7	
MW1	8/6/02	N3				1.8 J		9.5 J		2200			230		6.5 J															
MW1	8/6/02	N4				1.4 U		0.3 U		11 U			2.2 J		2.9 J															
MW1	4/29/03	N	0.5 U	0.1 U		1 U		14		3160			217		10 U	7.4 U	0.5 U	5 U	5 U	5 U		174	4.3		187	2.6	10		3.2	
MW1	4/29/03	N2	0.5 U			1 U		1 U		25 U			5 U		10 U															
MW1	9/24/03	N	0.5 U	0.13		1 J		21		7000 J			416		20 J	1 U	0.25 U	2.5 U	2.5 U	2.5 U		157	3.3		68.25	2.61	2 U		8.4	
MW1	9/24/03	N2	0.5 U			1 U		1 J		100 J			36		10 U															
MW1	5/4/04	N	0.863 J	1.06 J		0.346 J		5.73 R		790 R	13900		135 R		7.43 R	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		147	4.3 R		158	2.1 J	2.0 R		6.37 J	
MW1	5/4/04	N2				0.190 J		0.785 R		29.9 R			15.0 R		2.74 R															
MW1	9/21/04	FD	10.0 U	0.442		0.470 J		13.6 J		1210			158		13.4 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		140	2.7 =		1960	1.8 J	4.5 J		7.98	
MW1	9/21/04	FD2				0.227 J		0.707 J		21.0 J			3.07 J		3.31 J															
MW1	9/21/04	N	10.0 U	0.348		0.353 J		8.41 J		838			103		17.1 J	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U		130	2.7 =		776	1.8 J	5.2 J		6.75	
MW1	9/21/04	N2				0.218 J		0.605 J		18.0 J			2.60 J		4.06 J															
MW1	5/10/05	N	2.0 U	0.12		1.0 U		18		3800			360		11 J	0.92 U	0.50 U	5.0 U	5.0 U	5.0 U		110 J	3.6 J		140 J	1.7 J	14 R		3.7 R	
MW1	5/10/05	N2				1.0 U		10 U		50 U			10 U		20 U															
MW1	9/29/05	N	2.0 U	0.12		1.0 J		23 J		4800 J			400 J		14 J	1.0 U	0.50 U	5.0 U	5.0 U	5.0 U		110 J	6.2 J		160 J	1.9 J	16 R		2.4 J	
MW1	9/29/05	N2				1.0 UJ		10 UJ		50 UJ			3.8 J		20 UJ															
MW1	5/31/06	N	2.0 U	0.049 J		1.0 UJ		10 UJ		50 UJ			10 UJ		20 UJ	1.0 U	0.50 U	5.0 U	5.0 U	5.0 U		110 J	2.3 J		100 J	1.6 J	17		1.7 J	
MW1	5/8/07	N	2.0 UJ	0.11 J		1.0 UJ		10 UJ		100 UJ			6.3 J		20 UJ	1.0 R	1.0 U	1.0 U	1.0 U	2.0 U		190 =	2.2 J		130	1.9	15 J		1.9	
MW1	9/18/07	N	2.0 UJ	0.093 UJ		1.0 UJ		10 UJ		100 UJ			10 UJ		20 UJ	0.93 R	1.0 U	1.0 U	1.0 U	2.0 U		110 J	9.4		170 J	3.0 J	12 J		1.1 J	
MW1	10/21/08	N	2.0 UJ	0.42 UJ		2 U		10 UJ		388	21200		10 U		8.60 J	1.00 U	0.50 U	2.0 U	2.0 U	5.0 U		109	3.91		223 J	1.62 J	6.19		3.38 J	
MW1	4/12/16	N	0.080 U	0.49 U		0.75 U		19.9 JB			1.4 JB		7.3 U		0.15	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		79.9 B	5.1		102	0.53	5.2		0.73 J	
MW2	10/9/97	N	10 U	1 U		2 U		10.2 J		20 J			50.6		10		0.1 U	1 U	1 U	1 U		300	3.5			1.1	17		2.6	
MW2	10/9/97	N2		1 U		2 U		11.4 J							10.7		0.1 U	1 U	1 U	1 U										
MW2	4/5/00	N		0.5 U												10 U														
MW2	6/18/01	N	0.14	0.1 U		0.37 J		25 U		24 U			8.3		25 U	5 U	0.1 U	1 U	1 U	1 U		36	5.73		66	38 =	105		5.57	
MW2	6/18/01	N2	0.14			6.7		109		39900			1230		64											38				
MW2	9/12/01	N	10 U	0.51		3.9		110		29000			1200		69	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		49	6.2		140	2.3	10		4.2	
MW2	9/12/01	N2				0.29 U		2.2 U		35 U			57		5.2 J															
MW2	8/6/02	N	10.0 U	0.12		6.4		30		10000			420		26 J	5 U	1 U	5 U	5 U	5 U		66	3		98	0.15 U	10		3.2	
MW2	8/6/02	N2				1.4 U		0.3 U		48			18		9.1 J															
MW2	9/24/03	N	0.5 U	0.28		8		100		41300 J			1180		80	0.99 U	0.25 U	2.5 U	2.5 U	2.5 U		80	1 J		106.2	2.02	3 J		2.3	
MW2	9/24/03	N2	0.5 U			1 U		16		3030 J			443		20 J															



Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW2	9/21/04	N	10.0 UJ	1.26		4.03 J		87.2 J		25800 J			972 J		64.2 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		110 J	12 J		921 J	1.4 J	4.0 R		5.23 R
MW2	9/21/04	N2				0.237 J		3.10 J		662			22.2 J		7.73 J														
MW2	9/28/05	N	2.0 U	2.2 =		6.7		140 J		40000 J			1300 J		82 J	0.98 U	0.50 U	5.0 U	5.0 U	5.0 U		150 J	5.6 J		270 J	0.10 UJ	27 R		2.5 J
MW2	9/28/05	N2				1.0 UJ		2.5 J		65 J			9.3 J		20 UJ														
MW2	9/26/06	N	2.0 UJ	2.3		1.0 U		10 UJ		50 U			2.6 UB		20 UJ	1.7 U	0.50 U	5.0 U	5.0 U	5.0 U		160 J	1.6 J		220	0.12 J	20 J		3.1
MW2	9/19/07	N	2.0 UJ	3.7 J		0.62 J		10 UJ		100 UJ			6.5 J		20 UJ	0.97 R	1.0 U	1.0 U	1.0 U	2.0 U		160 J	3.6		200 J	0.22 J	16 J		2.1 J
MW2	10/21/08	N	2.0 UJ	1.60 J		2 U		10 UJ		424 J	27900		5.20 J		20 U	1.00 U	0.5 U	2.0 U	2.0 U	5.0 U		138	3.17		276 J	1.10 J	12.90		2.59 J
MW2	10/6/09	N	0.83 UJ	2.21 J		2 UJ		10 UJ		129 J	19000 J		10 UJ		20 UJ	0.996 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		122 J	1.97 J		190.6 J	0.81 J	11.6 J		5.33 J
MW2	10/6/10	N	1.3 U	0.1 U		2 U		8 U		43 J	4680		9.4 J		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		62	0.6 J		52.5	1.01 J	4.2 J		24
MW2	10/19/11	N	0.50 U	0.097 U		2.0 U		2.2 J+		47 J	9400 B		3.7 J		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		63	7.7		93.60	0.50 J	33		1.0 U
MW2	10/16/12	N	0.50 U	0.33		0.82 J		6.2 J		810	8800 =		25		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		54	4.1		91.2	0.90 J	32 J		6.7
MW2	10/9/13	N	0.50 U	0.94 J		2.0 UJ		10.0 UJ		50 UJ	6900 J		10 UJ		20 UJ	0.21 U	0.50 U	1.0 U	1.0 U	2.0 U*		39 J	2.8			2.9 J	28		4.5 J
MW2	10/9/13	N2																											
MW2	9/24/14	N	0.070 U	0.32	0.18 U		0.75 U		16 U			1.4 J		7.3 U		0.061 U	0.24 U	0.23 U	0.22 U	0.43 U		62	0.69 J	68		0.73	2.4	0.50 U	
MW2	10/14/15	N	0.080 U	0.49 U		0.75 J		56.7 J			2.9 J		7.3 U		0.13	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U		50.7 B	0.55 J	60.3		0.63	2.1	1.3	
MW2	4/14/16	N	0.080 U	1.3 J		20.1		6580			171		19.7 J		0.080 J	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		34.4	0.51 J		49.0	0.38	1.8		3.6
MW3	10/8/97	N	10 U	1 U		2 U		2 U		257			10.9		2 U		0.1 U	1 U	1 U	1 U		370	42 J			4.4 J	16		1.2
MW3	10/8/97	N2		1 U													0.1 U	1 U	1 U	1 U									
MW3	4/4/00	N		0.6 U												12 U													
MW3	4/25/01	N		0.11 U		1 U		25 U		147			7.3		25 U	6.1 U	0.1 U	1 U	0.46	1 U		442	47		544	4.42	11		1 U
MW3	4/25/01	N2				1 U		25 U		142			7.9		25 U	6.1 U											4.42 =		
MW3	9/13/01	N	10 U	0.092 J		0.29 U		2.2 U		930			31		3.7 U	0.26 U	0.44 U	0.5 U	0.4 U	1.2 U		440	58		480	4	14		1.1
MW3	9/13/01	N2				0.35 J		2.2 U		2400			31		3.7 U														
MW3	8/7/02	N	10.0 U	0.11		1.7 J		2.3 J		480			15 J		1.4 J	5 U	1 U	5 U	5 U	5 U		420	69		540	0.15 U	16		1.4
MW3	8/7/02	N2				1.9 J		0.58 J		160			12 J		4.8 J														
MW3	9/23/03	N	2.5	0.31		1 U		1 J		150			5 U		10 U	1.1 U	0.25 U	2.5 U	2.5 U	2.5 U		357	52.4		160	4.43	2 U		1.6
MW3	9/23/03	N2	2.5																										
MW3	9/24/03	N				1 U		1 U		1 U			8 J		10 U														
MW3	9/21/04	N	5.71 J	0.367		0.189 J		356 J		278 J			6.45 J		273 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		430 J	62 J		3250 J	3.5 J	8.9 R		2.16 R
MW3	9/21/04	N2				0.119 J		1.91 J		137 J			4.99 J		4.61 J														
MW3	9/28/05	FD															0.50 U	5.0 U	5.0 U	5.0 U									
MW3	9/28/05	N	2.0 U	0.20 J		1.0 U		4.9 J		23000 J			93 J		20 UJ	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		370 J	62 J		490 J	3.3 J	24 R		1.4 J
MW3	9/28/05	N2				1.0 U		3.0 J		120 J			6.7 J		20 UJ														
MW3	10/21/08	N	4.90 J	0.10 UJ		2.00 U		10 UJ		2140	58700		15.20 J		20 U	3.13 U	0.50 U	2.0 U	2.0 U	5.0 U		513	60.50		836	2.73 J	15.20		18 J
MW3	10/7/09	N	21 J	0.1 UJ		2 UJ		10 UJ		722 J	46000 J		12.4 J		20 UJ	0.997 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		482 J	53.8 J		581.46 J	2.55 J	11 J		3.42 J
MW3	10/5/10	N	1.6	0.1 U		2 U		10 U		805	69100		12 J		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		510	67.2		906	3.62	19.8 J		2.2 J
MW3	10/18/11	N	140	0.58		0.76 J		2 U		510	44000 B		41		10 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		510	64		531.00	3.3	16		2.9
MW3	10/16/12	N	13	0.46		0.59 J		10 U		260	41000 =		8.3 J		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		460	69		493	3.6 J	17 =		2.4
MW3	10/8/13	N	4.3	0.38		0.088 J		10.0 U		50 U	42000 B		8.3 J		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		390	70			3.5 J	16		1.6
MW3	9/25/14	N	15	0.35	0.18 U		0.75 U		160 B			7.6		7.3 U		0.060 U*	0.24 U	0.23 U	0.22 U	0.43 U		290	72	360		2.1	12	0.91 J	
MW3	10/15/15	FD	5.7	0.49 U		1.2 J		56.6 J			7.9		7.3 U		0.23	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U		258 B	52.3	312		1.7 J	11.2 F1	1.2	
MW3	10/15/15	N	5.1	0.49 U		0.93 J		58.2 J			7.4		7.3 U		0.15	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		258 B	52.5	322		1.7 J	11.1	1.1	
MW3	4/5/16	N	4.4	0.49 U		1.4 JB^		716			20.4 B		7.3 U		0.46	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		224 B	48.2		299	1.4	10.1		0.98 J
MW3	4/5/16	FD	4.2	0.49 U		0.99 JB^		514			18.6 B		7.3 U		0.40	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		221 B	48.6		283	1.4	10.0		0.94 J
MW4	10/9/97	N	139	1 U		2 J		2 U		35.9 J			55.9		2 U		2	3	1	3		94	7.3			0.1 U	6.3		12.3
MW4	10/9/97	N2		1 U		2 U		2.4 U							4.5														
MW4	4/4/00	N		0.5 U												10 U													

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW5	10/10/97	FD	10 U	31000 J		4.3		26.2 J		5070			15500		2		0.1 U	2	4	18		370	50			0.1 U	16		160
MW5	10/10/97	FD2				4.6		4835 J							2.7														
MW5	10/10/97	N	10 U	28000 J		3.8		48.5 J		4860			12900		3.7		0.1 U	3	5	21		370	50			0.1 U	15		115
MW5	10/10/97	N2		28000 E		3.2		24 J							2 J		0.1 U	3	5	21									
MW5	4/7/00	N		20600 =												76 U													
MW5	4/26/01	N	0.4	20600		5.6		74		20400			11200		25 U	38	0.22	0.84	1.8	8.1		352	42		349	0.13 U	28		43
MW5	4/26/01	N2	0.4			3.9		25 U		7630			11300		25 U														
MW5	9/13/01	N	10 U	6300		3.7		5.1 J		4100			8500		6.2 J	23	0.44 U	0.54 J	0.78 J	4.3		270	29		240	0.17 J	22		27
MW5	9/13/01	N2				8.2		100		26000			8500		4.2 J														
MW5	8/7/02	N		510 J		4.1		28		34500			8130		104	3.2 J	1 U	5 U	5 U	5 U		220	26		4 U	0.15 U	21		25
MW5	8/7/02	N2				2 J		1.5 J		7900			7840		26.9 J														
MW5	9/25/03	N	0.47 J	1100		4		50		35100			9450		10 U	2.5	0.25 U	2.5 U	2.5 U	2.5 U		228	22.1		78.48	0.05 U	20		6.2
MW5	9/25/03	N2	0.47 J			3		7		13400			8320		10 U														
MW5	9/22/04	N	10.0 UJ	194		0.488 J		17.3 J		30500			7150		13.7 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		250 J	29 J		1490 J	0.01 R	24 R		18.8 R
MW5	9/22/04	N2		214 E		0.612 J		1.44 J		7480 J			5650 J		5.91 J														
MW5	9/28/05	N	2.3	1100 =		1.0 UJ		6.0 J		18000 J			7600 J		20 UJ	1.8	0.50 U	5.0 U	5.0 U	5.0 U		260 J	18 J		480 J	0.10 UJ	35 R		7.4 J
MW5	9/28/05	N2				1.0 UJ		10 UJ		19000 J			7600 J		20 UJ														
MW5	9/26/06	N	8.7 J	460 =		1.0 UJ		10 UJ		23000 J			8000 J		20 UJ	1.4 U	0.50 U	5.0 U	5.0 U	5.0 U		290 J	16 J		370	0.10 J	27 J		6.6
MW5	9/20/07	N	9.8	31 J		1.0 UJ		10 UJ		25000			7600		20 UJ	0.74 R	1.0 U	1.0 U	1.0 U	2.0 U		230 J	13		270 J	0.10 U	39 J		4.1 J
MW5	10/22/08	N	11 J	206		2 UJ		10 UJ		10500 J	31400 J		9700 J		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5.0 U		267 J	8.68		357 J	0.05 U	24.8		30.5
MW5	10/7/09	N	17 J	33.3 J		2 UJ		10 UJ		6000 J	33600 J		11800 J		20 UJ	0.998 UJ	0.1 UJ	0.4 UJ	0.4 UJ	0.14 J		256 J	8.59 J		344.62 J	0.05 UJ	55.1 J		3.5 J
MW5	10/6/10	N	4.1	39.8 J		3.36 J		8 U		3030	43600		12600		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		274	11.4 J		437	0.10 UJ	79.4		4.2
MW5	10/19/11	N	38 J	0.97		1.0 J		2 U		2600	40000 B		11000		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		260	15		397.00	0.10 U	150		2.6
MW5	10/17/12	N	17	0.59 J		0.57 J		10 U		2700	29000 =		7000		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		180	11		302	0.10 U H	130 =		1.8
MW5	10/10/13	N	19	0.60		0.39 J		10.0 UJ		2200 J	20000 J		4700 J		20 UJ	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		150 B	9.2 J			0.10 UJ	140 J		1.8
MW5	9/24/14	FD	10	12	0.42 J		0.75 U		1200 B			2200		7.3 U		0.061 U	0.24 U	0.23 U	0.22 U	0.43 U		97	4.3	150		0.12	48	0.50 U	
MW5	9/24/14	N	12	12	0.41 J		0.75 U		1200 B			2200		7.3 U		0.061 U	0.24 U	0.23 U	0.22 U	0.43 U		100	4.3	150		0.14	48	2.3	
MW5	10/14/15	N	1.8 B	0.49 U		0.75 U		954			2230		7.3 U		64	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U		98.7 B	12.7	159		0.053 J	48.9	3.3	
MW5	4/7/16	N	4.3	0.49 U		0.75 U		931			1990		7.3 U		17 *	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		72.0 B	12.7		113	0.97 H	38.0		4.6 B
MW5	4/7/16	FD	4.9	0.49 U		0.75 U		940			2070		7.3 U		16 *	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		71.3 B	12.5		113	0.96	37.6		4.5 B
MW6	4/19/16	N	0.78	0.49 U		5.2		282			5.6		9.0 J		170	0.063 U	0.35 U	0.25 U	0.23 U	0.52 U		183	35.0		245	10.2 H	26.3		6.2
MW6	4/19/16	FD		0.49 U		0.75 U		16.0 U			3.2 J		7.3 U		0.050 Jp	0.066 U	0.35 U	0.25 U	0.23 U	0.52 U									
MW6S	10/9/97	N	10 U	1 U		5.1		473		20 U			4720		258		0.1 U	1 U	1 U	1 U		62	72 J			4.5	0.9		1.6
MW6S	10/9/97	N2		1 U		2 U		2 U							2.2		0.1 U	1 U	1 U	1 U									
MW6S	4/26/01	N	0.12 U	2.5		15		202		82800			1950		131	5.4 U	0.1 U	1 U	1 U	1 U		148	14		285	0.87	12		5.29
MW6S	4/26/01	N2	0.12 U			0.26		25 U		25 U			347		25 U														
MW6S	9/12/01	N	10 U	1.1		7.4		190		42000			1900		110	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		160	12		290	1.1	16		6.3
MW6S	9/12/01	N2				0.58 J		3.1 J		35 U			800		5 J														
MW6S	8/7/02	N	270	88 J		5.5		69.1		7570			2210		18.3 J	5 U	1 U	5 U	5 U	5 U		270	17		4 U	0.15 U	18		5.8
MW6S	8/7/02	N2				2.7		9.9 J		3330			1790		9.7 J														
MW6S	9/25/03	N	130	0.33		1 J		22		5900			1190		10 J	1 U	0.25 U	2.5 U	2.5 U	2.5 U		282	23.9		104	1.01	17		8.2
MW6S	9/25/03	N2	130			1 J		9		1100			961		10 U														
MW6S	9/27/06	N	3.5 J	0.21		1.0 U		2.6 J		50 U			590		20 U	1.1 U	0.50 U	5.0 U	5.0 U	5.0 U		320 J	18		350	3.9 =	18		4.1
MW6S	9/20/07	FD	2.7	0.14 J		1.0 UJ		10 UJ		390			190		7.0 J	0.93 R	1.0 U	1.0 U	1.0 U	2.0 U		230 J	29		330 J	4.7	36 J		5.2 J
MW6S	9/20/07	N	3.0	0.099 J		1.0 UJ		10 UJ		510			200		7.0 J	0.93 R	1.0 U	1.0 U	1.0 U	2.0 U		230 J	30		320 J	4.7	34 J		4.7 J
MW6S	10/23/08	N	2.0 UJ	2.65		2 UJ		4.4 J		438 J	6260 J		65.3 J		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5.0 U		4.98 J	28.3		90 J	7.11 J	11		8.3
MW6S	10/7/10	N	1.3 U	0.1 UJ		2 U		5 J		531	4780		19.7 J		20 U	1.0 UJ	0.5 UJ	2 U	2 U	5 U		11 UB	21.3		56.9	6.94 J	11 J		6.8

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)	
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW6S	10/19/11	N	0.50 U	0.10 U		2.0 U		3.7 J		50 U	4400 B		14		10 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		15	17		45.60	5.3	9.8		1.0 U	
MW6S	10/17/12	N	0.50 U	0.10 U		0.54 J		10 U		50 U	4600 =		3.9 J		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		18	16		51.4	5.5 H	11 J		3.2	
MW6S	10/9/13	N	0.50 U	0.52 J		2.0 UJ		10.0 UJ		1500 J	6000 J		32 J		20 UJ	0.21 U	0.50 U	1.0 U	1.0 U	2.0 U *		5.0 UJ	29			9.0 J	9.5		8.0 J	
MW6S	10/9/13	N2																								8.9 J				
MW6S	9/24/14	N	0.082 J	0.27	1.3 J		27		6000 B			110		41 B		0.062 U	0.24 U	0.23 U	0.22 U	0.43 U		22	9.3	100		3.6	7.3	0.50 U		
MW6S	10/14/15	N	0.080 U	0.49 U		2.5		16.8			1.4 J		7.3 U		0.17	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		12.5 B	10.8	76.4		3.6	6.7	3.4		
MW6S	4/19/16	N	0.080 U	0.51 J		4.7		831 B			15.4		7.3 U		0.20	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		42.0	7.4		70.6	4.8	6.3		18.2	
MW7	10/14/97	N	10 U	1 U		2 U		6.2		622			13.4		11.4		0.1 U	1 U	1 U	1 U		350	7.6			4.9	6		1.6	
MW7	10/14/97	N2		1 U		2 U		2 U							3.5		0.1 U	1 U	1 U	1 U										
MW7	4/4/00	FD		0.5 U											10 U															
MW7	4/4/00	N		0.5 U											10 U															
MW7	4/25/01	N	4.65	0.1 U		1 U		25 U		352			5.4		25 U	5.2 U	0.1 U	1 U	1 U	1 U		352	8.36		388	3.63	6.54		2.8	
MW7	4/25/01	N2	4.65			1 U		25 U		154			6.6		25 U	5.2 U										3.63 =				
MW7	9/11/01	N	12	0.083 J		0.4 J		2.2 U		560			6.4		3.7 U	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		340	23		410	3	10		2	
MW7	9/11/01	N2	10 U	0.13 J		0.29 U		2.2 U		230			4.4		5.2 J	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		350	24		400	3	10		1.8	
MW7	9/11/01	N3				0.47 J		2.2 U		560			5.7		4.8 J															
MW7	9/11/01	N4				0.29 U		2.2 U		230			4.6		3.9 J															
MW7	8/7/02	N	10.0 U	0.03 J		1.5 J		0.3 U		730			6.5 J		2.8 J	5 U	1 U	5 U	5 U	5 U		390	21		450	0.15 U	10		1.5	
MW7	8/7/02	N2				1.4 U		0.3 U		300			4 J		0.98 U															
MW7	9/24/03	N	4.9	0.044 J		1 U		1 U		280 J			6 J		10 UJ	0.96 U	0.25 U	2.5 U	2.5 U	2.5 U		346	12.2		133.3	2.97	2 U		1.2	
MW7	9/24/03	N2	4.9			1 U		1 U		90 J			5 U		10 UJ															
MW7	9/22/04	N	10.0 UJ	9.18 E		1.00 UJ		1.09 J		1640 J			9.86 J		4.06 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		300 J	7.2 J		1560 J	3.4 J	6.8 R		1.98 R	
MW7	9/22/04	N2		5.75		0.108 J		0.847 J		25.0 UJ			9.75 J		2.96 J															
MW7	9/27/05	N	2.0 UJ	0.12 U		1.0 U		10 U		1300			18		20 U	0.91 UJ	0.50 U	5.0 U	5.0 U	5.0 U		260 J	18 J		450	1.8 J	130 J		0.96 J	
MW7	9/27/05	N2				1.0 U		10 U		880			16 J		20 U															
MW7	9/26/06	N	4.3 J	0.087 J		1.0 U		10 U		50 U			68 J		20 U	0.92 U	0.50 U	5.0 U	5.0 U	5.0 U		280 J	15		390	1.8 =	110 =		2.4	
MW7	9/20/07	N	3.7	0.093 U		1.0 UJ		10 UJ		260			22		5.9 J	0.93 R	1.0 U	1.0 U	1.0 U	2.0 U		270 J	16		370 J	1.5	170 J		1.1 J	
MW7	10/22/08	N	110 J	0.1 U		2 UJ		4 J		926 J	37700 J		41.6 J		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5 U		277 J	14.1		535 J	1.54 J	98.9		4.16	
MW7	10/22/08	N2																												4.41
MW7	10/7/09	N	2.4 J	0.403 J		2 UJ		10 UJ		687 J	32600 J		109 J		20 UJ	0.999 UJ	0.1 UJ	0.4 UJ	0.4 UJ	0.14 J		245 J	12.2 J		396.43 J	1.91 J	152 J		14.5 J	
MW7	10/6/10	N	28	0.1 U		2 U		8 U		989	38900		63.2		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		226	13.8 J		482	2.24 J	168		10.4	
MW7	10/19/11	N	15	0.098 U		0.48 J		2 U		81	21000 B		21		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		230	12		249.00	1.9 J	92		1.5 J	
MW7	10/17/12	N	2.2	0.096 U		2.0 U		10 U		230	21000 =		22		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		210	11		254	1.5 H	120 =		0.97 J	
MW7	10/9/13	N	2.2 B	0.094 U		0.34 J		10.0 UJ		10000 J	21000 J		74 J		20 UJ	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U *		200 J	12			1.8 J	120		0.75 J	
MW7	10/9/13	N2																								1.8 J				
MW7	9/23/14	N	15	0.034 J	0.28 JB		0.75 U		260			33		30 B		0.060 U	0.24 U	0.23 U	0.22 U	0.43 U		200	9.0	240		1.9 H	110	0.96 J		
MW7	10/12/15	N	6.5 B	0.88 J		1.6 J		16.0 U			423		7.3 U		0.015 U	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U		228 B	8.3	229		1.5	46.2	0.85 J		
MW7	4/6/16	N	13	0.49 U		1.9 JB^		5270 B			117 B		36.2 B		0.015 U	0.065 U	0.35 U	0.25 U	0.23 U	0.52 U		212 B	10.3		237	1.7	25.7		0.58 J	
MW8	10/14/97	N	36.5	1 U		2 U		2 U		148			17.8		7.4		0.1 U	1 U	1 U	1 U		170	4.2			1.4	4.5		2.3	
MW8	10/14/97	N2		1 U		2 J		2 U							4.6		0.1 U	1 U	1 U	1 U										
MW8	4/5/00	N		0.5 U											10 U															
MW8	4/25/01	N	11.6	0.2		0.99		25 U		829			32		25 U	5 U	0.1 U	1 U	1 U	1 U		154	3.25		181	1.52	7.47		1.46	
MW8	4/25/01	N2	11.6			0.75		25 U		25 U			27		25 U															
MW8	4/25/01	N3				0.57		25 U		25 U			22		25 U															
MW8	9/11/01	N	10 U	0.062 J		1		2.2 U		70 J			18		4.3 J	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		150	3.8		170	1.5	7.6 U		1 J	
MW8	9/11/01	N2				1.2		2.2 U		350			19		3.7 U															
MW8	8/8/02	N	10.0 U	0.04 U		1.4 U		0.3 U		98			6.4 J		12 J	5 U	1 U	5 U	5 U	5 U		180	4.2		310	0.15 U	6		1.1	

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW8	8/8/02	N2				1.8 J		0.27 U		11 J			5.3 J		2.3 J														
MW8	9/25/03	N	8.9	0.047 J		1 U		1 U		140			8 J		10 U	0.95 U	0.25 U	2.5 U	2.5 U	2.5 U		182	11		69.57	2.61	2 U		1.7
MW8	9/25/03	N2	9.2	0.11 U		1 U		1 U		50 U			8 J		10 U	1 U	0.25 U	2.5 U	2.5 U	2.5 U		184	11		69.44	2.6	2 U		2.3
MW8	9/25/03	N3	9.2			1 U		1 U		240			8 J		10 U														
MW8	9/25/03	N4				1 U		1 U		50 U			6 J		10 U														
MW8	9/23/04	N	3.75 J	1.94 =		0.127 J		0.465 J		256			15.1		2.25 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		200	15		1160	2.4 J	5.8 J		1.40
MW8	9/23/04	N2				0.539 J		0.660 J		11.0 J			12.0 J		2.09 J														
MW8	9/28/05	FD	2.0 U	0.12 U		1.0 UJ		2.3 J		4500 J			56 J		20 UJ	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		160 J	19 J		200 J	2.0 J	19 R		1.0 J
MW8	9/28/05	FD2				1.0 UJ		10 UJ		120 J			13 J		20 UJ														
MW8	9/28/05	N	2.6	0.031 J		1.0 UJ		3.8 J		4700 J			63 J		20 UJ	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		160 J	20 J		240 J	2.0 J	19 R		1.2 J
MW8	9/28/05	N2				1.0 UJ		10 UJ		130 J			16 J		20 UJ														
MW8	9/20/07	N	2.0 UJ	0.093 U		1.0 J		10 UJ		210			13 J		20 UJ	0.93 U	1.0 U	1.0 U	1.0 U	2.0 U		180	21		260 J	1.5	76 J		1.1 J
MW8	10/22/08	N	0.78 J	0.1 U		2 UJ		10 UJ		707 J	40400 J		13.1 J		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5 U		178 J	24.3		496 J	1.92 J	73.1		16.1
MW8	4/11/16	N	1.5	0.60 J		0.75 U		197 B			10.9 B		7.3 U		0.016 Jp	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		174 B	18.0		421	1.3 H	201		0.26 J
MW9	10/8/97	N	10 U	1 U		2 U		4.2 U		20 U			19.7		5.6		0.1 U	1 U	1 U	1 U		60	45			4.2	3.4		6.5
MW9	10/8/97	N2		1 U													0.1 U	1 U	1 U	1 U									
MW9	4/5/00	N		0.6 =											10 U														
MW9	4/23/01	N	0.12 U	0.12		0.38		25 U		470			46		25 U	5.3 U	0.1 U	1 U	1 U	1 U		60	3.22		59	2.46 =	27		9.94
MW9	4/23/01	N2	0.12 U																							2.46			
MW9	4/24/01	N				0.28		25 U		25 U			34		25 U														
MW9	9/12/01	N	10 U	0.76		0.43 J		6.1 J		300			27		11 J	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		62	6.5		64	3.3	6.8 U		5.1
MW9	9/12/01	N2				0.34 J		2.2 U		110			16		6.6 J														
MW9	8/6/02	N	10.0 U	0.54		1.4 U		1.6 J		200			14 J		6.4 J	5 U	1 U	5 U	5 U	5 U		64	11		95	0.15 U	22		8.4
MW9	8/6/02	N2				1.4 U		0.3 U		11 U			6.3 J		9.6 J														
MW9	9/25/03	N	0.5 U	2.3		1 J		20		7400			229		20 J	1 U	0.25 U	2.5 U	2.5 U	2.5 U		59	4.4		32.83	2.36	24		6.5
MW9	9/25/03	N2	0.5 U			1 U		1 U		240			16		10 U														
MW9	9/22/04	N	10.0 UJ	2.92		0.134 J		2.07 J		231 J			16.5 J		4.60 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		58 J	3.2 J		776 J	1.8 J	26 R		6.48 R
MW9	9/22/04	N2				0.265 J		2.88 J		125 U			8.51 J		14.9 J														
MW9	9/27/05	N	2.0 UJ			1.0 UJ		10 U		50 U			6.3 J		20 U	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		55 J	2.6 J		70	1.9 J	20 J		2.0
MW9	9/27/05	N2				1.0 UJ		10 U		50 U			5.4 J		20 U														
MW9	10/18/05	N		0.57																									
MW9	9/21/07	N	2.0 U	0.37 J		1.0 UJ		5.9 J		100 UJ			4.1 J		20 UJ	0.97 R	1.0 U	1.0 U	1.0 U	2.0 U		58 J	2.6		86 J	3.8	15 J		3.3 J
MW9	10/22/08	N	2.0 UJ	0.1 U		2 UJ		6 J		166 J	11600 J		10 UJ		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5 U		55 J	3.44		113 J	2.48 J	14.9		11.2
MW9	5/18/10	N	1.3 U	0.073 J		2 UJ		10 UJ		120. UJ	6230. J		7.1 J		20 UJ	1.0 U	0.5 U	5 U	5 U	5 U		63 UB	2.63		67.9	2.42 J	11		25.7 UB
MW9	10/6/10	N	1.3 U	0.1 U		2 U		8 U		109 J	8540		16.7 U		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		27	3.3 J		88.1	3.35	14 J		7.6
MW9	10/19/11	N	0.50 U	0.098 U		2.0 U		3.5 J+		50 U	8400 B		2.9 J		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		69	1.0 U		82.00	3.1	8.9		1.0 U
MW9	10/16/12	N	0.50 U	0.39		0.91 J		10 U		50 U	8400 =		10 U		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		63	2.8 J		82	5.9 J	10 J		3.8
MW9	10/9/13	N	0.50 U	0.41 J		2.0 UJ		10.0 UJ		50 UJ	6200 J		10 UJ		20 UJ	0.21 U	0.50 U	1.0 U	1.0 U	2.0 U*		47 J	1.2			3.8 J	12		1.6 J
MW9	10/9/13	N2																								3.8 J			
MW9	9/24/14	N	0.070 U	1.6	0.18 U		0.75 U		16 U			1.1 U		7.3 U		0.061 U	0.24 U	0.23 U	0.22 U	0.43 U		14	1.1	41		2.4	10	2.5	
MW9	10/13/15	N	0.080 U	0.49 U		1.3 J		21.1 J			1.1 U		7.3 U		0.17	0.066 U	0.35 U	0.23 U	0.25 U	0.52 U		31.0 B	0.70 J	40.2		1.5 H	7.4	4.4	
MW9	4/13/16	N	0.080 U	0.49 U		1.4 J		33.6 J			1.5 J		7.3 U		0.28	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		26.6	0.99 J		37.2	1.4	7.3		30.2
MW10	10/15/97	N	13.5	8200 J		1.4		9.1		2190			2510 J		4.4		0.2	2	3	17		340	35			4.9	13		20
MW10	10/15/97	N2		8200 E		2 J		2.8 U							9.2		0.2	2	3	17									
MW10	4/6/00	N		9530 J												60 =													
MW10	4/6/00	N2		12900 =												5410 U													
MW10	4/26/01	N	2.9	22800		3.1		98		25200			2560		44	5.2 U	0.4	3.3	5.3	27		472	48		505	0.18	22		26

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW10	4/26/01	N2	2.9			2.4		5.9		5650			2380		25 U														
MW10	9/12/01	N	10 U	21000		3.9		3.9 J		2400			3200		9.5 J	130	0.44 U	6.3	10	55		540 J	61		630	0.13 J	23		64
MW10	9/12/01	N2				4.5		40		20000			3300		13														
MW10	8/7/02	N	11	22000 J		9.5		48.2		24400			2730		2.8 J	120	1 U	7	11	54		400	56		480	0.15 U	20		110
MW10	8/7/02	N2				7.3		10.1 J		10700			2540		6.1 J														
MW10	10/1/03	N	0.62	9000		2 J		30		5470			1960		10 J	18	0.25 U	2.5 U	2.5 U	13.5		287	22		93.58	0.05 U	3 J		25.3
MW10	10/1/03	N2	0.62			2 J		8		2590			1850		10 U														
MW10	9/23/04	N	10.0 U	38000 =		2.66		28.3		3550			2550		5.58 J	173 E	0.296 J	5.58 J	8.09 J	47.1		390	38		1640	0.0018 J	18 =		54.1
MW10	9/23/04	N2				3.01		12.4 J		24.1 J			1810		4.23 J	160													
MW10	9/27/06	N	2.0 UJ	23000 J		1.0 U		4.3 J		120			2600		20 U	50	0.50 U	2.0 J	1.7 J	16		450 J	14		440	0.10 U	24 =		21
MW10	9/21/07	N	2.4 J	1700 J		0.88 J		2.3 J		550			2700		20 UJ	12 J	1.0 U	1.3	1.0 U	7.2		380 J	20		420 J	0.68	25 J		12 J
MW10	10/23/08	FD	7 J	1720		2 UJ		10 UJ		1080	48600 J		2190 J		20 UJ	0.82 J	0.5 U	2.0 U	2.0 U	5.0 U		310 J	12.4		500 J	0.05 J	29.5		13.1
MW10	10/23/08	N	6 J	1630		2 UJ		10 UJ		1110 J	40000 J		2210 J		20 UJ	0.92 J	0.5 U	2.0 U	2.0 U	5.0 U		305 J	12.4		432 J	0.05 U	28.1		39.2
MW10	10/7/09	FD	23 J	214 J		2 UJ		10 UJ		704 J	36900 J		2310 J		20 UJ	0.996 UJ	0.1 UJ	0.094 J	0.083 J	0.49 J		282 J	9.84 J		347.47 J	0.05 UJ	59 J		2.13 J
MW10	10/7/09	N	17 J	220 J		2 UJ		8.2 J		1210 J	38800 J		2230 J		20 UJ	0.998 UJ	0.1 UJ	0.072 J	0.073 J	0.41 J		280 J	9.82 J		369.28 J	0.05 UJ	58.7 J		4.68 J
MW10	10/7/10	FD	2.3	77.1 J		2 U		8 U		396	37200		1820		20 U	1.0 UJ	0.1 U	0.4 U	0.074 J	1 U		272	7.3 J		346	0.10 UJ	47.7 J		1.8
MW10	10/7/10	N	1.8	92.4 J		2 U		8 U		488	41600		1780		20 U	1.0 UJ	0.1 U	0.4 U	0.051 J	1 U		308	7.2 J		390	0.10 UJ	48.2 J		2.2
MW10	10/20/11	FD	11 J	21		0.60 J		2 U		180	33000 B		1700		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		260	8.7		303.00	0.22	54		2.1
MW10	10/20/11	N	8.8 J	21		2.0 U		2 U		180	33000 B		1700		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		260	8.4		303.00	0.21	53		2.1
MW10	10/17/12	FD	12	14		0.50 J		10 U		180	31000 =		1600		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		230	8.0		292	0.067 J	69 J		1.7
MW10	10/17/12	N	12	8.7		0.55 J		10 U		190	32000 =		1600		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		240	7.8		304	0.075 J	68 J		1.7
MW10	10/10/13	FD	140 J	16		0.19 J		10.0 UJ		230 J	31000 J		1600 J		20 UJ	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		230 B	7.9			0.39 J	94		1.7
MW10	10/10/13	N	27 J	17		0.19 J		10.0 UJ		260 J	32000 J		1700 J		20 UJ	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		220 B	7.8			0.41 J	93		1.4
MW10	9/25/14	N	8.1	37	0.21 J		0.75 U		250 B							0.061 U*	0.24 U	0.23 U	0.22 U	0.43 U		180	6.1	270		0.10	77	0.50 U	
MW10	10/15/15	N	8.2	0.49 U		1.0 J		188			861		7.3 U		150	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		178 B	6.5	244		ND	71.8	1.8	
MW10	4/7/16	N	290	0.49 U		0.75 U		1350			719		7.3 U		1900 *	4.8	0.35 U	0.46 J	0.53 J	2.9		162 B	9.8		189	0.035 UH	46.1		8.6 B
MW10S	10/15/97	N	10 U	30000 E		2 U		28.5 J		45.4 J			10700 J		11.6		0.4	0.9 J	1	8		260	38			0.1 U	23		49.7
MW10S	10/15/97	N2		30000 J		2 J		10.9 J							8.4		0.4	0.9 J	1	8									
MW10S	4/7/00	N		56100 J																									
MW10S	4/7/00	N2		34800 =												512 = 393 F													
MW10S	12/5/00	N	0.57	3810 B		0.74 J		13 J		610			6900		25 U	152	0.1 U	5.9	2.9	70		31	15		570	1	11		300
MW10S	12/5/00	N2	0.57	3810 J		9.36		160		11000			7100		35	152													
MW10S	4/25/01	N	0.55	49000		18		409		131000			7990		216	306	1 U	3.5	10 U	44		142	11		425	1.49 =	8.64		503
MW10S	4/25/01	N2	0.55			2.3		46		11300			6030		45		10 U	100 U	100 U	100 U						1.49			
MW10S	9/12/01	N	10 U	82000		5.1		170		35000			8600		100	75	0.44 U	0.94 J	0.41 J	15		270 J	10		260	4.7	13		19
MW10S	9/12/01	N2				0.29 U		3.2 J		48 J			7600		3.7 U														
MW10S	8/7/02	N	10.0 U	390 J		3.9		53.3		9490			7560		22.4 J	5 U	1 U	1 J	5 U	10		170	10		4 U	0.11 J	14		10
MW10S	8/7/02	N2				3.1		2.3 J		67.3			7070		0.98 U														
MW10S	9/25/03	N	0.5 U	2200		1 U		7		1760			5910		10 U	1 U	0.25 U	2.5 U	2.5 U	3.4 J		135	6.7		52.05	3.41	2 J		6.6
MW10S	9/25/03	N2	0.5 U			1 U		1 J		50 U			5900		10 U														
MW10S	9/22/04	N	10.0 UJ	9490		1.49 J		73.1 J		14500 J			5460 J		49.7 J	51.9	5.00 U	50.0 U	50.0 U	5.42 J		120 J	24 J		1220 J	3.6 J	15 R		7.54 R
MW10S	9/22/04	N2				0.190 J		1.79 J		22.7 J			3740 J		6.07 J														
MW10S	9/29/05	N	2.0 U	0.11 U		1.0 UJ		14 J		3600 J			4000 J		8.0 J	5.6	0.50 U	5.0 U	5.0 U	0.99 J		130 J	16 J		300 J	2.0 J	120 R		3.0 J
MW10S	9/29/05	N2				1.0 UJ		10 UJ		50 UJ			3900 J		20 UJ														
MW10S	9/26/06	N	2.0 UJ	2700 J		1.0 U		2.2 J		50 U			2500		20 U	1.2	0.50 U	5.0 U	5.0 U	2.6 J		180 J	8.6		310	1.2	79 =		6.5
MW10S	9/21/07	N	2.0 U	24 J		1.0 UJ		10 UJ		100 UJ			1300		20 UJ	2.4 R	1.0 U	1.0 U	1.0 U	2.0 U		170 J	8.7		240 J	1.3	69 J		2.9 J
MW10S	10/24/08	N	2.0 UJ													3.36	0.5 U	2.0 U	2.0 U	5.0 U									

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			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW10S	4/18/16	N	0.080 U	0.59 J		2.6		190 B			388		7.3 U		3500	4.7	0.35 U	0.25 U	0.23 U	2.7		102	7.8		92.1	0.035 UH	9.1		9.5	
MW11	10/15/97	N	10 U	1 U		2 U		2 U		10 U			2 U		5.3		0.3	1 JB	0.2 J	0.5 J		190	7.5			5	12		1.3	
MW11	10/15/97	N2		1 U		2 J		4.2 U							10.3		0.3	1 J	0.2 J	0.5 J										
MW11	4/4/00	N		0.6 U											11 U															
MW11	4/24/01	N	0.1 U	0.1 U		1.4		25 U		58			15 U		25	5.3 U	0.1 U	1 U	1 U	1 U		185	6.16		231	3.59 =	4.57		7.9	
MW11	4/24/01	N2	0.11 U	0.11 U		1.2		25 U		25 U			15 U		20	5.3 U	0.1 U	1 U	1 U	1 U		225	6.25		231	3.59	3.48		4.67	
MW11	4/24/01	N3	0.11 U			1.4		25 U		151			15 U		126	5.4 U											3.74 =			
MW11	4/24/01	N4				1.3		25 U		25 U			15 U		25 U	5.4 U											3.74			
MW11	9/10/01	N	10 U	0.091 J		1.4		2.9 J		66 J			1.9		9.1 J	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		190	8		220	3.1	7.4 U		4.2	
MW11	9/10/01	N2				1.1		2.2 U		35 U			0.45 J		3.7 U															
MW11	8/6/02	N	10.0 U	0.04 U		4.7		0.83 J		46			2.3 J		6.4 J	5 U	1 U	5 U	5 U	5 U		210	7.8		230	0.15 U	7.6		18	
MW11	8/6/02	N2	10.0 U			1.5 J		0.3 U		11.2 U			1.2 J		8.5 J															
MW11	9/23/03	N	0.5 U	0.11 U		1 U		2		160			5 U		10 U	0.98 U	0.25 U	2.5 U	2.5 U	2.5 U		187	6.7		72.14	2.94	2 U		2.3	
MW11	9/23/03	N2	0.5 U			1 U		1 U		50 U			5 U		10 U															
MW11	9/21/04	N	10.0 U	0.0656 J		0.885 J		0.620 J		15.6 J			2.81 J		6.36 J	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U		210	9.0 =		1020	3.0 J	6.2 J		14.1	
MW11	9/21/04	N2				0.948 J		0.366 J		6.05 J			1.40 J		4.05 J															
MW11	9/29/05	N	2.0 U	740 =		1.0 UJ		10 UJ		50 UJ			1.6 J		20 UJ	0.95 U	0.50 U	5.0 U	5.0 U	5.0 U		200 J	14 J		280 J	2.4 J	9.7 R		1.2 J	
MW11	9/29/05	N2				1.0 UJ		10 UJ		50 UJ			3.0 J		20 UJ															
MW11	9/27/06	N	2.0 UJ	0.11 U		1.0 UJ		10 UJ		50 UJ			10 UJ		20 UJ	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		220 J	16 J		240	0.53 J	8.8 J		2.3	
MW11	9/20/07	N	2.0 UJ	0.093 U		1.2 J		10 UJ		100 UJ			10 UJ		20 UJ	0.93 U	1.0 U	1.0 U	1.0 U	2.0 U		220	20		260 J	2.4	19 J		1.2 J	
MW11	10/22/08	N	2.0 UJ	0.27		2 UJ		10 UJ		533	33600 J		10 UJ		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5 U		234 J	19.9		433 J	2.26 J	17.8		20.2	
MW11	4/11/16	N	0.080 U	0.75 J		0.75 U		32.1 JB			1.9 JB		7.3 U		0.016 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		229 B	18.0		470	1.6 H	200		0.32 J	
MW12	10/15/97	N	10 U	13000 E		2 U		5		267			1660		10.6		1	2	3	14		490	50			0.1 U	15		21.7	
MW12	10/15/97	N2		13000 J		2 U		6.1 U							16.3		1	2	3	14										
MW12	4/6/00	FD		10600 J												45 =														
MW12	4/6/00	FD2		14100 =											5150 U															
MW12	4/6/00	N		15000 =											5210 U															
MW12	4/6/00	N2		10300 J											47 =															
MW12	4/26/01	N	0.99	1500		1		25 U		151			1540		25 U	44	0.34	2.5	4.1	22		564	48		556	0.43	16		23	
MW12	4/26/01	N2	0.99			0.91		25 U		131			1570		25 U															
MW12	9/13/01	N	10 U	18000		1.1		5 J		770			1300		9.3 J	40	0.44 U	2.3 U	3.2 U	20		490	47		470	0.53 U	16		25	
MW12	9/13/01	N2				0.95 U		6.8 J		740			1400		12															
MW12	5/14/02	FD		4000																										
MW12	5/14/02	N	10 U	4000		1.4 U		5.3 J		44.5			1670		7.4 J	33	1 U	2 J	2 J	14		490	39		520	0.68 H	16		31	
MW12	5/14/02	N2		4300		1.5 J		5 J		11.2 U			1670		9.3 J															
MW12	5/14/02	N3				1.4 U		4.9 J		11.2 U			1680		12 J															
MW12	8/8/02	N	10.0 U	6400 J		2.8		5.6 J		123			1620		7.7 J	28	1 U	2 J	2 J	15		460	37		4 U	0.46	15		28	
MW12	8/8/02	N2				1.4 U		2.9 J		105			1600		3.3 J															
MW12	4/29/03	N	0.5 U	3000		1 J		5		230			1640		10 U	17	0.5 U	1.3 J	1.3 J	11		470	31		442	0.8	20		19	
MW12	4/29/03	N2	0.5 U			1 U		4		25 U			1560		10 U															
MW12	9/23/03	N	0.49 J	10000		1 U		4		70 J			1420		10 U	14	0.25 U	2.5 U	2.5 U	8.6		443	30.8		151.4	1.17	2 U		15.5	
MW12	9/23/03	N2	0.49 J			1 U		3		50 U			1530		10 U		0.25 U	2.5 U	2.5 U	9.4		433	29.8		153.3	1.23	2 U		16	
MW12	9/23/03	N3	0.64			1 U		4		80 J			1490		10 U															
MW12	9/23/03	N4				1 U		3		50 U			1490		10 U															
MW12	5/4/04	N	1.34 J	11200 J		0.564 J		5.50 R		52.7 R	45900		1730 R		10.8 R	22.9	0.124 J	1.39 J	1.03 J	11.2		446	29 =		443	1.1 J	14 R		20.2 J	
MW12	5/4/04	N2				0.600 J		3.95 R		33.6 R			1480 R		8.80 R															
MW12	9/22/04	N	10.0 UJ	9060 J		1.00 UJ		5.09 J		53.9 J			1540 J		9.53 J	28.2 J	0.113 J	1.22 J	0.866 J	9.83		440 J	26 J		1660 J	1.1 J	12 R		18.2 R	



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			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW12	9/22/04	N2		3730 E		0.672 J		3.91 J		22.7 J			1230 J		8.10 J														
MW12	5/10/05	N	2.0 U	8300 J		1.0 U		4.2 J		50 U			1500		8.9 J	6.1	0.50 U	0.93 J	5.0 U	5.6		390 J	23 J		360 J	1.3 J	16 R		9.9 R
MW12	5/10/05	N2				1.0 U		4.8 J		50 U			1400		20 U														
MW12	9/27/05	N	2.0 UJ	8500 J		1.0 UJ		10 U		50 U			1200		7.8 J	3.3	0.50 U	0.85 J	5.0 U	4.9 J		370 J	20 J		410	1.1 J	26 J		9.2
MW12	9/27/05	N2				1.0 UJ		3.9 J		50 U			1300		20 U														
MW12	6/7/06	N	2.0 U	6100 J		1.0 UJ		2.3 J		50 R			1100 J		20 UJ	0.94 U	0.50 U	0.67 J	5.0 U	3.4 J		400 J	21 J		400 J	2.1 J	32 =		7.2 J
MW12	9/26/06	FD	2.0 UJ	2000 =		1.0 UJ		2.5 UJ		46 J			1200 J		20 UJ	1.4	0.50 U	5.0 U	5.0 U	1.7 J		390 J	15 J		370	2.0 J	15 J		10
MW12	9/26/06	N	2.0 UJ	3100 =		1.0 UJ		3.2 J		50 UJ			1200 J		16 J	1.5	0.50 U	5.0 U	5.0 U	2.9 J		390 J	14 J		380	1.9 J	15 J		10
MW12	5/9/07	N	2.0 UJ	3000 J		1.0 UJ		2.1 J		100 UJ			1100		5.2 J	0.99 J	1.0 UJ	1.0 UJ	1.0 UJ	1.9 J		340 =	13		370	2.4	37 J		7.0 UB
MW12	9/19/07	FD	2.0 UJ	1000 J		1.1 J		1.7 J		100 R			790		20 UJ	0.74 J	1.0 U	1.0 U	1.0 U	2.0 U		340	14		350 J	2.2	2.7 J		5.7 J
MW12	9/19/07	N	2.0 UJ	1100 J		0.97 J		10 UJ		100 R			820		20 UJ	0.71 J	1.0 U	1.0 U	1.0 U	2.0 U		340	14		330 J	2.8	29 J		5.6 J
MW12	5/20/08	FD	2.0 UJ	2200 J		0.61 J		3.8		100 UJ			1000		4.2 J	0.95 U	1.0 UJ	1.0 U	1.0 U	1.6 J		360 =	12		380	2.1	25		4.5 J
MW12	5/20/08	N	2.0 UJ	2100 J		0.59 J		3.7		100 UJ			1000		4.6 J	0.96 U	1.0 UJ	1.0 U	1.0 U	1.5 J		360 =	12		350	2.0	25		4.7 J
MW12	10/21/08	FD	2.0 UJ	1300.00 J		2.00 U		3.70 J		936	45000		1120		20 U	1.00 U	0.5 U	2.0 U	2.0 U	5.0 U		322	14.50		465 J	2.95 J	31.70		11.80 J
MW12	10/21/08	N	2.0 UJ	1670.00 J		2 U		4 J		927	50200		1140		11 J	1.00 U	0.5 U	2.0 U	2.0 U	5.0 U		323	13.10		519 J	2.96 J	31.80		11.70 J
MW12	6/2/09	FD	0.8 UJ	489 J		2 U		10 UJ		292 =	40600 =		1020 =		20 U	1.0 UJ	0.5 U	0.31 J	2.0 U	0.96 J	302 J		12.4		429.3758	2.64 J	62.2		1.7 J
MW12	6/2/09	N	0.8 UJ	521 J		2 U		10 UJ		310 =	34400 =		1040 =		20 U	1.0 UJ	0.5 U	0.28 J	2.0 U	0.88 J	294 J		12.3		363.3928	2.65 J	59.9		3.6 J
MW12	10/6/09	FD	0.83 UJ	289 J		2 UJ		4 J		294 J	47600 J		982 J		20 UJ	0.997 UJ	0.1 UJ	0.069 J	0.4 UJ	0.28 J		294 J	13.7 J		468.19 J	1.83 J	84.7 J		3.25 J
MW12	10/6/09	N	0.83 UJ	295 J		2 UJ		4 J		307 J	51600 J		987 J		20 UJ	0.995 UJ	0.1 UJ	0.073 J	0.4 UJ	0.28 J		297 J	13.7 J		509.63 J	1.84 J	85.4 J		3.83 J
MW12	5/19/10	FD	1.3 U	81.9		2 UJ		3.8 J		225. J	41800. J		633. J		8.2 J	1.0 U	0.5 U	5 U	5 U	5 U		308	14.7		432	1.91 J	117		36.1 UB
MW12	5/19/10	N	1.3 U	70.3		1.9 J		3.5 J		228. J	47700. J		913. J		11. J	1.0 U	0.5 U	5 U	5 U	5 U		308	14.7		496	1.87 J	116		41.8 UB
MW12	10/5/10	FD	1.3 U	42.9		2 U		8 U		332	47500 R		859		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		316	14.4 J		483	1.72	119		22.9 J
MW12	10/5/10	N	1.3 U	43.7		2 U		8 U		358	41500 R		834		20 U	1.0 U	0.1 U	0.4 U	0.044	1 U		320	14.4 J		548	1.73	119		53.9 J
MW12	6/29/11	FD	0.9 U	35.1		2 UJ		10 U		291	56900		765		20 U	0.998 U	0.1 U	0.4 U	0.4 U	1 U		276	13.3 J		524.00	2.11 J	103 J		1.53 J+
MW12	6/29/11	N	0.9 U	37		1.8 J		10 U		314	62600		744		20 U	0.998 U	0.1 U	0.4 U	0.4 U	1 U		295	14.1 J		555.00	2.28	111		1.28 J+
MW12	10/18/11	FD	0.50 U	30		1.0 J		2.3 J+		50 U	42000 B		640		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		300	14		398.00	2.1	100		2.0
MW12	10/18/11	N	0.50 U	37		1.1 J		2.3 J+		50 U	42000 B		660		10 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		300	14		398.00	2.1	98		2.0
MW12	5/22/12	FD	0.50 U	16 J		2.0 U		4.3 J		50 U	43000 =		630		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		310	14 =		419.00	1.8	120		1.6
MW12	5/22/12	N	0.50 U	21 J		2.0 U		10 U		50 U	44000 =		670		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		300	14 =		431.00	1.8	120		1.5
MW12	10/16/12	FD	0.50 U	23		1.2 J		10 U		50 U	43000 =		420		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		290	13		424	2.0 J	130 =		1.3
MW12	10/16/12	N	0.50 U	26		0.98 J		10 U		50 U	42000 =		410		20 U	0.21 U	0.50 U	1.0 U	1.0 U	2.0 U		280	14		413	2.0 J	120 =		1.4
MW12	5/22/13	FD	0.50 U	24		2.0 U		10 U		50 UJ	39000 B		530 B		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		290	12			2.1 J	150		1.6
MW12	5/22/13	N	0.50 U	22		2.0 U		10 U		50 U	36000 B		460 B		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		280	12			2.0 J	150		1.6
MW12	10/8/13	FD	0.50 U	22		0.37 J		10.0 U		50 U	42000 B		710 B		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		260	12			2.1 J	120		1.3
MW12	10/8/13	N	0.50 U	28		0.37 J		10.0 U		50 U	41000 B		680 B		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		270	12			2.1 J	120		1.4
MW12	5/14/14	N		19																									
MW12	9/23/14	N	0.076 J	24	0.66 JB		0.75 U		16 U			450		7.3 U		0.061 U	0.24 U	0.23 U	0.22 U	0.43 U		240	11	360		1.7	130	0.50 U	
MW12	4/20/15	N	0.070 U	16	1.1 JB		1.4 J		16 U			530		7.3 U		0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		220 B	11		410	1.7	140		0.95 J
MW12	10/13/15	N	0.080 JB	0.49 U		0.75 U		362 B				27.4		7.3 U		0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		279 B	11.7	74.4		1.6	159	1.2	
MW12	4/6/16	N	0.12 J	0.77 J		1.4 JB^		60.1 JB				148 B		7.3 U		0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		236 B	10.6		358 F2	1.6	135		0.67 J
MW13	10/8/97	N	10 U	0.7 J		2 U		3.32 U		6.7 J			27.3		2.7		0.1 U	1 U	1 U	1 U		70	2.7			1.4	1.4		17.9
MW13	10/8/97	N2		0.7 J													0.1 U	1 U	1 U	1 U									
MW13	4/5/00	N		0.8 =											10 U														
MW13	12/5/00	N	0.58 U	114 J		1 U		25 U		230			66		25 U	5.5 U	0.1 U	1 U	1 U	1 U		72	4.2		140	0.45	8.2		7.9
MW13	12/5/00	N2	0.58 U					92		26000			870		52	5.5 U	0.1 U	1 U	1 U	1 U					140				
MW13	4/23/01	N	0.12 U	0.18		14		140		56300			1300		89	5.3 U	0.1 U	1 U	1 U	1 U		70	3.52		146	1.77	35		18
MW13	4/23/01	N2	0.12 U			0.24		25 U		25 U			110		25 U														

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW13	6/19/01	N	0.12 U	0.11 U		1.1		68		32800			848		45	5.3 U	0.12	1 U	1 U	1 U		68	5.73		112	2.87 =	11		13
MW13	6/19/01	N2	0.12 U			9.1		6.1 J		141			26		25 U											2.87			
MW13	9/10/01	N	10 U	0.69		3.9		49		14000			510		37	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		75	5.4		100	2.5	7.5 U		9.5
MW13	9/10/01	N2				0.54 J		2.8 J		52 J			27		4.7 J														
MW13	8/5/02	N	10.0 U	0.64		9.1		55.3		19000			580		39.5	5 U	1 U	5 U	5 U	5 U		86	6.8		110	0.15 U	8.4		6.3
MW13	8/5/02	N2				2.2 J		2.5 J		1300			45		9.1 J														
MW13	9/23/03	N	0.5 U	2.9		3		55		24600			687		50	1 U	0.25 U	2.5 U	2.5 U	2.5 U		78	5.1		35.04	1.86	7		6
MW13	9/23/03	N2	0.5 U			1 U		8		960			182		10 U														
MW13	9/21/04	N	10.0 UJ	4.67		1.52		32.4		8770			357		24.3 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		68 J	6.5 J		667 J	2.4 J	6.4 R		6.30 R
MW13	9/21/04	N2				0.259 J		1.96 J		125 UJ			3.67 J		5.28 J														
MW13	9/27/05	N	2.0 UJ	0.85		1.0 J		18		6200			200		18 J	0.97 U	0.50 U	5.0 U	5.0 U	5.0 U		67 J	3.1 J		68	0.60 J	19 J		4.3
MW13	9/27/05	N2				1.0 UJ		2.5 J		50 U			7.1 J		20 U														
MW13	9/18/07	N	2.0 UJ	0.53 J		1.0 UJ		10 UJ		100 UJ			6.3 J		5.2 J	0.93 R	1.0 U	1.0 U	1.0 U	2.0 U		71 J	2.9		100 J	0.31 J	29 J		4.1 J
MW13	10/21/08	N	2.0 UJ	0.31 UJ		2 U		10 UJ		207	10500 J		10 U		20 U	1.00 U	0.50 U	2.0 U	2.0 U	5.0 U		55	1.90		110 J	0.45 J	10.10		3.44 J
MW13	10/7/09	N	0.83 UJ	0.16 J		2 UJ		3.2 J		50 UJ	4430 J		10 UJ		20 UJ	0.996 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		30 J	2.12 J		45.46 J	0.77 J	9.71 J		13.9 J
MW13	4/13/16	N	0.080 U	0.49 U		3.2		449			13.4		7.3 U		0.34	0.065 U	0.35 U	0.25 U	0.23 U	0.52 U		51.0	1.4		54.9	0.70	3.4		4.2
MW14	10/9/97	N	10 U	1 U		2 U		2 U		20 U			4 J		4		0.1 U	1 U	1 U	1 U		120	8			1.6	2.4		1 U
MW14	10/9/97	N2		1 U		2 U		2 U							2 U		0.1 U	1 U	1 U	1 U									
MW14	4/6/00	N		0.5 U												11 U													
MW14	6/19/01	N	0.11 U	0.96		1.4		5.4 J		1070			57		25 U	239	0.1 U	1 U	1 U	1 U		104	12		124	2.06	3.48 J		6.41
MW14	6/19/01	N2	0.11 U			2		25 U		25 U			4.4		25 U											2.06 =			
MW15	10/16/97	N	10 U	1 U		2 U		2 U		8.2 J			62.2		2 U		0.1 U	1 U	1 U	1 U		190	6.5			4.1	6.3		1.2
MW15	10/16/97	N2		1 U		2 U		3.5 U									0.1 U	1 U	1 U	1 U									
MW15	4/4/00	N		0.5 U												11 U													
MW15	4/25/01	N	0.1 U	0.11 U		0.5		25 U		58			4.8		50	5.3 U	0.1 U	1 U	1 U	1 U		240	15		276	3.97	2.61		5.24
MW15	4/25/01	N2	0.1 U	0.11 U		0.31		25 U		25 U			15 U		15	5.6 U	0.1 U	1 U	1 U	1 U		246	16		276	3.97 =	4.05		3.7
MW15	4/25/01	N3	0.12 U			0.56		25 U		174			4.1		25 U	5.6 U										3.92			
MW15	4/25/01	N4				0.42		25 U		25 U			15 U		16											3.92 =			
MW15	9/12/01	N	10 U	0.077 J		0.95 U		2.9 J		35 U			0.31 J		35	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		240	17		270	3.7	4.5 U		4.5
MW15	9/12/01	N2				0.95 U		5.7 J		63 J			2.7		36														
MW15	8/6/02	N	10.0 U	0.04 U		3.7		1.6 J		130			2.8 J		17 J	5 U	1 U	5 U	5 U	5 U		230	16		250	0.15 U	4.7		53
MW15	8/6/02	N2				2.6		0.3 U		11 U			0.42 U		11 J														
MW15	9/23/03	N	0.5 U	0.1 U		1 U		1 J		280			9 J		10 J	0.99 U	0.25 U	2.5 U	2.5 U	2.5 U		213	17.4		88.57	3.8	2 U		1.8
MW15	9/23/03	N2	0.5 U			1 U		1 U		50 U			5 U		10 U														
MW15	9/21/04	N	10.0 U	0.279		0.468 J		1.74 J		36.7			3.15 J		20.8 J	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U		230	16 =		1020	3.2 J	3.9 J		12.7
MW15	9/21/04	N2				0.482 J		0.648 J		5.57 J			0.976 J		8.97 J														
MW15	9/29/05	N	2.0 U	0.11 U		1.0 UJ		2.4 J		420 J			15 J		20 UJ	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		220 J	17 J		300 J	4.2 J	5.8 R		0.84 J
MW15	9/29/05	N2				1.0 UJ		10 UJ		50 UJ			1.6 J		20 UJ														
MW15	9/27/06	N	2.0 UJ	0.11 U		1.0 UJ		3.5 J		50 UJ			2.0 UB		13 J	0.91 U	0.50 U	5.0 U	5.0 U	5.0 U		260 J	14 J		250	4.7 J	5.9 J		2.1
MW15	9/19/07	N	2.0 UJ	0.10 U		0.68 J		10 UJ		100 UJ			10 UJ		20 UJ	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U		250	15		250 J	5.7	13 J		1.3 J
MW15	5/20/08	N	2.0 UJ	0.18 J		0.40 J		1.0 J		100 UJ			0.52 J		20 U	0.93 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ		260 =	14		290	4.7	6.6		0.85 J
MW15	10/21/08	N	2.0 UJ	0.10 UJ		2 U		10 UJ		854	45400		10 U		20 U	1.00 U	0.5 U	2.0 U	2.0 U	5.00 U		265	14.60		567 J	6.05 J	6.99		13.60 J
MW15	6/2/09	N	0.8 UJ	0.1 UJ		2 U		10 UJ		301 =	30600 =		10 U		20 U	1.0 UJ	0.5 U	0.21 J	2.0 U	5.0 U	279 J		13.5		375.2114	5.33 J	6.42		1.7 UJ
MW15	10/7/09	N	0.83 UJ	0.1 UJ		2 UJ		3 J		293 J	25500 J		10 UJ		5.4 J	0.999 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		260 J	12.9 J		294.28 J	4.74 J	6.52 J		1.49 J
MW15	5/18/10	N	1.3 U	0.1 U		2 UJ		10 UJ		194. J	24400. J		10 UJ		20 UJ	1.0 U	0.5 U	5 U	5 U	5 U		300	10.7		342	4.57 J	6.3		26.7 UB
MW15	10/7/10	N	1.3 U	2.32 J		2 U		8 U		311	38400		16.7 U		20 U	1.0 UJ	0.5 UJ	2 UJ	2 UJ	5 UJ		252	13.2 J		430	5.49 J	6.9 J		1.0 U
MW15	6/28/11	N	0.9 U	0.1 U		2 UJ		10 U		205	23100		10 U		20 U	0.998 U	0.1 U	0.4 U	0.4 U	1 U		239	12.1 J		307.00	5.2 J	6.91		0.77 J

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)	
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW15	10/18/11	N	0.50 U	0.10 U		0.70 J		2.7 J+		50 U	24000 B		1.7 J		10 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		240	12		261.00	4.8 J	5.3		1.0 J	
MW15	5/22/12	N	0.50 U	0.024 J		2.0 U		10 U		50 U	24000 =		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		260	11		266.00	4.6 J	5.1 J		1.2	
MW15	10/16/12	N	0.50 U	0.094 U		0.97 J		10 U		50 U	24000 =		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		250	12		271	5.3 J	5.0 U		0.69 J	
MW15	5/21/13	N	0.50 U	0.025 J		2.0 U		10 U		50 U	26000 B		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		280	9.8			4.7 J	5.9		0.82 J	
MW15	10/8/13	N	0.50 U	0.095 U		0.36 J		10.0 U		50 U	23000 B		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		220	11			5.2 J	6.5		0.50 J	
MW15	5/13/14	N		0.095 U																										
MW15	9/23/14	N	0.070 U	0.054 J	1.1 JB		0.75 U		28 J				1.9 J		7.3 U		0.060 U	0.24 U	0.23 U	0.22 U	0.43 U		210	11	250		5.3	5.6	0.85 J	
MW15	4/20/15	N	0.070 U	0.015 U	0.78 JB		0.75 U		16 U				1.1 J		7.3 U		0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		190 B	11		270	5.6	5.7		0.44 J
MW15	10/12/15	N	0.080 U	0.54 J		1.0 J		16.0 U			1.1 U		7.3 U		0.015 U	0.063 U	0.35 U	0.23 U	0.25 U	0.52 U		224 B	12	302		6.7 F1	5.8	0.55		
MW15	4/5/16	N	0.080 U	0.70 J		1.7 JB		16.0 U			1.1 U		7.3 U		0.078 J	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		207 B	12.5		312	0.45	6.3		0.49 J	
MW16	10/14/97	N	10 U	1 U		17.1		438		15.3 J			10300 J		210		0.1 U	1 U	1 U	1 U		170	6.1			2.6	8.1		3	
MW16	10/14/97	N2		1 U		2 U		2.7 U							1.9 J		0.1 U	1 U	1 U	1 U										
MW16	4/6/00	N		0.5 U												10 U														
MW16	4/23/01	N	0.12 U	0.11 U		6.5		62		22300			1460		136	5.6 U	0.1 U	1 U	1 U	1 U		90	3.57		164	8.69 =	29		4.4	
MW16	4/23/01	N2	0.12 U			1 U		25 U		26			9.4		23												8.69			
MW16	9/10/01	N	10 U	0.17		1.8		23 U		5500			520		19	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		79	1.8		120	5.8	11		0.34 U	
MW16	9/10/01	N2				0.29 U		2.2 U		35 U			0.82 J		4.5 J															
MW16	8/6/02	N	10.0 U	0.035 J		3.5		25 J		6800			14		760 J	5 U	1 U	5 U	5 U	5 U		130	2		120	0.15 U	13		1.3	
MW16	8/6/02	N2				1.4 U		0.3 U		78			9.1 J		13 J															
MW16	9/23/03	N	0.5 U	0.089 J		2 J		18		7470			532		10 J	1.1 U	0.25 U	2.5 U	2.5 U	2.5 U		82	6.2		37.96	3.49	3 J		2.3	
MW16	9/23/03	N2	0.5 U			1 U		1 U		50 U			5 U		10 U															
MW16	9/21/04	N	10.0 U	0.0962 J		0.277 J		4.07 J		570			74.7		8.71 J	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U		82	3.7 =		1220	2.1 J	5.5 J		4.28	
MW16	9/21/04	N2				0.135 J		0.509 J		25.0 U			0.617 J		2.79 J															
MW16	9/29/05	N	2.0 U	0.11 U		1.0 UJ		7.6 J		1000 J			130 J		8.1 J	1.0 U	0.50 U	5.0 U	5.0 U	5.0 U		82 J	11 J		190 J	1.5 J	71 R		0.83 J	
MW16	9/29/05	N2				1.0 UJ		2.9 J		50 UJ			2.1 J		20 UJ															
MW16	9/27/06	N	2.0 UJ	0.046 J		1.0 UJ		10 UJ		50 UJ			0.59 UB		20 UJ	0.92 U	0.50 U	5.0 U	5.0 U	5.0 U		83 J	4.1 J		100	1.2 J	32 J		1.3	
MW16	9/18/07	N	2.0 UJ	0.20 J		1.0 UJ		10 UJ		100 UJ			10 UJ		20 UJ	0.99 R	1.0 U	1.0 U	1.0 U	2.0 U		81 J	4.5		120 J	1.2 J	23 J		1.3 J	
MW16	10/22/08	N	2.0 UJ	0.08 J		2 UJ		10 UJ		318 J	19400 J		20 J		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5 U		51 J	7.51		175 J	0.99 J	43.2		92.3	
MW16	10/6/09	N	0.83 UJ	0.1 UJ		2 UJ		6.6 J		458 J	8360 J		48.6 J		20 UJ	0.998 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		40 J	6.35 J		81.869 J	1.03 J	36.7 J		1 UJ	
MW16	10/5/10	N	1.3 U	0.1 U		2 U		8 U		50 U	2910 R		16.7 U		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		39	5.7 J		29.3	0.63 J	6.3 J		15.7	
MW16	10/19/11	N	0.50 U	0.095 U		0.44 J		2.2 J+		130	3200 B		14		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		32	4.2		30.70	0.63 J	12		1.0 U	
MW16	10/16/12	N	0.50 U	0.099 U		0.66 J		10 U		180	3600 =		17		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		37	4.6		39.8	0.52 J	17 J		1.3	
MW16	10/8/13	N	0.50 U	0.029 J		0.61 J		10.0 U		1500 B	3300 B		100 B		59 J	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		34	6.2			0.57 J	6.3		1.1	
MW16	9/23/14	N	0.070 U	0.036 J	0.41 JB		0.75 U		16 U				1.1 U		7.3 U		0.060 U	0.24 U	0.23 U	0.22 U	0.43 U		31	5.4	60		0.54	2.8	1.1	
MW16	10/13/15	N	0.080 U	0.49 U		1.0 J		45.2 JB			2.1 J		7.3 U		0.015 U	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		48.4 B	4.3	84.4		0.61	5.9	0.70 J		
MW16	4/6/16	N	0.080 U	0.49 U		1.9 J		168 B			14.6 B		7.3 U		0.015 U	0.11 J	0.35 U	0.25 U	0.23 U	0.52 U		32.6 B	2.2		31.8	0.41	2.6		2.3	
MW17	10/15/97	N	10 U	1 U		2 U		2		10 U			2 U		17.6		0.1 U	1 JB	1 U	0.6 J		180	4.8			4.1	10		0.7 J	
MW17	10/15/97	N2		1 U		2 U		2.3 U							2.5		0.1 U	1 J	1 U	0.6 J										
MW17	10/28/97	N		5																										
MW17	4/6/00	N		0.5 U												11 U														
MW17	4/26/01	N	0.12 U	0.72		0.6		25 U		33			15 U		12	54	0.1 U	1 U	1 U	1 U		202	4.12		228	4.98	6.82		1.57	
MW17	4/26/01	N2	0.12 U			0.69		25 U		25 U			15 U		25 U												4.98 =			
MW17	9/11/01	N	10 U	0.059 U		0.94		2.2 U		330			0.27 U		3.7 U	0.29 U	0.44 U	0.5 U	0.4 U	1.2 U		180	4.8		210	4.4	9.3 U		1 J	
MW17	9/11/01	N2				1		2.2 U		310			0.27 U		3.7 U															
MW17	8/8/02	N	10.0 U	0.032 J		3		0.47 J		11 U			0.42 U		0.98 U	5 U	1 U	5 U	5 U	5 U		200	4.6		210	0.15 U	7.4		0.73	
MW17	8/8/02	N2				1.9 J		0.3 U		11 U			0.42 U		15 J															
MW17	9/25/03	N	0.5 U	0.46		1 U		1 U		50 U			18		10 U	0.96 U	0.25 U	2.5 U	2.5 U	2.5 U		184	4.4		71.56	5.1	2 U		2.1	

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)	
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW17	9/25/03	N2	0.5 U			1 U		1 U		50 U			5 U		10 U															
MW17	9/22/04	N	10.0 UJ	2.82		0.0787 J		0.774 J		11.5 UB			0.371 J		2.46 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		190 J	4.1 J		1100 J	4.8 J	8.6 R		1.67 R	
MW17	9/22/04	N2				0.782 J		0.847 J		13.9 J			45.0 J		2.09 J															
MW17	9/27/05	N	2.0 UJ	0.054 J		1.0 UJ		10 U		50 U			0.44 J		20 U	0.92 U	0.50 U	5.0 U	5.0 U	5.0 U		160 J	3.9 J		180	5.1 J	7.8 J		0.91 J	
MW17	9/27/05	N2				1.0 UJ		10 U		50 U			10 U		20 U															
MW17	9/26/06	N	2.0 UJ	0.11 U		1.0 UJ		10 UJ		50 UJ			10 UJ		7.5 J	0.91 U	0.50 U	5.0 U	5.0 U	5.0 U		170 J	2.9 J		170	5.5 J	6.5 J		1.1	
MW17	9/19/07	N	2.0 UJ	0.099 U		1.0 J		10 UJ		100 UJ			10 UJ		20 UJ	0.94 U	1.0 U	1.0 U	1.0 U	2.0 U		160	4.7		160 J	5.6	14 J		1.2 J	
MW17	10/22/08	N	2.0 UJ	0.1		2 UJ		10 UJ		374 J	29200 J		10 UJ		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5 U		155 J	7.78		295 J	5.75 J	7.75		20.2	
MW17	10/6/09	N	0.83 UJ	0.1 UJ		2 UJ		10 UJ		160 J	26700 J		10 UJ		20 UJ	0.995 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		60 J	6.54 J		295.228 J	1.65 J	6.86 J		1 UJ	
MW17	10/5/10	N	1.3 U	0.1 U		2 U		10 U		163	20500		10 U		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		160	11.6 J		225	5.18	9.7 J		1.6	
MW17	10/18/11	N	0.50 U	0.095 U		1.1 J		2 U		50 U	17000 B		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		140	16		180.00	3.9	24		0.89 J	
MW17	10/16/12	N	0.50 U	0.095 U		1.2 J		10 U		50 U	17000 =		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		150	16		187	4.7	23 J		0.59 J	
MW17	10/8/13	N	0.50 U	0.095 U		0.72 J		10.0 U		50 U	18000 B		10 U		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		140	16			4.5 J	36		0.40 J	
MW17	9/24/14	N	0.070 U	0.015 U	0.83 J		0.75 U		16 U			1.3 J		7.3 U		0.061 U	0.24 U	0.23 U	0.22 U	0.43 U		150	15	250		4.8	40	0.72 J		
MW17	10/13/15	N	0.080 U	1.1 J		0.75 U		16.0 U			1.1 U		7.3 U		0.015 U	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		184 J	14.8	265		4.2 H	45.3	0.59		
MW17	4/5/16	N	0.080 U	0.81 J		1.8 JB		16.0 U			1.1 U		7.3 U		0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		173 B	13.6		289	3.5	85.4		0.46 J	
MW18	10/10/97	N	10 U	27000 J		8.2		43.5 J		32000 J			10600		2.6		0.1 U	2	16	19		260	49			0.1 U	11		154	
MW18	10/10/97	N2		27000 E		8.9		62.5					6650		5.3		0.1 U	2	16	19		260	49			0.1 U	11		154	
MW18	6/19/01	N	0.13 U	27400		4.9		21 J		13700			6650		25 U	5 U	1.1	14	10 U	20		168	19		182	0.13 U	33 J		6.63	
MW18	6/19/01	N2	0.13 U			5		43		15200			6540		25 U															
MW19	10/16/97	N	10 U	19000 J		2 U		38 J		10 U			2690 J		46		0.2	1 U	1 U	0.2 J		180	47			3.8	19		32.8	
MW19	10/16/97	N2		19000 E		2 U		3.4 U							2 U		0.2	1 U	1 U	0.2 J										
MW19	4/7/00	N		11800 =												5260 U														
MW19	4/7/00	N2		11000 J												22 =														
MW19	4/26/01	N	0.5	25600		2.2		38		10000			1840		27	325 =	1 U	10 U	10 U	10		236	39		323	3.37 =	47		33	
MW19	4/26/01	N2	0.5			1 U		25 U		25 U			1790		25 U	325	10 U	100 U	100 U	100 U						3.37				
MW19	9/12/01	N	16	400000		0.29 U		6.4 J		71 J			1800		5.8 J	240	0.44 U	1.9 U	1.7 U	28		320 J	19		270	1.3	9.7 U		34	
MW19	9/12/01	N2				1.7 J		44		5600			2100		53 J															
MW19	5/13/02	N		14000		1.4 U		5.1 J		11.2 U			2070		9.4 J	190														
MW19	8/8/02	N	10.0 U	11000 J		7		30.2		719			3100		290	210	1 U	2 J	1 J	29		130	22		4 U	0.16	16		65	
MW19	8/8/02	N2				1.4 U		7.1 J		218			3110		5.7 J															
MW19	4/29/03	N	2.4	4900		2 J		24		2030			3670		10 U	1200	500 U	5000 U	5000 U	5000 U		118	19.6		162	3	27		53	
MW19	4/29/03	N2	2.4			1 U		5		25 U			3590		10 U															
MW19	9/25/03	N	5.7	15000		1 U		27		950			2210		10 U	3200	1 U	10 U	10 U	46.6		160	17.5 J		71.57	2 J	90 J		129 J	
MW19	9/25/03	N2	5.7			1 U		9		50 J			4470		10 U											2 J				
MW19	5/4/04	N	1.13 J	70000 J		0.284 J		22.2 R		892 R	17600		4040 R		11.6 R	201	2.50 U	2.13 J	1.98 J	30.0		144	25 =		176	0.71 J	16 R		43.7 J	
MW19	5/4/04	N2				0.169 J		5.77 R		31.4			3360 R		6.93 R															
MW19	9/22/04	N	10.0 UJ	111000		1.00 UJ		13.5 J		402 J			3160 J		16.7 J	260	0.500 U	3.45 J	2.25 J	50.3		110 J	15 J		1120 J	1.5 J	23 R		31.3 R	
MW19	9/22/04	N2				0.159 J		6.26 J		125 U			2650		16.0 J															
MW19	5/10/05	N	2.0 U	45000 J		1.0 U		6.3 J		50 U			2300		9.8 J	2300 =	100 UJ	1000 UJ	1000 UJ	1000 UJ		97 J	18 J		140 J	0.76 J	29 R		35 R	
MW19	5/10/05	N2				1.0 U		15		630			2100		8.4 J															
MW19	9/29/05	N	2.0 U	13000 =		1.0 UJ		11 J		97 J			2600 J		20 UJ	78	0.50 U	1.2 J	1.1 J	18		140 J	19 J		5 UJ	0.75 J	40 R		32 J	
MW19	9/29/05	N2				1.0 UJ		5.0 J		50 UJ			2700 J		20 UJ															
MW19	6/7/06	N	2.0 U	17000 J		1.0 UJ		4.4 J		50 UJ			2700 J		20 UJ	59	0.50 U	1.5 J	1.3 J	22		120 J	18 J		360 J	0.76 J	36 =		20 J	
MW19	9/27/06	N	2.0 UJ	8200 J		1.0 U		6.4 J		50 U			3100		20 U	69	0.50 U	1.4 J	1.2 J	19		160 J	14		190	0.66 J	30 =		35	
MW19	5/9/07	N	2.0 UJ	11000 J		1.0 UJ		3.7 J		100 UJ			2600		20 UJ	54 J	1.0 U	1.4	1.5	17		230 =	15		160	0.29	59 J		33 UB	
MW19	9/21/07	N		3500 J		1.0 UJ		4.0 J		100 UJ			3100		20 UJ	47 R	1.0 U	1.8	2.0	21		190 J	17		240 J	0.28	42 J		38 J	

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)	
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW19	5/20/08	N	2.0 U	23000 J		1.0 U		3.4		100 UJ			2900		2.3 J	140	1.0 UJ	5.0	4.8	54 J		220 =	16		260	0.44	42		18 J	
MW19	10/24/08	N	2.1 J	27900		2 UJ		5 J		510 J	28700 J		4850 J		20 UJ	120	0.5 U	5.11	5.08 =	50.3		221 J	15.9		373 J	0.04 J	46.2		29.8	
MW19	6/2/09	N	3.9 J	18600 J		2 U		10 UJ		222 =	29900 =		4050 =		20 U	110 J	0.5 U	7.93	6.66	74.6	249 J		12.8	317.6445	0.01 UB	44.7		13		
MW19	10/7/09	N	2 J	31800 J		2 UJ		3.8 J		237 J	27400 J		3190 J		7.2 J	137 J	0.1 UJ	7.62 J	5.77 J	60.7 J		228 J	14.3 J		271.39 J	0.05 UJ	42 J		20.4 J	
MW19	5/20/10	N	1.4	26000.		2 UJ		3.2 J		92.2 UJ	19900. J		1870. J		20 UJ	123.	0.5 U	7.95	5.65	64.3		136	21.5		199	0.05 UJ	32.4		50.4 UB	
MW19	10/7/10	N	1.3 U	4470 J		2 U		2.9 J		114	7130		942		20 U	102 J	0.5 UJ	3.21 J	1.7 J	44.7 J		84	13.6 J		77.8	0.10 UJ	18.7 J		17.4	
MW19	6/29/11	N	0.9 U	8880		2 UJ		14.8 J		131	9550		1300		20 U	42.1	0.1 U	1.12	1.09	22.7		43	16.6 J		90.00	0.26	20.1		85.4	
MW19	10/20/11	N	0.33 J	13000		2.0 U		12 B		52 J+	8600 B		1700		14 J+	2.8	0.84 U	1.1 J	1.0 J	23		57	19		85.40	0.30	17		92	
MW19	5/22/12	N	0.71	5300		2.0 U		7.6 J		50 U	7600 =		1300		20 U	50	2.0 U	0.88 J	0.76 J	16		51	15		76.20	1.1	12		38	
MW19	10/17/12	N	0.50 U	8100		2.0 U		6.9 J		50 U	5800 =		900		20 U	8.4	2.0 U	4.0 U	0.67 J	9.7		36	12		66.3	1.4	11 J		27	
MW19	5/22/13	N	0.84 J	5800		2.0 U		7.3 J		50 U	8700 B		1100 B		20 U	29 J	0.50 U	0.99 J	1.5	19		54	14			1.1 J	11		45	
MW19	10/10/13	N	0.50 U	7900		0.26 J		10.0 UJ		50 UJ	5800 J		990 J		20 UJ	3.0	2.5 U	5.0 U	1.1 J	15		36 B	12			1.1 J	11		31	
MW19	5/14/14	N		18000																										
MW20	10/15/97	N	10 U	29000 J													0.1 U	1 U	1 U	0.1 U										
MW20	4/26/01	N	2.73	36600		8.2		196		33200			3120		126	9970 =	1 U	10 U	10 U	29		198	24		301	0.13 U	67		478	
MW20	4/26/01	N2	2.73			1.1		14		841			2250		23	9970	10 U	100 U	100 U	71										
MW20	9/12/01	N	10 U	83000		3.6		81		7900			3200		36	890	0.44 U	3.4 U	4.1 U	37		260 J	16		250	0.15 J	24		65	
MW20	9/12/01	N2				1.5		15 U		35 U			2800		12 U															
MW20	8/7/02	N	10.0 U	30000 J		8.9		87.4		4910			3520		16.6 J	1400	1 U	12	9	120		220	22		4 U	0.15 U	25		71	
MW20	8/7/02	N2				2.6		5.8 J		206			3280		15.4 J															
MW20	9/25/03	N	5.4	13000		2 J		58		7220			3310		20 J	830	1 U	10 U	10 U	60.9		233	19.4 J		86.67	1.25 U	80 J		150 J	
MW20	9/25/03	N2	5.4			1 U		11		350			3250		10 J												1.25 U			
MW20	9/22/04	N	10.0 UJ	133000		1.00 UJ		30.4 J		1320 J			2770 J		18.7 J	282	2.50 U	3.01 J	3.21 J	40.3		190 J	24 J		1320 J	0.29 J	23 R		46.3 R	
MW20	9/22/04	N2				0.498 J		35.2 J		2070			2320		47.0 J															
MW20	10/25/05	N	2.0 UJ	63000 =		1.0 U		16 J		780 J			2300 J		20 UJ		0.50 U	5.5	5.4	62		170 J	13 J		190 J	2.1 J	39 R		21 R	
MW20	10/25/05	N2				1.0 UJ		2.7 UJ		140 J			2400 J		20 UJ															
MW20	9/27/06	FD	2.0 UJ	44000 J		1.0 UJ		4.8 J		94 J			4200		20 U	180 =	0.50 U	5.1	4.1 J	53		230 J	16		380	0.19	65 =		22	
MW20	9/27/06	N	2.0 UJ	35000 J		1.0 U		3.8 J		48 J			4200		20 U	160 =	0.50 U	4.8 J	4.1 J	51		220 J	16		240	0.22	71 =		23	
MW20	9/21/07	N	2.0 U	9500 J		1.0 UJ		10 UJ		100 UJ			4800		20 UJ	71 R	1.0 U	6.4	4.4	62		230 J	18		300 J	0.10 U	98 J		13 J	
MW20	10/23/08	N	2.0 UJ	41000		2 UJ		17.3 J		462	31700 J		3400 J		20 UJ	1150	0.5 U	2.99 =	2.94 =	38.7		127 J	15.7		332 J	0.13 J	28.9		121	
MW21	2/9/98	FD	10	1		3.1		83.9		7.3 U			1380		98.9		0.1 U	1 U	1 U	1 U		196	67.3			8.9			0.47 U	
MW21	2/9/98	FD2				2 U		9.5 U							33.8															
MW21	2/9/98	N	11	1 U		3		70.1		5.5 U			1210		113		0.1 U	1 U	1 U	1 U		176	70.6			9.1			0.47 U	
MW21	2/9/98	N2		1 U		2 U		9.5 U							32.6 U		0.1 U	1 U	1 U	1 U										
MW21	5/14/02	N				1.9 J		1.3 J		130			9.7 J		11 J															
MW21	8/6/02	N		0.035 J		4.4		50		10000			930		29	5 U	1 U	5 U	5 U	5 U		120	49		150	0.15 U	9.6		8.3	
MW21	8/6/02	N2				1.6 J		0.3 U		11 U			0.63 J		6.8 J															
MW21	4/29/03	N	0.5 U	0.15		1 U		12		3440			227		10 U	7.4 U	0.5 U	5 U	5 U	5 U		144	41		169	2.5	12		1.5	
MW21	4/29/03	N2	0.5 U			1 U		1 U		250 U			5 U		10 U															
MW21	9/24/03	N	0.5 U	0.063 J		1 U		260		68400			3750		150	1 U	0.25 U	2.5 U	2.5 U	2.5 U		165	48		81.46	2.62	2 U		3.6	
MW21	9/24/03	N2	0.5 U			1 U		1 U		50 UJ			5 U		10 U															
MW21	5/4/04	N	10.0 U	0.135 UB		2.31 J		72.5 R		14000 R	19300		1970 R		46.5 R	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		165	67 =		188	2.3 J	3.6 R		3.12 J	
MW21	5/4/04	N2				0.122 J		1.28 R		28.6 R			0.718 R		4.48 R															
MW21	9/21/04	N	10.0 UJ	0.474		1.80 J		48.2 J		10300 J			983 J		32.6 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		150 J	63 J		1030 J	2.4 J	4.8 R		2.76 R	
MW21	9/21/04	N2				0.130 J		0.955 J		25.0 UJ			0.484 J		3.30 J															
MW21	5/10/05	N	2.0 U	0.33		1.0 U		10 U		50 U			0.47 J		20 U	0.98 U	0.50 U	5.0 U	5.0 U	5.0 U		130 J	49 J		170 J	2.8 J	12 R		2.2 R	
MW21	5/10/05	N2				1.0 U		25		6200			480		16 J															

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW21	9/27/05	N	2.0 UJ	0.046 J		7.1		230		56000			3400		110	0.91 U	0.50 U	5.0 U	5.0 U	5.0 U		130 J	47 J		370	2.4 J	17 J		1.2
MW21	9/27/05	N2				1.0 UJ		2.6 J		36 J			9.8 J		20 U														
MW21	6/1/06	N	2.0 U	0.023 J		1.0 UJ		10 UJ		47 J			17 J		20 UJ	0.99 U	0.50 U	5.0 U	5.0 U	5.0 U		140 J	65 J		140	2.7 J	20		1.5 J
MW21	5/8/07	N	2.0 UJ	0.098 UJ		1.0 UJ		10 UJ		100 UJ			10 UJ		4.2 J	1.0 R	1.0 U	1.0 U	1.0 U	2.0 U		210 =	33 J		120	4.2	9.3 J		1.7
MW21	9/18/07	N	2.0 UJ	0.13 J		1.0 UJ		10 UJ		100 UJ			10 UJ		20 UJ	0.98 R	1.0 U	1.0 U	1.0 U	2.0 U		110 J	29		120 J	3.7 J	12 J		1.2 J
MW21	10/21/08	N	2.0 UJ	0.10 UJ		2 U		10 UJ		294 J	14900 J		10 U		20 U	1.00 U	0.50 U	2.00 U	2.0 U	5.00 U		66	68.80		149 J	2.69 J	7.27 U		2.38 J
MW21	4/6/16	N	0.092 J	0.70 J		1.0 J		22.8 J			1.7 J		7.3 U		0.016 Jp*	0.063 U	0.35 U	0.25 U	0.23 U	0.52 U		25.9 B	101		83.6	1.8 H	6.8		0.63 JB
MW22	2/9/98	N	13	1 U		4		255		5.5 U			3700		121		0.1 U	1 U	1 U	1 U		186	56.3				17.9		0.47 U
MW22	2/9/98	N2		1 U		2 U		9.5 U							12.6		0.1 U	1 U	1 U	1 U									
MW22	5/14/02	N				1.4 U		0.3 U		22.9 J			3.5 J		2.7 J														
MW22	8/6/02	N	10.0 U	0.078		2.2 J		9.8 J		2500			170		7.3 J	5 U	1 U	5 U	5 U	5 U		150	7.2		170	0.15 U	12		1.3
MW22	8/6/02	N2				1.4 U		0.3 U		25 J			0.42 U		4.9 J														
MW22	9/24/03	N	0.5 U	0.34		7		140		56900			2570		120 J	1 U	0.25 U	2.5 U	2.5 U	2.5 U		132	4.9		101.8	2.15	3 J		1.7
MW22	9/24/03	N2	0.5 U			1 U		20		2770			542		20 J														
MW22	9/21/04	N	10.0 UJ	0.220		2.76 J		71.6 J		13600 J			963 J		48.4 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		130 J	11 J		885 J	2.2 J	6.7 R		3.86 R
MW22	9/21/04	N2				0.164 J		0.473 J		25.0 UJ			15.0 UJ		2.31 J														
MW22	9/28/05	N	2.0 U	0.16 J		1.0 UJ		9.8 J		2100 J			130 J		8.0 J	1.0 U	0.50 U	5.0 U	5.0 U	5.0 U		91 J	9.6 J		130 J	1.7 J	18 R		0.94 J
MW22	9/28/05	N2				1.0 UJ		10 UJ		50 UJ			1.3 J		20 UJ														
MW22	9/18/07	N	2.0 UJ	0.13 J		1.0 UJ		10 UJ		100 UJ			10 UJ		20 UJ	0.99 R	1.0 U	1.0 U	1.0 U	2.0 U		110 J	8.2		160 J	2.5 J	10 J		1.0 J
MW22	5/20/08	N	2.0 UJ	0.77 J		1.0 U		0.98 J		100 UJ			3.6		5.4 J	0.95 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ		110 =	8.4		200	2.3	12		3.0 J
MW22	10/21/08	N	2.0 UJ	0.09 UJ		2.60 J		10 UJ		303 J	11100 J		0.01 U		20 U	1.00 U	0.5 U	2.0 U	2.0 U	5.0 U		90	4.69		111 J	1.48 J	6.95		21.10 J
MW22	6/2/09	N	0.8 UJ	0.1 UJ		2 U		10 UJ		83.1 =	10000 J		10 U		20 U	1.0 UJ	0.5 U	0.22 J	2.0 U	5.0 U	70 J		6.92	99.6098	1.97 J	6.73		1.7 UJ	
MW22	10/6/09	N	0.83 UJ	0.1 UJ		2 UJ		13.1 J		1560 J	11500 J		168 J		6.7 J	0.994 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		147 J	7 J		106.54 J	5.31 J	7.53 J		8.62 J
MW22	5/18/10	N	1.3 U	0.1 U													0.5 U	5 U	5 U	5 U		66 UB	9.21			1.9 J	6.9		58.8 UB
MW22	10/6/10	N	1.3 U	0.13 UB		2 U		4.1 J		74.2 J	3680		16.7 U		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		62	1.8 J		40.9	0.90 J	5.6 J		24.6
MW22	6/29/11	N	0.9 U	0.1 U		2 UJ		4.5 J		499	3700		27.6		20 U	0.999 U	0.1 U	0.4 U	0.4 U	1 U		32	0.78 J+		34.10	0.46 J	3.9 J		11
MW22	10/18/11	N	0.50 U	0.098 U		0.45 J		2.1 J+		50 U	3600 B		2.7 J		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		43	1.0 U		37.30	0.50 J	3.5 J		1.0 U
MW22	5/22/12	N	0.50 U	0.084 J		2.0 U		2.3 J		160	5000 =		13		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		49	3.4		50.60	0.76 J	3.9 J		10
MW22	10/16/12	N	0.50 U	0.096 U		0.59 J		10 U		50 U	5000 =		5.7 J		20 U	0.19 U	2.5 UJ	5.0 UJ	5.0 UJ	10 UJ		48	4.1		53.1	0.48 J	5.0 U		36
MW22	5/22/13	N	0.50 U	0.11		2.0 U		10 U		50 U	4000 B		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		41	3.7			1.0 J	3.9		15
MW22	10/8/13	N	0.50 U	0.14		0.24 J		10.0 U		50 U	5200 B		2.8 J		20 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		45	7.2			1.4 J	4.7		10
MW22	5/14/14	N		0.093 J																									
MW22	9/24/14	N	0.070 U	0.27	0.22 J		0.75 U		25 JB			19		7.3 U		0.060 U	0.24 U	0.23 U	0.22 U	0.43 U		51	1.7	60		0.69	3.6	0.71 J	
MW22	4/21/15	N	0.070 U	0.072 J	0.60 JB		2.8		390 B			23		7.3 U		0.065 U	0.35 U	0.25 U	0.23 U	0.52 U		42 B	1.9		57	0.69	3.7		0.57 J
MW22	10/13/15	N	0.080 U	0.49 U		1.2 J		16.0 U			1.1 U		7.3 U		0.041 J	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U		46.3 B	1.7	52.3		0.65 H	2.8	0.74 J	
MW22	4/6/16	N	0.080 U	0.49 U		0.92 J		17.5 J			2.2 J		7.3 U		0.025 Jp*	0.061 U	0.35 U	0.25 U	0.23 U	0.52 U		50.8 B	1.3		57.7	0.61 H	2.9		5.3 B
MW23	2/26/98	N	57	1 U		2 U		17.6 U		5.5 U			128		43.6		2	1 U	77	2		120	8.7			7.6		0.47 U	
MW23	2/26/98	N2		1 U		2 U		14.2 U							6.6		2 =	1 U	77 =	2 =									
MW23	9/11/01	N	10 U	0.49		1.2		6.3 J		630			140		37	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		110	10		140	0.13 U	8.2 U		5.6
MW23	9/11/01	N2				0.62 J		2.2 U		35 U			29		4.7 J														
MW23	4/13/16	N	0.080 U	0.58 J		0.75 U		35.1 J			1.1 U		7.3 U		0.015 U	0.063 U	0.35 U	0.25 U	0.23 U	0.52 U		197	29.5		255	1.8	7.1		0.62 J
MW24	2/8/98	N	10 U	4 U		4.3		53		5.5 U			1030		50.7		3 U	2 U	3 U	5 U		253	18.7			5.2		1.8	
MW24	2/8/98	N2		4 U		2 U		9.5 U							23		3 U	2 U	3 U	5 U									
MW24	12/6/00	N	0.53 U	123 J		1.6		27		6500			530		11	5.9 U	0.1 U	1 U	0.29	1 U		180	21		310	2.3	7.1		5.5
MW24	12/6/00	N2	0.53 U			0.29		25 U		25 U			15 U		25 U	5.9 U	0.1 U	1 U	0.29	1 U									
MW24	4/24/01	N	0.1 U	0.11		2.4		30		7310			508		23	5.3 U	0.1 U	1 U	1 U	1 U		256	36		348	3.64 =	12		3.36
MW24	4/24/01	N2	0.1 U			0.29		5.2		25 U			2.4		11	5.3 U										3.64			



Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
MW24	4/7/16	N	0.11 J	0.49 U		3.0		420			28.4		7.3 U		0.044 Jp*	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		168 B	9.1		135	1.9	17.4		0.79 JB
MW25	2/9/98	N	17	1		6.6		462		30.2 U			4480		321		0.1 U	1 U	1 U	1 U		455	15.6				9.9		0.47 U
MW25	2/9/98	N2		1 =		2 U		9.5 U							16.4		0.1 U	1 U	1 U	1 U									
MW25	4/11/16	N	0.080 U	1.1 J		17.6 B		6090 B			148 B		12.4 JB		0.024 Jp	0.064 U	0.35 U	0.25 U	0.23 U	0.52 U		33.7 B	37.8		137	2.4	3.8		1.5
MW26	12/6/00	N	0.65 U	118 J		1.1		21		25 U			94		17	5 U	0.1 U	1 U	1 U	1 U		230	29		350	2.8	540		8
MW26	12/6/00	N2	0.65 U	115 J		2.8		27		16000			300		35	5 U	0.1 U	1 U	1 U	1 U		270	28		330	2.8	770		6.1
MW26	12/6/00	N3	0.7 U			4		25 U		25 U			89		25 U	5 U	0.1 U	1 U	1 U	1 U									
MW26	12/6/00	N4				1.1		25		16000			290		33														
MW26	4/24/01	N	0.1 U	0.1 U		3		13		6980			132		24	5.4 U	0.1 U	1 U	1 U	1 U		240	22		294	5 =	10		2.79
MW26	4/24/01	N2	0.1 U			0.24		25 U		36			15 U		19700											5			
MW26	6/18/01	N	0.1 U	1		1.1		25 U		25 U			15 U		25 U	5 U	0.1 U	1 U	1 U	1 U		230	27		326	30	13		6.67
MW26	6/18/01	N2	0.1 U			3.6		18		9140			232		28											30 =			
MW26	9/10/01	N	10 U	0.16 J		1.5		10 U		2300			94		24	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		260	30		300	3.2	12		0.34 U
MW26	9/10/01	N2	10 U	0.16 J		0.8 J		4 J		100 J			4 U		3.8 J	0.24 U	0.44 U	0.5 U	0.4 U	1.2 U		260	29		310	3.2	12		2.7
MW26	9/10/01	N3				0.75 J		2.9 J		55 J			1.5 U		3.7 U														
MW26	9/10/01	N4				1.6		13		2500			96		24														
MW26	5/14/02	N		0.1		1.4 J		5 J		1530			57.2		9.7 J	5 U	1 U	5 U	5 U	5 U		260	27		300	3 H	15		5
MW26	5/14/02	N2				1.4 U		1.2 J		11.2 U			0.73 J		9.3 J										300				
MW26	8/5/02	N	10.0 U	0.03 J		3		2.5 J		385			17.2		16.3 J	5 U	1 U	5 U	5 U	5 U		270	18		310	0.15 U	14		4.5
MW26	8/5/02	N2	10.0 U	0.035 J		1.4 U		0.3 U		11.2 U			0.56 J		13.7 J	5 U	1 U	5 U	5 U	5 U		280	19		310	0.15 U	11		24
MW26	8/5/02	N3				2.7		3.9 J		728			26		18.7 J														
MW26	8/5/02	N4				3.2		0.3 U		11.2 U			0.42 U		7.4 J														
MW26	4/29/03	N	0.5 U	0.1 U		1 U		4		1290			46		10 U	7.1 U	0.5 U	5 U	5 U	5 U		248	18		262	3.5	14		7
MW26	4/29/03	N2	0.5 U	0.11 U		1 U		2 J		25 U			5 U		10 U	7.1 U	0.5 U	5 U	5 U	5 U		250	18.7		257	3.6	14		12
MW26	4/29/03	N3	0.5 U			2 J		5		1690			48		20														
MW26	4/29/03	N4				1 U		1 U		25 U			5 U		10 U														
MW26	9/23/03	N	0.5 U	0.11 U		1 U		1 J		740			29		10 U	1 U	0.25 U	2.5 U	2.5 U	2.5 U		250	11		90.28	3.74	2 U		6.4
MW26	9/23/03	N2	0.5 U			1 U		1 U		50 U			5 U		10 U														
MW26	5/4/04	FD	10.0 U	0.219 UB		0.295 J		2.37 R		399 R	27400		15.2 R		7.82 R	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		242	17 =		291	4.0 J	44 R		4.35 J
MW26	5/4/04	FD2				0.323 J		1.19 R		49.3 R			2.07 R		4.15 R														
MW26	5/4/04	N	10.0 U	0.242 UB		0.264 J		2.62 R		458 R	26700		17.8 R		10.5 R	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		242	17 =		284	3.9 J	42 R		3.75 J
MW26	5/4/04	N2				0.289 J		1.24 R		39.0 R			1.23 R		4.36 R														
MW26	9/23/04	FD	10.0 U	5.97 BE		1.00 U		3.10 J		542			22.2		6.95 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		280	28		1770	1.5 J	170 =		1.95
MW26	9/23/04	FD2		4.11 =		0.354 J		2.01 J		6.48 J			4.00 J		3.80 J														
MW26	9/23/04	N	10.0 U	0.393 =		1.00 U		3.73 J		620			24.8		7.86 J	5.00 U	0.500 U	5.00 U	5.00 U	5.00 U		280	28		1670	1.5 J	120 =		2.40
MW26	9/23/04	N2				0.314 J		1.57 J		8.81 J			19.3		4.70 J														
MW26	5/10/05	FD	2.0 U	0.11 U		1.0 U		10 U		50 U			0.59 J		20 U	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		240 J	26 J		370 J	2.2 J	180 R		1.1 R
MW26	5/10/05	FD2				1.0 U		2.2 J		510			14		17 J														
MW26	5/10/05	N	2.0 U	0.061 J		1.0 U		10 U		50 U			1.8 J		20 U	0.94 U	0.50 U	5.0 U	5.0 U	5.0 U		250 J	26 J		340 J	2.8 J	200 R		2.1 R
MW26	5/10/05	N2				1.0 U		2.4 J		680			18		7.5 J														
MW26	9/27/05	FD	2.0 UJ	0.024 J		1.0 UJ		10 U		50 U			1.7 J		20 U	0.92 U													
MW26	9/27/05	FD2				1.0 UJ		2.6 J		50 UJ			10 U		20 U														
MW26	9/27/05	N	2.0 UJ	0.027 J		1.0 UJ		10 U		50 U			2.3 J		20 U	0.93 U	0.50 U	5.0 U	5.0 U	5.0 U		240 J	25 J		350	1.9 J	170 =		0.72 J
MW26	9/27/05	N2				1.0 UJ		2.2 J		50 U			10 U		20 U														
MW26	6/7/06	FD	2.0 U	0.091 J		1.0 UJ		10 UJ		50 UJ			1.0 UJ		20 UJ	0.94 U	0.50 U	5.0 U	5.0 U	5.0 U		250 J	29 J		350 J	1.8 J	150 =		0.94 J
MW26	6/7/06	N	2.0 U	0.11 UJ		1.0 UJ		10 UJ		50 UJ			2.5 UJ		20 UJ	0.95 U	0.50 U	5.0 U	5.0 U	5.0 U		260 J	29 J		320 J	1.8 J	140 =		1.4 J
MW26	9/26/06	N	2.0 UJ	0.11 U		1.0 UJ		10 UJ		50 UJ			10 UJ		20 UJ	0.91 U	0.50 U	5.0 U	5.0 U	5.0 U		270 J	23 J		350	1.5 J	87 J		2.0

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)			
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		
MW26	5/8/07	FD	2.0 UJ	0.095 UJ		1.0 UJ		10 UJ		100 UJ			10 UJ		20 UJ	0.92 R	1.0 U	1.0 U	1.0 U	2.0 U		270 =	21 J		360	1.6	250 J		0.76 J			
MW26	5/8/07	N	2.0 UJ	0.093 UJ		1.0 UJ		10 UJ		100 UJ			10 UJ		20 UJ	0.92 R	1.0 U	1.0 U	1.0 U	2.0 U		260 =	21 J		360	1.5	210 J		0.68 J			
MW26	9/19/07	N	2.0 UJ	0.095 U		1.0 UJ		10 UJ		100 R			10 UJ		20 UJ	0.93 U	1.0 U	1.0 U	1.0 U	2.0 U		240	25		500 J	1.3	220 J		0.84 J			
MW26	5/20/08	N	2.0 UJ	0.096 UJ		0.34 J		0.47 J		100 UJ			2.5 U		20 U	0.96 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ		240 =	22		430	1.8	230		0.65 J			
MW26	10/22/08	N	2.0 UJ	0.1 U		2 UJ		6.2 J		777 J	35100 J		10 UJ		20 UJ	1 U	0.5 U	2.0 U	2.0 U	5.0 U		256 J	21.7		432 J	2.36 J	235		18.6			
MW26	6/2/09	N	0.8 UJ	0.1 UJ		2 U		10 UJ		341 =	33400 =		10 U		20 U	1.0 UJ	0.5 UB	0.3 J	2.0 UB	5.0 U	229 J		203		414.7082	1.83 J	2360		1.7 UJ			
MW26	10/6/09	N	0.83 UJ	0.1 UJ		2 UJ		3.8 J		325 J	42900 J		10 UJ		20 UJ	0.997 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ		227 J	20.7 J		491.28 J	1.7 J	212 J		1 UJ			
MW26	5/19/10	N	1.3 U	0.13 J		1.8 J		10 UJ		236. J	39800. J		10 UJ		15. J	1.0 U	0.5 U	5 U	5 U	5 U		230	20.4		486	2.41 J	279		20.1 J			
MW26	10/5/10	N	1.3 U	0.1 UJ		2 U		10 U		376	37900		10 U		20 U	1.0 U	0.1 U	0.4 U	0.4 U	1 U		236	20.0 J		478	1.77	232		0.6 J			
MW26	6/29/11	N	0.9 U	0.1 U		2 UJ		10 U		274	41600		10 U		20 U	0.992 U	0.1 U	0.4 U	0.4 U	1 U		202	18.3 J		463.00	1.83 J	230		1 U			
MW26	10/19/11	N	0.50 U	0.099 U		0.87 J		2 U		50 U	29000 B		10 U		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		230	19		329.00	1.6 J	200		0.88 J			
MW26	5/22/12	N	0.50 U	0.10 U		2.0 U		10 U		50 U	28000 =		10 U		20 U	0.19 UJ	0.50 U	1.0 U	1.0 U	2.0 U		200	19		325.00	1.7	210		0.43 J			
MW26	10/16/12	N	0.50 U	0.095 U		0.99 J		10 U		50 U	29000 =		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 UJ	2.0 U		190	19		344	1.8 J	200 =		0.30 J			
MW26	5/22/13	N	0.50 U	0.094 U		2.0 U		10 U		50 U	25000 B		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		170	18			1.9 J	230		0.55 J			
MW26	10/8/13	N	0.50 U	0.095 U		0.37 J		10.0 U		50 U	26000 B		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		160	18			1.5 J	110 J		1.0 U			
MW26	5/14/14	N		0.095 U																												
MW26	9/24/14	FD	0.070 U	0.015 U	0.32 J		0.75 U		16 U			1.1 U		7.3 U		0.060 U	0.24 U	0.23 U	0.22 U	0.43 U		150	17	280		1.2	160	0.50 U				
MW26	9/24/14	N	0.070 U	0.015 U	0.43 J		0.75 U		16 U			1.1 U		7.3 U		0.060 U	0.24 U	0.23 U	0.22 U	0.43 U		150	17	290		1.2	160	0.50 U				
MW26	4/21/15	FD		0.015 U	0.76 JB		0.75 U		16 U			1.1 U		7.3 U		0.060 U																
MW26	4/21/15	N	0.070 U	0.015 U	0.71 JB		0.75 U		16 U			4.4 J		7.3 U		0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		160 B	16		240	2.4	82		0.26 U			
MW26	10/13/15	FD	0.080 U	0.50 J		0.75 U		16.0 U			1.1 U		7.3 U		0.015 U	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		194 B	15.5	235		1.9 H	75.7	0.33 J				
MW26	10/13/15	N	0.080 U	0.76 J		0.75 U		16.0 U			1.1 U		7.3 U		0.015 U	0.061 U	0.35 U	0.23 U	0.25 U	0.52 U		198 B	15.3	229		1.9 H	74.6	0.32 J				
MW26	4/5/16	N	0.15 J	0.57 J		1.5 JB^		21.4 JB			58.7 B		7.3 U		0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		154 B	9.4		183	1.4	36.1		0.26 J			
MW27	10/20/11	N	0.10 J	0.17		1.7 J		2.3 J+		50 U	2300 B		10 U		10 U	0.20 U	0.50 U	1.0 U	1.0 U	2.0 U		63	10		28.70	3.1	9.1		1.6			
MW27	4/7/16	N	0.092 J	0.59 J		1.9 J		21.1 J			1.1 U		7.3 U		0.15 *	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		137 B	20.0		113	6.5 F1	14.2		1.9 B			
MW27	4/7/16	FD		0.49 U		0.75 U		29.9 J			2.3 J		7.3 U		0.015 U*	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U												
MW28	10/20/11	N	0.19 J	690		0.55 J		2 U		50 U	12000 B		6.0 J		10 U	0.19 U	0.50 U	1.0 U	1.0 U	0.38 J		130	5.5		132.00	1.3	5.2		2.7			
MW28	10/17/12	N	0.50 U	0.095 U		0.48 J		10 U		50 U	12000 =		10 U		20 U	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U		120	11		134	1.8	5.0 U		0.81 J			
MW28	10/9/13	N	0.50 U	0.049 J		2.0 UJ		10.0 UJ		50 UJ	12000 J		10 UJ		20 UJ	0.19 U	0.50 U	1.0 U	1.0 U	2.0 U *		120 J	21			2.2 J	6.5		0.49 J			
MW28	10/9/13	N2																								2.2 J						
MW28	9/25/14	N	0.070 U	0.099	0.31 J		0.75 U		16 U			1.1 U		7.3 U		0.060 U*	0.24 U	0.23 U	0.22 U	0.43 U		120	18	150		1.3	5.1	0.85 J				
MW28	10/14/15	N	0.080 U	0.49 U		0.75 U		16.0 U			1.1 U		7.3 U		0.32	0.060 U	0.35 U	0.23 U	0.25 U	0.52 U		126 B	15.5	155		2	5.4	0.69 J				
MW28	4/6/16	N	0.20 J	0.49 U		0.76 J		29.7 J			2.7 J		7.3 U		47 *	0.065 U	0.35 U	0.25 U	0.23 U	0.52 U		122 B	9.4		125	1.2 H	4.8		1.6 B			
MW29	4/13/16	N	1.4	0.49 U		6.7		1660			2270		7.3 U		14000	34	0.35 U	0.58 J	0.90 J	7.2		87.0	4.5		120	0.035 U	6.4		70.2			
MW30	4/13/16	N	0.080 U	0.49 U		0.81 J		46.1 J			147		7.3 U		0.72	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		42.0	3.2		82.3	3.4	32.8		1.2			
MW31	4/12/16	N	0.080 U	0.49 U		0.75 U		20.9 JB			7.7 B		7.3 U		0.030 Jp	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U		122 B	0.99 J		125	0.68	4.0		0.59 J			
RW01	10/9/97	N		1 U																												
RW01	4/23/01	N		0.1 U												5.3 U	0.5 U	5 U	5 U													
RW01	9/11/01	N		0.071 J												0.26 U	0.44 U	0.5 U	0.4 U	1.2 U												
RW01	9/28/01	N		0.1 U																												
RW01	9/28/01	N2		0.05 U																												
RW01	5/14/02	N		0.23												5 U	1 U	5 U	2 J	2 J												
RW01	8/6/02	N		0.04												5 U	1 U	5 U	5 U	5 U												
RW01	4/29/03	N		0.1 J												7.1 U	0.5 U	5 U	5 U	5 U												
RW01	9/23/03	N		0.28												0.97 U	0.25 U	2.5 U	2.5 U	2.5 U												
RW01	11/20/03	N		0.24																												
RW01	5/4/04	FD		0.134 UB												5.00 U	0.500 U	5.00 U	5.00 U	5.00 U												

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Type <sup>3</sup>	Compound <sup>1</sup> Units	Methane ug/L	Arsenic (dissolved) ug/L	Arsenic ug/L	Copper (dissolved) ug/L	Copper ug/L	Iron (dissolved) ug/L	Iron ug/L	Magnesium ug/L	Manganese (dissolved) ug/L	Manganese ug/L	Zinc (dissolved) ug/L	Zinc ug/L	Pentachlorophenol ug/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, hydroxide (as CaCO3) mg/l	Alkalinity, total (as CaCO3) mg/l	Chloride mg/l	Hardness, carbonate mg/l	Hardness mg/l	Nitrate (as N) mg/l	Sulfate mg/l	TOC averages mg/l	Total organic carbon (TOC) mg/l
RW01	5/4/04	N			0.140 UB												5.00 U	0.500 U	5.00 U	5.00 U	5.00 U									
RW01	9/22/04	FD			1.51												5.00 U	0.500 U	5.00 U	5.00 U	5.00 U									
RW01	9/22/04	N			0.201												5.00 U	0.500 U	5.00 U	5.00 U	5.00 U									
RW01	11/1/04	N			0.0952 U																									
RW01	5/10/05	FD			0.053 J												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	5/10/05	N			0.068 J												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	7/7/05	FD			0.035 J												0.96 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	7/7/05	N			0.043 J												0.95 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	9/27/05	FD			0.049 J												0.93 UJ	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	9/27/05	N			0.050 J												0.92 UJ	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	5/31/06	FD			0.055 J												0.94 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	5/31/06	N			0.048 J												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	9/25/06	FD			0.023 J												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	9/25/06	N			0.11 U												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW01	5/9/07	FD			0.048 J												0.95 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW01	5/9/07	N			0.035 J												0.95 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW01	9/18/07	FD			0.27 R												0.93 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW01	9/18/07	N			0.093 UJ												0.93 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW01	5/20/08	FD			0.066 J												0.95 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ									
RW01	5/20/08	N			0.060 J												0.95 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ									
RW01	10/23/08	FD															1 U													
RW01	10/23/08	N															1 U													
RW01	12/11/08	FD			0.1 U													0.1 U	0.4 U	0.4 U	1.0 U									
RW01	12/11/08	N			0.1 UJ													0.1 U	0.4 U	0.4 U	1.0 U									
RW01	6/2/09	FD			0.1 UJ												1.0 UJ	0.5 UB	2.0 UB	2.0 UB	5.0 UB									
RW01	6/2/09	N			0.1 UJ												1.0 UJ	0.5 UB	2.0 UB	2.0 UB	5.0 U									
RW01	7/6/09	FD																0.5 U	2.0 U	2.0 U	5.0 U									
RW01	7/6/09	N																0.5 U	2.0 U	2.0 U	5.0 U									
RW01	10/7/09	FD			0.1 UJ												0.997 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ									
RW01	10/7/09	N			0.1 UJ												1 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ									
RW01	5/19/10	FD			0.1 U												1.0 U	0.4 U	5 U	5 U	5 U									
RW01	5/19/10	N			0.1 U												1.0 U	0.4 UJ	5 UJ	5 UJ	5 UJ									
RW01	10/5/10	FD			0.1 U												1.0 U	0.1 U	0.4 U	0.4 U	1 U									
RW01	10/5/10	N			0.1 U												1.0 U	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ									
RW01	11/30/10	N																0.1 U	0.4 U	0.4 U	1 U									
RW01	6/30/11	FD			0.1 U												1 U	0.1 U	0.4 U	0.4 U	1 U									
RW01	6/30/11	N			0.1 U												0.997 U	0.1 U	0.4 U	0.4 U	1 U									
RW01	10/20/11	FD			0.039 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	10/20/11	N			0.040 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	12/16/11	FD			0.031 R																									
RW01	12/16/11	N			0.096 UJ																									
RW01	5/23/12	FD			0.017 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	5/23/12	N			0.019 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	7/11/12	FD			0.035 J																									
RW01	7/11/12	FD2			0.033 J																									
RW01	7/11/12	N			0.027 J																									
RW01	10/17/12	FD			0.035 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
RW01	10/17/12	N		0.045 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	12/3/12	FD		0.094 UJ																									
RW01	12/3/12	FD2		0.095 U																									
RW01	12/3/12	N		0.094 UJ																									
RW01	12/3/12	N2		0.095 U																									
RW01	5/21/13	FD		0.029 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	5/21/13	N		0.031 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	10/8/13	N		0.040 J												0.20 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	10/8/13	N2		0.097 U												0.20 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW01	5/13/14	N		0.051 J																									
RW01	9/25/14	N		0.043 J												0.060 U	0.24 U	0.23 U	0.22 U	0.43 U									
RW01	4/21/15	N		0.015 U												0.060 U	0.35 U	0.25 U	0.23 U	0.52 U									
RW01	10/15/15	N		0 U											0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U									
RW01	4/5/16	N													0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U									
RW02	10/9/97	FD		2																									
RW02	10/9/97	N		0.9 J																									
RW02	10/24/97	N		1 U																									
RW02	4/8/98	N		1 U																									
RW02	4/24/01	N		0.1 U												5.4 U	0.1 U	1 U	1 U	1 U									
RW02	9/11/01	N		9.5												0.25 U	0.44 U	0.5 U	0.4 U	1.2 U									
RW02	9/28/01	N		0.1 U																									
RW02	9/28/01	N2		0.1 U																									
RW02	9/28/01	N3		0.05 U																									
RW02	9/28/01	N4		0.05 U																									
RW02	5/14/02	N		0.1												5 U	1 U	5 U	5 U	5 U									
RW02	8/6/02	N		0.04 U												5 U	1 U	5 U	5 U	5 U									
RW02	8/6/02	N2		0.04 U												5 U	1 U	5 U	5 U	5 U									
RW02	4/29/03	N		0.11 U												6.8 U	0.5 U	5 U	5 U	5 U									
RW02	9/24/03	N		0.11 U												0.97 U	0.25 U	2.5 U	2.5 U	2.5 U									
RW02	9/24/03	N2		0.11 U												0.96 U	0.25 U	2.5 U	2.5 U	2.5 U									
RW02	5/4/04	N		0.0252 UB												5.00 U	0.500 U	5.00 U	5.00 U	5.00 U									
RW02	9/22/04	N		0.398												5.00 U	0.500 U	5.00 U	5.00 U	5.00 U									
RW02	11/1/04	N		0.0962 U																									
RW02	5/10/05	N		0.11 U												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW02	9/27/05	N		0.11 U												0.92 UJ	0.50 U	5.0 U	5.0 U	5.0 U									
RW02	5/31/06	N		0.11 UJ												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW02	9/25/06	N		0.11 U												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW02	5/9/07	N		0.092 UJ												0.97 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW02	9/18/07	N		0.093 UJ												0.93 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW02	5/20/08	N		0.095 UJ												0.95 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ									
RW02	10/23/08	N														1.33 U													
RW02	12/10/08	N		0.1 U													0.1 U	0.4 U	0.4 U	1.0 U									
RW02	6/2/09	N		0.1 UJ												1.0 UJ	0.5 U	2.0 U	2.0 U	5.0 U									
RW02	10/7/09	N		0.1 UJ												0.997 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ									
RW02	5/19/10	N		0.1 U												1.0 U	0.4 U	5 U	5 U	5 U									
RW02	10/5/10	N		0.1 U												1.0 U	0.1 U	0.4 U	0.4 U	1 U									
RW02	6/30/11	N		0.1 U												0.999 U	0.1 U	0.4 U	0.4 U	1 U									

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Compound <sup>1</sup> Units Type <sup>3</sup>	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)			
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l		
RW02	10/20/11	N		0.095 U											0.20 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW02	5/23/12	N		0.097 U											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW02	10/17/12	N		0.037 J											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW02	10/17/12	N2		0.057 J																												
RW02	10/17/12	N3		0.094 UJ																												
RW02	12/3/12	N		0.095 U																												
RW02	12/3/12	N2		0.094 UJ																												
RW02	5/21/13	N		0.097 U											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW02	10/8/13	N		0.094 U											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW02	5/13/14	N		0.095 U																												
RW02	9/25/14	N		0.015 U											0.060 U	0.24 U	0.23 U	0.22 U	0.43 U													
RW02	4/21/15	N		0.015 U											0.060 U	0.35 U	0.25 U	0.23 U	0.52 U													
RW02	10/15/15	N		0 U										0.015 U	0.061 U	0.35 U	0.25 U	0.23 U	0.52 U													
RW02	4/5/16	N												0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U													
RW03	10/9/97	N		1 U																												
RW03	9/11/01	N		0.1 J											0.28 U	0.44 U	0.5 U	0.4 U	1.2 U													
RW03	9/28/01	N		0.1 U																												
RW03	9/28/01	N2		0.05 U																												
RW03	5/14/02	N		0.094 J											5 U	1 U	5 U	5 U	5 U													
RW03	8/6/02	N		0.04 U											5 U	1 U	5 U	5 U	5 U													
RW03	4/29/03	N		0.11 U											6.8 U	0.5 U	5 U	5 U	5 U													
RW03	9/23/03	N		0.11 U											0.96 U	0.25 U	2.5 U	2.5 U	2.5 U													
RW03	5/4/04	N		0.0952 U											5.00 U	0.500 U	5.00 U	5.00 U	5.00 U													
RW03	9/22/04	N		2.18											5.00 U	0.500 U	5.00 U	5.00 U	5.00 U													
RW03	11/1/04	N		0.0962 U																												
RW03	5/10/05	N		0.11 U											0.93 U	0.50 U	5.0 U	5.0 U	5.0 U													
RW03	9/27/05	N		0.11 U											0.93 UJ	0.50 U	5.0 U	5.0 U	5.0 U													
RW03	5/31/06	N		0.11 UJ											0.94 U	0.50 U	5.0 U	5.0 U	5.0 U													
RW03	9/25/06	N		0.11 U											0.93 U	0.50 U	5.0 U	5.0 U	5.0 U													
RW03	5/9/07	N		0.092 UJ											0.95 R	1.0 U	1.0 U	1.0 U	2.0 U													
RW03	9/18/07	N		0.093 UJ											0.93 R	1.0 U	1.0 U	1.0 U	2.0 U													
RW03	5/20/08	N		0.097 UJ											0.96 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ													
RW03	10/23/08	N													1 U																	
RW03	12/10/08	N		0.1 U													0.1 U	0.4 U	0.4 U	1.0 U												
RW03	6/2/09	N		0.1 UJ											1.0 UJ	0.5 U	2.0 U	2.0 U	5.0 U													
RW03	10/7/09	N		0.1 UJ											0.997 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ													
RW03	5/19/10	N		0.1 U											1.0 U	0.4 UJ	5 UJ	5 UJ	5 UJ													
RW03	10/5/10	N		0.1 U											1.0 U	0.1 U	0.4 U	0.4 U	1 U													
RW03	6/30/11	N		0.1 U											0.994 U	0.1 U	0.4 U	0.4 U	1 U													
RW03	10/20/11	N		0.095 U											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW03	5/23/12	N		0.097 U											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW03	10/17/12	N		0.015 J											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW03	12/3/12	N		0.095 U																												
RW03	12/3/12	N2		0.095 UJ																												
RW03	5/21/13	N		0.053 J											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW03	10/8/13	N		0.096 U											0.19 U	0.50 U	1.0 U	1.0 U	2.0 U													
RW03	5/13/14	N		0.095 U																												

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Type <sup>3</sup>	Compound <sup>1</sup>	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	
			Units	Methane	Arsenic (dissolved)	Arsenic	Copper (dissolved)	Copper	Iron (dissolved)	Iron	Magnesium	Manganese (dissolved)	Manganese	Zinc (dissolved)	Zinc	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, hydroxide (as CaCO3)	Alkalinity, total (as CaCO3)	Chloride	Hardness, carbonate	Hardness	Nitrate (as N)	Sulfate	TOC averages	Total organic carbon (TOC)
RW03	9/25/14	FD			0.015 U																									
RW03	9/25/14	N			0.015 U																									
RW03	4/21/15	N			0.015 U																									
RW03	10/15/15	N			0 U																									
RW03	4/5/16	N												0.015 U	0.061 U	0.35 U	0.25 U	0.23 U	0.52 U											
RW04	10/9/97	N			1 U																									
RW04	4/23/01	N			0.1 U																									
RW04	9/11/01	N			0.073 J																									
RW04	9/28/01	N			0.1 U																									
RW04	9/28/01	N2			0.05 U																									
RW04	5/14/02	N			0.13																									
RW04	8/6/02	N			0.04 U																									
RW04	4/29/03	N			0.11 U																									
RW04	9/23/03	N			0.11 U																									
RW04	5/4/04	N			0.100 U																									
RW04	9/22/04	N			0.266																									
RW04	10/1/04	N			0.0962 R																									
RW04	5/10/05	N			0.11 U																									
RW04	9/27/05	N			0.11 U																									
RW04	5/31/06	N			0.11 UJ																									
RW04	9/25/06	N			0.11 U																									
RW04	5/9/07	N			0.093 UJ																									
RW04	9/18/07	N			0.093 UJ																									
RW04	5/20/08	N			0.093 UJ																									
RW04	10/23/08	N																												
RW04	12/10/08	N			0.1 U																									
RW04	6/2/09	N			0.1 UJ																									
RW04	10/7/09	N			0.15 J																									
RW04	10/20/09	N			0.1 UJ																									
RW04	5/19/10	N			0.1 U																									
RW04	10/5/10	N			0.1 U																									
RW04	6/30/11	N			0.1 U																									
RW04	10/20/11	N			0.095 U																									
RW04	5/23/12	N			0.094 U																									
RW04	10/17/12	N			0.071 J																									
RW04	12/3/12	N			0.095 U																									
RW04	12/3/12	N2			0.094 UJ																									
RW04	5/21/13	N			0.094 U																									
RW04	10/8/13	N			0.095 U																									
RW04	5/13/14	N			0.023 J																									
RW04	9/25/14	N			0.015 U																									
RW04	4/21/15	N			0.015 U																									
RW04	10/15/15	N			0 U																									
RW04	4/5/16	N												0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U											
RW05	5/4/04	N			0.0935 U																									
RW05	9/22/04	N			0.293																									
RW05	11/1/04	N			0.0962 U																									

Historical Groundwater Analytical Data  
Penta Wood Products Superfund Site  
Siren, Wisconsin

Location	Date <sup>2</sup>	Type <sup>3</sup>	Compound <sup>1</sup> Units	Methane ug/L	Arsenic (dissolved) ug/L	Arsenic ug/L	Copper (dissolved) ug/L	Copper ug/L	Iron (dissolved) ug/L	Iron ug/L	Magnesium ug/L	Manganese (dissolved) ug/L	Manganese ug/L	Zinc (dissolved) ug/L	Zinc ug/L	Pentachlorophenol ug/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, hydroxide (as CaCO3) mg/l	Alkalinity, total (as CaCO3) mg/l	Chloride mg/l	Hardness, carbonate mg/l	Hardness mg/l	Nitrate (as N) mg/l	Sulfate mg/l	TOC averages mg/l	Total organic carbon (TOC) mg/l
RW05	5/10/05	N			0.11 U												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW05	9/27/05	N			0.11 U												0.92 UJ	0.50 U	5.0 U	5.0 U	5.0 U									
RW05	5/31/06	N			0.11 UJ												0.94 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW05	9/25/06	N			0.11 U												0.93 U	0.50 U	5.0 U	5.0 U	5.0 U									
RW05	5/9/07	N			0.092 UJ												0.93 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW05	9/18/07	N			0.093 UJ												1.0 R	1.0 U	1.0 U	1.0 U	2.0 U									
RW05	5/20/08	N			0.095 UJ												0.95 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ									
RW05	10/23/08	N															1 U													
RW05	12/10/08	N			0.1 U													0.1 U	0.4 U	0.4 U	1.0 U									
RW05	6/2/09	N			0.1 UJ												1.0 UJ	0.5 U	2.0 U	2.0 U	5.0 U									
RW05	10/7/09	N			0.1 UJ												0.997 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ									
RW05	5/19/10	N			0.1 U												1.0 U	0.4 U	5 U	5 U	5 U									
RW05	10/5/10	N			0.1 U												1.0 U	0.1 U	0.4 U	0.4 U	1 U									
RW05	6/30/11	N			0.1 U												0.991 U	0.1 U	0.4 U	0.4 U	1 U									
RW05	10/20/11	N			0.095 U												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW05	5/23/12	N			0.095 U												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW05	10/17/12	N			0.030 J												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW05	12/4/12	N			0.095 UJ																									
RW05	12/4/12	N2			0.095 U																									
RW05	5/21/13	N			0.095 U												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW05	10/8/13	N			0.098 U												0.19 U	0.50 U	1.0 U	1.0 U	2.0 U									
RW05	5/13/14	N			0.095 U																									
RW05	9/25/14	N			0.015 U																									
RW05	4/21/15	N			0.015 U																									
RW05	10/15/15	N			0 U												0.016 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U								
RW05	4/5/16	N															0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U								
RW06	9/25/14	N			0.015 U												0.060 U	0.24 U	0.23 U	0.22 U	0.43 U									
RW06	4/21/15	N			0.015 U												0.060 U	0.35 U	0.25 U	0.23 U	0.52 U									
RW06	10/15/15	N			0.018 J												0.018 J	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U								
RW06	4/5/16	N															0.015 U	0.060 U	0.35 U	0.25 U	0.23 U	0.52 U								



## Appendix B.2

**Historical LNAPL Thickness - Monitoring Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Date	Monitoring Well Thickness (feet)			LNAPL
	MW10S	MW18	MW19	MW20
Sep-01	0.01	0.27	0.51	0.11
May-02	0.00	0.29	0.23	0.00
Aug-02	0.00	0.33	0.22	0.00
May-03	0.00	0.00	0.00	0.00
Sep-03	0.00	0.32	0.24	0.04
May-04	0.00	0.45	0.36	0.35
Sep-04	0.21	0.54	0.67	0.52
May-05	0.29	0.48	0.63	0.36
Sep-05	0.87	0.06	0.83	1.15
May-06	0.00	0.00	0.29	0.00
Sep-06	0.00	0.05	0.80	0.69
Apr-07	0.58	0.04	0.74	1.22
May-07	0.58	0.03	0.54	1.20
Sep-07	0.04	0.16	1.07	0.00
May-08	0.40	1.19	0.90	1.71
Oct-08	0.14	0.04	0.00	0.00
Jun-09	0.54	1.58	1.60	1.45
Oct-09	0.63	1.92	1.46	1.02
May-10	0.51	2.01	1.10	0.85
Oct-10	0.00	0.57	0.59	0.00
Jun-11	0.00	0.42	0.79	0.00
Oct-11	0.00	0.53	1.07	0.00
May-12	0.69	0.79	0.80	2.17
Aug-12	0.04	0.43	0.89	0.30
Oct-12	0.00	0.45	0.91	0.88
Dec-12	0.02	0.44	1.06	0.95
May-13	0.17	0.53	0.94	1.08
Oct-13	0.00	0.70	1.25	0.81
May-14	0.00	0.79	0.22	0.22
Sep-14	0.00	0.56	0.30	0.00
2/13/15	0.00	0.56	0.24	0.00
2/20/15	0.00	0.53	0.23	0.00
3/24/15	0.00	0.34	0.52	0.00
4/16/15	0.00	0.58	NM	0.00
5/14/15	0.00	0.57	NM	0.00
10/12/15	0.00	0.42	0.07	0.01
4/4/16	0.00	0.66	0.25	0.01

Notes:

NM - Not Measured

**Historical Groundwater Extraction Summary  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

<b>Operation Period</b>	<b>Volume of Groundwater Extracted (gallons)</b>
09/27/00 to 12/18/00	11,712,960
02/02/01 to 02/08/01	691,200
03/16/01 to 06/10/01	9,288,000
06/15/01 to 09/27/01	6,822,720
02/27/04 to 12/31/04	18,548,154
01/01/05 to 12/31/05	21,374,796
01/01/06 to 12/31/06	14,759,392
01/01/07 to 12/31/07	16,551,336
01/01/08 to 12/31/08	18,118,696
01/01/09 to 12/31/09	18,533,648
01/01/10 to 12/31/10	18,561,632
01/01/11 to 12/31/11	17,796,668
01/01/12 to 12/31/12	23,051,892
01/01/13 to 12/31/13	29,793,563
01/01/14 to 12/31/14	18,415,098
01/01/15 to 06/30/15	6,282,127
07/01/15 to 11/23/15	5,125,729
<b>Total Gallons Extracted</b>	<b>255,427,611</b>

## Appendix B.4

**Historical Influent Pentachlorophenol Concentrations  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

<b>Date</b>	<b>Influent PCP Concentration (ug/L)</b>
02/27/2004 to 12/31/2004*	9,227
01/01/2005 to 12/31/2005*	7,300
01/01/2006 to 12/31/2006*	6,425
01/01/2007 to 12/31/2007*	3,557
01/01/2008 to 12/31/2008*	3,255
March 2009	3,560
July 2009	3,140
September 2009	2,800
December 2009	2,030
March 2010	2050 J
June 2010	1,970
September 2010	1,830
December 2010	1,940
March 2011	2,470
June 2011	2,170
August 2011	1,700
October 2011	1,600
February 2012	2,600
May 2012	2,200
July 2012	1,900
October 2012	1,800
February 2013	1,100
May 2013	1,100
July 2013	1,800
October 2013	1,400
February 2014	1,800
May 2014	1,600
August 2014	2,100
September 2014	2,400
October 2014	2,400
November 2014	2,100
December 2014	4,600
January 2015	1,800
February 2015	480
March 2015	390
April 2015*	1,767
May 2015*	355
June 2015	550
July 2015*	1,100
August 2015	370
September 2015	750
October 2015	600
November 2015	1,100

Note:

\* Average PCP influent concentration for that time period.

## Appendix B.5

**Historical Hazardous Waste Generation Summary  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

<b>Date</b>	<b>Filter Cake (lb)</b>	<b>Misc. Debris (lb)</b>	<b>Carbon (lb)</b>	<b>LNAPL (lb)</b>	<b>Water (gallons)</b>	<b>Yearly Total (lb)</b>
2000	0	200	6,000	5,009*	0	11,209
2001	0	400	56,100	6,166*	0	62,666
2002	0	1,400	48,000	10,790*	27,756	87,946
2003	0	600	0	3,083*	1,376	5,059
2004	155,960	3,200	102,000	53,522*	0	314,682
2005	178,784	1,290	104,860	23,847*	0	308,924
2006	112,640	1,200	136,520	52,892*	0	303,252
2007	174,020	2,200	245,377	77,615*	0	517,387
2008	211,402	3,176	70,007	28,036	0	312,621
2009	233,840	1,116	49,757	35,659	0	320,372
2010	210,940	0	81,227	34,937	0	327,104
2011	292,903	0	74,247	0	0	367,150
2012	182,280	0	65,420	25,493	0	273,193
2013	156,760	0	46,571	27,252	0	230,582
2014	110,754	13,513	65,995	11,720	0	201,982
2015	0	0	22,248	0	0	22,248
2016	0	15,212 <sup>†</sup>	34,877	14,374	0	49,251

## Note:

\* - Volume shows the amount of waste disposed offsite and is estimated to be approximately 50 percent pure LNAPL and 50 percent mixture of water and emulsified LNAPL.

<sup>†</sup> - Miscellaneous debris includes sludge, filter cake, and drill cuttings from system decommissioning.

lb - pounds

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW02	2/18/2015	97.51	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW02	2/20/2015	97.52	NP	0.00	NA	
EW02	2/24/2015	97.59	NP	0.00	NA	
EW02	3/10/2015	97.67	NP	0.00	NA	
EW02	3/24/2015	97.76	NP	0.00	NA	
EW02	4/10/2015	97.79	NP	0.00	NA	
EW02	4/16/2015	97.76	NP	0.00	NA	
EW02	5/8/2015	97.77	NP	0.00	NA	Groundwater extraction rate increased to 12 gpm on 4/30/2015
EW02	5/21/2015	97.89	NP	0.00	NA	
EW02	6/3/2015	97.92	NP	0.00	NA	
EW02	6/16/2015	97.99	NP	0.00	NA	
EW02	7/8/2015	98.12	NP	0.00	NA	
EW02	7/21/2015	98.11	NP	0.00	NA	
EW02	7/29/2015	98.11	NP	0.00	NA	Groundwater extraction rate increased to 13.5 gpm
EW02	8/5/2015	98.18	NP	0.00	NA	
EW02	8/19/2015	98.11	NP	0.00	NA	
EW02	9/4/2015	97.83	NP	0.00	NA	
EW02	9/21/2015	97.76	NP	0.00	NA	
EW02	10/8/2015	97.72	NP	0.00	NA	
EW02	10/22/2015	97.64	NP	0.00	NA	
EW02	11/2/2015	97.58	NP	0.00	NA	
EW02	11/23/2015	NM	NM	NM	NA	Groundwater extraction pump turned off for pilot study
			Total LNAPL Recovered		0.0	

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW04	11/4/2014	114.30	NP	0.00	NA	
EW04	12/11/2014	115.39	NP	0.00	NA	
EW04	12/23/2014	115.34	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW04	12/30/2014	115.26	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW04	1/8/2015	115.22	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW04	1/19/2015	115.23	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW04	1/22/2015	115.36	NP	0.00	NA	
EW04	1/30/2015	115.47	NP	0.00	NA	
EW04	2/3/2015	115.48	NP	0.00	NA	
EW04	2/13/2015	115.51	NP	0.00	NA	
EW04	2/17/2015	115.48	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW04	2/18/2015	115.51	NP	0.00	NA	
EW04	2/20/2015	115.43	NP	0.00	NA	
EW04	2/24/2015	115.53	NP	0.00	NA	
EW04	3/10/2015	115.58	NP	0.00	NA	
EW04	3/24/2015	115.67	NP	0.00	NA	
EW04	4/10/2015	115.69	NP	0.00	NA	
EW04	4/16/2015	115.69	NP	0.00	NA	
EW04	5/8/2015	115.69	NP	0.00	NA	Groundwater extraction rate increased to 12 gpm on 4/30/2015
EW04	5/21/2015	115.74	NP	0.00	NA	
EW04	6/3/2015	115.75	NP	0.00	NA	
EW04	6/16/2015	115.82	NP	0.00	NA	
EW04	7/8/2015	115.93	NP	0.00	NA	
EW04	7/21/2015	115.92	NP	0.00	NA	
EW04	7/29/2015	115.91	NP	0.00	NA	Groundwater extraction rate increased to 13.5 gpm
EW04	8/5/2015	115.97	NP	0.00	NA	
EW04	8/19/2015	115.95	NP	0.00	NA	
EW04	9/4/2015	115.78	NP	0.00	NA	
EW04	9/21/2015	115.61	NP	0.00	NA	
EW04	10/8/2015	115.58	NP	0.00	NA	
EW04	10/22/2015	115.58	NP	0.00	NA	
EW04	11/2/2015	115.45	NP	0.00	NA	
EW04	11/23/2015	NM	NM	NM	NA	Groundwater extraction pump turned off for pilot study
				Total LNAPL Recovered	0.0	

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW05	11/4/2014	83.35	83.25	0.10	NA	
EW05	11/6/2014	NM	NM	NM	<0.1	
EW05	11/7/2014	91.51	91.44	0.07	NA	
EW05	11/11/2014	91.75	91.56	0.19	NA	
EW05	11/12/2014	91.65	91.48	0.17	NA	Temporary system shutdown due to alarm condition
EW05	11/17/2014	91.64	91.51	0.13	NA	
EW05	12/1/2014	91.58	91.46	0.12	NA	
EW05	12/8/2014	91.55	91.51	0.04	NA	
EW05	12/11/2014	91.65	91.52	0.13	NA	
EW05	12/23/2014	91.40	91.39	0.01	NA	Groundwater extraction system shutdown pending carbon change-out
EW05	12/30/2014	91.37	91.36	0.01	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW05	1/8/2015	91.31	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW05	1/19/2015	91.32	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW05	1/22/2015	91.95	91.45	0.50	NA	
EW05	1/30/2015	92.00	91.49	0.51	0.1	Measurements recorded prior to LNAPL removal
EW05	2/3/2015	92.17	91.54	0.63	NA	
EW05	2/13/2015	92.14	91.54	0.60	NA	Groundwater extraction pump turned off
EW05	2/17/2015	91.72	91.49	0.23	NA	
EW05	2/20/2015	91.96	91.54	0.42	NA	
EW05	2/24/2015	91.91	91.56	0.35	NA	
EW05	2/27/2015	NM	NM	NM	0.3	Measurements recorded prior to LNAPL removal
EW05	3/10/2015	92.30	91.58	0.72	0.1	Measurements recorded prior to LNAPL removal
EW05	3/26/2015	92.42	91.62	0.80	NA	
EW05	3/31/2015	NM	NM	NM	0.5	
EW05	4/10/2015	92.50	91.71	0.79	NA	
EW05	4/16/2015	92.51	91.69	0.82	NA	
EW05	4/27/2015	NM	NM	NM	1.0	
EW05	5/8/2015	92.03	91.70	0.33	NA	
EW05	5/21/2015	92.34	91.76	0.58	1.0	
EW05	6/3/2015	92.29	91.79	0.50	0.4	
EW05	6/16/2015	92.40	91.86	0.54	0.3	
EW05	7/8/2015	92.34	91.95	0.39	NA	
EW05	7/10/2015	NM	NM	NM	0.5	
EW05	7/21/2015	92.58	91.93	0.65	NA	
EW05	7/23/2015	NM	NM	NM	0.5	
EW05	7/29/2015	92.69	91.96	0.73	NA	
EW05	8/5/2015	92.60	92.04	0.56	NA	
EW05	8/7/2015	NM	NM	NM	0.3	
EW05	8/19/2015	92.45	91.94	0.51	NA	
EW05	8/21/2015	NM	NM	NM	0.3	
EW05	9/4/2015	92.02	91.82	0.20	NA	
EW05	9/11/2015	NM	NM	NM	<0.1	
EW05	9/21/2015	91.67	91.66	0.01	NA	
EW05	10/8/2015	91.87	91.67	0.20	NA	
EW05	10/22/2015	91.66	91.65	0.01	NA	
EW05	11/2/2015	91.51	91.50	0.01	NA	
Total LNAPL Recovered					5.5	



## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW06	11/5/2014	111.22	98.06	13.16	12.0	
EW06	11/12/2014	107.80	98.30	9.50	NA	Temporary system shutdown due to alarm condition
EW06	11/17/2014	110.34	98.52	11.82	NA	
EW06	11/24/2014	111.05	98.45	12.60	10.0	
EW06	11/25/2014	105.63	98.55	7.08	NA	
EW06	12/1/2014	108.60	98.53	10.07	NA	
EW06	12/4/2014	109.35	98.48	10.87	NA	
EW06	12/8/2014	101.90	97.89	4.01	NA	
EW06	12/11/2014	111.91	98.01	13.90	NA	Measurements recorded prior to LNAPL removal
EW06	12/11/2014	100.35	98.40	1.95	12.0	Measurements recorded immediately after LNAPL removal
EW06	12/15/2014	108.40	98.01	10.39	NA	
EW06	12/23/2014	109.35	98.01	11.34	NA	Measurements recorded prior to LNAPL removal
EW06	12/23/2014	99.50	98.35	1.15	13.0	Measurements recorded immediately after LNAPL removal, groundwater extraction system shutdown pending carbon change-out
EW06	12/30/2014	98.59	97.83	0.76	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW06	1/8/2015	99.00	97.92	1.08	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW06	1/19/2015	99.54	97.80	1.74	NA	Groundwater extraction system restarted after carbon change-out
EW06	1/22/2015	111.10	98.18	12.92	NA	
EW06	1/23/2015	98.90	98.50	0.40	12.0	Measurements recorded immediately after LNAPL removal
EW06	1/30/2015	109.35	98.22	11.13	NA	
EW06	2/3/2015	112.61	98.22	14.39	12.0	Measurements recorded prior to LNAPL removal
EW06	2/13/2015	112.44	98.22	14.22	14.0	Groundwater extraction pump turned off
EW06	2/17/2015	101.95	98.12	3.83	NA	
EW06	2/20/2015	105.20	98.18	7.02	NA	
EW06	2/24/2015	105.37	98.02	7.35	8.0	Measurements recorded prior to LNAPL removal
EW06	3/10/2015	108.36	98.22	10.14	8.0	Measurements recorded prior to LNAPL removal
EW06	3/24/2015	NM	NM	NM	8.0	Not measured due to equipment breakdown
EW06	3/26/2015	105.87	98.21	7.66	NA	
EW06	4/10/2015	105.55	98.39	7.16	10.0	
EW06	4/16/2015	106.02	98.36	7.66	10.0	
EW06	4/30/2015	106.33	98.47	7.86	8.0	Groundwater extraction rate increased to 6 gpm
EW06	5/8/2015	100.72	98.32	2.40	4.0	
EW06	5/21/2015	106.84	98.27	8.57	10.0	
EW06	6/3/2015	106.55	98.41	8.14	NA	
EW06	6/4/2015	NM	NM	NM	10.0	
EW06	6/16/2015	105.85	98.49	7.36	7.0	
EW06	7/8/2015	107.10	98.42	8.68	20.0	
EW06	7/10/2015	107.10	98.60	8.50	17.0	
EW06	7/21/2015	107.90	98.54	9.36	17.0	
EW06	7/29/2015	105.87	98.59	7.28	NA	Groundwater extraction rate decreased to 3 gpm
EW06	8/5/2015	105.98	98.65	7.33	14.0	
EW06	8/7/2015	NM	NM	NM	14.0	
EW06	8/19/2015	103.95	98.51	5.44	10.0	
EW06	9/4/2015	105.31	98.31	7.00	10.0	
EW06	9/21/2015	104.49	98.28	6.21	10.0	
EW06	10/8/2015	100.38	98.25	2.13	5.0	
EW06	10/22/2015	105.54	98.23	7.31	8.0	
EW06	11/2/2015	105.15	98.05	7.10	NA	
EW06	11/5/2015	NM	NM	NM	8.0	
EW06	11/23/2015	NM	NM	NM	NA	Groundwater extraction pump turned off for pilot study
Total LNAPL Recovered					301.0	

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW10	11/4/2014	108.20	103.92	4.28	NA	
EW10	11/5/2014	108.77	104.70	4.07	4.0	
EW10	11/18/2014	107.60	104.35	3.25	NA	
EW10	11/24/2014	107.45	103.94	3.51	0.0	LNAPL pump inoperable, unable to recover LNAPL
EW10	11/25/2014	107.50	103.91	3.59	NA	
EW10	12/1/2014	107.30	104.14	3.16	NA	
EW10	12/4/2014	107.33	104.11	3.22	NA	Measurements recorded prior to LNAPL removal
EW10	12/4/2014	105.35	104.05	1.30	2.0	Measurements recorded immediately after LNAPL removal
EW10	12/8/2014	104.29	103.17	1.12	NA	
EW10	12/11/2014	106.95	104.05	2.90	NA	Measurements recorded prior to LNAPL removal
EW10	12/11/2014	105.46	104.12	1.34	2.0	Measurements recorded immediately after LNAPL removal
EW10	12/15/2014	106.68	104.00	2.68	NA	
EW10	12/23/2014	107.25	103.91	3.34	NA	Measurements recorded prior to LNAPL removal
EW10	12/23/2014	104.75	104.06	0.69	4.0	Measurements recorded immediately after LNAPL removal, groundwater extraction system shutdown pending carbon change-out
EW10	12/30/2014	104.59	103.00	1.59	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW10	1/8/2015	104.55	103.10	1.45	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW10	1/19/2015	104.70	103.00	1.70	NA	Groundwater extraction system restarted after carbon change-out
EW10	1/22/2015	106.38	104.31	2.07	NA	
EW10	1/23/2015	104.40	104.38	0.02	2.0	Measurements recorded immediately after LNAPL removal
EW10	1/30/2015	105.76	104.28	1.48	NA	
EW10	2/3/2015	106.00	104.27	1.73	2.0	Measurements recorded prior to LNAPL removal
EW10	2/13/2015	106.82	104.24	2.58	3.0	Groundwater extraction pump turned off
EW10	2/17/2015	105.80	103.65	2.15	NA	
EW10	2/20/2015	106.40	103.81	2.59	NA	
EW10	2/24/2015	106.85	103.79	3.06	2.0	Measurements recorded prior to LNAPL removal
EW10	3/10/2015	107.80	103.81	3.99	2.0	Measurements recorded prior to LNAPL removal
EW10	3/24/2015	108.21	103.84	4.37	2.0	Measurements recorded prior to LNAPL removal
EW10	4/10/2015	108.96	103.86	5.10	3.0	
EW10	4/16/2015	108.18	103.90	4.28	2.0	
EW10	4/30/2015	107.81	103.84	3.97	2.0	
EW10	5/8/2015	106.84	103.46	3.38	2.5	
EW10	5/21/2015	107.46	103.62	3.84	2.5	
EW10	6/3/2015	107.51	103.60	3.91	NA	
EW10	6/4/2015	NM	NM	NM	2.5	
EW10	6/16/2015	108.20	103.85	4.35	2.0	
EW10	7/8/2015	108.53	103.96	4.57	3.0	
EW10	7/10/2015	107.85	103.97	3.88	NA	
EW10	7/21/2015	108.48	103.96	4.52	3.0	
EW10	7/29/2015	108.10	104.00	4.10	NA	
EW10	8/5/2015	108.85	104.00	4.85	2.5	
EW10	8/19/2015	108.57	103.74	4.83	3.0	
EW10	9/4/2015	108.91	103.60	5.31	3.0	
EW10	9/21/2015	108.35	103.62	4.73	3.0	
EW10	10/8/2015	107.72	103.33	4.39	2.5	
EW10	10/22/2015	109.10	103.56	5.54	3.0	
EW10	11/2/2015	109.50	103.27	6.23	NA	
EW10	11/5/2015	NM	NM	NM	3.0	
Total LNAPL Recovered					67.5	

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW12	11/4/2014	105.26	105.04	0.22	NA	
EW12	11/6/2014	NM	NM	NM	<0.1	
EW12	11/7/2014	108.26	108.15	0.11	NA	
EW12	11/11/2014	108.39	108.22	0.17	NA	
EW12	11/12/2014	101.16	101.14	0.02	NA	Temporary system shutdown due to alarm condition
EW12	11/17/2014	108.00	107.98	0.02	NA	
EW12	12/8/2014	100.99	NP	0.00	NA	
EW12	12/11/2014	108.98	108.97	0.01	NA	
EW12	12/23/2014	109.75	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW12	12/30/2014	101.10	100.88	0.22	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW12	1/8/2015	101.20	100.84	0.36	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW12	1/19/2015	101.35	100.85	0.50	NA	Groundwater extraction system restarted after carbon change-out
EW12	1/22/2015	108.16	108.15	0.01	NA	
EW12	1/30/2015	108.96	108.96	0.00	NA	
EW12	2/3/2015	109.13	109.13	0.00	NA	
EW12	2/13/2015	109.98	NP	0.00	NA	Groundwater extraction pump turned off
EW12	2/17/2015	101.56	101.08	0.48	NA	
EW12	2/20/2015	101.90	101.32	0.58	NA	
EW12	2/24/2015	102.01	101.31	0.70	NA	
EW12	2/27/2015	NM	NM	NM	0.1	Measurements recorded prior to LNAPL removal
EW12	3/10/2015	102.35	101.35	1.00	0.1	Measurements recorded prior to LNAPL removal
EW12	3/24/2015	102.45	101.33	1.12	NA	
EW12	3/31/2015	NM	NM	NM	1.0	
EW12	4/10/2015	102.22	101.36	0.86	NA	
EW12	4/16/2015	102.32	101.36	0.96	NA	
EW12	4/27/2015	NM	NM	NM	1.0	
EW12	5/8/2015	101.99	101.19	0.80	NA	
EW12	5/21/2015	102.39	101.40	0.99	1.0	
EW12	6/3/2015	102.34	101.45	0.89	0.4	
EW12	6/16/2015	102.27	101.50	0.77	0.3	
EW12	7/8/2015	102.26	101.54	0.72	NA	
EW12	7/10/2015	NM	NM	NM	0.5	
EW12	7/21/2015	102.10	101.61	0.49	NA	
EW12	7/23/2015	NM	NM	NM	0.5	
EW12	7/29/2015	102.11	101.65	0.46	NA	
EW12	8/5/2015	102.39	101.69	0.70	NA	
EW12	8/7/2015	NM	NM	NM	0.3	
EW12	8/19/2015	101.27	100.45	0.82	NA	
EW12	8/21/2015	NM	NM	NM	0.1	
EW12	9/4/2015	101.87	101.47	0.40	NA	
EW12	9/11/2015	NM	NM	NM	0.3	
EW12	9/21/2015	101.60	101.29	0.31	NA	
EW12	10/1/2015	NM	NM	NM	0.2	
EW12	10/8/2015	101.39	101.15	0.24	NA	
EW12	10/22/2015	101.52	101.23	0.29	NA	
EW12	11/2/2015	101.51	101.18	0.33	NA	
Total LNAPL Recovered					5.9	

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW13	11/4/2014	111.48	NP	0.00	NA	
EW13	12/11/2014	114.81	NP	0.00	NA	
EW13	12/23/2014	115.11	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW13	12/30/2014	107.34	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW13	1/8/2015	107.27	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW13	1/19/2015	107.33	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW13	1/22/2015	115.05	NP	0.00	NA	
EW13	1/30/2015	115.49	NP	0.00	NA	
EW13	2/3/2015	115.28	NP	0.00	NA	
EW13	2/13/2015	115.74	NP	0.00	NA	
EW13	2/17/2015	117.05	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW13	2/18/2015	119.19	NP	0.00	NA	
EW13	2/20/2015	119.37	NP	0.00	NA	
EW13	2/24/2015	119.50	NP	0.00	NA	
EW13	3/10/2015	120.13	NP	0.00	NA	
EW13	3/24/2015	116.72	NP	0.00	NA	
EW13	4/10/2015	118.55	NP	0.00	NA	
EW13	4/16/2015	120.92	NP	0.00	NA	
EW13	5/8/2015	107.18	NP	0.00	NA	Groundwater extraction pump turned off on 4/30/2015
EW13	5/21/2015	104.94	NP	0.00	NA	
EW13	6/3/2015	105.88	NP	0.00	NA	
EW13	6/16/2015	106.44	NP	0.00	NA	
EW13	7/8/2015	107.42	NP	0.00	NA	
EW13	7/21/2015	107.70	NP	0.00	NA	
EW13	7/29/2015	107.91	NP	0.00	NA	
EW13	8/5/2015	107.89	NP	0.00	NA	
EW13	8/19/2015	107.80	NP	0.00	NA	
EW13	9/4/2015	107.63	NP	0.00	NA	
EW13	9/21/2015	107.63	NP	0.00	NA	
EW13	10/8/2015	107.49	NP	0.00	NA	
EW13	10/22/2015	107.72	NP	0.00	NA	
EW13	11/2/2015	107.48	NP	0.00	NA	
				Total LNAPL Recovered	0.0	

## Appendix B.6

**LNAPL Thickness and Recovery Summary - Extraction Wells  
Penta Wood Products Superfund Site  
Siren, Wisconsin**

Well ID	Date	Depth to Water (feet) <sup>1</sup>	Depth to LNAPL (feet) <sup>1</sup>	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW14	11/4/2014	112.55	112.45	0.10	NA	
EW14	11/6/2014	NM	NM	NM	<0.1	
EW14	11/7/2014	112.54	112.49	0.05	NA	
EW14	11/11/2014	112.68	112.60	0.08	NA	
EW14	11/12/2014	112.91	112.87	0.04	NA	Temporary system shutdown due to alarm condition
EW14	11/17/2014	111.82	111.55	0.27	NA	
EW14	12/8/2014	112.89	112.85	0.04	NA	
EW14	12/11/2014	113.83	113.75	0.08	NA	
EW14	12/23/2014	113.74	113.65	0.09	NA	Groundwater extraction system shutdown pending carbon change-out
EW14	12/30/2014	112.85	112.76	0.09	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW14	1/8/2015	112.77	112.71	0.06	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW14	1/19/2015	112.92	112.78	0.14	NA	Groundwater extraction system restarted after carbon change-out
EW14	1/22/2015	113.80	113.72	0.08	NA	
EW14	1/30/2015	113.79	113.66	0.13	<0.1	
EW14	2/3/2015	113.74	113.65	0.09	NA	
EW14	2/13/2015	113.90	113.68	0.22	NA	
EW14	2/17/2015	113.85	113.79	0.06	NA	Groundwater extraction rate increased to 10 gpm
EW14	2/18/2015	114.29	114.21	0.08	NA	
EW14	2/20/2015	114.26	114.18	0.08	NA	
EW14	2/24/2015	114.25	114.21	0.04	NA	
EW14	3/10/2015	114.36	114.30	0.06	NA	
EW14	3/24/2015	114.41	114.36	0.05	NA	
EW14	3/31/2015	NM	NM	NM	<0.1	
EW14	4/10/2015	114.43	114.42	0.01	NA	
EW14	4/16/2015	114.47	114.44	0.03	NA	
EW14	5/8/2015	113.30	113.14	0.16	NA	Groundwater extraction pump turned off on 4/30/2015
EW14	5/21/2015	113.71	113.49	0.22	NA	
EW14	6/3/2015	113.72	113.50	0.22	0.2	
EW14	6/16/2015	113.71	113.58	0.13	0.1	
EW14	7/8/2015	113.71	113.62	0.09	NA	
EW14	7/21/2015	113.78	113.68	0.10	NA	
EW14	7/29/2015	113.83	113.72	0.11	NA	
EW14	8/5/2015	113.84	113.72	0.12	NA	
EW14	8/7/2015	NM	NM	NM	<0.1	
EW14	8/19/2015	113.80	113.70	0.10	NA	
EW14	9/4/2015	113.68	113.59	0.09	NA	
EW14	9/11/2015	NM	NM	NM	<0.1	
EW14	9/21/2015	113.43	113.38	0.05	NA	
EW14	10/8/2015	113.12	113.06	0.06	NA	
EW14	10/22/2015	113.48	113.39	0.09	NA	
EW14	11/2/2015	113.44	113.32	0.12	NA	
Total LNAPL Recovered					0.8	
Total LNAPL Recovered (all wells)					380.7	Since system modification in October 2014; system shutdown and LNAPL recovery terminated in November 2015

## Notes:

<sup>1</sup> Depth to water and depth to LNAPL measurements before December 2014 were not consistently recorded from the same benchmark location/elevation. Measurements were consistently recorded from the same benchmark location at the top of the well vault starting in December 2014.

NM - Not measured  
NP - LNAPL was not present in a measurable quantity  
NA - Not applicable

# Appendix C

## Groundwater Sample Laboratory Reports

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

TestAmerica Job ID: 240-63091-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.  
1801 Old Highway 8 NW  
Suite 114  
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:  
4/19/2016 12:44:21 PM

Denise Heckler, Project Manager II  
(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Qualifiers

### GC Semi VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

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## Job ID: 240-63091-1

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### Laboratory: TestAmerica Canton

#### Narrative

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**Job Narrative**  
**240-63091-1**

#### Comments

At the request of GHD on April 12, 2016: sample 240-63091-3 (GHD W-160405-PS-MW-32) should only be analyzed for Metals, BTEX, PCP and naphthalene.

#### Receipt

The samples were received on 4/6/2016 9:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.5° C, 0.7° C and 2.3° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

Method(s) 6020: The CCB was greater than or equal to the requested reporting for copper. Since the sample results were below the requested reporting limit the results were accepted.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0, 9056A: The following sample was diluted due to the nature of the sample matrix: W-160405-PS-MW-15 (240-63091-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63091-1	W-160405-PS-MW-15	Water	04/05/16 09:50	04/06/16 09:45
240-63091-2	W-160405-PS-MW-03	Water	04/05/16 11:35	04/06/16 09:45
240-63091-3	W-160405-PS-MW-32	Water	04/05/16 09:30	04/06/16 09:45
240-63091-4	W-160405-PS-MW-33	Water	04/05/16 11:45	04/06/16 09:45
240-63091-5	W-TRIP BLANK-01	Water	04/05/16 00:00	04/06/16 09:45

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Client Sample ID: W-160405-PS-MW-15

## Lab Sample ID: 240-63091-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.078	J	0.099	0.015	ug/L	4		8151A	Total/NA
Arsenic	0.70	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.7	J B	2.0	0.75	ug/L	1		6020	Dissolved
Alkalinity	207	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	312		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	12.5		5.0	2.0	mg/L	5		300.0	Total/NA
Nitrate as N	0.45		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	6.3		5.0	0.65	mg/L	5		300.0	Total/NA
Total Organic Carbon	0.49	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160405-PS-MW-03

## Lab Sample ID: 240-63091-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	4.4		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.46		0.097	0.015	ug/L	4		8151A	Total/NA
Copper	1.4	J B ^	2.0	0.75	ug/L	1		6020	Dissolved
Iron	716		100	16.0	ug/L	1		6020	Dissolved
Manganese	20.4	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	224	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	299		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	48.2		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.4		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	10.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.98	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160405-PS-MW-32

## Lab Sample ID: 240-63091-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.019	J p	0.098	0.015	ug/L	4		8151A	Total/NA
Iron	31.5	J	100	16.0	ug/L	1		6020	Dissolved

## Client Sample ID: W-160405-PS-MW-33

## Lab Sample ID: 240-63091-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	4.2		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.40		0.10	0.016	ug/L	4		8151A	Total/NA
Copper	0.99	J B ^	2.0	0.75	ug/L	1		6020	Dissolved
Iron	514		100	16.0	ug/L	1		6020	Dissolved
Manganese	18.6	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	221	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	283		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	48.6		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.4		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	10.0		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.94	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIP BLANK-01

## Lab Sample ID: 240-63091-5

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-15**

**Lab Sample ID: 240-63091-1**

**Date Collected: 04/05/16 09:50**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 02:16	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 02:16	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 02:16	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 02:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		78 - 125		04/14/16 02:16	1
4-Bromofluorobenzene (Surr)	85		61 - 120		04/14/16 02:16	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 02:16	1
Dibromofluoromethane (Surr)	88		79 - 120		04/14/16 02:16	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/07/16 08:49	04/08/16 17:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	84		29 - 110	04/07/16 08:49	04/08/16 17:48	1
2-Fluorophenol (Surr)	35		15 - 110	04/07/16 08:49	04/08/16 17:48	1
2,4,6-Tribromophenol (Surr)	72		21 - 128	04/07/16 08:49	04/08/16 17:48	1
Nitrobenzene-d5 (Surr)	76		31 - 110	04/07/16 08:49	04/08/16 17:48	1
Phenol-d5 (Surr)	18		10 - 110	04/07/16 08:49	04/08/16 17:48	1
Terphenyl-d14 (Surr)	63		31 - 115	04/07/16 08:49	04/08/16 17:48	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/14/16 22:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	94		66 - 132		04/14/16 22:31	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.078	J	0.099	0.015	ug/L		04/07/16 15:00	04/08/16 13:05	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	52		32 - 140	04/07/16 15:00	04/08/16 13:05	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.70	J	5.0	0.49	ug/L		04/07/16 10:04	04/08/16 18:53	1
Copper	1.7	J B	2.0	0.75	ug/L		04/07/16 10:04	04/08/16 18:53	1
Iron	<16.0		100	16.0	ug/L		04/07/16 10:04	04/08/16 18:53	1
Manganese	<1.1		5.0	1.1	ug/L		04/07/16 10:04	04/08/16 18:53	1
Zinc	<7.3		20.0	7.3	ug/L		04/07/16 10:04	04/08/16 18:53	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	207	B	5.0	1.9	mg/L			04/11/16 19:07	1
Hardness as calcium carbonate	312		5.0	3.1	mg/L			04/08/16 10:23	1
Chloride	12.5		5.0	2.0	mg/L			04/12/16 05:13	5
Nitrate as N	0.45		0.10	0.035	mg/L			04/07/16 04:26	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-15**

**Lab Sample ID: 240-63091-1**

**Date Collected: 04/05/16 09:50**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.3		5.0	0.65	mg/L			04/12/16 05:13	5
Total Organic Carbon	0.49	J	1.0	0.080	mg/L			04/09/16 01:45	1

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-03**

**Lab Sample ID: 240-63091-2**

**Date Collected: 04/05/16 11:35**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 03:24	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 03:24	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 03:24	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 03:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		78 - 125		04/14/16 03:24	1
4-Bromofluorobenzene (Surr)	83		61 - 120		04/14/16 03:24	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 03:24	1
Dibromofluoromethane (Surr)	88		79 - 120		04/14/16 03:24	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/07/16 08:49	04/08/16 19:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	86		29 - 110	04/07/16 08:49	04/08/16 19:00	1
2-Fluorophenol (Surr)	39		15 - 110	04/07/16 08:49	04/08/16 19:00	1
2,4,6-Tribromophenol (Surr)	70		21 - 128	04/07/16 08:49	04/08/16 19:00	1
Nitrobenzene-d5 (Surr)	80		31 - 110	04/07/16 08:49	04/08/16 19:00	1
Phenol-d5 (Surr)	22		10 - 110	04/07/16 08:49	04/08/16 19:00	1
Terphenyl-d14 (Surr)	61		31 - 115	04/07/16 08:49	04/08/16 19:00	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.4		0.50	0.080	ug/L			04/14/16 23:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	91		66 - 132		04/14/16 23:22	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.46		0.097	0.015	ug/L		04/07/16 15:00	04/08/16 14:16	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	49		32 - 140	04/07/16 15:00	04/08/16 14:16	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/07/16 10:04	04/08/16 19:22	1
Copper	1.4	J B ^	2.0	0.75	ug/L		04/07/16 10:04	04/08/16 19:22	1
Iron	716		100	16.0	ug/L		04/07/16 10:04	04/08/16 19:22	1
Manganese	20.4	B	5.0	1.1	ug/L		04/07/16 10:04	04/08/16 19:22	1
Zinc	<7.3		20.0	7.3	ug/L		04/07/16 10:04	04/08/16 19:22	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	224	B	5.0	1.9	mg/L			04/11/16 20:05	1
Hardness as calcium carbonate	299		5.0	3.1	mg/L			04/08/16 10:35	1
Chloride	48.2		1.0	0.41	mg/L			04/07/16 09:21	1
Nitrate as N	1.4		0.10	0.035	mg/L			04/07/16 09:21	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-03**

**Lab Sample ID: 240-63091-2**

**Date Collected: 04/05/16 11:35**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	10.1		1.0	0.13	mg/L			04/07/16 09:21	1
Total Organic Carbon	0.98	J	1.0	0.080	mg/L			04/09/16 00:54	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-32**

**Lab Sample ID: 240-63091-3**

**Date Collected: 04/05/16 09:30**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 03:47	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 03:47	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 03:47	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 03:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		78 - 125		04/14/16 03:47	1
4-Bromofluorobenzene (Surr)	85		61 - 120		04/14/16 03:47	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 03:47	1
Dibromofluoromethane (Surr)	87		79 - 120		04/14/16 03:47	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/07/16 08:49	04/08/16 19:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	82		29 - 110	04/07/16 08:49	04/08/16 19:24	1
2-Fluorophenol (Surr)	37		15 - 110	04/07/16 08:49	04/08/16 19:24	1
2,4,6-Tribromophenol (Surr)	67		21 - 128	04/07/16 08:49	04/08/16 19:24	1
Nitrobenzene-d5 (Surr)	77		31 - 110	04/07/16 08:49	04/08/16 19:24	1
Phenol-d5 (Surr)	20		10 - 110	04/07/16 08:49	04/08/16 19:24	1
Terphenyl-d14 (Surr)	84		31 - 115	04/07/16 08:49	04/08/16 19:24	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.019	J p	0.098	0.015	ug/L		04/07/16 15:00	04/08/16 14:39	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	52		32 - 140	04/07/16 15:00	04/08/16 14:39	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/07/16 10:04	04/08/16 19:26	1
Copper	<0.75		2.0	0.75	ug/L		04/07/16 10:04	04/08/16 19:26	1
Iron	31.5	J	100	16.0	ug/L		04/07/16 10:04	04/08/16 19:26	1
Manganese	<1.1		5.0	1.1	ug/L		04/07/16 10:04	04/08/16 19:26	1
Zinc	<7.3		20.0	7.3	ug/L		04/07/16 10:04	04/08/16 19:26	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-33**

**Lab Sample ID: 240-63091-4**

**Date Collected: 04/05/16 11:45**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 04:10	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 04:10	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 04:10	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 04:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		78 - 125		04/14/16 04:10	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/14/16 04:10	1
Toluene-d8 (Surr)	96		80 - 120		04/14/16 04:10	1
Dibromofluoromethane (Surr)	89		79 - 120		04/14/16 04:10	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/07/16 08:49	04/08/16 19:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	79		29 - 110	04/07/16 08:49	04/08/16 19:48	1
2-Fluorophenol (Surr)	36		15 - 110	04/07/16 08:49	04/08/16 19:48	1
2,4,6-Tribromophenol (Surr)	69		21 - 128	04/07/16 08:49	04/08/16 19:48	1
Nitrobenzene-d5 (Surr)	74		31 - 110	04/07/16 08:49	04/08/16 19:48	1
Phenol-d5 (Surr)	20		10 - 110	04/07/16 08:49	04/08/16 19:48	1
Terphenyl-d14 (Surr)	58		31 - 115	04/07/16 08:49	04/08/16 19:48	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.2		0.50	0.080	ug/L			04/14/16 23:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	88		66 - 132		04/14/16 23:39	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.40		0.10	0.016	ug/L		04/07/16 15:00	04/08/16 15:03	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	56		32 - 140	04/07/16 15:00	04/08/16 15:03	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/07/16 10:04	04/08/16 19:30	1
Copper	0.99	J B ^	2.0	0.75	ug/L		04/07/16 10:04	04/08/16 19:30	1
Iron	514		100	16.0	ug/L		04/07/16 10:04	04/08/16 19:30	1
Manganese	18.6	B	5.0	1.1	ug/L		04/07/16 10:04	04/08/16 19:30	1
Zinc	<7.3		20.0	7.3	ug/L		04/07/16 10:04	04/08/16 19:30	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	221	B	5.0	1.9	mg/L			04/11/16 20:23	1
Hardness as calcium carbonate	283		5.0	3.1	mg/L			04/08/16 10:44	1
Chloride	48.6		1.0	0.41	mg/L			04/07/16 09:38	1
Nitrate as N	1.4		0.10	0.035	mg/L			04/07/16 09:38	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-33**

**Lab Sample ID: 240-63091-4**

**Date Collected: 04/05/16 11:45**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	10.0		1.0	0.13	mg/L			04/07/16 09:38	1
Total Organic Carbon	0.94	J	1.0	0.080	mg/L			04/09/16 02:26	1

1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-TRIP BLANK-01**

**Lab Sample ID: 240-63091-5**

**Date Collected: 04/05/16 00:00**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 04:32	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 04:32	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 04:32	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 04:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	88		78 - 125		04/14/16 04:32	1
4-Bromofluorobenzene (Surr)	84		61 - 120		04/14/16 04:32	1
Toluene-d8 (Surr)	96		80 - 120		04/14/16 04:32	1
Dibromofluoromethane (Surr)	89		79 - 120		04/14/16 04:32	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63091-1	W-160405-PS-MW-15	89	85	94	88
240-63091-1 MS	W-160405-PS-MW-15	85	92	94	88
240-63091-1 MSD	W-160405-PS-MW-15	90	94	97	90
240-63091-2	W-160405-PS-MW-03	87	83	95	88
240-63091-3	W-160405-PS-MW-32	87	85	94	87
240-63091-4	W-160405-PS-MW-33	87	86	96	89
240-63091-5	W-TRIP BLANK-01	88	84	96	89
LCS 240-225829/4	Lab Control Sample	86	91	94	91
MB 240-225829/6	Method Blank	86	86	94	88

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

TOL = Toluene-d8 (Surr)

DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63091-1	W-160405-PS-MW-15	84	35	72	76	18	63
240-63091-1 MS	W-160405-PS-MW-15	86	39	79	81	23	68
240-63091-1 MSD	W-160405-PS-MW-15	91	38	87	81	21	68
240-63091-2	W-160405-PS-MW-03	86	39	70	80	22	61
240-63091-3	W-160405-PS-MW-32	82	37	67	77	20	84
240-63091-4	W-160405-PS-MW-33	79	36	69	74	20	58
LCS 240-224975/16-A	Lab Control Sample	98	78	93	91	59	113
MB 240-224975/15-A	Method Blank	86	74	73	82	54	106

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

2FP = 2-Fluorophenol (Surr)

TBP = 2,4,6-Tribromophenol (Surr)

NBZ = Nitrobenzene-d5 (Surr)

PHL = Phenol-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Trifluoroet (66-132)
240-63091-1	W-160405-PS-MW-15	94
240-63091-1 MS	W-160405-PS-MW-15	90
240-63091-1 MSD	W-160405-PS-MW-15	92
240-63091-2	W-160405-PS-MW-03	91
240-63091-4	W-160405-PS-MW-33	88

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroet (66-132)
LCS 240-225973/32	Lab Control Sample	92
MB 240-225973/31	Method Blank	87

#### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63091-1	W-160405-PS-MW-15	52	51
240-63091-1 MS	W-160405-PS-MW-15	52	58
240-63091-1 MSD	W-160405-PS-MW-15	63	64
240-63091-2	W-160405-PS-MW-03	49	48
240-63091-3	W-160405-PS-MW-32	50	52
240-63091-4	W-160405-PS-MW-33	56	56
LCS 180-173011/2-A	Lab Control Sample	73	69
MB 180-173011/1-A	Method Blank	53	62

#### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid



# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225829/6**  
**Matrix: Water**  
**Analysis Batch: 225829**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/13/16 23:37	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/13/16 23:37	1
Toluene	<0.23		1.0	0.23	ug/L			04/13/16 23:37	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/13/16 23:37	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		78 - 125		04/13/16 23:37	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/13/16 23:37	1
Toluene-d8 (Surr)	94		80 - 120		04/13/16 23:37	1
Dibromofluoromethane (Surr)	88		79 - 120		04/13/16 23:37	1

**Lab Sample ID: LCS 240-225829/4**  
**Matrix: Water**  
**Analysis Batch: 225829**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.4		ug/L		104	80 - 120
Ethylbenzene	10.0	9.36		ug/L		94	80 - 120
Toluene	10.0	10.1		ug/L		101	80 - 120
Xylenes, Total	20.0	18.9		ug/L		95	80 - 120
m-Xylene & p-Xylene	10.0	9.31		ug/L		93	80 - 120
o-Xylene	10.0	9.61		ug/L		96	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	86		78 - 125
4-Bromofluorobenzene (Surr)	91		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	91		79 - 120

**Lab Sample ID: 240-63091-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225829**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.35		10.0	9.79		ug/L		98	73 - 121
Ethylbenzene	<0.25		10.0	8.81		ug/L		88	68 - 121
Toluene	<0.23		10.0	9.31		ug/L		93	72 - 122
Xylenes, Total	<0.52		20.0	17.6		ug/L		88	67 - 122
m-Xylene & p-Xylene	<0.24		10.0	8.63		ug/L		86	66 - 123
o-Xylene	<0.25		10.0	8.93		ug/L		89	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		78 - 125
4-Bromofluorobenzene (Surr)	92		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	88		79 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63091-1 MSD**

**Matrix: Water**

**Analysis Batch: 225829**

**Client Sample ID: W-160405-PS-MW-15**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.35		10.0	10.1		ug/L		101	73 - 121	3	13
Ethylbenzene	<0.25		10.0	8.97		ug/L		90	68 - 121	2	16
Toluene	<0.23		10.0	9.60		ug/L		96	72 - 122	3	15
Xylenes, Total	<0.52		20.0	18.2		ug/L		91	67 - 122	3	14
m-Xylene & p-Xylene	<0.24		10.0	8.96		ug/L		90	66 - 123	4	15
o-Xylene	<0.25		10.0	9.22		ug/L		92	68 - 121	3	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	90		78 - 125
4-Bromofluorobenzene (Surr)	94		61 - 120
Toluene-d8 (Surr)	97		80 - 120
Dibromofluoromethane (Surr)	90		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-224975/15-A**

**Matrix: Water**

**Analysis Batch: 225171**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 224975**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/07/16 08:49	04/08/16 10:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	86		29 - 110	04/07/16 08:49	04/08/16 10:33	1
2-Fluorophenol (Surr)	74		15 - 110	04/07/16 08:49	04/08/16 10:33	1
2,4,6-Tribromophenol (Surr)	73		21 - 128	04/07/16 08:49	04/08/16 10:33	1
Nitrobenzene-d5 (Surr)	82		31 - 110	04/07/16 08:49	04/08/16 10:33	1
Phenol-d5 (Surr)	54		10 - 110	04/07/16 08:49	04/08/16 10:33	1
Terphenyl-d14 (Surr)	106		31 - 115	04/07/16 08:49	04/08/16 10:33	1

**Lab Sample ID: LCS 240-224975/16-A**

**Matrix: Water**

**Analysis Batch: 225171**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 224975**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	18.0		ug/L		90	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	98		29 - 110
2-Fluorophenol (Surr)	78		15 - 110
2,4,6-Tribromophenol (Surr)	93		21 - 128
Nitrobenzene-d5 (Surr)	91		31 - 110
Phenol-d5 (Surr)	59		10 - 110
Terphenyl-d14 (Surr)	113		31 - 115

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63091-1 MS**

**Matrix: Water**

**Analysis Batch: 225171**

**Client Sample ID: W-160405-PS-MW-15**

**Prep Type: Total/NA**

**Prep Batch: 224975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Naphthalene	<0.060		20.2	17.2		ug/L		85	35 - 110
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
2-Fluorobiphenyl (Surr)	86		29 - 110						
2-Fluorophenol (Surr)	39		15 - 110						
2,4,6-Tribromophenol (Surr)	79		21 - 128						
Nitrobenzene-d5 (Surr)	81		31 - 110						
Phenol-d5 (Surr)	23		10 - 110						
Terphenyl-d14 (Surr)	68		31 - 115						

**Lab Sample ID: 240-63091-1 MSD**

**Matrix: Water**

**Analysis Batch: 225171**

**Client Sample ID: W-160405-PS-MW-15**

**Prep Type: Total/NA**

**Prep Batch: 224975**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Naphthalene	<0.060		19.2	16.1		ug/L		83	35 - 110	7	58
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
2-Fluorobiphenyl (Surr)	91		29 - 110								
2-Fluorophenol (Surr)	38		15 - 110								
2,4,6-Tribromophenol (Surr)	87		21 - 128								
Nitrobenzene-d5 (Surr)	81		31 - 110								
Phenol-d5 (Surr)	21		10 - 110								
Terphenyl-d14 (Surr)	68		31 - 115								

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-225973/31**

**Matrix: Water**

**Analysis Batch: 225973**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/14/16 21:57	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>						
1,1,1-Trifluoroethane	87		66 - 132						
				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>			
					04/14/16 21:57	1			

**Lab Sample ID: LCS 240-225973/32**

**Matrix: Water**

**Analysis Batch: 225973**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	199		ug/L		100	76 - 120
<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
1,1,1-Trifluoroethane	92		66 - 132				

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: 240-63091-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225973**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	<0.080		199	189		ug/L		95	34 - 153
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
1,1,1-Trifluoroethane	90		66 - 132						

**Lab Sample ID: 240-63091-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225973**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	<0.080		199	192		ug/L		97	34 - 153	2	22
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
1,1,1-Trifluoroethane	92		66 - 132								

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173011/1-A**  
**Matrix: Water**  
**Analysis Batch: 173089**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173011**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/07/16 15:00	04/08/16 12:41	4
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>MB Limits</b>	<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>			
2,4-Dichlorophenylacetic acid	62		32 - 140	04/07/16 15:00	04/08/16 12:41	4			

**Lab Sample ID: LCS 180-173011/2-A**  
**Matrix: Water**  
**Analysis Batch: 173089**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 173011**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1.00	0.835		ug/L		84	40 - 140
<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>LCS Qualifier</b>	<b>LCS Limits</b>				
2,4-Dichlorophenylacetic acid	73		32 - 140				

**Lab Sample ID: 240-63091-1 MS**  
**Matrix: Water**  
**Analysis Batch: 173089**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Total/NA**  
**Prep Batch: 173011**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	0.078	J	0.943	0.711		ug/L		67	40 - 140
<b>Surrogate</b>	<b>MS %Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
2,4-Dichlorophenylacetic acid	58		32 - 140						

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: 240-63091-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 173089**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Total/NA**  
**Prep Batch: 173011**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	0.078	J	0.952	0.739		ug/L		69	40 - 140	4	30
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
2,4-Dichlorophenylacetic acid	64		32 - 140								

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-224994/1-A**  
**Matrix: Water**  
**Analysis Batch: 225392**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 224994**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/07/16 10:04	04/08/16 18:44	1
Copper	1.14	J	2.0	0.75	ug/L		04/07/16 10:04	04/08/16 18:44	1
Iron	<16.0		100	16.0	ug/L		04/07/16 10:04	04/08/16 18:44	1
Manganese	1.59	J	5.0	1.1	ug/L		04/07/16 10:04	04/08/16 18:44	1
Zinc	<7.3		20.0	7.3	ug/L		04/07/16 10:04	04/08/16 18:44	1

**Lab Sample ID: LCS 240-224994/2-A**  
**Matrix: Water**  
**Analysis Batch: 225392**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 224994**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	1000	919.8		ug/L		92	80 - 120
Copper	1000	947.7		ug/L		95	80 - 120
Iron	10000	9466		ug/L		95	80 - 120
Manganese	1000	944.3		ug/L		94	80 - 120
Zinc	1000	964.6		ug/L		96	80 - 120

**Lab Sample ID: 240-63091-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225392**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Dissolved**  
**Prep Batch: 224994**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.70	J	1000	937.1		ug/L		94	75 - 125
Copper	1.7	J B	1000	892.8		ug/L		89	75 - 125
Iron	<16.0		10000	9079		ug/L		91	75 - 125
Manganese	<1.1		1000	901.0		ug/L		90	75 - 125
Zinc	<7.3		1000	905.1		ug/L		91	75 - 125

**Lab Sample ID: 240-63091-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225392**

**Client Sample ID: W-160405-PS-MW-15**  
**Prep Type: Dissolved**  
**Prep Batch: 224994**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	0.70	J	1000	1006		ug/L		100	75 - 125	7	20
Copper	1.7	J B	1000	978.3		ug/L		98	75 - 125	9	20
Iron	<16.0		10000	9860		ug/L		99	75 - 125	8	20

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: 240-63091-1 MSD  
Matrix: Water  
Analysis Batch: 225392

Client Sample ID: W-160405-PS-MW-15  
Prep Type: Dissolved  
Prep Batch: 224994

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Manganese	<1.1		1000	984.7		ug/L		98	75 - 125	9	20
Zinc	<7.3		1000	992.5		ug/L		99	75 - 125	9	20

## Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: MB 240-225578/30  
Matrix: Water  
Analysis Batch: 225578

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Alkalinity	3.00	J	5.0	1.9	mg/L			04/11/16 18:57	1

Lab Sample ID: LCS 240-225578/29  
Matrix: Water  
Analysis Batch: 225578

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Alkalinity	284	288.5		mg/L		102	90 - 127

Lab Sample ID: 240-63091-1 MS  
Matrix: Water  
Analysis Batch: 225578

Client Sample ID: W-160405-PS-MW-15  
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				Limits
Alkalinity	207	B	500	583.5		mg/L		75	10 - 160

Lab Sample ID: 240-63091-1 MSD  
Matrix: Water  
Analysis Batch: 225578

Client Sample ID: W-160405-PS-MW-15  
Prep Type: Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Alkalinity	207	B	500	614.9		mg/L		82	10 - 160	5	24

Lab Sample ID: 240-63091-1 DU  
Matrix: Water  
Analysis Batch: 225578

Client Sample ID: W-160405-PS-MW-15  
Prep Type: Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier		Result				
Alkalinity	207	B	206.5		mg/L		0	20

## Method: 2340C-1997 - Hardness, Total

Lab Sample ID: MB 240-225152/1  
Matrix: Water  
Analysis Batch: 225152

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/08/16 09:45	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 2340C-1997 - Hardness, Total (Continued)

**Lab Sample ID:** LCS 240-225152/2  
**Matrix:** Water  
**Analysis Batch:** 225152

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	177.1		mg/L		104	88 - 110

**Lab Sample ID:** 240-63091-1 MS  
**Matrix:** Water  
**Analysis Batch:** 225152

**Client Sample ID:** W-160405-PS-MW-15  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	312		1000	1254		mg/L		94	87 - 114

**Lab Sample ID:** 240-63091-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 225152

**Client Sample ID:** W-160405-PS-MW-15  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	312		1000	1264		mg/L		95	87 - 114	1	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID:** MB 240-224966/27  
**Matrix:** Water  
**Analysis Batch:** 224966

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/06/16 22:08	1
Sulfate	<0.13		1.0	0.13	mg/L			04/06/16 22:08	1

**Lab Sample ID:** LCS 240-224966/28  
**Matrix:** Water  
**Analysis Batch:** 224966

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	54.02		mg/L		108	90 - 110
Sulfate	50.0	50.08		mg/L		100	90 - 110

**Lab Sample ID:** MB 240-224967/27  
**Matrix:** Water  
**Analysis Batch:** 224967

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/06/16 22:08	1

**Lab Sample ID:** LCS 240-224967/28  
**Matrix:** Water  
**Analysis Batch:** 224967

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.58		mg/L		103	90 - 110

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 240-63091-1 MS**

**Matrix: Water**

**Analysis Batch: 224967**

**Client Sample ID: W-160405-PS-MW-15**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.45		2.50	2.94		mg/L		99	80 - 120

**Lab Sample ID: 240-63091-1 MSD**

**Matrix: Water**

**Analysis Batch: 224967**

**Client Sample ID: W-160405-PS-MW-15**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.45		2.50	2.97		mg/L		101	80 - 120	1	15

**Lab Sample ID: MB 240-224997/11**

**Matrix: Water**

**Analysis Batch: 224997**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/07/16 09:54	1
Sulfate	<0.13		1.0	0.13	mg/L			04/07/16 09:54	1

**Lab Sample ID: LCS 240-224997/12**

**Matrix: Water**

**Analysis Batch: 224997**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.11		mg/L		106	90 - 110
Sulfate	50.0	49.42		mg/L		99	90 - 110

**Lab Sample ID: MB 240-224998/11**

**Matrix: Water**

**Analysis Batch: 224998**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/07/16 09:54	1

**Lab Sample ID: LCS 240-224998/12**

**Matrix: Water**

**Analysis Batch: 224998**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.53		mg/L		101	90 - 110

**Lab Sample ID: MB 240-225088/3**

**Matrix: Water**

**Analysis Batch: 225088**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/08/16 03:04	1

TestAmerica Canton



# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID:** LCS 240-225088/4  
**Matrix:** Water  
**Analysis Batch:** 225088

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.57		mg/L		105	90 - 110

**Lab Sample ID:** 240-63091-1 MS  
**Matrix:** Water  
**Analysis Batch:** 225474

**Client Sample ID:** W-160405-PS-MW-15  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.5		50.0	65.78		mg/L		107	80 - 120
Sulfate	6.3		50.0	58.70		mg/L		105	80 - 120

**Lab Sample ID:** 240-63091-1 MSD  
**Matrix:** Water  
**Analysis Batch:** 225474

**Client Sample ID:** W-160405-PS-MW-15  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.5		50.0	65.75		mg/L		107	80 - 120	0	15
Sulfate	6.3		50.0	60.24		mg/L		108	80 - 120	3	15

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID:** MB 240-225334/37  
**Matrix:** Water  
**Analysis Batch:** 225334

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/08/16 20:31	1

**Lab Sample ID:** LCS 240-225334/39  
**Matrix:** Water  
**Analysis Batch:** 225334

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	65.84		mg/L		95	88 - 115

**Lab Sample ID:** LLCS 240-225334/38  
**Matrix:** Water  
**Analysis Batch:** 225334

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.98		mg/L		101	88 - 115

**Lab Sample ID:** 240-63091-1 MS  
**Matrix:** Water  
**Analysis Batch:** 225334

**Client Sample ID:** W-160405-PS-MW-15  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.49	J	12.5	13.47		mg/L		104	72 - 136

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 240-63091-1 MSD  
 Matrix: Water  
 Analysis Batch: 225334

Client Sample ID: W-160405-PS-MW-15  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	0.49	J	12.5	12.81		mg/L		99	72 - 136	5	20

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## GC/MS VOA

### Analysis Batch: 225829

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	8260B	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	8260B	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	8260B	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	8260B	
240-63091-3	W-160405-PS-MW-32	Total/NA	Water	8260B	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	8260B	
240-63091-5	W-TRIP BLANK-01	Total/NA	Water	8260B	
LCS 240-225829/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-225829/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 224975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	3510C	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	3510C	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	3510C	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	3510C	
240-63091-3	W-160405-PS-MW-32	Total/NA	Water	3510C	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	3510C	
LCS 240-224975/16-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-224975/15-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 225171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	8270C	224975
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	8270C	224975
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	8270C	224975
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	8270C	224975
240-63091-3	W-160405-PS-MW-32	Total/NA	Water	8270C	224975
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	8270C	224975
LCS 240-224975/16-A	Lab Control Sample	Total/NA	Water	8270C	224975
MB 240-224975/15-A	Method Blank	Total/NA	Water	8270C	224975

## GC VOA

### Analysis Batch: 225973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	RSK-175	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	RSK-175	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	RSK-175	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	RSK-175	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	RSK-175	
LCS 240-225973/32	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-225973/31	Method Blank	Total/NA	Water	RSK-175	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## GC Semi VOA

### Prep Batch: 173011

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	8151A	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	8151A	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	8151A	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	8151A	
240-63091-3	W-160405-PS-MW-32	Total/NA	Water	8151A	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	8151A	
LCS 180-173011/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 180-173011/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 173089

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	8151A	173011
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	8151A	173011
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	8151A	173011
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	8151A	173011
240-63091-3	W-160405-PS-MW-32	Total/NA	Water	8151A	173011
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	8151A	173011
LCS 180-173011/2-A	Lab Control Sample	Total/NA	Water	8151A	173011
MB 180-173011/1-A	Method Blank	Total/NA	Water	8151A	173011

## Metals

### Prep Batch: 224994

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Dissolved	Water	3005A	
240-63091-1 MS	W-160405-PS-MW-15	Dissolved	Water	3005A	
240-63091-1 MSD	W-160405-PS-MW-15	Dissolved	Water	3005A	
240-63091-2	W-160405-PS-MW-03	Dissolved	Water	3005A	
240-63091-3	W-160405-PS-MW-32	Dissolved	Water	3005A	
240-63091-4	W-160405-PS-MW-33	Dissolved	Water	3005A	
LCS 240-224994/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-224994/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 225392

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Dissolved	Water	6020	224994
240-63091-1 MS	W-160405-PS-MW-15	Dissolved	Water	6020	224994
240-63091-1 MSD	W-160405-PS-MW-15	Dissolved	Water	6020	224994
240-63091-2	W-160405-PS-MW-03	Dissolved	Water	6020	224994
240-63091-3	W-160405-PS-MW-32	Dissolved	Water	6020	224994
240-63091-4	W-160405-PS-MW-33	Dissolved	Water	6020	224994
LCS 240-224994/2-A	Lab Control Sample	Total Recoverable	Water	6020	224994
MB 240-224994/1-A	Method Blank	Total Recoverable	Water	6020	224994

## General Chemistry

### Analysis Batch: 224966

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-224966/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-224966/27	Method Blank	Total/NA	Water	300.0	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## General Chemistry (Continued)

### Analysis Batch: 224967

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	300.0	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	300.0	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	300.0	
LCS 240-224967/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-224967/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 224997

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	300.0	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	300.0	
LCS 240-224997/12	Lab Control Sample	Total/NA	Water	300.0	
MB 240-224997/11	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 224998

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	300.0	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	300.0	
LCS 240-224998/12	Lab Control Sample	Total/NA	Water	300.0	
MB 240-224998/11	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225088

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-225088/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225088/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	2340C-1997	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	2340C-1997	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	2340C-1997	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	2340C-1997	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	2340C-1997	
LCS 240-225152/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-225152/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 225334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	9060	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	9060	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	9060	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	9060	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	9060	
LCS 240-225334/39	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-225334/38	Lab Control Sample	Total/NA	Water	9060	
MB 240-225334/37	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 225474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	300.0	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	300.0	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	300.0	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Analysis Batch: 225578

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63091-1	W-160405-PS-MW-15	Total/NA	Water	2320B-1997	
240-63091-1 DU	W-160405-PS-MW-15	Total/NA	Water	2320B-1997	
240-63091-1 MS	W-160405-PS-MW-15	Total/NA	Water	2320B-1997	
240-63091-1 MSD	W-160405-PS-MW-15	Total/NA	Water	2320B-1997	
240-63091-2	W-160405-PS-MW-03	Total/NA	Water	2320B-1997	
240-63091-4	W-160405-PS-MW-33	Total/NA	Water	2320B-1997	
LCS 240-225578/29	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-225578/30	Method Blank	Total/NA	Water	2320B-1997	

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# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-15**

**Lab Sample ID: 240-63091-1**

**Date Collected: 04/05/16 09:50**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225829	04/14/16 02:16	RJQ	TAL CAN
Total/NA	Prep	3510C			224975	04/07/16 08:49	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225171	04/08/16 17:48	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/14/16 22:31	BPM	TAL CAN
Total/NA	Prep	8151A			173011	04/07/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173089	04/08/16 13:05	JMO	TAL PIT
Dissolved	Prep	3005A			224994	04/07/16 10:04	WKD	TAL CAN
Dissolved	Analysis	6020		1	225392	04/08/16 18:53	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225578	04/11/16 19:07	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:23	JAS	TAL CAN
Total/NA	Analysis	300.0		1	224967	04/07/16 04:26	LKG	TAL CAN
Total/NA	Analysis	300.0		5	225474	04/12/16 05:13	LCN	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 01:45	TPH	TAL CAN

**Client Sample ID: W-160405-PS-MW-03**

**Lab Sample ID: 240-63091-2**

**Date Collected: 04/05/16 11:35**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225829	04/14/16 03:24	RJQ	TAL CAN
Total/NA	Prep	3510C			224975	04/07/16 08:49	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225171	04/08/16 19:00	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/14/16 23:22	BPM	TAL CAN
Total/NA	Prep	8151A			173011	04/07/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173089	04/08/16 14:16	JMO	TAL PIT
Dissolved	Prep	3005A			224994	04/07/16 10:04	WKD	TAL CAN
Dissolved	Analysis	6020		1	225392	04/08/16 19:22	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225578	04/11/16 20:05	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:35	JAS	TAL CAN
Total/NA	Analysis	300.0		1	224997	04/07/16 09:21	LCN	TAL CAN
Total/NA	Analysis	300.0		1	224998	04/07/16 09:21	LCN	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 00:54	TPH	TAL CAN

**Client Sample ID: W-160405-PS-MW-32**

**Lab Sample ID: 240-63091-3**

**Date Collected: 04/05/16 09:30**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225829	04/14/16 03:47	RJQ	TAL CAN
Total/NA	Prep	3510C			224975	04/07/16 08:49	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225171	04/08/16 19:24	JMG	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

**Client Sample ID: W-160405-PS-MW-32**

**Lab Sample ID: 240-63091-3**

**Date Collected: 04/05/16 09:30**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			173011	04/07/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173089	04/08/16 14:39	JMO	TAL PIT
Dissolved	Prep	3005A			224994	04/07/16 10:04	WKD	TAL CAN
Dissolved	Analysis	6020		1	225392	04/08/16 19:26	AS1	TAL CAN

**Client Sample ID: W-160405-PS-MW-33**

**Lab Sample ID: 240-63091-4**

**Date Collected: 04/05/16 11:45**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225829	04/14/16 04:10	RJQ	TAL CAN
Total/NA	Prep	3510C			224975	04/07/16 08:49	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225171	04/08/16 19:48	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/14/16 23:39	BPM	TAL CAN
Total/NA	Prep	8151A			173011	04/07/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173089	04/08/16 15:03	JMO	TAL PIT
Dissolved	Prep	3005A			224994	04/07/16 10:04	WKD	TAL CAN
Dissolved	Analysis	6020		1	225392	04/08/16 19:30	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225578	04/11/16 20:23	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:44	JAS	TAL CAN
Total/NA	Analysis	300.0		1	224997	04/07/16 09:38	LCN	TAL CAN
Total/NA	Analysis	300.0		1	224998	04/07/16 09:38	LCN	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 02:26	TPH	TAL CAN

**Client Sample ID: W-TRIP BLANK-01**

**Lab Sample ID: 240-63091-5**

**Date Collected: 04/05/16 00:00**

**Matrix: Water**

**Date Received: 04/06/16 09:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225829	04/14/16 04:32	RJQ	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396  
TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63091-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

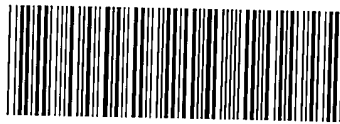
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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

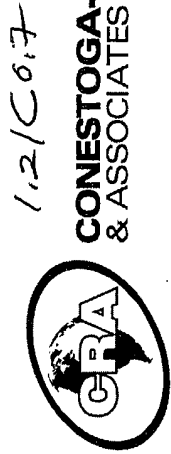
TestAmerica Laboratories, Inc.

**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**



240-63091 Chain of Custody

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1.2/C01.7 2.8/C2.3 1.0/C01.5  
**CONESTOGA-ROVERS & ASSOCIATES**

**CHAIN OF CUSTODY RECORD**  
 1801 Old Highway 8 Northwest, Suite 114  
 St. Paul, Minnesota 55112 United States  
 Phone: (651) 639-0913 Fax: (651) 639-0923

COC NO.: **SP-01861**  
 PAGE 1 OF 1  
 (See Reverse Side for Instructions)

Project No/Phase/Task Code: <b>03</b> <b>086165-10</b>		Project Name: <b>Penta Wood</b>		Laboratory Name: <b>Test America</b>		Lab Location: <b>N. Canton, OH</b>		SSOW ID:										
Project Location: <b>Siren, WI</b>		Lab Contact: <b>D. Hechtler</b>		Lab Quote No:		Carrier: <b>Fed Ex</b>		Cooler No:										
Chemistry Contact: <b>grant.anderson@ghd.com</b>		Sampler(s): <b>Storiz / Annot</b>		SAMPLE TYPE		CONTAINER QUANTITY & PRESERVATION		ANALYSIS REQUESTED (See Back of COC for Definitions)										
Item	SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)	DATE (mm/dd/yy)	TIME (hh:mm)	Matrix Code	(see back of COC)	Grab (g) or Comp (c)	Unpreserved	Hydrochloric Acid (HCl)	Nitric Acid (HNO <sub>3</sub> )	Sulfuric Acid (H <sub>2</sub> SO <sub>4</sub> )	Sodium Hydroxide (NaOH)	Methanol/Water (Soil)	VOC	EnCores 3x5-g, 1x25-g	Total Containers/Sample	Other:	MS/MSD Request	COMMENTS/SPECIAL INSTRUCTIONS:
1	W-160405-PS-MW-15	4/5/16	0950	W	G	X	X	X	X	X	X	X	X	X	43		X	MS/MSD
2	03		1135	W	G	X	X	X	X	X	X	X	X	X	17		X	
3	32		0930	W	G	X	X	X	X	X	X	X	X	X	17		X	
4	33		1145	W	G	X	X	X	X	X	X	X	X	X	17		X	
5	W-TRIP BLANK-01						X								1			
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		

TAT Required in business days (use separate COCs for different TATs):  
 1 Day  2 Days  3 Days  1 Week  2 Week  Other: **STANDARD**

RELIQUISHED BY: **[Signature]** COMPANY: **GHP** DATE: **4-5-16** TIME: **1500**

RECEIVED BY: **[Signature]** COMPANY: **TA Can** DATE: **4/6/16** TIME: **0945**

Total Number of Containers: **95** Notes/ Special Requirements:

All Samples in Cooler must be on COC

1. **[Signature]** 2. **[Signature]** 3. **[Signature]**

Canton Facility

Client GHD

Site Name Penta Wood

Cooler unpacked by:

Derry Beard

Cooler Received on 4/6/16

Opened on 4/6/16

FedEx: 1<sup>st</sup> Grd  UPS  FAS  Stetson  Client Drop Off  TestAmerica Courier  Other

Receipt After-hours: Drop-off Date/Time

Storage Location

TestAmerica Cooler # \_\_\_\_\_ Foam Box  Client Cooler  Box  Other multiple

Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt  See Multiple Cooler Form
  - IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
  - IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
  - IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
- 2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 2 each  Yes  No
  - Were custody seals on the outside of the cooler(s) signed & dated?  Yes  No NA
  - Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No
- 3. Shippers' packing slip attached to the cooler(s)?  Yes  No
- 4. Did custody papers accompany the sample(s)?  Yes  No
- 5. Were the custody papers relinquished & signed in the appropriate place?  Yes  No
- 6. Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No
- 7. Did all bottles arrive in good condition (Unbroken)?  Yes  No
- 8. Could all bottle labels be reconciled with the COC?  Yes  No
- 9. Were correct bottle(s) used for the test(s) indicated?  Yes  No
- 10. Sufficient quantity received to perform indicated analyses?  Yes  No
- 11. Are these work share samples?  Yes  No
 

*If yes, Questions 12-16 have been checked at the originating laboratory.*
- 12. Were sample(s) at the correct pH upon receipt?  Yes  No NA pH Strip Lot# HC559158
- 13. Were VOAs on the COC?  Yes  No
- 14. Were air bubbles >6 mm in any VOA vials?  Yes  No NA
- 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # covered  Yes  No
- 16. Was a LL Hg or Me Hg trip blank present?  Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

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18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.

Sample(s) \_\_\_\_\_ were received in a broken container.

Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.

Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160405-PS-MW-15	240-63091-AE-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-15	240-63091-AF-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-15	240-63091-AG-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-15	240-63091-AK-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-15	240-63091-AL-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-15	240-63091-AM-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-03	240-63091-K-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-03	240-63091-M-2	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-32	240-63091-K-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-32	240-63091-M-3	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-33	240-63091-K-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-33	240-63091-M-4	Plastic 500ml - with Nitric Acid	<2	_____	_____

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63091-1

**Login Number: 63091**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/07/16 10:44 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

TestAmerica Job ID: 240-63163-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.  
1801 Old Highway 8 NW  
Suite 114  
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:  
4/19/2016 2:14:34 PM

Denise Heckler, Project Manager II  
(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

### General Chemistry

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.
F2	MS/MSD RPD exceeds control limits
F3	Duplicate RPD exceeds the control limit

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Job ID: 240-63163-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63163-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/7/2016 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.5° C, 0.5° C, 0.9° C, 0.9° C, 1.7° C and 2.3° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

Method(s) 6020: The continuing calibration verification (CCV) associated with batch 240-225622 recovered above the upper control limit for copper. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The following samples are impacted: W-160405-PS-MW-26 (240-63163-2), W-160406-PS-MW-07 (240-63163-3) and W-160406-PS-MW-12 (240-63163-4).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63163-1	W-160405-PS-MW-17	Water	04/05/16 14:25	04/07/16 09:20
240-63163-2	W-160405-PS-MW-26	Water	04/05/16 13:30	04/07/16 09:20
240-63163-3	W-160406-PS-MW-07	Water	04/06/16 11:30	04/07/16 09:20
240-63163-4	W-160406-PS-MW-12	Water	04/06/16 10:00	04/07/16 09:20
240-63163-5	W-160406-PS-MW-16	Water	04/06/16 09:50	04/07/16 09:20
240-63163-6	W-TRIPBLANK-PS-03	Water	04/06/16 12:30	04/07/16 09:20

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Client Sample ID: W-160405-PS-MW-17

## Lab Sample ID: 240-63163-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.81	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.8	J B	2.0	0.75	ug/L	1		6020	Dissolved
Alkalinity	173	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	289		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	13.6		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	3.5		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	85.4		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.46	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160405-PS-MW-26

## Lab Sample ID: 240-63163-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.15	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Arsenic	0.57	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.5	J B ^	2.0	0.75	ug/L	1		6020	Dissolved
Iron	21.4	J B	100	16.0	ug/L	1		6020	Dissolved
Manganese	58.7	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	154	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	183		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	9.4		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.4		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	36.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.26	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160406-PS-MW-07

## Lab Sample ID: 240-63163-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	13		0.50	0.080	ug/L	1		RSK-175	Total/NA
Copper	1.9	J B ^	2.0	0.75	ug/L	1		6020	Dissolved
Iron	5270	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	117	B	5.0	1.1	ug/L	1		6020	Dissolved
Zinc	36.2	B	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	212	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	237		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	10.3		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.7		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	25.7		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.58	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160406-PS-MW-12

## Lab Sample ID: 240-63163-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.12	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	5.2		0.094	0.015	ug/L	4		8151A	Total/NA
Arsenic	0.77	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.4	J B ^	2.0	0.75	ug/L	1		6020	Dissolved
Iron	60.1	J B	100	16.0	ug/L	1		6020	Dissolved
Manganese	148	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	236	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	358	F2	25.0	15.5	mg/L	1		2340C-1997	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Client Sample ID: W-160406-PS-MW-12 (Continued)

Lab Sample ID: 240-63163-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Chloride	10.6		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.6		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	135		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.67	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160406-PS-MW-16

Lab Sample ID: 240-63163-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.11	J	0.20	0.062	ug/L	1		8270C	Total/NA
Copper	1.9	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	168	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	14.6	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	32.6	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	31.8		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	2.2		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.41		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	2.6		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	2.3		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIPBLANK-PS-03

Lab Sample ID: 240-63163-6

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160405-PS-MW-17**

**Lab Sample ID: 240-63163-1**

**Date Collected: 04/05/16 14:25**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 00:31	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 00:31	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 00:31	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 00:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		78 - 125		04/14/16 00:31	1
4-Bromofluorobenzene (Surr)	79		61 - 120		04/14/16 00:31	1
Toluene-d8 (Surr)	93		80 - 120		04/14/16 00:31	1
Dibromofluoromethane (Surr)	104		79 - 120		04/14/16 00:31	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 18:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	68		29 - 110	04/08/16 09:01	04/11/16 18:08	1
2-Fluorophenol (Surr)	27		15 - 110	04/08/16 09:01	04/11/16 18:08	1
2,4,6-Tribromophenol (Surr)	64		21 - 128	04/08/16 09:01	04/11/16 18:08	1
Nitrobenzene-d5 (Surr)	62		31 - 110	04/08/16 09:01	04/11/16 18:08	1
Phenol-d5 (Surr)	13		10 - 110	04/08/16 09:01	04/11/16 18:08	1
Terphenyl-d14 (Surr)	59		31 - 115	04/08/16 09:01	04/11/16 18:08	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/14/16 23:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	91		66 - 132		04/14/16 23:56	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/08/16 12:30	04/12/16 09:02	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	50		32 - 140	04/08/16 12:30	04/12/16 09:02	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.81	J	5.0	0.49	ug/L		04/08/16 09:58	04/11/16 23:00	1
Copper	1.8	J B	2.0	0.75	ug/L		04/08/16 09:58	04/12/16 18:06	1
Iron	<16.0		100	16.0	ug/L		04/08/16 09:58	04/11/16 23:00	1
Manganese	<1.1		5.0	1.1	ug/L		04/08/16 09:58	04/11/16 23:00	1
Zinc	<7.3		20.0	7.3	ug/L		04/08/16 09:58	04/11/16 23:00	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	173	B	5.0	1.9	mg/L			04/12/16 12:35	1
Hardness as calcium carbonate	289		5.0	3.1	mg/L			04/08/16 09:53	1
Chloride	13.6		1.0	0.41	mg/L			04/07/16 12:38	1
Nitrate as N	3.5		0.10	0.035	mg/L			04/07/16 12:38	1

TestAmerica Canton



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160405-PS-MW-17**

**Lab Sample ID: 240-63163-1**

**Date Collected: 04/05/16 14:25**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	85.4		1.0	0.13	mg/L			04/07/16 12:38	1
Total Organic Carbon	0.46	J	1.0	0.080	mg/L			04/09/16 02:53	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160405-PS-MW-26**

**Lab Sample ID: 240-63163-2**

**Date Collected: 04/05/16 13:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 00:54	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 00:54	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 00:54	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 00:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		78 - 125		04/14/16 00:54	1
4-Bromofluorobenzene (Surr)	79		61 - 120		04/14/16 00:54	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 00:54	1
Dibromofluoromethane (Surr)	104		79 - 120		04/14/16 00:54	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 18:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	76		29 - 110	04/08/16 09:01	04/11/16 18:31	1
2-Fluorophenol (Surr)	31		15 - 110	04/08/16 09:01	04/11/16 18:31	1
2,4,6-Tribromophenol (Surr)	71		21 - 128	04/08/16 09:01	04/11/16 18:31	1
Nitrobenzene-d5 (Surr)	64		31 - 110	04/08/16 09:01	04/11/16 18:31	1
Phenol-d5 (Surr)	16		10 - 110	04/08/16 09:01	04/11/16 18:31	1
Terphenyl-d14 (Surr)	63		31 - 115	04/08/16 09:01	04/11/16 18:31	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.15	J	0.50	0.080	ug/L			04/15/16 00:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	75		66 - 132		04/15/16 00:13	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/08/16 12:30	04/13/16 11:09	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	48		32 - 140	04/08/16 12:30	04/13/16 11:09	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.57	J	5.0	0.49	ug/L		04/08/16 09:58	04/11/16 23:20	1
Copper	1.5	J B ^	2.0	0.75	ug/L		04/08/16 09:58	04/12/16 18:35	1
Iron	21.4	J B	100	16.0	ug/L		04/08/16 09:58	04/11/16 23:20	1
Manganese	58.7	B	5.0	1.1	ug/L		04/08/16 09:58	04/11/16 23:20	1
Zinc	<7.3		20.0	7.3	ug/L		04/08/16 09:58	04/11/16 23:20	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	154	B	5.0	1.9	mg/L			04/12/16 12:44	1
Hardness as calcium carbonate	183		5.0	3.1	mg/L			04/08/16 10:06	1
Chloride	9.4		1.0	0.41	mg/L			04/07/16 12:54	1
Nitrate as N	1.4		0.10	0.035	mg/L			04/07/16 12:54	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160405-PS-MW-26**

**Lab Sample ID: 240-63163-2**

**Date Collected: 04/05/16 13:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	36.1		1.0	0.13	mg/L			04/07/16 12:54	1
Total Organic Carbon	0.26	J	1.0	0.080	mg/L			04/09/16 03:35	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-07**

**Lab Sample ID: 240-63163-3**

**Date Collected: 04/06/16 11:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 01:16	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 01:16	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 01:16	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 01:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		78 - 125		04/14/16 01:16	1
4-Bromofluorobenzene (Surr)	81		61 - 120		04/14/16 01:16	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 01:16	1
Dibromofluoromethane (Surr)	104		79 - 120		04/14/16 01:16	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.065		0.21	0.065	ug/L		04/08/16 09:01	04/11/16 18:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	74		29 - 110	04/08/16 09:01	04/11/16 18:55	1
2-Fluorophenol (Surr)	29		15 - 110	04/08/16 09:01	04/11/16 18:55	1
2,4,6-Tribromophenol (Surr)	72		21 - 128	04/08/16 09:01	04/11/16 18:55	1
Nitrobenzene-d5 (Surr)	67		31 - 110	04/08/16 09:01	04/11/16 18:55	1
Phenol-d5 (Surr)	14		10 - 110	04/08/16 09:01	04/11/16 18:55	1
Terphenyl-d14 (Surr)	70		31 - 115	04/08/16 09:01	04/11/16 18:55	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	13		0.50	0.080	ug/L			04/15/16 00:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	90		66 - 132		04/15/16 00:30	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.098	0.015	ug/L		04/08/16 12:30	04/13/16 13:54	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	37		32 - 140	04/08/16 12:30	04/13/16 13:54	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/08/16 09:58	04/11/16 23:24	1
Copper	1.9	J B ^	2.0	0.75	ug/L		04/08/16 09:58	04/12/16 18:39	1
Iron	5270	B	100	16.0	ug/L		04/08/16 09:58	04/11/16 23:24	1
Manganese	117	B	5.0	1.1	ug/L		04/08/16 09:58	04/11/16 23:24	1
Zinc	36.2	B	20.0	7.3	ug/L		04/08/16 09:58	04/11/16 23:24	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	212	B	5.0	1.9	mg/L			04/12/16 12:53	1
Hardness as calcium carbonate	237		5.0	3.1	mg/L			04/08/16 10:10	1
Chloride	10.3		1.0	0.41	mg/L			04/07/16 13:11	1
Nitrate as N	1.7		0.10	0.035	mg/L			04/07/16 13:11	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-07**

**Lab Sample ID: 240-63163-3**

**Date Collected: 04/06/16 11:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	25.7		1.0	0.13	mg/L			04/07/16 13:11	1
Total Organic Carbon	0.58	J	1.0	0.080	mg/L			04/09/16 04:00	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-12**

**Lab Sample ID: 240-63163-4**

**Date Collected: 04/06/16 10:00**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 01:38	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 01:38	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 01:38	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 01:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		78 - 125		04/14/16 01:38	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 01:38	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 01:38	1
Dibromofluoromethane (Surr)	106		79 - 120		04/14/16 01:38	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 19:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	78		29 - 110	04/08/16 09:01	04/11/16 19:19	1
2-Fluorophenol (Surr)	30		15 - 110	04/08/16 09:01	04/11/16 19:19	1
2,4,6-Tribromophenol (Surr)	73		21 - 128	04/08/16 09:01	04/11/16 19:19	1
Nitrobenzene-d5 (Surr)	71		31 - 110	04/08/16 09:01	04/11/16 19:19	1
Phenol-d5 (Surr)	15		10 - 110	04/08/16 09:01	04/11/16 19:19	1
Terphenyl-d14 (Surr)	76		31 - 115	04/08/16 09:01	04/11/16 19:19	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.12	J	0.50	0.080	ug/L			04/15/16 01:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	96		66 - 132		04/15/16 01:04	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	5.2		0.094	0.015	ug/L		04/08/16 12:30	04/13/16 14:18	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	40		32 - 140	04/08/16 12:30	04/13/16 14:18	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.77	J	5.0	0.49	ug/L		04/08/16 09:58	04/11/16 23:28	1
Copper	1.4	J B ^	2.0	0.75	ug/L		04/08/16 09:58	04/12/16 18:43	1
Iron	60.1	J B	100	16.0	ug/L		04/08/16 09:58	04/11/16 23:28	1
Manganese	148	B	5.0	1.1	ug/L		04/08/16 09:58	04/11/16 23:28	1
Zinc	<7.3		20.0	7.3	ug/L		04/08/16 09:58	04/11/16 23:28	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	236	B	5.0	1.9	mg/L			04/12/16 13:05	1
Hardness as calcium carbonate	358	F2	25.0	15.5	mg/L			04/08/16 10:14	1
Chloride	10.6		1.0	0.41	mg/L			04/07/16 13:27	1
Nitrate as N	1.6		0.10	0.035	mg/L			04/07/16 13:27	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-12**

**Lab Sample ID: 240-63163-4**

**Date Collected: 04/06/16 10:00**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	135		1.0	0.13	mg/L			04/07/16 13:27	1
Total Organic Carbon	0.67	J	1.0	0.080	mg/L			04/09/16 04:26	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-16**

**Lab Sample ID: 240-63163-5**

**Date Collected: 04/06/16 09:50**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 02:01	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 02:01	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 02:01	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 02:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		78 - 125		04/14/16 02:01	1
4-Bromofluorobenzene (Surr)	77		61 - 120		04/14/16 02:01	1
Toluene-d8 (Surr)	93		80 - 120		04/14/16 02:01	1
Dibromofluoromethane (Surr)	104		79 - 120		04/14/16 02:01	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.11	J	0.20	0.062	ug/L		04/08/16 09:01	04/11/16 19:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	82		29 - 110	04/08/16 09:01	04/11/16 19:42	1
2-Fluorophenol (Surr)	37		15 - 110	04/08/16 09:01	04/11/16 19:42	1
2,4,6-Tribromophenol (Surr)	84		21 - 128	04/08/16 09:01	04/11/16 19:42	1
Nitrobenzene-d5 (Surr)	69		31 - 110	04/08/16 09:01	04/11/16 19:42	1
Phenol-d5 (Surr)	19		10 - 110	04/08/16 09:01	04/11/16 19:42	1
Terphenyl-d14 (Surr)	43		31 - 115	04/08/16 09:01	04/11/16 19:42	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/15/16 01:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	89		66 - 132		04/15/16 01:21	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.096	0.015	ug/L		04/08/16 12:30	04/13/16 14:41	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	32		32 - 140	04/08/16 12:30	04/13/16 14:41	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/08/16 09:58	04/11/16 23:33	1
Copper	1.9	J	2.0	0.75	ug/L		04/08/16 09:58	04/14/16 18:36	1
Iron	168	B	100	16.0	ug/L		04/08/16 09:58	04/11/16 23:33	1
Manganese	14.6	B	5.0	1.1	ug/L		04/08/16 09:58	04/11/16 23:33	1
Zinc	<7.3		20.0	7.3	ug/L		04/08/16 09:58	04/11/16 23:33	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	32.6	B	5.0	1.9	mg/L			04/12/16 13:12	1
Hardness as calcium carbonate	31.8		5.0	3.1	mg/L			04/08/16 10:18	1
Chloride	2.2		1.0	0.41	mg/L			04/07/16 13:44	1
Nitrate as N	0.41		0.10	0.035	mg/L			04/07/16 13:44	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-16**

**Lab Sample ID: 240-63163-5**

**Date Collected: 04/06/16 09:50**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.6		1.0	0.13	mg/L			04/07/16 13:44	1
Total Organic Carbon	2.3		1.0	0.080	mg/L			04/09/16 04:52	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-TRIPBLANK-PS-03**

**Lab Sample ID: 240-63163-6**

**Date Collected: 04/06/16 12:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 02:23	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 02:23	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 02:23	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 02:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 02:23	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 02:23	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 02:23	1
Dibromofluoromethane (Surr)	109		79 - 120		04/14/16 02:23	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63163-1	W-160405-PS-MW-17	98	79	93	104
240-63163-2	W-160405-PS-MW-26	98	79	95	104
240-63163-3	W-160406-PS-MW-07	97	81	95	104
240-63163-4	W-160406-PS-MW-12	100	78	94	106
240-63163-5	W-160406-PS-MW-16	98	77	93	104
240-63163-6	W-TRIPBLANK-PS-03	102	78	94	109
LCS 240-225866/4	Lab Control Sample	87	93	101	96
MB 240-225866/6	Method Blank	96	78	95	102

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63163-1	W-160405-PS-MW-17	68	27	64	62	13	59
240-63163-2	W-160405-PS-MW-26	76	31	71	64	16	63
240-63163-3	W-160406-PS-MW-07	74	29	72	67	14	70
240-63163-4	W-160406-PS-MW-12	78	30	73	71	15	76
240-63163-5	W-160406-PS-MW-16	82	37	84	69	19	43
LCS 240-225166/18-A	Lab Control Sample	90	80	98	84	58	102
MB 240-225166/17-A	Method Blank	80	74	80	73	55	99

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Trifluoroet (66-132)
240-63163-1	W-160405-PS-MW-17	91
240-63163-2	W-160405-PS-MW-26	75
240-63163-3	W-160406-PS-MW-07	90
240-63163-4	W-160406-PS-MW-12	96
240-63163-5	W-160406-PS-MW-16	89
LCS 240-225973/32	Lab Control Sample	92
MB 240-225973/31	Method Blank	87

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1	DCPA2
		(32-140)	(32-140)
240-63163-1	W-160405-PS-MW-17	48	50
240-63163-2	W-160405-PS-MW-26	48	48
240-63163-3	W-160406-PS-MW-07	37	37
240-63163-4	W-160406-PS-MW-12	37	40
240-63163-5	W-160406-PS-MW-16	31 X	32
LCS 180-173100/2-A	Lab Control Sample	47	51
MB 180-173100/1-A	Method Blank	43	45

## Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225866/6**  
**Matrix: Water**  
**Analysis Batch: 225866**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 00:09	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 00:09	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 00:09	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 00:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		78 - 125		04/14/16 00:09	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 00:09	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 00:09	1
Dibromofluoromethane (Surr)	102		79 - 120		04/14/16 00:09	1

**Lab Sample ID: LCS 240-225866/4**  
**Matrix: Water**  
**Analysis Batch: 225866**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.0		ug/L		110	80 - 120
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
Toluene	10.0	10.8		ug/L		108	80 - 120
Xylenes, Total	20.0	20.2		ug/L		101	80 - 120
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120
o-Xylene	10.0	9.85		ug/L		99	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		78 - 125
4-Bromofluorobenzene (Surr)	93		61 - 120
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	96		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225166/17-A**  
**Matrix: Water**  
**Analysis Batch: 225387**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 225166**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/08/16 09:01	04/11/16 11:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	80		29 - 110	04/08/16 09:01	04/11/16 11:02	1
2-Fluorophenol (Surr)	74		15 - 110	04/08/16 09:01	04/11/16 11:02	1
2,4,6-Tribromophenol (Surr)	80		21 - 128	04/08/16 09:01	04/11/16 11:02	1
Nitrobenzene-d5 (Surr)	73		31 - 110	04/08/16 09:01	04/11/16 11:02	1
Phenol-d5 (Surr)	55		10 - 110	04/08/16 09:01	04/11/16 11:02	1
Terphenyl-d14 (Surr)	99		31 - 115	04/08/16 09:01	04/11/16 11:02	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 240-225166/18-A**  
**Matrix: Water**  
**Analysis Batch: 225387**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 225166**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	17.6		ug/L		88	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	90		29 - 110
2-Fluorophenol (Surr)	80		15 - 110
2,4,6-Tribromophenol (Surr)	98		21 - 128
Nitrobenzene-d5 (Surr)	84		31 - 110
Phenol-d5 (Surr)	58		10 - 110
Terphenyl-d14 (Surr)	102		31 - 115

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-225973/31**  
**Matrix: Water**  
**Analysis Batch: 225973**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/14/16 21:57	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	87		66 - 132		04/14/16 21:57	1

**Lab Sample ID: LCS 240-225973/32**  
**Matrix: Water**  
**Analysis Batch: 225973**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	199		ug/L		100	76 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	92		66 - 132

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173100/1-A**  
**Matrix: Water**  
**Analysis Batch: 173280**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173100**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/08/16 12:30	04/12/16 08:38	4

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	45		32 - 140	04/08/16 12:30	04/12/16 08:38	4

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 180-173100/2-A  
Matrix: Water  
Analysis Batch: 173280

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 173100

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	1.00	0.786		ug/L		79	40 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4-Dichlorophenylacetic acid	51		32 - 140				

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-225183/1-A  
Matrix: Water  
Analysis Batch: 225555

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 225183

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/08/16 09:58	04/11/16 22:43	1
Iron	16.06	J	100	16.0	ug/L		04/08/16 09:58	04/11/16 22:43	1
Manganese	1.59	J	5.0	1.1	ug/L		04/08/16 09:58	04/11/16 22:43	1
Zinc	9.78	J	20.0	7.3	ug/L		04/08/16 09:58	04/11/16 22:43	1

Lab Sample ID: MB 240-225183/1-A  
Matrix: Water  
Analysis Batch: 225622

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 225183

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Copper	1.85	J	2.0	0.75	ug/L		04/08/16 09:58	04/12/16 11:16	1

Lab Sample ID: LCS 240-225183/2-A  
Matrix: Water  
Analysis Batch: 225555

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 225183

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	1000	867.3		ug/L		87	80 - 120
Iron	10000	8553		ug/L		86	80 - 120
Manganese	1000	853.9		ug/L		85	80 - 120
Zinc	1000	880.8		ug/L		88	80 - 120

Lab Sample ID: LCS 240-225183/2-A  
Matrix: Water  
Analysis Batch: 225622

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 225183

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Copper	1000	960.2		ug/L		96	80 - 120

Lab Sample ID: 240-63163-1 MS  
Matrix: Water  
Analysis Batch: 225555

Client Sample ID: W-160405-PS-MW-17  
Prep Type: Dissolved  
Prep Batch: 225183

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Arsenic	0.81	J	1000	893.2		ug/L		89	75 - 125
Iron	<16.0		10000	8447		ug/L		84	75 - 125

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 6020 - Metals (ICP/MS) (Continued)

**Lab Sample ID: 240-63163-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225555**

**Client Sample ID: W-160405-PS-MW-17**  
**Prep Type: Dissolved**  
**Prep Batch: 225183**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Manganese	<1.1		1000	835.3		ug/L		84	75 - 125
Zinc	<7.3		1000	836.6		ug/L		84	75 - 125

**Lab Sample ID: 240-63163-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225622**

**Client Sample ID: W-160405-PS-MW-17**  
**Prep Type: Dissolved**  
**Prep Batch: 225183**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Copper	1.8	J B	1000	946.4		ug/L		94	75 - 125

**Lab Sample ID: 240-63163-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225555**

**Client Sample ID: W-160405-PS-MW-17**  
**Prep Type: Dissolved**  
**Prep Batch: 225183**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Arsenic	0.81	J	1000	959.2		ug/L		96	75 - 125	7	20
Iron	<16.0		10000	9120		ug/L		91	75 - 125	8	20
Manganese	<1.1		1000	902.8		ug/L		90	75 - 125	8	20
Zinc	<7.3		1000	901.0		ug/L		90	75 - 125	7	20

**Lab Sample ID: 240-63163-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225622**

**Client Sample ID: W-160405-PS-MW-17**  
**Prep Type: Dissolved**  
**Prep Batch: 225183**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Copper	1.8	J B	1000	1053	^	ug/L		105	75 - 125	11	20

## Method: 2320B-1997 - Alkalinity, Total

**Lab Sample ID: MB 240-225745/5**  
**Matrix: Water**  
**Analysis Batch: 225745**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.80	J	5.0	1.9	mg/L			04/12/16 12:03	1

**Lab Sample ID: LCS 240-225745/4**  
**Matrix: Water**  
**Analysis Batch: 225745**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Alkalinity	284	283.2		mg/L		100	90 - 127

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 2340C-1997 - Hardness, Total

**Lab Sample ID: MB 240-225152/1**  
**Matrix: Water**  
**Analysis Batch: 225152**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/08/16 09:45	1

**Lab Sample ID: LCS 240-225152/2**  
**Matrix: Water**  
**Analysis Batch: 225152**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	177.1		mg/L		104	88 - 110

**Lab Sample ID: 240-63163-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225152**

**Client Sample ID: W-160405-PS-MW-17**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	289		1000	1294		mg/L		100	87 - 114

**Lab Sample ID: 240-63163-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225152**

**Client Sample ID: W-160405-PS-MW-17**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	289		1000	1303		mg/L		101	87 - 114	1	20

**Lab Sample ID: 240-63163-4 DU**  
**Matrix: Water**  
**Analysis Batch: 225152**

**Client Sample ID: W-160406-PS-MW-12**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hardness as calcium carbonate	358	F2	183.1	F3	mg/L		65	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 240-225091/10**  
**Matrix: Water**  
**Analysis Batch: 225091**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/07/16 14:33	1
Sulfate	<0.13		1.0	0.13	mg/L			04/07/16 14:33	1

**Lab Sample ID: LCS 240-225091/11**  
**Matrix: Water**  
**Analysis Batch: 225091**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.25		mg/L		107	90 - 110
Sulfate	50.0	49.57		mg/L		99	90 - 110

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 240-63163-5 MS**  
**Matrix: Water**  
**Analysis Batch: 225091**

**Client Sample ID: W-160406-PS-MW-16**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.2		50.0	56.18		mg/L		108	80 - 120
Sulfate	2.6		50.0	53.57		mg/L		102	80 - 120

**Lab Sample ID: 240-63163-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 225091**

**Client Sample ID: W-160406-PS-MW-16**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.2		50.0	53.32		mg/L		102	80 - 120	5	15
Sulfate	2.6		50.0	51.55		mg/L		98	80 - 120	4	15

**Lab Sample ID: MB 240-225092/10**  
**Matrix: Water**  
**Analysis Batch: 225092**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/07/16 14:33	1

**Lab Sample ID: LCS 240-225092/11**  
**Matrix: Water**  
**Analysis Batch: 225092**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.54		mg/L		102	90 - 110

**Lab Sample ID: 240-63163-5 MS**  
**Matrix: Water**  
**Analysis Batch: 225092**

**Client Sample ID: W-160406-PS-MW-16**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.41		2.50	3.13		mg/L		109	80 - 120

**Lab Sample ID: 240-63163-5 MSD**  
**Matrix: Water**  
**Analysis Batch: 225092**

**Client Sample ID: W-160406-PS-MW-16**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.41		2.50	3.05		mg/L		106	80 - 120	3	15

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-225334/37**  
**Matrix: Water**  
**Analysis Batch: 225334**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/08/16 20:31	1

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: LCS 240-225334/39**  
**Matrix: Water**  
**Analysis Batch: 225334**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	65.84		mg/L		95	88 - 115

**Lab Sample ID: LLCS 240-225334/38**  
**Matrix: Water**  
**Analysis Batch: 225334**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.98		mg/L		101	88 - 115

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## GC/MS VOA

### Analysis Batch: 225866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	8260B	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	8260B	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	8260B	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	8260B	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	8260B	
240-63163-6	W-TRIPBLANK-PS-03	Total/NA	Water	8260B	
LCS 240-225866/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-225866/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 225166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	3510C	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	3510C	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	3510C	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	3510C	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	3510C	
LCS 240-225166/18-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-225166/17-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 225387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	8270C	225166
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	8270C	225166
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	8270C	225166
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	8270C	225166
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	8270C	225166
LCS 240-225166/18-A	Lab Control Sample	Total/NA	Water	8270C	225166
MB 240-225166/17-A	Method Blank	Total/NA	Water	8270C	225166

## GC VOA

### Analysis Batch: 225973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	RSK-175	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	RSK-175	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	RSK-175	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	RSK-175	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	RSK-175	
LCS 240-225973/32	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-225973/31	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 173100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	8151A	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	8151A	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	8151A	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## GC Semi VOA (Continued)

### Prep Batch: 173100 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	8151A	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	8151A	
LCS 180-173100/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 180-173100/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 173280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	8151A	173100
LCS 180-173100/2-A	Lab Control Sample	Total/NA	Water	8151A	173100
MB 180-173100/1-A	Method Blank	Total/NA	Water	8151A	173100

### Analysis Batch: 173399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	8151A	173100
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	8151A	173100
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	8151A	173100
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	8151A	173100

## Metals

### Prep Batch: 225183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Dissolved	Water	3005A	
240-63163-1 MS	W-160405-PS-MW-17	Dissolved	Water	3005A	
240-63163-1 MSD	W-160405-PS-MW-17	Dissolved	Water	3005A	
240-63163-2	W-160405-PS-MW-26	Dissolved	Water	3005A	
240-63163-3	W-160406-PS-MW-07	Dissolved	Water	3005A	
240-63163-4	W-160406-PS-MW-12	Dissolved	Water	3005A	
240-63163-5	W-160406-PS-MW-16	Dissolved	Water	3005A	
LCS 240-225183/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-225183/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 225555

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Dissolved	Water	6020	225183
240-63163-1 MS	W-160405-PS-MW-17	Dissolved	Water	6020	225183
240-63163-1 MSD	W-160405-PS-MW-17	Dissolved	Water	6020	225183
240-63163-2	W-160405-PS-MW-26	Dissolved	Water	6020	225183
240-63163-3	W-160406-PS-MW-07	Dissolved	Water	6020	225183
240-63163-4	W-160406-PS-MW-12	Dissolved	Water	6020	225183
240-63163-5	W-160406-PS-MW-16	Dissolved	Water	6020	225183
LCS 240-225183/2-A	Lab Control Sample	Total Recoverable	Water	6020	225183
MB 240-225183/1-A	Method Blank	Total Recoverable	Water	6020	225183

### Analysis Batch: 225622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Dissolved	Water	6020	225183
240-63163-1 MS	W-160405-PS-MW-17	Dissolved	Water	6020	225183
240-63163-1 MSD	W-160405-PS-MW-17	Dissolved	Water	6020	225183
240-63163-2	W-160405-PS-MW-26	Dissolved	Water	6020	225183

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Metals (Continued)

### Analysis Batch: 225622 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-3	W-160406-PS-MW-07	Dissolved	Water	6020	225183
240-63163-4	W-160406-PS-MW-12	Dissolved	Water	6020	225183
LCS 240-225183/2-A	Lab Control Sample	Total Recoverable	Water	6020	225183
MB 240-225183/1-A	Method Blank	Total Recoverable	Water	6020	225183

### Analysis Batch: 226096

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-5	W-160406-PS-MW-16	Dissolved	Water	6020	225183

## General Chemistry

### Analysis Batch: 225091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	300.0	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	300.0	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	300.0	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	300.0	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	300.0	
240-63163-5 MS	W-160406-PS-MW-16	Total/NA	Water	300.0	
240-63163-5 MSD	W-160406-PS-MW-16	Total/NA	Water	300.0	
LCS 240-225091/11	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225091/10	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225092

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	300.0	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	300.0	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	300.0	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	300.0	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	300.0	
240-63163-5 MS	W-160406-PS-MW-16	Total/NA	Water	300.0	
240-63163-5 MSD	W-160406-PS-MW-16	Total/NA	Water	300.0	
LCS 240-225092/11	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225092/10	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225152

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	2340C-1997	
240-63163-1 MS	W-160405-PS-MW-17	Total/NA	Water	2340C-1997	
240-63163-1 MSD	W-160405-PS-MW-17	Total/NA	Water	2340C-1997	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	2340C-1997	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	2340C-1997	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	2340C-1997	
240-63163-4 DU	W-160406-PS-MW-12	Total/NA	Water	2340C-1997	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	2340C-1997	
LCS 240-225152/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-225152/1	Method Blank	Total/NA	Water	2340C-1997	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## General Chemistry (Continued)

### Analysis Batch: 225334

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	9060	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	9060	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	9060	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	9060	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	9060	
LCS 240-225334/39	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-225334/38	Lab Control Sample	Total/NA	Water	9060	
MB 240-225334/37	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 225745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63163-1	W-160405-PS-MW-17	Total/NA	Water	2320B-1997	
240-63163-2	W-160405-PS-MW-26	Total/NA	Water	2320B-1997	
240-63163-3	W-160406-PS-MW-07	Total/NA	Water	2320B-1997	
240-63163-4	W-160406-PS-MW-12	Total/NA	Water	2320B-1997	
240-63163-5	W-160406-PS-MW-16	Total/NA	Water	2320B-1997	
LCS 240-225745/4	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-225745/5	Method Blank	Total/NA	Water	2320B-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160405-PS-MW-17**

**Date Collected: 04/05/16 14:25**

**Date Received: 04/07/16 09:20**

**Lab Sample ID: 240-63163-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 00:31	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 18:08	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/14/16 23:56	BPM	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173280	04/12/16 09:02	JMO	TAL PIT
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225555	04/11/16 23:00	AS1	TAL CAN
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/12/16 18:06	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225745	04/12/16 12:35	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 09:53	JAS	TAL CAN
Total/NA	Analysis	300.0		1	225091	04/07/16 12:38	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225092	04/07/16 12:38	JMB	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 02:53	TPH	TAL CAN

**Client Sample ID: W-160405-PS-MW-26**

**Date Collected: 04/05/16 13:30**

**Date Received: 04/07/16 09:20**

**Lab Sample ID: 240-63163-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 00:54	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 18:31	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 00:13	BPM	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 11:09	JMO	TAL PIT
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225555	04/11/16 23:20	AS1	TAL CAN
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/12/16 18:35	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225745	04/12/16 12:44	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:06	JAS	TAL CAN
Total/NA	Analysis	300.0		1	225091	04/07/16 12:54	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225092	04/07/16 12:54	JMB	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 03:35	TPH	TAL CAN

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# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-07**

**Lab Sample ID: 240-63163-3**

**Date Collected: 04/06/16 11:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 01:16	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 18:55	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 00:30	BPM	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 13:54	JMO	TAL PIT
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225555	04/11/16 23:24	AS1	TAL CAN
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/12/16 18:39	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225745	04/12/16 12:53	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:10	JAS	TAL CAN
Total/NA	Analysis	300.0		1	225091	04/07/16 13:11	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225092	04/07/16 13:11	JMB	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 04:00	TPH	TAL CAN

**Client Sample ID: W-160406-PS-MW-12**

**Lab Sample ID: 240-63163-4**

**Date Collected: 04/06/16 10:00**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 01:38	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 19:19	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 01:04	BPM	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 14:18	JMO	TAL PIT
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225555	04/11/16 23:28	AS1	TAL CAN
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/12/16 18:43	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225745	04/12/16 13:05	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:14	JAS	TAL CAN
Total/NA	Analysis	300.0		1	225091	04/07/16 13:27	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225092	04/07/16 13:27	JMB	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 04:26	TPH	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

**Client Sample ID: W-160406-PS-MW-16**

**Lab Sample ID: 240-63163-5**

**Date Collected: 04/06/16 09:50**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 02:01	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 19:42	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 01:21	BPM	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 14:41	JMO	TAL PIT
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	225555	04/11/16 23:33	AS1	TAL CAN
Dissolved	Prep	3005A			225183	04/08/16 09:58	WKD	TAL CAN
Dissolved	Analysis	6020		1	226096	04/14/16 18:36	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225745	04/12/16 13:12	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225152	04/08/16 10:18	JAS	TAL CAN
Total/NA	Analysis	300.0		1	225091	04/07/16 13:44	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225092	04/07/16 13:44	JMB	TAL CAN
Total/NA	Analysis	9060		1	225334	04/09/16 04:52	TPH	TAL CAN

**Client Sample ID: W-TRIPBLANK-PS-03**

**Lab Sample ID: 240-63163-6**

**Date Collected: 04/06/16 12:30**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 02:23	LRW	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63163-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

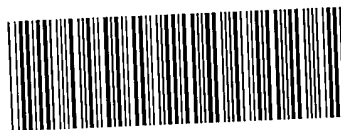
Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**

---



240-63163 Chain of Custody

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Canton Facility \_\_\_\_\_

Client GLHD Site Name \_\_\_\_\_ Cooler unpacked by: \_\_\_\_\_

Cooler Received on 4-7-16 Opened on 4-7-16

FedEx: 1<sup>st</sup> Grd  UPS FAS Stetson Client Drop Off TestAmerica Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

TestAmerica Cooler # \_\_\_\_\_ Foam Box Client Cooler Box  Other \_\_\_\_\_

Packing material used:  Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_

COOLANT:  Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  See Multiple Cooler Form
    - IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
    - IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
    - IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
  2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 14 Yes No
    - Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
    - Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes  No
  3. Shippers' packing slip attached to the cooler(s)? Yes No
  4. Did custody papers accompany the sample(s)? Yes No
  5. Were the custody papers relinquished & signed in the appropriate place? Yes No
  6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
  7. Did all bottles arrive in good condition (Unbroken)? Yes No
  8. Could all bottle labels be reconciled with the COC? Yes No
  9. Were correct bottle(s) used for the test(s) indicated? Yes No
  10. Sufficient quantity received to perform indicated analyses? Yes No
  11. Are these work share samples? Yes  No
    - If yes, Questions 12-16 have been checked at the originating laboratory.*
    - 12. Were sample(s) at the correct pH upon receipt?  Yes No NA pH Strip Lot# HC559158
    - 13. Were VOAs on the COC?  Yes No
    - 14. Were air bubbles >6 mm in any VOA vials? Yes  No NA
    - 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes No
    - 16. Was a LL Hg or Me Hg trip blank present? Yes  No
- Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_
- Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160405-PS-MW-17	240-63163-K-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-17	240-63163-M-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-26	240-63163-K-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160405-PS-MW-26	240-63163-M-2	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-07	240-63163-K-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-07	240-63163-M-3	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-12	240-63163-K-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-12	240-63163-M-4	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-16	240-63163-K-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-16	240-63163-M-5	Plastic 500ml - with Nitric Acid	<2	_____	_____



# Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63163-1

**Login Number: 63163**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/08/16 11:39 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63163-1

**Login Number: 63163**  
**List Number: 3**  
**Creator: Butcher, Ryan M**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/08/16 12:19 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

TestAmerica Job ID: 240-63230-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.  
1801 Old Highway 8 NW  
Suite 114  
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:  
4/19/2016 12:52:42 PM

Denise Heckler, Project Manager II  
(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through  
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Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
*	RPD of the LCS and LCSD exceeds the control limits
J	Reported value was between the limit of detection and the limit of quantitation.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
X	Surrogate is outside control limits

## Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

## General Chemistry

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.
H	Sample was prepped or analyzed beyond the specified holding time
B	Compound was found in the blank and sample.
J	Reported value was between the limit of detection and the limit of quantitation.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

TestAmerica Canton

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Job ID: 240-63230-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63230-1

#### Comments

At the request of GHD on April 12, 2016: sample 240-63230-10 (GHD W-160407-PS-MW-34) should only be analyzed for Metals, BTEX, PCP and naphthalene.

#### Receipt

The samples were received on 4/8/2016 9:40 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.5° C, 0.7° C, 0.9° C, 1.1° C and 1.5° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method(s) 8270C: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: W-160406-PS-MW-22 (240-63230-2). These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) 8151A: The %RPD of the laboratory control sample (LCS) and laboratory control standard duplicate (LCSD) for preparation batch 173120 recovered outside control limits for the following analytes: Pentachlorophenol.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0, 9056A: Reanalysis of the following samples was performed outside of the analytical holding time due to equipment failure on initial run : W-160406-PS-MW-21 (240-63230-1), W-160406-PS-MW-22 (240-63230-2), W-160406-PS-MW-28 (240-63230-3), W-160407-PS-MW-05 (240-63230-4) and W-160407-PS-MW-10 (240-63230-5).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

Method(s) 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 240-225382.

Method(s) 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-173120.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63230-1	W-160406-PS-MW-21	Water	04/06/16 13:05	04/08/16 09:40
240-63230-2	W-160406-PS-MW-22	Water	04/06/16 14:40	04/08/16 09:40
240-63230-3	W-160406-PS-MW-28	Water	04/06/16 13:45	04/08/16 09:40
240-63230-4	W-160407-PS-MW-05	Water	04/07/16 11:25	04/08/16 09:40
240-63230-5	W-160407-PS-MW-10	Water	04/07/16 10:50	04/08/16 09:40
240-63230-6	W-160407-PS-MW-24	Water	04/07/16 11:50	04/08/16 09:40
240-63230-7	W-160407-PS-MW-27	Water	04/07/16 10:10	04/08/16 09:40
240-63230-8	W-TRIPBLANK-PS-04	Water	04/07/16 14:00	04/08/16 09:40
240-63230-9	W-160407-PS-MW-35	Water	04/07/16 11:35	04/08/16 09:40
240-63230-10	W-160407-PS-MW-34	Water	04/07/16 09:00	04/08/16 09:40





# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Client Sample ID: W-160406-PS-MW-21

## Lab Sample ID: 240-63230-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.092	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.016	J p *	0.094	0.015	ug/L	4		8151A	Total/NA
Arsenic	0.70	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.0	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	22.8	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	1.7	J	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	25.9	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	83.6		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	101		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	2.6	H ^	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	6.8		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.63	J B	1.0	0.080	mg/L	1		9060	Total/NA
Nitrate as N - RA	1.8	H	0.10	0.035	mg/L	1		300.0	Total/NA

## Client Sample ID: W-160406-PS-MW-22

## Lab Sample ID: 240-63230-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.025	J p *	0.097	0.015	ug/L	4		8151A	Total/NA
Copper	0.92	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	17.5	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	2.2	J	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	50.8	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	57.7		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	1.3		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.62	H ^ F1	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	2.9		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	5.3	B	1.0	0.080	mg/L	1		9060	Total/NA
Nitrate as N - RA	0.61	H	0.10	0.035	mg/L	1		300.0	Total/NA

## Client Sample ID: W-160406-PS-MW-28

## Lab Sample ID: 240-63230-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.20	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	47	*	5.0	0.78	ug/L	200		8151A	Total/NA
Copper	0.76	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	29.7	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	2.7	J	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	122	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	125		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	9.4		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.2	H ^	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	4.8		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	1.6	B	1.0	0.080	mg/L	1		9060	Total/NA
Nitrate as N - RA	1.2	H	0.10	0.035	mg/L	1		300.0	Total/NA

## Client Sample ID: W-160407-PS-MW-05

## Lab Sample ID: 240-63230-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	4.3		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	17	*	0.95	0.15	ug/L	40		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Client Sample ID: W-160407-PS-MW-05 (Continued)

## Lab Sample ID: 240-63230-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Iron	931		100	16.0	ug/L	1		6020	Dissolved
Manganese	1990		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	72.0	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	113		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	12.7		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.98	^	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	38.0		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	4.6	B	1.0	0.080	mg/L	1		9060	Total/NA
Nitrate as N - RA	0.97	H	0.10	0.035	mg/L	1		300.0	Total/NA

## Client Sample ID: W-160407-PS-MW-10

## Lab Sample ID: 240-63230-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.46	J	1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	0.53	J	1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	2.9		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	4.8		0.48	0.15	ug/L	2.5		8270C	Total/NA
Methane	290		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	1900	*	96	15	ug/L	4000		8151A	Total/NA
Iron	1350		100	16.0	ug/L	1		6020	Dissolved
Manganese	719		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	162	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	189		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	9.8		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	46.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	8.6	B	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160407-PS-MW-24

## Lab Sample ID: 240-63230-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.11	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.044	J p *	0.095	0.015	ug/L	4		8151A	Total/NA
Copper	3.0		2.0	0.75	ug/L	1		6020	Dissolved
Iron	420		100	16.0	ug/L	1		6020	Dissolved
Manganese	28.4		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	168	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	135		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	9.1		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.9		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	17.4		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.79	J B	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160407-PS-MW-27

## Lab Sample ID: 240-63230-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.092	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.15	*	0.094	0.015	ug/L	4		8151A	Total/NA
Arsenic	0.59	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.9	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	21.1	J	100	16.0	ug/L	1		6020	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Client Sample ID: W-160407-PS-MW-27 (Continued)

Lab Sample ID: 240-63230-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	137	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	113		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	20.0		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	6.5	F1	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	14.2		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	1.9	B	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIPBLANK-PS-04

Lab Sample ID: 240-63230-8

No Detections.

## Client Sample ID: W-160407-PS-MW-35

Lab Sample ID: 240-63230-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	4.9		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	16	*	0.95	0.15	ug/L	40		8151A	Total/NA
Iron	940		100	16.0	ug/L	1		6020	Dissolved
Manganese	2070		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	71.3	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	113		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	12.5		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.96		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	37.6		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	4.5	B	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160407-PS-MW-34

Lab Sample ID: 240-63230-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Iron	29.9	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	2.3	J	5.0	1.1	ug/L	1		6020	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-21**

**Lab Sample ID: 240-63230-1**

**Date Collected: 04/06/16 13:05**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 16:41	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 16:41	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 16:41	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 16:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 16:41	1
4-Bromofluorobenzene (Surr)	75		61 - 120		04/14/16 16:41	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 16:41	1
Dibromofluoromethane (Surr)	106		79 - 120		04/14/16 16:41	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/11/16 08:42	04/12/16 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	69		29 - 110	04/11/16 08:42	04/12/16 19:25	1
2-Fluorophenol (Surr)	29		15 - 110	04/11/16 08:42	04/12/16 19:25	1
2,4,6-Tribromophenol (Surr)	78		21 - 128	04/11/16 08:42	04/12/16 19:25	1
Nitrobenzene-d5 (Surr)	77		31 - 110	04/11/16 08:42	04/12/16 19:25	1
Phenol-d5 (Surr)	14		10 - 110	04/11/16 08:42	04/12/16 19:25	1
Terphenyl-d14 (Surr)	61		31 - 115	04/11/16 08:42	04/12/16 19:25	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.092	J	0.50	0.080	ug/L			04/15/16 02:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	87		66 - 132		04/15/16 02:12	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.016	J p *	0.094	0.015	ug/L		04/09/16 10:10	04/13/16 15:52	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	49		32 - 140	04/09/16 10:10	04/13/16 15:52	4
2,4-Dichlorophenylacetic acid	51		32 - 140	04/09/16 10:10	04/13/16 15:52	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.70	J	5.0	0.49	ug/L		04/11/16 12:38	04/13/16 01:27	1
Copper	1.0	J	2.0	0.75	ug/L		04/11/16 12:38	04/15/16 16:45	1
Iron	22.8	J	100	16.0	ug/L		04/11/16 12:38	04/13/16 01:27	1
Manganese	1.7	J	5.0	1.1	ug/L		04/11/16 12:38	04/13/16 01:27	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 01:27	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	25.9	B	5.0	1.9	mg/L			04/13/16 09:45	1
Hardness as calcium carbonate	83.6		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	101		1.0	0.41	mg/L			04/11/16 16:31	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-21**

**Lab Sample ID: 240-63230-1**

**Date Collected: 04/06/16 13:05**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	2.6	H ^	0.10	0.035	mg/L			04/08/16 14:18	1
Sulfate	6.8		1.0	0.13	mg/L			04/11/16 16:31	1
Total Organic Carbon	0.63	J B	1.0	0.080	mg/L			04/11/16 14:10	1

## General Chemistry - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.8	H	0.10	0.035	mg/L			04/11/16 16:31	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-22**

**Lab Sample ID: 240-63230-2**

**Date Collected: 04/06/16 14:40**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 17:03	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 17:03	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 17:03	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		78 - 125		04/14/16 17:03	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 17:03	1
Toluene-d8 (Surr)	92		80 - 120		04/14/16 17:03	1
Dibromofluoromethane (Surr)	108		79 - 120		04/14/16 17:03	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.061		0.19	0.061	ug/L		04/11/16 08:42	04/12/16 19:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	54		29 - 110	04/11/16 08:42	04/12/16 19:49	1
2-Fluorophenol (Surr)	23		15 - 110	04/11/16 08:42	04/12/16 19:49	1
2,4,6-Tribromophenol (Surr)	55		21 - 128	04/11/16 08:42	04/12/16 19:49	1
Nitrobenzene-d5 (Surr)	47		31 - 110	04/11/16 08:42	04/12/16 19:49	1
Phenol-d5 (Surr)	16		10 - 110	04/11/16 08:42	04/12/16 19:49	1
Terphenyl-d14 (Surr)	26	X	31 - 115	04/11/16 08:42	04/12/16 19:49	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/15/16 02:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	90		66 - 132		04/15/16 02:29	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.025	J p *	0.097	0.015	ug/L		04/09/16 10:10	04/13/16 16:16	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	46		32 - 140	04/09/16 10:10	04/13/16 16:16	4
2,4-Dichlorophenylacetic acid	45		32 - 140	04/09/16 10:10	04/13/16 16:16	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 01:32	1
Copper	0.92	J	2.0	0.75	ug/L		04/11/16 12:38	04/15/16 16:49	1
Iron	17.5	J	100	16.0	ug/L		04/11/16 12:38	04/13/16 01:32	1
Manganese	2.2	J	5.0	1.1	ug/L		04/11/16 12:38	04/13/16 01:32	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 01:32	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	50.8	B	5.0	1.9	mg/L			04/13/16 10:01	1
Hardness as calcium carbonate	57.7		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	1.3		1.0	0.41	mg/L			04/11/16 17:20	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-22**

**Lab Sample ID: 240-63230-2**

Date Collected: 04/06/16 14:40

Matrix: Water

Date Received: 04/08/16 09:40

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.62	H ^ F1	0.10	0.035	mg/L			04/08/16 14:51	1
Sulfate	2.9		1.0	0.13	mg/L			04/11/16 17:20	1
Total Organic Carbon	5.3	B	1.0	0.080	mg/L			04/11/16 14:52	1

## General Chemistry - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.61	H	0.10	0.035	mg/L			04/11/16 17:20	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-28**

**Lab Sample ID: 240-63230-3**

**Date Collected: 04/06/16 13:45**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 17:26	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 17:26	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 17:26	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 17:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 17:26	1
4-Bromofluorobenzene (Surr)	76		61 - 120		04/14/16 17:26	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 17:26	1
Dibromofluoromethane (Surr)	105		79 - 120		04/14/16 17:26	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.065		0.21	0.065	ug/L		04/11/16 08:42	04/12/16 20:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		29 - 110	04/11/16 08:42	04/12/16 20:13	1
2-Fluorophenol (Surr)	26		15 - 110	04/11/16 08:42	04/12/16 20:13	1
2,4,6-Tribromophenol (Surr)	65		21 - 128	04/11/16 08:42	04/12/16 20:13	1
Nitrobenzene-d5 (Surr)	58		31 - 110	04/11/16 08:42	04/12/16 20:13	1
Phenol-d5 (Surr)	14		10 - 110	04/11/16 08:42	04/12/16 20:13	1
Terphenyl-d14 (Surr)	47		31 - 115	04/11/16 08:42	04/12/16 20:13	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.20	J	0.50	0.080	ug/L			04/15/16 02:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	87		66 - 132		04/15/16 02:46	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	47	*	5.0	0.78	ug/L		04/09/16 10:10	04/14/16 10:28	200

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X	32 - 140	04/09/16 10:10	04/14/16 10:28	200
2,4-Dichlorophenylacetic acid	0	X	32 - 140	04/09/16 10:10	04/14/16 10:28	200

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 01:44	1
Copper	0.76	J	2.0	0.75	ug/L		04/11/16 12:38	04/15/16 16:53	1
Iron	29.7	J	100	16.0	ug/L		04/11/16 12:38	04/13/16 01:44	1
Manganese	2.7	J	5.0	1.1	ug/L		04/11/16 12:38	04/13/16 01:44	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 01:44	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	122	B	5.0	1.9	mg/L			04/13/16 10:10	1
Hardness as calcium carbonate	125		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	9.4		1.0	0.41	mg/L			04/11/16 18:09	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-28**

**Lab Sample ID: 240-63230-3**

**Date Collected: 04/06/16 13:45**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.2	H ^	0.10	0.035	mg/L			04/08/16 14:35	1
Sulfate	4.8		1.0	0.13	mg/L			04/11/16 18:09	1
Total Organic Carbon	1.6	B	1.0	0.080	mg/L			04/11/16 15:18	1

## General Chemistry - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.2	H	0.10	0.035	mg/L			04/11/16 18:09	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-05**

**Lab Sample ID: 240-63230-4**

**Date Collected: 04/07/16 11:25**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 17:48	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 17:48	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 17:48	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 17:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	103		78 - 125		04/14/16 17:48	1
4-Bromofluorobenzene (Surr)	77		61 - 120		04/14/16 17:48	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 17:48	1
Dibromofluoromethane (Surr)	109		79 - 120		04/14/16 17:48	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/12/16 08:54	04/15/16 18:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	77		29 - 110	04/12/16 08:54	04/15/16 18:18	1
2-Fluorophenol (Surr)	33		15 - 110	04/12/16 08:54	04/15/16 18:18	1
2,4,6-Tribromophenol (Surr)	85		21 - 128	04/12/16 08:54	04/15/16 18:18	1
Nitrobenzene-d5 (Surr)	73		31 - 110	04/12/16 08:54	04/15/16 18:18	1
Phenol-d5 (Surr)	19		10 - 110	04/12/16 08:54	04/15/16 18:18	1
Terphenyl-d14 (Surr)	64		31 - 115	04/12/16 08:54	04/15/16 18:18	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.3		0.50	0.080	ug/L			04/15/16 03:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	86		66 - 132		04/15/16 03:04	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	17	*	0.95	0.15	ug/L		04/09/16 10:10	04/14/16 10:52	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	69		32 - 140	04/09/16 10:10	04/14/16 10:52	40
2,4-Dichlorophenylacetic acid	31	X p	32 - 140	04/09/16 10:10	04/14/16 10:52	40

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 01:48	1
Copper	<0.75		2.0	0.75	ug/L		04/11/16 12:38	04/15/16 16:58	1
Iron	931		100	16.0	ug/L		04/11/16 12:38	04/13/16 01:48	1
Manganese	1990		5.0	1.1	ug/L		04/11/16 12:38	04/13/16 01:48	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 01:48	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	72.0	B	5.0	1.9	mg/L			04/13/16 10:18	1
Hardness as calcium carbonate	113		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	12.7		1.0	0.41	mg/L			04/11/16 18:25	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-05**

**Lab Sample ID: 240-63230-4**

**Date Collected: 04/07/16 11:25**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.98	^	0.10	0.035	mg/L			04/08/16 18:25	1
Sulfate	38.0		1.0	0.13	mg/L			04/11/16 18:25	1
Total Organic Carbon	4.6	B	1.0	0.080	mg/L			04/11/16 15:43	1

## General Chemistry - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.97	H	0.10	0.035	mg/L			04/11/16 18:25	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-10**

**Lab Sample ID: 240-63230-5**

Date Collected: 04/07/16 10:50

Matrix: Water

Date Received: 04/08/16 09:40

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 18:10	1
Ethylbenzene	0.46	J	1.0	0.25	ug/L			04/14/16 18:10	1
Toluene	0.53	J	1.0	0.23	ug/L			04/14/16 18:10	1
Xylenes, Total	2.9		2.0	0.52	ug/L			04/14/16 18:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		78 - 125		04/14/16 18:10	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/14/16 18:10	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 18:10	1
Dibromofluoromethane (Surr)	107		79 - 120		04/14/16 18:10	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	4.8		0.48	0.15	ug/L		04/12/16 08:54	04/15/16 18:44	2.5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	72		29 - 110	04/12/16 08:54	04/15/16 18:44	2.5
2-Fluorophenol (Surr)	35		15 - 110	04/12/16 08:54	04/15/16 18:44	2.5
2,4,6-Tribromophenol (Surr)	82		21 - 128	04/12/16 08:54	04/15/16 18:44	2.5
Nitrobenzene-d5 (Surr)	75		31 - 110	04/12/16 08:54	04/15/16 18:44	2.5
Phenol-d5 (Surr)	20		10 - 110	04/12/16 08:54	04/15/16 18:44	2.5
Terphenyl-d14 (Surr)	75		31 - 115	04/12/16 08:54	04/15/16 18:44	2.5

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	290		0.50	0.080	ug/L			04/15/16 03:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	82		66 - 132		04/15/16 03:21	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	1900	*	96	15	ug/L		04/09/16 10:10	04/14/16 11:15	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X	32 - 140	04/09/16 10:10	04/14/16 11:15	4000
2,4-Dichlorophenylacetic acid	0	X	32 - 140	04/09/16 10:10	04/14/16 11:15	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 01:53	1
Copper	<0.75		2.0	0.75	ug/L		04/11/16 12:38	04/15/16 17:02	1
Iron	1350		100	16.0	ug/L		04/11/16 12:38	04/13/16 01:53	1
Manganese	719		5.0	1.1	ug/L		04/11/16 12:38	04/13/16 01:53	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 01:53	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	162	B	5.0	1.9	mg/L			04/13/16 10:28	1
Hardness as calcium carbonate	189		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	9.8		1.0	0.41	mg/L			04/11/16 18:42	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-10**

**Lab Sample ID: 240-63230-5**

**Date Collected: 04/07/16 10:50**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035	^	0.10	0.035	mg/L			04/08/16 18:41	1
Sulfate	46.1		1.0	0.13	mg/L			04/11/16 18:42	1
Total Organic Carbon	8.6	B	1.0	0.080	mg/L			04/11/16 16:08	1

## General Chemistry - RA

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035	H	0.10	0.035	mg/L			04/11/16 18:42	1



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-24**

**Lab Sample ID: 240-63230-6**

**Date Collected: 04/07/16 11:50**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 18:33	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 18:33	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 18:33	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 18:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		78 - 125		04/14/16 18:33	1
4-Bromofluorobenzene (Surr)	98		61 - 120		04/14/16 18:33	1
Toluene-d8 (Surr)	102		80 - 120		04/14/16 18:33	1
Dibromofluoromethane (Surr)	99		79 - 120		04/14/16 18:33	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/12/16 08:54	04/15/16 17:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	76		29 - 110	04/12/16 08:54	04/15/16 17:26	1
2-Fluorophenol (Surr)	34		15 - 110	04/12/16 08:54	04/15/16 17:26	1
2,4,6-Tribromophenol (Surr)	72		21 - 128	04/12/16 08:54	04/15/16 17:26	1
Nitrobenzene-d5 (Surr)	73		31 - 110	04/12/16 08:54	04/15/16 17:26	1
Phenol-d5 (Surr)	19		10 - 110	04/12/16 08:54	04/15/16 17:26	1
Terphenyl-d14 (Surr)	69		31 - 115	04/12/16 08:54	04/15/16 17:26	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.11	J	0.50	0.080	ug/L			04/15/16 03:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	88		66 - 132		04/15/16 03:38	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.044	J p *	0.095	0.015	ug/L		04/09/16 10:10	04/14/16 11:39	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	50		32 - 140	04/09/16 10:10	04/14/16 11:39	4
2,4-Dichlorophenylacetic acid	59		32 - 140	04/09/16 10:10	04/14/16 11:39	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 01:57	1
Copper	3.0		2.0	0.75	ug/L		04/11/16 12:38	04/15/16 17:06	1
Iron	420		100	16.0	ug/L		04/11/16 12:38	04/13/16 01:57	1
Manganese	28.4		5.0	1.1	ug/L		04/11/16 12:38	04/13/16 01:57	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 01:57	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	168	B	5.0	1.9	mg/L			04/13/16 10:37	1
Hardness as calcium carbonate	135		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	9.1		1.0	0.41	mg/L			04/08/16 20:03	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-24**

**Lab Sample ID: 240-63230-6**

**Date Collected: 04/07/16 11:50**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	1.9		0.10	0.035	mg/L			04/08/16 20:03	1
Sulfate	17.4		1.0	0.13	mg/L			04/08/16 20:03	1
Total Organic Carbon	0.79	J B	1.0	0.080	mg/L			04/11/16 16:50	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-27**

**Lab Sample ID: 240-63230-7**

**Date Collected: 04/07/16 10:10**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L	-		04/14/16 18:55	1
Ethylbenzene	<0.25		1.0	0.25	ug/L	-		04/14/16 18:55	1
Toluene	<0.23		1.0	0.23	ug/L	-		04/14/16 18:55	1
Xylenes, Total	<0.52		2.0	0.52	ug/L	-		04/14/16 18:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		78 - 125		04/14/16 18:55	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/14/16 18:55	1
Toluene-d8 (Surr)	98		80 - 120		04/14/16 18:55	1
Dibromofluoromethane (Surr)	102		79 - 120		04/14/16 18:55	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L	-	04/12/16 08:54	04/15/16 17:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	77		29 - 110	04/12/16 08:54	04/15/16 17:00	1
2-Fluorophenol (Surr)	33		15 - 110	04/12/16 08:54	04/15/16 17:00	1
2,4,6-Tribromophenol (Surr)	73		21 - 128	04/12/16 08:54	04/15/16 17:00	1
Nitrobenzene-d5 (Surr)	73		31 - 110	04/12/16 08:54	04/15/16 17:00	1
Phenol-d5 (Surr)	18		10 - 110	04/12/16 08:54	04/15/16 17:00	1
Terphenyl-d14 (Surr)	59		31 - 115	04/12/16 08:54	04/15/16 17:00	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.092	J	0.50	0.080	ug/L	-		04/15/16 04:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	85		66 - 132		04/15/16 04:12	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.15	*	0.094	0.015	ug/L	-	04/09/16 10:10	04/13/16 18:13	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	50		32 - 140	04/09/16 10:10	04/13/16 18:13	4
2,4-Dichlorophenylacetic acid	47		32 - 140	04/09/16 10:10	04/13/16 18:13	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.59	J	5.0	0.49	ug/L	-	04/11/16 12:38	04/13/16 02:01	1
Copper	1.9	J	2.0	0.75	ug/L	-	04/11/16 12:38	04/15/16 17:10	1
Iron	21.1	J	100	16.0	ug/L	-	04/11/16 12:38	04/13/16 02:01	1
Manganese	<1.1		5.0	1.1	ug/L	-	04/11/16 12:38	04/13/16 02:01	1
Zinc	<7.3		20.0	7.3	ug/L	-	04/11/16 12:38	04/13/16 02:01	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	137	B	5.0	1.9	mg/L	-		04/13/16 10:46	1
Hardness as calcium carbonate	113		5.0	3.1	mg/L	-		04/12/16 11:10	1
Chloride	20.0		1.0	0.41	mg/L	-		04/08/16 20:19	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-27**

**Lab Sample ID: 240-63230-7**

**Date Collected: 04/07/16 10:10**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	6.5	F1	0.10	0.035	mg/L			04/08/16 20:19	1
Sulfate	14.2		1.0	0.13	mg/L			04/08/16 20:19	1
Total Organic Carbon	1.9	B	1.0	0.080	mg/L			04/11/16 17:15	1

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-TRIPBLANK-PS-04**

**Lab Sample ID: 240-63230-8**

**Date Collected: 04/07/16 14:00**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 19:18	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 19:18	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 19:18	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 19:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	97		78 - 125		04/14/16 19:18	1
4-Bromofluorobenzene (Surr)	82		61 - 120		04/14/16 19:18	1
Toluene-d8 (Surr)	97		80 - 120		04/14/16 19:18	1
Dibromofluoromethane (Surr)	102		79 - 120		04/14/16 19:18	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-35**

**Lab Sample ID: 240-63230-9**

**Date Collected: 04/07/16 11:35**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 19:40	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 19:40	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 19:40	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 19:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		78 - 125		04/14/16 19:40	1
4-Bromofluorobenzene (Surr)	81		61 - 120		04/14/16 19:40	1
Toluene-d8 (Surr)	96		80 - 120		04/14/16 19:40	1
Dibromofluoromethane (Surr)	103		79 - 120		04/14/16 19:40	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/12/16 08:54	04/15/16 17:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	75		29 - 110	04/12/16 08:54	04/15/16 17:52	1
2-Fluorophenol (Surr)	34		15 - 110	04/12/16 08:54	04/15/16 17:52	1
2,4,6-Tribromophenol (Surr)	87		21 - 128	04/12/16 08:54	04/15/16 17:52	1
Nitrobenzene-d5 (Surr)	72		31 - 110	04/12/16 08:54	04/15/16 17:52	1
Phenol-d5 (Surr)	19		10 - 110	04/12/16 08:54	04/15/16 17:52	1
Terphenyl-d14 (Surr)	78		31 - 115	04/12/16 08:54	04/15/16 17:52	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.9		0.50	0.080	ug/L			04/15/16 04:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	84		66 - 132		04/15/16 04:29	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	16	*	0.95	0.15	ug/L		04/09/16 10:10	04/14/16 12:03	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	71		32 - 140	04/09/16 10:10	04/14/16 12:03	40
2,4-Dichlorophenylacetic acid	13	X p	32 - 140	04/09/16 10:10	04/14/16 12:03	40

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 02:05	1
Copper	<0.75		2.0	0.75	ug/L		04/11/16 12:38	04/15/16 17:14	1
Iron	940		100	16.0	ug/L		04/11/16 12:38	04/13/16 02:05	1
Manganese	2070		5.0	1.1	ug/L		04/11/16 12:38	04/13/16 02:05	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 02:05	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	71.3	B	5.0	1.9	mg/L			04/13/16 10:54	1
Hardness as calcium carbonate	113		5.0	3.1	mg/L			04/12/16 11:10	1
Chloride	12.5		1.0	0.41	mg/L			04/08/16 21:09	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-35**

**Lab Sample ID: 240-63230-9**

**Date Collected: 04/07/16 11:35**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.96		0.10	0.035	mg/L			04/08/16 21:09	1
Sulfate	37.6		1.0	0.13	mg/L			04/08/16 21:09	1
Total Organic Carbon	4.5	B	1.0	0.080	mg/L			04/11/16 17:41	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-34**

**Lab Sample ID: 240-63230-10**

**Date Collected: 04/07/16 09:00**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 20:02	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 20:02	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 20:02	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 20:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	99		78 - 125		04/14/16 20:02	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 20:02	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 20:02	1
Dibromofluoromethane (Surr)	105		79 - 120		04/14/16 20:02	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/12/16 08:54	04/15/16 16:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	76		29 - 110	04/12/16 08:54	04/15/16 16:34	1
2-Fluorophenol (Surr)	31		15 - 110	04/12/16 08:54	04/15/16 16:34	1
2,4,6-Tribromophenol (Surr)	68		21 - 128	04/12/16 08:54	04/15/16 16:34	1
Nitrobenzene-d5 (Surr)	71		31 - 110	04/12/16 08:54	04/15/16 16:34	1
Phenol-d5 (Surr)	17		10 - 110	04/12/16 08:54	04/15/16 16:34	1
Terphenyl-d14 (Surr)	79		31 - 115	04/12/16 08:54	04/15/16 16:34	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015	*	0.094	0.015	ug/L		04/09/16 10:10	04/13/16 19:00	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	56		32 - 140	04/09/16 10:10	04/13/16 19:00	4
2,4-Dichlorophenylacetic acid	55		32 - 140	04/09/16 10:10	04/13/16 19:00	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 02:09	1
Copper	<0.75		2.0	0.75	ug/L		04/11/16 12:38	04/15/16 17:27	1
<b>Iron</b>	<b>29.9</b>	<b>J</b>	100	16.0	ug/L		04/11/16 12:38	04/13/16 02:09	1
<b>Manganese</b>	<b>2.3</b>	<b>J</b>	5.0	1.1	ug/L		04/11/16 12:38	04/13/16 02:09	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 02:09	1

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63230-1	W-160406-PS-MW-21	102	75	95	106
240-63230-2	W-160406-PS-MW-22	103	78	92	108
240-63230-3	W-160406-PS-MW-28	102	76	95	105
240-63230-4	W-160407-PS-MW-05	103	77	95	109
240-63230-5	W-160407-PS-MW-10	101	86	94	107
240-63230-6	W-160407-PS-MW-24	96	98	102	99
240-63230-7	W-160407-PS-MW-27	98	87	98	102
240-63230-8	W-TRIPBLANK-PS-04	97	82	97	102
240-63230-9	W-160407-PS-MW-35	99	81	96	103
240-63230-10	W-160407-PS-MW-34	99	78	95	105
LCS 240-225990/4	Lab Control Sample	88	93	103	97
MB 240-225990/6	Method Blank	96	80	95	102

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63230-1	W-160406-PS-MW-21	69	29	78	77	14	61
240-63230-2	W-160406-PS-MW-22	54	23	55	47	16	26 X
240-63230-3	W-160406-PS-MW-28	71	26	65	58	14	47
240-63230-4	W-160407-PS-MW-05	77	33	85	73	19	64
240-63230-5	W-160407-PS-MW-10	72	35	82	75	20	75
240-63230-6	W-160407-PS-MW-24	76	34	72	73	19	69
240-63230-7	W-160407-PS-MW-27	77	33	73	73	18	59
240-63230-9	W-160407-PS-MW-35	75	34	87	72	19	78
240-63230-10	W-160407-PS-MW-34	76	31	68	71	17	79
LCS 240-225382/19-A	Lab Control Sample	101	73	95	88	56	107
LCS 240-225561/20-A	Lab Control Sample	89	68	89	86	55	99
MB 240-225382/18-A	Method Blank	88	64	73	79	41	114
MB 240-225561/19-A	Method Blank	91	68	75	84	47	103

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroet (66-132)
240-63230-1	W-160406-PS-MW-21	87
240-63230-2	W-160406-PS-MW-22	90
240-63230-3	W-160406-PS-MW-28	87
240-63230-4	W-160407-PS-MW-05	86
240-63230-5	W-160407-PS-MW-10	82
240-63230-6	W-160407-PS-MW-24	88
240-63230-7	W-160407-PS-MW-27	85
240-63230-9	W-160407-PS-MW-35	84
LCS 240-225973/32	Lab Control Sample	92
MB 240-225973/31	Method Blank	87

### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63230-1	W-160406-PS-MW-21	49	51
240-63230-2	W-160406-PS-MW-22	46	45
240-63230-3	W-160406-PS-MW-28	0 X	0 X
240-63230-4	W-160407-PS-MW-05	69	31 X p
240-63230-5	W-160407-PS-MW-10	0 X	0 X
240-63230-6	W-160407-PS-MW-24	50	59
240-63230-7	W-160407-PS-MW-27	50	47
240-63230-9	W-160407-PS-MW-35	71	13 X p
240-63230-10	W-160407-PS-MW-34	56	55
LCS 180-173120/2-A	Lab Control Sample	49	55
LCSD 180-173120/3-A	Lab Control Sample Dup	49	46
MB 180-173120/1-A	Method Blank	44	42

### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225990/6**

**Matrix: Water**

**Analysis Batch: 225990**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 14:13	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 14:13	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 14:13	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 14:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		78 - 125		04/14/16 14:13	1
4-Bromofluorobenzene (Surr)	80		61 - 120		04/14/16 14:13	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 14:13	1
Dibromofluoromethane (Surr)	102		79 - 120		04/14/16 14:13	1

**Lab Sample ID: LCS 240-225990/4**

**Matrix: Water**

**Analysis Batch: 225990**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.0		ug/L		110	80 - 120
Ethylbenzene	10.0	10.7		ug/L		107	80 - 120
Toluene	10.0	11.2		ug/L		112	80 - 120
Xylenes, Total	20.0	21.1		ug/L		106	80 - 120
m-Xylene & p-Xylene	10.0	10.9		ug/L		109	80 - 120
o-Xylene	10.0	10.2		ug/L		102	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	88		78 - 125
4-Bromofluorobenzene (Surr)	93		61 - 120
Toluene-d8 (Surr)	103		80 - 120
Dibromofluoromethane (Surr)	97		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225382/18-A**

**Matrix: Water**

**Analysis Batch: 225548**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 225382**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/11/16 08:42	04/12/16 09:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	88		29 - 110	04/11/16 08:42	04/12/16 09:01	1
2-Fluorophenol (Surr)	64		15 - 110	04/11/16 08:42	04/12/16 09:01	1
2,4,6-Tribromophenol (Surr)	73		21 - 128	04/11/16 08:42	04/12/16 09:01	1
Nitrobenzene-d5 (Surr)	79		31 - 110	04/11/16 08:42	04/12/16 09:01	1
Phenol-d5 (Surr)	41		10 - 110	04/11/16 08:42	04/12/16 09:01	1
Terphenyl-d14 (Surr)	114		31 - 115	04/11/16 08:42	04/12/16 09:01	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 240-225382/19-A**

**Matrix: Water**

**Analysis Batch: 225548**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 225382**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	19.8		ug/L		99	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	101		29 - 110
2-Fluorophenol (Surr)	73		15 - 110
2,4,6-Tribromophenol (Surr)	95		21 - 128
Nitrobenzene-d5 (Surr)	88		31 - 110
Phenol-d5 (Surr)	56		10 - 110
Terphenyl-d14 (Surr)	107		31 - 115

**Lab Sample ID: MB 240-225561/19-A**

**Matrix: Water**

**Analysis Batch: 225916**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 225561**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/12/16 08:54	04/14/16 09:11	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	91		29 - 110	04/12/16 08:54	04/14/16 09:11	1
2-Fluorophenol (Surr)	68		15 - 110	04/12/16 08:54	04/14/16 09:11	1
2,4,6-Tribromophenol (Surr)	75		21 - 128	04/12/16 08:54	04/14/16 09:11	1
Nitrobenzene-d5 (Surr)	84		31 - 110	04/12/16 08:54	04/14/16 09:11	1
Phenol-d5 (Surr)	47		10 - 110	04/12/16 08:54	04/14/16 09:11	1
Terphenyl-d14 (Surr)	103		31 - 115	04/12/16 08:54	04/14/16 09:11	1

**Lab Sample ID: LCS 240-225561/20-A**

**Matrix: Water**

**Analysis Batch: 225916**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 225561**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	16.7		ug/L		83	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	89		29 - 110
2-Fluorophenol (Surr)	68		15 - 110
2,4,6-Tribromophenol (Surr)	89		21 - 128
Nitrobenzene-d5 (Surr)	86		31 - 110
Phenol-d5 (Surr)	55		10 - 110
Terphenyl-d14 (Surr)	99		31 - 115

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-225973/31**  
**Matrix: Water**  
**Analysis Batch: 225973**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/14/16 21:57	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	87		66 - 132					04/14/16 21:57	1

**Lab Sample ID: LCS 240-225973/32**  
**Matrix: Water**  
**Analysis Batch: 225973**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	199		ug/L		100	76 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,1,1-Trifluoroethane	92		66 - 132				

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173120/1-A**  
**Matrix: Water**  
**Analysis Batch: 173399**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173120**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/09/16 10:10	04/13/16 15:28	4
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	44		32 - 140				04/09/16 10:10	04/13/16 15:28	4
2,4-Dichlorophenylacetic acid	42		32 - 140				04/09/16 10:10	04/13/16 15:28	4

**Lab Sample ID: LCS 180-173120/2-A**  
**Matrix: Water**  
**Analysis Batch: 173399**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 173120**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1.00	0.822		ug/L		82	40 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4-Dichlorophenylacetic acid	49		32 - 140				
2,4-Dichlorophenylacetic acid	55		32 - 140				

**Lab Sample ID: LCSD 180-173120/3-A**  
**Matrix: Water**  
**Analysis Batch: 173399**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 173120**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	1.00	0.590	*	ug/L		59	40 - 140	33	30

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCSD 180-173120/3-A  
Matrix: Water  
Analysis Batch: 173399

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 173120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	49		32 - 140
2,4-Dichlorophenylacetic acid	46		32 - 140

## Method: 6020 - Metals (ICP/MS)

Lab Sample ID: MB 240-225441/1-A  
Matrix: Water  
Analysis Batch: 225622

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 225441

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/11/16 12:38	04/13/16 00:58	1
Iron	<16.0		100	16.0	ug/L		04/11/16 12:38	04/13/16 00:58	1
Manganese	<1.1		5.0	1.1	ug/L		04/11/16 12:38	04/13/16 00:58	1
Zinc	<7.3		20.0	7.3	ug/L		04/11/16 12:38	04/13/16 00:58	1

Lab Sample ID: MB 240-225441/1-A  
Matrix: Water  
Analysis Batch: 226183

Client Sample ID: Method Blank  
Prep Type: Total Recoverable  
Prep Batch: 225441

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Copper	<0.75		2.0	0.75	ug/L		04/11/16 12:38	04/15/16 16:37	1

Lab Sample ID: LCS 240-225441/2-A  
Matrix: Water  
Analysis Batch: 225622

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 225441

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	1000	979.5		ug/L		98	80 - 120
Iron	10000	9082		ug/L		91	80 - 120
Manganese	1000	909.4		ug/L		91	80 - 120
Zinc	1000	948.7		ug/L		95	80 - 120

Lab Sample ID: LCS 240-225441/2-A  
Matrix: Water  
Analysis Batch: 226183

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 225441

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Copper	1000	894.8		ug/L		89	80 - 120

## Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: MB 240-225918/5  
Matrix: Water  
Analysis Batch: 225918

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	2.30	J	5.0	1.9	mg/L			04/13/16 09:24	1

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 2320B-1997 - Alkalinity, Total (Continued)

**Lab Sample ID: LCS 240-225918/4**  
**Matrix: Water**  
**Analysis Batch: 225918**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	289.7		mg/L		102	90 - 127

**Lab Sample ID: 240-63230-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225918**

**Client Sample ID: W-160406-PS-MW-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	25.9	B	25.67		mg/L		1	20

## Method: 2340C-1997 - Hardness, Total

**Lab Sample ID: MB 240-225608/1**  
**Matrix: Water**  
**Analysis Batch: 225608**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/12/16 11:10	1

**Lab Sample ID: LCS 240-225608/2**  
**Matrix: Water**  
**Analysis Batch: 225608**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	175.1		mg/L		103	88 - 110

**Lab Sample ID: 240-63230-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225608**

**Client Sample ID: W-160406-PS-MW-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	83.6		200	280.6		mg/L		99	87 - 114

**Lab Sample ID: 240-63230-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225608**

**Client Sample ID: W-160406-PS-MW-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	83.6		200	280.6		mg/L		99	87 - 114	0	20

**Lab Sample ID: 240-63230-1 DU**  
**Matrix: Water**  
**Analysis Batch: 225608**

**Client Sample ID: W-160406-PS-MW-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hardness as calcium carbonate	83.6		81.59		mg/L		2	20

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 240-225226/27**

**Matrix: Water**

**Analysis Batch: 225226**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/08/16 19:30	1
Sulfate	<0.13		1.0	0.13	mg/L			04/08/16 19:30	1

**Lab Sample ID: LCS 240-225226/28**

**Matrix: Water**

**Analysis Batch: 225226**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.19		mg/L		106	90 - 110
Sulfate	50.0	49.27		mg/L		99	90 - 110

**Lab Sample ID: 240-63230-7 MS**

**Matrix: Water**

**Analysis Batch: 225226**

**Client Sample ID: W-160407-PS-MW-27**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	20.0		50.0	77.93		mg/L		116	80 - 120
Sulfate	14.2		50.0	67.54		mg/L		107	80 - 120

**Lab Sample ID: 240-63230-7 MSD**

**Matrix: Water**

**Analysis Batch: 225226**

**Client Sample ID: W-160407-PS-MW-27**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	20.0		50.0	77.11		mg/L		114	80 - 120	1	15
Sulfate	14.2		50.0	67.25		mg/L		106	80 - 120	0	15

**Lab Sample ID: MB 240-225227/27**

**Matrix: Water**

**Analysis Batch: 225227**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/08/16 19:30	1

**Lab Sample ID: LCS 240-225227/28**

**Matrix: Water**

**Analysis Batch: 225227**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.52		mg/L		101	90 - 110

**Lab Sample ID: 240-63230-2 MS**

**Matrix: Water**

**Analysis Batch: 225227**

**Client Sample ID: W-160406-PS-MW-22**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.62	H ^ F1	2.50	3.88	F1 ^	mg/L		130	80 - 120

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 240-63230-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 225227**

**Client Sample ID: W-160406-PS-MW-22**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.62	H ^ F1	2.50	3.90	F1 ^	mg/L		131	80 - 120	0	15

**Lab Sample ID: 240-63230-7 MS**  
**Matrix: Water**  
**Analysis Batch: 225227**

**Client Sample ID: W-160407-PS-MW-27**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	6.5	F1	2.50	9.64	F1	mg/L		124	80 - 120		

**Lab Sample ID: 240-63230-7 MSD**  
**Matrix: Water**  
**Analysis Batch: 225227**

**Client Sample ID: W-160407-PS-MW-27**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	6.5	F1	2.50	9.55		mg/L		120	80 - 120	1	15

**Lab Sample ID: MB 240-225466/3**  
**Matrix: Water**  
**Analysis Batch: 225466**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/11/16 08:56	1
Sulfate	<0.13		1.0	0.13	mg/L			04/11/16 08:56	1

**Lab Sample ID: LCS 240-225466/4**  
**Matrix: Water**  
**Analysis Batch: 225466**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	50.0	53.55		mg/L		107	90 - 110		
Sulfate	50.0	49.90		mg/L		100	90 - 110		

**Lab Sample ID: 240-63230-2 MS**  
**Matrix: Water**  
**Analysis Batch: 225466**

**Client Sample ID: W-160406-PS-MW-22**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.3		50.0	55.55		mg/L		109	80 - 120		
Sulfate	2.9		50.0	53.99		mg/L		102	80 - 120		

**Lab Sample ID: 240-63230-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 225466**

**Client Sample ID: W-160406-PS-MW-22**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.3		50.0	55.70		mg/L		109	80 - 120	0	15
Sulfate	2.9		50.0	54.22		mg/L		103	80 - 120	0	15

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 240-225467/3**  
**Matrix: Water**  
**Analysis Batch: 225467**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/11/16 08:56	1

**Lab Sample ID: LCS 240-225467/4**  
**Matrix: Water**  
**Analysis Batch: 225467**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.56		mg/L		102	90 - 110

**Lab Sample ID: 240-63230-2 MS**  
**Matrix: Water**  
**Analysis Batch: 225467**

**Client Sample ID: W-160406-PS-MW-22**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.61	H	2.50	3.39		mg/L		111	80 - 120

**Lab Sample ID: 240-63230-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 225467**

**Client Sample ID: W-160406-PS-MW-22**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.61	H	2.50	3.39		mg/L		111	80 - 120	0	15

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-225523/4**  
**Matrix: Water**  
**Analysis Batch: 225523**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	0.101	J	1.0	0.080	mg/L			04/11/16 13:47	1

**Lab Sample ID: LCS 240-225523/6**  
**Matrix: Water**  
**Analysis Batch: 225523**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	66.38		mg/L		96	88 - 115

**Lab Sample ID: LLCS 240-225523/5**  
**Matrix: Water**  
**Analysis Batch: 225523**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.77		mg/L		98	88 - 115

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 240-63230-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225523**

**Client Sample ID: W-160406-PS-MW-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.63	J B	25.0	27.77		mg/L		109	72 - 136

**Lab Sample ID: 240-63230-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225523**

**Client Sample ID: W-160406-PS-MW-21**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	0.63	J B	25.0	29.05		mg/L		114	72 - 136	5	20

- 1
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- 3
- 4
- 5
- 6
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- 8
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- 11
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- 14
- 15



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## GC/MS VOA

### Analysis Batch: 225990

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	8260B	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	8260B	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	8260B	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	8260B	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	8260B	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	8260B	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	8260B	
240-63230-8	W-TRIPBLANK-PS-04	Total/NA	Water	8260B	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	8260B	
240-63230-10	W-160407-PS-MW-34	Total/NA	Water	8260B	
LCS 240-225990/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-225990/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 225382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	3510C	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	3510C	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	3510C	
LCS 240-225382/19-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-225382/18-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 225548

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	8270C	225382
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	8270C	225382
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	8270C	225382
LCS 240-225382/19-A	Lab Control Sample	Total/NA	Water	8270C	225382
MB 240-225382/18-A	Method Blank	Total/NA	Water	8270C	225382

### Prep Batch: 225561

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	3510C	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	3510C	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	3510C	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	3510C	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	3510C	
240-63230-10	W-160407-PS-MW-34	Total/NA	Water	3510C	
LCS 240-225561/20-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-225561/19-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 225916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-225561/20-A	Lab Control Sample	Total/NA	Water	8270C	225561
MB 240-225561/19-A	Method Blank	Total/NA	Water	8270C	225561

### Analysis Batch: 226080

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	8270C	225561

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 226080 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	8270C	225561
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	8270C	225561
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	8270C	225561
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	8270C	225561
240-63230-10	W-160407-PS-MW-34	Total/NA	Water	8270C	225561

## GC VOA

### Analysis Batch: 225973

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	RSK-175	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	RSK-175	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	RSK-175	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	RSK-175	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	RSK-175	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	RSK-175	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	RSK-175	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	RSK-175	
LCS 240-225973/32	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-225973/31	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 173120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	8151A	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	8151A	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	8151A	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	8151A	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	8151A	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	8151A	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	8151A	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	8151A	
240-63230-10	W-160407-PS-MW-34	Total/NA	Water	8151A	
LCS 180-173120/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-173120/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-173120/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 173399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	8151A	173120
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	8151A	173120
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	8151A	173120
240-63230-10	W-160407-PS-MW-34	Total/NA	Water	8151A	173120
LCS 180-173120/2-A	Lab Control Sample	Total/NA	Water	8151A	173120
LCSD 180-173120/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	173120
MB 180-173120/1-A	Method Blank	Total/NA	Water	8151A	173120

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## GC Semi VOA (Continued)

### Analysis Batch: 173509

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	8151A	173120
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	8151A	173120
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	8151A	173120
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	8151A	173120
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	8151A	173120

## Metals

### Prep Batch: 225441

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Dissolved	Water	3005A	
240-63230-2	W-160406-PS-MW-22	Dissolved	Water	3005A	
240-63230-3	W-160406-PS-MW-28	Dissolved	Water	3005A	
240-63230-4	W-160407-PS-MW-05	Dissolved	Water	3005A	
240-63230-5	W-160407-PS-MW-10	Dissolved	Water	3005A	
240-63230-6	W-160407-PS-MW-24	Dissolved	Water	3005A	
240-63230-7	W-160407-PS-MW-27	Dissolved	Water	3005A	
240-63230-9	W-160407-PS-MW-35	Dissolved	Water	3005A	
240-63230-10	W-160407-PS-MW-34	Dissolved	Water	3005A	
LCS 240-225441/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-225441/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 225622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Dissolved	Water	6020	225441
240-63230-2	W-160406-PS-MW-22	Dissolved	Water	6020	225441
240-63230-3	W-160406-PS-MW-28	Dissolved	Water	6020	225441
240-63230-4	W-160407-PS-MW-05	Dissolved	Water	6020	225441
240-63230-5	W-160407-PS-MW-10	Dissolved	Water	6020	225441
240-63230-6	W-160407-PS-MW-24	Dissolved	Water	6020	225441
240-63230-7	W-160407-PS-MW-27	Dissolved	Water	6020	225441
240-63230-9	W-160407-PS-MW-35	Dissolved	Water	6020	225441
240-63230-10	W-160407-PS-MW-34	Dissolved	Water	6020	225441
LCS 240-225441/2-A	Lab Control Sample	Total Recoverable	Water	6020	225441
MB 240-225441/1-A	Method Blank	Total Recoverable	Water	6020	225441

### Analysis Batch: 226183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Dissolved	Water	6020	225441
240-63230-2	W-160406-PS-MW-22	Dissolved	Water	6020	225441
240-63230-3	W-160406-PS-MW-28	Dissolved	Water	6020	225441
240-63230-4	W-160407-PS-MW-05	Dissolved	Water	6020	225441
240-63230-5	W-160407-PS-MW-10	Dissolved	Water	6020	225441
240-63230-6	W-160407-PS-MW-24	Dissolved	Water	6020	225441
240-63230-7	W-160407-PS-MW-27	Dissolved	Water	6020	225441
240-63230-9	W-160407-PS-MW-35	Dissolved	Water	6020	225441
240-63230-10	W-160407-PS-MW-34	Dissolved	Water	6020	225441
LCS 240-225441/2-A	Lab Control Sample	Total Recoverable	Water	6020	225441
MB 240-225441/1-A	Method Blank	Total Recoverable	Water	6020	225441

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## General Chemistry

### Analysis Batch: 225226

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	300.0	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	300.0	
240-63230-7 MS	W-160407-PS-MW-27	Total/NA	Water	300.0	
240-63230-7 MSD	W-160407-PS-MW-27	Total/NA	Water	300.0	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	300.0	
LCS 240-225226/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225226/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225227

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	300.0	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-2 MS	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-2 MSD	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	300.0	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	300.0	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	300.0	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	300.0	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	300.0	
240-63230-7 MS	W-160407-PS-MW-27	Total/NA	Water	300.0	
240-63230-7 MSD	W-160407-PS-MW-27	Total/NA	Water	300.0	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	300.0	
LCS 240-225227/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225227/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	300.0	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-2 MS	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-2 MSD	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	300.0	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	300.0	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	300.0	
LCS 240-225466/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225466/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225467

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1 - RA	W-160406-PS-MW-21	Total/NA	Water	300.0	
240-63230-2 - RA	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-2 MS	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-2 MSD	W-160406-PS-MW-22	Total/NA	Water	300.0	
240-63230-3 - RA	W-160406-PS-MW-28	Total/NA	Water	300.0	
240-63230-4 - RA	W-160407-PS-MW-05	Total/NA	Water	300.0	
240-63230-5 - RA	W-160407-PS-MW-10	Total/NA	Water	300.0	
LCS 240-225467/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225467/3	Method Blank	Total/NA	Water	300.0	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## General Chemistry (Continued)

### Analysis Batch: 225523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	9060	
240-63230-1 MS	W-160406-PS-MW-21	Total/NA	Water	9060	
240-63230-1 MSD	W-160406-PS-MW-21	Total/NA	Water	9060	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	9060	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	9060	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	9060	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	9060	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	9060	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	9060	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	9060	
LCS 240-225523/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-225523/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-225523/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 225608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	2340C-1997	
240-63230-1 DU	W-160406-PS-MW-21	Total/NA	Water	2340C-1997	
240-63230-1 MS	W-160406-PS-MW-21	Total/NA	Water	2340C-1997	
240-63230-1 MSD	W-160406-PS-MW-21	Total/NA	Water	2340C-1997	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	2340C-1997	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	2340C-1997	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	2340C-1997	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	2340C-1997	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	2340C-1997	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	2340C-1997	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	2340C-1997	
LCS 240-225608/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-225608/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 225918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63230-1	W-160406-PS-MW-21	Total/NA	Water	2320B-1997	
240-63230-1 DU	W-160406-PS-MW-21	Total/NA	Water	2320B-1997	
240-63230-2	W-160406-PS-MW-22	Total/NA	Water	2320B-1997	
240-63230-3	W-160406-PS-MW-28	Total/NA	Water	2320B-1997	
240-63230-4	W-160407-PS-MW-05	Total/NA	Water	2320B-1997	
240-63230-5	W-160407-PS-MW-10	Total/NA	Water	2320B-1997	
240-63230-6	W-160407-PS-MW-24	Total/NA	Water	2320B-1997	
240-63230-7	W-160407-PS-MW-27	Total/NA	Water	2320B-1997	
240-63230-9	W-160407-PS-MW-35	Total/NA	Water	2320B-1997	
LCS 240-225918/4	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-225918/5	Method Blank	Total/NA	Water	2320B-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-21**

**Lab Sample ID: 240-63230-1**

**Date Collected: 04/06/16 13:05**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 16:41	LRW	TAL CAN
Total/NA	Prep	3510C			225382	04/11/16 08:42	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225548	04/12/16 19:25	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 02:12	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 15:52	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 01:27	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 16:45	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 09:45	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 14:18	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225466	04/11/16 16:31	LCN	TAL CAN
Total/NA	Analysis	300.0	RA	1	225467	04/11/16 16:31	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 14:10	TPH	TAL CAN

**Client Sample ID: W-160406-PS-MW-22**

**Lab Sample ID: 240-63230-2**

**Date Collected: 04/06/16 14:40**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 17:03	LRW	TAL CAN
Total/NA	Prep	3510C			225382	04/11/16 08:42	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225548	04/12/16 19:49	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 02:29	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 16:16	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 01:32	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 16:49	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:01	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 14:51	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225466	04/11/16 17:20	LCN	TAL CAN
Total/NA	Analysis	300.0	RA	1	225467	04/11/16 17:20	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 14:52	TPH	TAL CAN

TestAmerica Canton



# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160406-PS-MW-28**

**Lab Sample ID: 240-63230-3**

**Date Collected: 04/06/16 13:45**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 17:26	LRW	TAL CAN
Total/NA	Prep	3510C			225382	04/11/16 08:42	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225548	04/12/16 20:13	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 02:46	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		200	173509	04/14/16 10:28	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 01:44	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 16:53	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:10	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 14:35	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225466	04/11/16 18:09	LCN	TAL CAN
Total/NA	Analysis	300.0	RA	1	225467	04/11/16 18:09	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 15:18	TPH	TAL CAN

**Client Sample ID: W-160407-PS-MW-05**

**Lab Sample ID: 240-63230-4**

**Date Collected: 04/07/16 11:25**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 17:48	LRW	TAL CAN
Total/NA	Prep	3510C			225561	04/12/16 08:54	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226080	04/15/16 18:18	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 03:04	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		40	173509	04/14/16 10:52	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 01:48	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 16:58	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:18	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 18:25	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225466	04/11/16 18:25	LCN	TAL CAN
Total/NA	Analysis	300.0	RA	1	225467	04/11/16 18:25	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 15:43	TPH	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-10**

**Lab Sample ID: 240-63230-5**

**Date Collected: 04/07/16 10:50**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 18:10	LRW	TAL CAN
Total/NA	Prep	3510C			225561	04/12/16 08:54	JDR	TAL CAN
Total/NA	Analysis	8270C		2.5	226080	04/15/16 18:44	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 03:21	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	173509	04/14/16 11:15	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 01:53	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 17:02	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:28	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 18:41	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225466	04/11/16 18:42	LCN	TAL CAN
Total/NA	Analysis	300.0	RA	1	225467	04/11/16 18:42	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 16:08	TPH	TAL CAN

**Client Sample ID: W-160407-PS-MW-24**

**Lab Sample ID: 240-63230-6**

**Date Collected: 04/07/16 11:50**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 18:33	LRW	TAL CAN
Total/NA	Prep	3510C			225561	04/12/16 08:54	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226080	04/15/16 17:26	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 03:38	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173509	04/14/16 11:39	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 01:57	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 17:06	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:37	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225226	04/08/16 20:03	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 20:03	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 16:50	TPH	TAL CAN

TestAmerica Canton



# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-27**

**Lab Sample ID: 240-63230-7**

**Date Collected: 04/07/16 10:10**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 18:55	LRW	TAL CAN
Total/NA	Prep	3510C			225561	04/12/16 08:54	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226080	04/15/16 17:00	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 04:12	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 18:13	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 02:01	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 17:10	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:46	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225226	04/08/16 20:19	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 20:19	LCN	TAL CAN
Total/NA	Analysis	9060		1	225523	04/11/16 17:15	TPH	TAL CAN

**Client Sample ID: W-TRIPBLANK-PS-04**

**Lab Sample ID: 240-63230-8**

**Date Collected: 04/07/16 14:00**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 19:18	LRW	TAL CAN

**Client Sample ID: W-160407-PS-MW-35**

**Lab Sample ID: 240-63230-9**

**Date Collected: 04/07/16 11:35**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 19:40	LRW	TAL CAN
Total/NA	Prep	3510C			225561	04/12/16 08:54	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226080	04/15/16 17:52	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	225973	04/15/16 04:29	BPM	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		40	173509	04/14/16 12:03	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 02:05	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 17:14	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	225918	04/13/16 10:54	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	225608	04/12/16 11:10	TPH	TAL CAN
Total/NA	Analysis	300.0		1	225226	04/08/16 21:09	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225227	04/08/16 21:09	LCN	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

**Client Sample ID: W-160407-PS-MW-35**

**Lab Sample ID: 240-63230-9**

**Date Collected: 04/07/16 11:35**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	225523	04/11/16 17:41	TPH	TAL CAN

**Client Sample ID: W-160407-PS-MW-34**

**Lab Sample ID: 240-63230-10**

**Date Collected: 04/07/16 09:00**

**Matrix: Water**

**Date Received: 04/08/16 09:40**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225990	04/14/16 20:02	LRW	TAL CAN
Total/NA	Prep	3510C			225561	04/12/16 08:54	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226080	04/15/16 16:34	MRU	TAL CAN
Total/NA	Prep	8151A			173120	04/09/16 10:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 19:00	JMO	TAL PIT
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	225622	04/13/16 02:09	AS1	TAL CAN
Dissolved	Prep	3005A			225441	04/11/16 12:38	WKD	TAL CAN
Dissolved	Analysis	6020		1	226183	04/15/16 17:27	AS1	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63230-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

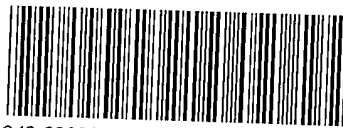
Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**

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240-63230 Chain of Custody

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TestAmerica Canton Sample Receipt Form/Narrative

Login #: W3230

Canton Facility

Client GHD Site Name \_\_\_\_\_

Cooler unpacked by: [Signature]

Cooler Received on 4/18/16 Opened on 4/18/16

FedEx: 1<sup>st</sup> Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

TestAmerica Cooler # \_\_\_\_\_ Foam Box Client Cooler Box Other \_\_\_\_\_  
Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_  
COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 5 Yes No  
-Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA  
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

*If yes, Questions 12-16 have been checked at the originating laboratory.*

12. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC559158

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # (Covered) Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
Sample(s) \_\_\_\_\_ were received in a broken container.  
Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160406-PS-MW-21	240-63230-K-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-21	240-63230-M-1	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160406-PS-MW-22	240-63230-K-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-22	240-63230-M-2	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160406-PS-MW-28	240-63230-K-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160406-PS-MW-28	240-63230-M-3	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160407-PS-MW-05	240-63230-K-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160407-PS-MW-05	240-63230-M-4	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160407-PS-MW-10	240-63230-K-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160407-PS-MW-10	240-63230-M-5	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160407-PS-MW-24	240-63230-K-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160407-PS-MW-24	240-63230-M-6	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160407-PS-MW-27	240-63230-K-7	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160407-PS-MW-27	240-63230-M-7	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160407-PS-MW-35	240-63230-K-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160407-PS-MW-35	240-63230-M-9	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160407-PS-MW-34	240-63230-K-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160407-PS-MW-34	240-63230-M-10	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____



## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63230-1

**Login Number: 63230**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/09/16 09:35 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-63398-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

4/21/2016 12:52:22 PM

Denise Heckler, Project Manager II

(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

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[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### GC Semi VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Job ID: 240-63398-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63398-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/13/2016 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.3° C, 0.9° C and 1.9° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method(s) 8270C: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and/or one base surrogate to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: W-160411-PS-MW-25 (240-63398-3). These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-160411-PS-MW-08 (240-63398-1) and W-160411-PS-MW-11 (240-63398-2).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

Method(s) 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-173606.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63398-1	W-160411-PS-MW-08	Water	04/11/16 13:50	04/13/16 09:25
240-63398-2	W-160411-PS-MW-11	Water	04/11/16 12:20	04/13/16 09:25
240-63398-3	W-160411-PS-MW-25	Water	04/11/16 16:00	04/13/16 09:25
240-63398-4	W-160412-PS-MW-01	Water	04/12/16 11:00	04/13/16 09:25
240-63398-5	W-160412-PS-MW-31	Water	04/12/16 09:38	04/13/16 09:25
240-63398-6	W-TRIPBLANK-PS-05	Water	04/12/16 13:30	04/13/16 09:25

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Client Sample ID: W-160411-PS-MW-08

## Lab Sample ID: 240-63398-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	1.5		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.016	J p	0.094	0.015	ug/L	4		8151A	Total/NA
Arsenic	0.60	J	5.0	0.49	ug/L	1		6020	Dissolved
Iron	197	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	10.9	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	174	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	421		25.0	15.5	mg/L	1		2340C-1997	Total/NA
Chloride	18.0		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.3	H	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	201		5.0	0.65	mg/L	5		300.0	Total/NA
Total Organic Carbon	0.26	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160411-PS-MW-11

## Lab Sample ID: 240-63398-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.75	J	5.0	0.49	ug/L	1		6020	Dissolved
Iron	32.1	J B	100	16.0	ug/L	1		6020	Dissolved
Manganese	1.9	J B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	229	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	470		25.0	15.5	mg/L	1		2340C-1997	Total/NA
Chloride	18.0		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.6	H	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	200		5.0	0.65	mg/L	5		300.0	Total/NA
Total Organic Carbon	0.32	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160411-PS-MW-25

## Lab Sample ID: 240-63398-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.024	J p	0.094	0.015	ug/L	4		8151A	Total/NA
Arsenic	1.1	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	17.6	B	2.0	0.75	ug/L	1		6020	Dissolved
Iron	6090	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	148	B	5.0	1.1	ug/L	1		6020	Dissolved
Zinc	12.4	J B	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	33.7	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	137		25.0	15.5	mg/L	1		2340C-1997	Total/NA
Chloride	37.8		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	2.4		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	3.8		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	1.5		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160412-PS-MW-01

## Lab Sample ID: 240-63398-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.15		0.094	0.015	ug/L	4		8151A	Total/NA
Iron	19.9	J B	100	16.0	ug/L	1		6020	Dissolved
Manganese	1.4	J B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	79.9	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	102		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	5.1		1.0	0.41	mg/L	1		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton



# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Client Sample ID: W-160412-PS-MW-01 (Continued)

Lab Sample ID: 240-63398-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Nitrate as N	0.53		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	5.2		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.73	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160412-PS-MW-31

Lab Sample ID: 240-63398-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.030	J p	0.094	0.015	ug/L	4		8151A	Total/NA
Iron	20.9	J B	100	16.0	ug/L	1		6020	Dissolved
Manganese	7.7	B	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	122	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	125		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	0.99	J	1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.68		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	4.0		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	0.59	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIPBLANK-PS-05

Lab Sample ID: 240-63398-6

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-08**

**Lab Sample ID: 240-63398-1**

**Date Collected: 04/11/16 13:50**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 04:59	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 04:59	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 04:59	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 04:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		78 - 125		04/20/16 04:59	1
4-Bromofluorobenzene (Surr)	83		61 - 120		04/20/16 04:59	1
Toluene-d8 (Surr)	95		80 - 120		04/20/16 04:59	1
Dibromofluoromethane (Surr)	87		79 - 120		04/20/16 04:59	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/14/16 08:46	04/15/16 19:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	82		29 - 110	04/14/16 08:46	04/15/16 19:09	1
2-Fluorophenol (Surr)	32		15 - 110	04/14/16 08:46	04/15/16 19:09	1
2,4,6-Tribromophenol (Surr)	85		21 - 128	04/14/16 08:46	04/15/16 19:09	1
Nitrobenzene-d5 (Surr)	75		31 - 110	04/14/16 08:46	04/15/16 19:09	1
Phenol-d5 (Surr)	17		10 - 110	04/14/16 08:46	04/15/16 19:09	1
Terphenyl-d14 (Surr)	58		31 - 115	04/14/16 08:46	04/15/16 19:09	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.5		0.50	0.080	ug/L			04/18/16 16:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	105		66 - 132		04/18/16 16:24	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.016	J p	0.094	0.015	ug/L		04/14/16 14:00	04/19/16 11:55	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	64		32 - 140	04/14/16 14:00	04/19/16 11:55	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.60	J	5.0	0.49	ug/L		04/14/16 10:02	04/20/16 03:35	1
Copper	<0.75		2.0	0.75	ug/L		04/14/16 10:02	04/20/16 03:35	1
Iron	197	B	100	16.0	ug/L		04/14/16 10:02	04/20/16 03:35	1
Manganese	10.9	B	5.0	1.1	ug/L		04/14/16 10:02	04/20/16 03:35	1
Zinc	<7.3		20.0	7.3	ug/L		04/14/16 10:02	04/20/16 03:35	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	174	B	5.0	1.9	mg/L			04/14/16 19:58	1
Hardness as calcium carbonate	421		25.0	15.5	mg/L			04/18/16 13:04	1
Chloride	18.0		1.0	0.41	mg/L			04/14/16 00:35	1
Nitrate as N	1.3	H	0.10	0.035	mg/L			04/14/16 00:35	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-08**

**Lab Sample ID: 240-63398-1**

**Date Collected: 04/11/16 13:50**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	201		5.0	0.65	mg/L			04/14/16 18:10	5
Total Organic Carbon	0.26	J	1.0	0.080	mg/L			04/14/16 08:01	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-11**

**Lab Sample ID: 240-63398-2**

**Date Collected: 04/11/16 12:20**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 05:22	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 05:22	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 05:22	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 05:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		78 - 125		04/20/16 05:22	1
4-Bromofluorobenzene (Surr)	82		61 - 120		04/20/16 05:22	1
Toluene-d8 (Surr)	90		80 - 120		04/20/16 05:22	1
Dibromofluoromethane (Surr)	87		79 - 120		04/20/16 05:22	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/14/16 08:46	04/15/16 19:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	79		29 - 110	04/14/16 08:46	04/15/16 19:32	1
2-Fluorophenol (Surr)	31		15 - 110	04/14/16 08:46	04/15/16 19:32	1
2,4,6-Tribromophenol (Surr)	76		21 - 128	04/14/16 08:46	04/15/16 19:32	1
Nitrobenzene-d5 (Surr)	74		31 - 110	04/14/16 08:46	04/15/16 19:32	1
Phenol-d5 (Surr)	15		10 - 110	04/14/16 08:46	04/15/16 19:32	1
Terphenyl-d14 (Surr)	58		31 - 115	04/14/16 08:46	04/15/16 19:32	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 16:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	102		66 - 132		04/18/16 16:42	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/14/16 14:00	04/19/16 12:19	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	71		32 - 140	04/14/16 14:00	04/19/16 12:19	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.75	J	5.0	0.49	ug/L		04/14/16 09:52	04/20/16 03:18	1
Copper	<0.75		2.0	0.75	ug/L		04/14/16 09:52	04/20/16 03:18	1
Iron	32.1	J B	100	16.0	ug/L		04/14/16 09:52	04/20/16 03:18	1
Manganese	1.9	J B	5.0	1.1	ug/L		04/14/16 09:52	04/20/16 03:18	1
Zinc	<7.3		20.0	7.3	ug/L		04/14/16 09:52	04/20/16 03:18	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	229	B	5.0	1.9	mg/L			04/14/16 20:09	1
Hardness as calcium carbonate	470		25.0	15.5	mg/L			04/18/16 13:09	1
Chloride	18.0		1.0	0.41	mg/L			04/14/16 01:24	1
Nitrate as N	1.6	H	0.10	0.035	mg/L			04/14/16 01:24	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-11**

**Lab Sample ID: 240-63398-2**

**Date Collected: 04/11/16 12:20**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	200		5.0	0.65	mg/L			04/14/16 18:27	5
Total Organic Carbon	0.32	J	1.0	0.080	mg/L			04/14/16 08:43	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-25**

**Lab Sample ID: 240-63398-3**

**Date Collected: 04/11/16 16:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 05:45	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 05:45	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 05:45	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 05:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		78 - 125		04/20/16 05:45	1
4-Bromofluorobenzene (Surr)	84		61 - 120		04/20/16 05:45	1
Toluene-d8 (Surr)	92		80 - 120		04/20/16 05:45	1
Dibromofluoromethane (Surr)	88		79 - 120		04/20/16 05:45	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.064		0.20	0.064	ug/L		04/14/16 08:46	04/15/16 20:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	76		29 - 110	04/14/16 08:46	04/15/16 20:19	1
2-Fluorophenol (Surr)	30		15 - 110	04/14/16 08:46	04/15/16 20:19	1
2,4,6-Tribromophenol (Surr)	74		21 - 128	04/14/16 08:46	04/15/16 20:19	1
Nitrobenzene-d5 (Surr)	70		31 - 110	04/14/16 08:46	04/15/16 20:19	1
Phenol-d5 (Surr)	17		10 - 110	04/14/16 08:46	04/15/16 20:19	1
Terphenyl-d14 (Surr)	24	X	31 - 115	04/14/16 08:46	04/15/16 20:19	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 16:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	100		66 - 132		04/18/16 16:59	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.024	J p	0.094	0.015	ug/L		04/14/16 14:00	04/19/16 12:42	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	68		32 - 140	04/14/16 14:00	04/19/16 12:42	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1	J	5.0	0.49	ug/L		04/14/16 09:52	04/20/16 03:22	1
Copper	17.6	B	2.0	0.75	ug/L		04/14/16 09:52	04/20/16 03:22	1
Iron	6090	B	100	16.0	ug/L		04/14/16 09:52	04/20/16 03:22	1
Manganese	148	B	5.0	1.1	ug/L		04/14/16 09:52	04/20/16 03:22	1
Zinc	12.4	J B	20.0	7.3	ug/L		04/14/16 09:52	04/20/16 03:22	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	33.7	B	5.0	1.9	mg/L			04/14/16 20:18	1
Hardness as calcium carbonate	137		25.0	15.5	mg/L			04/18/16 13:14	1
Chloride	37.8		1.0	0.41	mg/L			04/13/16 15:01	1
Nitrate as N	2.4		0.10	0.035	mg/L			04/13/16 15:01	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-25**

**Lab Sample ID: 240-63398-3**

**Date Collected: 04/11/16 16:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.8		1.0	0.13	mg/L			04/13/16 15:01	1
Total Organic Carbon	1.5		1.0	0.080	mg/L			04/14/16 09:10	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160412-PS-MW-01**

**Lab Sample ID: 240-63398-4**

**Date Collected: 04/12/16 11:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 15:44	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 15:44	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 15:44	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 15:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/20/16 15:44	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/20/16 15:44	1
Toluene-d8 (Surr)	94		80 - 120		04/20/16 15:44	1
Dibromofluoromethane (Surr)	87		79 - 120		04/20/16 15:44	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/14/16 08:46	04/15/16 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	75		29 - 110	04/14/16 08:46	04/15/16 19:56	1
2-Fluorophenol (Surr)	29		15 - 110	04/14/16 08:46	04/15/16 19:56	1
2,4,6-Tribromophenol (Surr)	73		21 - 128	04/14/16 08:46	04/15/16 19:56	1
Nitrobenzene-d5 (Surr)	71		31 - 110	04/14/16 08:46	04/15/16 19:56	1
Phenol-d5 (Surr)	13		10 - 110	04/14/16 08:46	04/15/16 19:56	1
Terphenyl-d14 (Surr)	54		31 - 115	04/14/16 08:46	04/15/16 19:56	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	101		66 - 132		04/18/16 17:16	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.15		0.094	0.015	ug/L		04/14/16 14:00	04/19/16 13:06	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	72		32 - 140	04/14/16 14:00	04/19/16 13:06	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/14/16 09:52	04/20/16 03:26	1
Copper	<0.75		2.0	0.75	ug/L		04/14/16 09:52	04/20/16 03:26	1
Iron	19.9	J B	100	16.0	ug/L		04/14/16 09:52	04/20/16 03:26	1
Manganese	1.4	J B	5.0	1.1	ug/L		04/14/16 09:52	04/20/16 03:26	1
Zinc	<7.3		20.0	7.3	ug/L		04/14/16 09:52	04/20/16 03:26	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	79.9	B	5.0	1.9	mg/L			04/14/16 20:26	1
Hardness as calcium carbonate	102		5.0	3.1	mg/L			04/18/16 13:18	1
Chloride	5.1		1.0	0.41	mg/L			04/14/16 02:14	1
Nitrate as N	0.53		0.10	0.035	mg/L			04/14/16 02:14	1

TestAmerica Canton



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160412-PS-MW-01**

**Lab Sample ID: 240-63398-4**

**Date Collected: 04/12/16 11:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	5.2		1.0	0.13	mg/L			04/14/16 02:14	1
Total Organic Carbon	0.73	J	1.0	0.080	mg/L			04/14/16 09:35	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160412-PS-MW-31**

**Lab Sample ID: 240-63398-5**

**Date Collected: 04/12/16 09:38**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 16:07	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 16:07	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 16:07	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 16:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		78 - 125		04/20/16 16:07	1
4-Bromofluorobenzene (Surr)	85		61 - 120		04/20/16 16:07	1
Toluene-d8 (Surr)	94		80 - 120		04/20/16 16:07	1
Dibromofluoromethane (Surr)	89		79 - 120		04/20/16 16:07	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/14/16 08:46	04/15/16 20:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	84		29 - 110	04/14/16 08:46	04/15/16 20:43	1
2-Fluorophenol (Surr)	32		15 - 110	04/14/16 08:46	04/15/16 20:43	1
2,4,6-Tribromophenol (Surr)	81		21 - 128	04/14/16 08:46	04/15/16 20:43	1
Nitrobenzene-d5 (Surr)	78		31 - 110	04/14/16 08:46	04/15/16 20:43	1
Phenol-d5 (Surr)	17		10 - 110	04/14/16 08:46	04/15/16 20:43	1
Terphenyl-d14 (Surr)	62		31 - 115	04/14/16 08:46	04/15/16 20:43	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 17:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	103		66 - 132		04/18/16 17:33	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.030	J p	0.094	0.015	ug/L		04/14/16 14:00	04/19/16 13:30	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	64		32 - 140	04/14/16 14:00	04/19/16 13:30	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/14/16 09:52	04/20/16 03:30	1
Copper	<0.75		2.0	0.75	ug/L		04/14/16 09:52	04/20/16 03:30	1
Iron	20.9	J B	100	16.0	ug/L		04/14/16 09:52	04/20/16 03:30	1
Manganese	7.7	B	5.0	1.1	ug/L		04/14/16 09:52	04/20/16 03:30	1
Zinc	<7.3		20.0	7.3	ug/L		04/14/16 09:52	04/20/16 03:30	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	122	B	5.0	1.9	mg/L			04/14/16 20:35	1
Hardness as calcium carbonate	125		5.0	3.1	mg/L			04/18/16 13:33	1
Chloride	0.99	J	1.0	0.41	mg/L			04/14/16 02:30	1
Nitrate as N	0.68		0.10	0.035	mg/L			04/14/16 02:30	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160412-PS-MW-31**

**Lab Sample ID: 240-63398-5**

**Date Collected: 04/12/16 09:38**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	4.0		1.0	0.13	mg/L			04/14/16 02:30	1
Total Organic Carbon	0.59	J	1.0	0.080	mg/L			04/14/16 10:00	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-TRIPBLANK-PS-05**

**Lab Sample ID: 240-63398-6**

**Date Collected: 04/12/16 13:30**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 16:30	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 16:30	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 16:30	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 16:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		78 - 125		04/20/16 16:30	1
4-Bromofluorobenzene (Surr)	83		61 - 120		04/20/16 16:30	1
Toluene-d8 (Surr)	93		80 - 120		04/20/16 16:30	1
Dibromofluoromethane (Surr)	87		79 - 120		04/20/16 16:30	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63398-1	W-160411-PS-MW-08	87	83	95	87
240-63398-2	W-160411-PS-MW-11	81	82	90	87
240-63398-3	W-160411-PS-MW-25	85	84	92	88
240-63398-4	W-160412-PS-MW-01	83	86	94	87
240-63398-5	W-160412-PS-MW-31	85	85	94	89
240-63398-6	W-TRIPBLANK-PS-05	85	83	93	87
LCS 240-226607/4	Lab Control Sample	85	92	96	87
LCS 240-226685/4	Lab Control Sample	83	92	96	88
MB 240-226607/6	Method Blank	87	82	95	86
MB 240-226685/6	Method Blank	84	82	95	86

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63398-1	W-160411-PS-MW-08	82	32	85	75	17	58
240-63398-2	W-160411-PS-MW-11	79	31	76	74	15	58
240-63398-3	W-160411-PS-MW-25	76	30	74	70	17	24 X
240-63398-4	W-160412-PS-MW-01	75	29	73	71	13	54
240-63398-5	W-160412-PS-MW-31	84	32	81	78	17	62
LCS 240-225933/23-A	Lab Control Sample	86	65	89	77	43	100
MB 240-225933/22-A	Method Blank	91	64	97	81	44	108

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Perfluoroet
		(66-132)
240-63398-1	W-160411-PS-MW-08	105
240-63398-2	W-160411-PS-MW-11	102
240-63398-3	W-160411-PS-MW-25	100
240-63398-4	W-160412-PS-MW-01	101
240-63398-5	W-160412-PS-MW-31	103

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroet (66-132)
LCS 240-226380/5	Lab Control Sample	107
MB 240-226380/4	Method Blank	104

#### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63398-1	W-160411-PS-MW-08	63	64
240-63398-2	W-160411-PS-MW-11	71	70
240-63398-3	W-160411-PS-MW-25	68	67
240-63398-4	W-160412-PS-MW-01	72	69
240-63398-5	W-160412-PS-MW-31	64	62
LCS 180-173606/2-A	Lab Control Sample	61	58
LCSD 180-173606/3-A	Lab Control Sample Dup	64	64
MB 180-173606/1-A	Method Blank	59	58

#### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-226607/6**

**Matrix: Water**

**Analysis Batch: 226607**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/19/16 22:02	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/19/16 22:02	1
Toluene	<0.23		1.0	0.23	ug/L			04/19/16 22:02	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/19/16 22:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		78 - 125		04/19/16 22:02	1
4-Bromofluorobenzene (Surr)	82		61 - 120		04/19/16 22:02	1
Toluene-d8 (Surr)	95		80 - 120		04/19/16 22:02	1
Dibromofluoromethane (Surr)	86		79 - 120		04/19/16 22:02	1

**Lab Sample ID: LCS 240-226607/4**

**Matrix: Water**

**Analysis Batch: 226607**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.97		ug/L		100	80 - 120
Ethylbenzene	10.0	10.1		ug/L		101	80 - 120
Toluene	10.0	10.3		ug/L		103	80 - 120
Xylenes, Total	20.0	19.8		ug/L		99	80 - 120
m-Xylene & p-Xylene	10.0	9.78		ug/L		98	80 - 120
o-Xylene	10.0	10.0		ug/L		100	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		78 - 125
4-Bromofluorobenzene (Surr)	92		61 - 120
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	87		79 - 120

**Lab Sample ID: MB 240-226685/6**

**Matrix: Water**

**Analysis Batch: 226685**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/20/16 09:51	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/20/16 09:51	1
Toluene	<0.23		1.0	0.23	ug/L			04/20/16 09:51	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/20/16 09:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/20/16 09:51	1
4-Bromofluorobenzene (Surr)	82		61 - 120		04/20/16 09:51	1
Toluene-d8 (Surr)	95		80 - 120		04/20/16 09:51	1
Dibromofluoromethane (Surr)	86		79 - 120		04/20/16 09:51	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 240-226685/4**

**Matrix: Water**

**Analysis Batch: 226685**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	80 - 120
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
Toluene	10.0	10.9		ug/L		109	80 - 120
Xylenes, Total	20.0	21.4		ug/L		107	80 - 120
m-Xylene & p-Xylene	10.0	10.9		ug/L		109	80 - 120
o-Xylene	10.0	10.5		ug/L		105	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		78 - 125
4-Bromofluorobenzene (Surr)	92		61 - 120
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	88		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225933/22-A**

**Matrix: Water**

**Analysis Batch: 226129**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 225933**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/14/16 08:46	04/15/16 10:53	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	91		29 - 110	04/14/16 08:46	04/15/16 10:53	1
2-Fluorophenol (Surr)	64		15 - 110	04/14/16 08:46	04/15/16 10:53	1
2,4,6-Tribromophenol (Surr)	97		21 - 128	04/14/16 08:46	04/15/16 10:53	1
Nitrobenzene-d5 (Surr)	81		31 - 110	04/14/16 08:46	04/15/16 10:53	1
Phenol-d5 (Surr)	44		10 - 110	04/14/16 08:46	04/15/16 10:53	1
Terphenyl-d14 (Surr)	108		31 - 115	04/14/16 08:46	04/15/16 10:53	1

**Lab Sample ID: LCS 240-225933/23-A**

**Matrix: Water**

**Analysis Batch: 226129**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 225933**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	16.3		ug/L		81	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	86		29 - 110
2-Fluorophenol (Surr)	65		15 - 110
2,4,6-Tribromophenol (Surr)	89		21 - 128
Nitrobenzene-d5 (Surr)	77		31 - 110
Phenol-d5 (Surr)	43		10 - 110
Terphenyl-d14 (Surr)	100		31 - 115

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-226380/4**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 15:33	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	104		66 - 132					04/18/16 15:33	1

**Lab Sample ID: LCS 240-226380/5**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	210		ug/L		106	76 - 120
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
1,1,1-Trifluoroethane	107		66 - 132				

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173606/1-A**  
**Matrix: Water**  
**Analysis Batch: 173886**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173606**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/14/16 14:00	04/19/16 11:31	4
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	59		32 - 140				04/14/16 14:00	04/19/16 11:31	4

**Lab Sample ID: LCS 180-173606/2-A**  
**Matrix: Water**  
**Analysis Batch: 173886**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 173606**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1.00	0.672		ug/L		67	40 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4-Dichlorophenylacetic acid	61		32 - 140				

**Lab Sample ID: LCSD 180-173606/3-A**  
**Matrix: Water**  
**Analysis Batch: 173886**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 173606**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	1.00	0.783		ug/L		78	40 - 140	15	30
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
2,4-Dichlorophenylacetic acid	64		32 - 140						

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-225958/1-A**  
**Matrix: Water**  
**Analysis Batch: 226713**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225958**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/14/16 09:52	04/20/16 01:43	1
Copper	2.80		2.0	0.75	ug/L		04/14/16 09:52	04/20/16 01:43	1
Iron	20.43	J	100	16.0	ug/L		04/14/16 09:52	04/20/16 01:43	1
Manganese	1.60	J	5.0	1.1	ug/L		04/14/16 09:52	04/20/16 01:43	1
Zinc	7.41	J	20.0	7.3	ug/L		04/14/16 09:52	04/20/16 01:43	1

**Lab Sample ID: LCS 240-225958/3-A**  
**Matrix: Water**  
**Analysis Batch: 226713**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 225958**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	960.3		ug/L		96	80 - 120
Copper	1000	948.7		ug/L		95	80 - 120
Iron	10000	9213		ug/L		92	80 - 120
Manganese	1000	952.2		ug/L		95	80 - 120
Zinc	1000	959.4		ug/L		96	80 - 120

## Method: 2320B-1997 - Alkalinity, Total

**Lab Sample ID: MB 240-226101/30**  
**Matrix: Water**  
**Analysis Batch: 226101**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.90	J	5.0	1.9	mg/L			04/14/16 19:43	1

**Lab Sample ID: MB 240-226101/5**  
**Matrix: Water**  
**Analysis Batch: 226101**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<1.9		5.0	1.9	mg/L			04/14/16 14:36	1

**Lab Sample ID: LCS 240-226101/29**  
**Matrix: Water**  
**Analysis Batch: 226101**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	287.8		mg/L		101	90 - 127

**Lab Sample ID: LCS 240-226101/4**  
**Matrix: Water**  
**Analysis Batch: 226101**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	289.0		mg/L		102	90 - 127

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 2340C-1997 - Hardness, Total

**Lab Sample ID: MB 240-226371/1**  
**Matrix: Water**  
**Analysis Batch: 226371**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/18/16 12:45	1

**Lab Sample ID: LCS 240-226371/2**  
**Matrix: Water**  
**Analysis Batch: 226371**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	168.6		mg/L		99	88 - 110

**Lab Sample ID: 240-63398-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226371**

**Client Sample ID: W-160412-PS-MW-01**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	102		200	290.1		mg/L		94	87 - 114

**Lab Sample ID: 240-63398-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226371**

**Client Sample ID: W-160412-PS-MW-01**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	102		200	288.1		mg/L		93	87 - 114	1	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 240-225820/3**  
**Matrix: Water**  
**Analysis Batch: 225820**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/13/16 13:35	1
Sulfate	<0.13		1.0	0.13	mg/L			04/13/16 13:35	1

**Lab Sample ID: LCS 240-225820/4**  
**Matrix: Water**  
**Analysis Batch: 225820**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.32		mg/L		107	90 - 110
Sulfate	50.0	49.65		mg/L		99	90 - 110

**Lab Sample ID: MB 240-225843/27**  
**Matrix: Water**  
**Analysis Batch: 225843**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/13/16 22:57	1
Sulfate	<0.13		1.0	0.13	mg/L			04/13/16 22:57	1

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 240-225843/28**  
**Matrix: Water**  
**Analysis Batch: 225843**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.56		mg/L		107	90 - 110
Sulfate	50.0	49.97		mg/L		100	90 - 110

**Lab Sample ID: 240-63398-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225843**

**Client Sample ID: W-160411-PS-MW-08**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	18.0		50.0	76.74		mg/L		117	80 - 120

**Lab Sample ID: 240-63398-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225843**

**Client Sample ID: W-160411-PS-MW-08**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	18.0		50.0	75.53		mg/L		115	80 - 120	2	15

**Lab Sample ID: MB 240-225867/3**  
**Matrix: Water**  
**Analysis Batch: 225867**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/13/16 13:35	1

**Lab Sample ID: LCS 240-225867/4**  
**Matrix: Water**  
**Analysis Batch: 225867**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.54		mg/L		101	90 - 110

**Lab Sample ID: MB 240-225869/27**  
**Matrix: Water**  
**Analysis Batch: 225869**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/13/16 22:57	1

**Lab Sample ID: 240-63398-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225869**

**Client Sample ID: W-160411-PS-MW-08**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.3	H	2.50	3.98		mg/L		109	80 - 120

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 240-63398-1 MSD**  
**Matrix: Water**  
**Analysis Batch: 225869**

**Client Sample ID: W-160411-PS-MW-08**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	1.3	H	2.50	3.96		mg/L		108	80 - 120	1	15

**Lab Sample ID: MB 240-225992/3**  
**Matrix: Water**  
**Analysis Batch: 225992**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/14/16 13:31	1
Sulfate	<0.13		1.0	0.13	mg/L			04/14/16 13:31	1

**Lab Sample ID: LCS 240-225992/4**  
**Matrix: Water**  
**Analysis Batch: 225992**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.82		mg/L		108	90 - 110
Sulfate	50.0	50.22		mg/L		100	90 - 110

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-225974/4**  
**Matrix: Water**  
**Analysis Batch: 225974**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/14/16 07:39	1

**Lab Sample ID: LCS 240-225974/6**  
**Matrix: Water**  
**Analysis Batch: 225974**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	68.34		mg/L		99	88 - 115

**Lab Sample ID: LLCS 240-225974/5**  
**Matrix: Water**  
**Analysis Batch: 225974**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.76		mg/L		98	88 - 115

**Lab Sample ID: 240-63398-1 MS**  
**Matrix: Water**  
**Analysis Batch: 225974**

**Client Sample ID: W-160411-PS-MW-08**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.26	J	25.0	24.85		mg/L		98	72 - 136

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# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 240-63398-1 MSD  
 Matrix: Water  
 Analysis Batch: 225974

Client Sample ID: W-160411-PS-MW-08  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	0.26	J	25.0	25.99		mg/L		103	72 - 136	4	20

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## GC/MS VOA

### Analysis Batch: 226607

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	8260B	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	8260B	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	8260B	
LCS 240-226607/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-226607/6	Method Blank	Total/NA	Water	8260B	

### Analysis Batch: 226685

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	8260B	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	8260B	
240-63398-6	W-TRIPBLANK-PS-05	Total/NA	Water	8260B	
LCS 240-226685/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-226685/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 225933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	3510C	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	3510C	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	3510C	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	3510C	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	3510C	
LCS 240-225933/23-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-225933/22-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 226129

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	8270C	225933
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	8270C	225933
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	8270C	225933
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	8270C	225933
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	8270C	225933
LCS 240-225933/23-A	Lab Control Sample	Total/NA	Water	8270C	225933
MB 240-225933/22-A	Method Blank	Total/NA	Water	8270C	225933

## GC VOA

### Analysis Batch: 226380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	RSK-175	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	RSK-175	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	RSK-175	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	RSK-175	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	RSK-175	
LCS 240-226380/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-226380/4	Method Blank	Total/NA	Water	RSK-175	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## GC Semi VOA

### Prep Batch: 173606

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	8151A	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	8151A	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	8151A	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	8151A	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	8151A	
LCS 180-173606/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-173606/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-173606/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 173886

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	8151A	173606
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	8151A	173606
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	8151A	173606
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	8151A	173606
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	8151A	173606
LCS 180-173606/2-A	Lab Control Sample	Total/NA	Water	8151A	173606
LCSD 180-173606/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	173606
MB 180-173606/1-A	Method Blank	Total/NA	Water	8151A	173606

## Metals

### Prep Batch: 225958

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Dissolved	Water	3005A	
240-63398-2	W-160411-PS-MW-11	Dissolved	Water	3005A	
240-63398-3	W-160411-PS-MW-25	Dissolved	Water	3005A	
240-63398-4	W-160412-PS-MW-01	Dissolved	Water	3005A	
240-63398-5	W-160412-PS-MW-31	Dissolved	Water	3005A	
LCS 240-225958/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-225958/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 226713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Dissolved	Water	6020	225958
240-63398-2	W-160411-PS-MW-11	Dissolved	Water	6020	225958
240-63398-3	W-160411-PS-MW-25	Dissolved	Water	6020	225958
240-63398-4	W-160412-PS-MW-01	Dissolved	Water	6020	225958
240-63398-5	W-160412-PS-MW-31	Dissolved	Water	6020	225958
LCS 240-225958/3-A	Lab Control Sample	Total Recoverable	Water	6020	225958
MB 240-225958/1-A	Method Blank	Total Recoverable	Water	6020	225958

## General Chemistry

### Analysis Batch: 225820

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	300.0	
LCS 240-225820/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225820/3	Method Blank	Total/NA	Water	300.0	

TestAmerica Canton



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## General Chemistry (Continued)

### Analysis Batch: 225843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-1 MS	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-1 MSD	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	300.0	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	300.0	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	300.0	
LCS 240-225843/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225843/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	300.0	
LCS 240-225867/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225867/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225869

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-1 MS	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-1 MSD	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	300.0	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	300.0	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	300.0	
MB 240-225869/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 225974

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	9060	
240-63398-1 MS	W-160411-PS-MW-08	Total/NA	Water	9060	
240-63398-1 MSD	W-160411-PS-MW-08	Total/NA	Water	9060	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	9060	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	9060	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	9060	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	9060	
LCS 240-225974/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-225974/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-225974/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 225992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	300.0	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	300.0	
LCS 240-225992/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225992/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226101

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	2320B-1997	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	2320B-1997	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	2320B-1997	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	2320B-1997	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## General Chemistry (Continued)

### Analysis Batch: 226101 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	2320B-1997	
LCS 240-226101/29	Lab Control Sample	Total/NA	Water	2320B-1997	
LCS 240-226101/4	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-226101/30	Method Blank	Total/NA	Water	2320B-1997	
MB 240-226101/5	Method Blank	Total/NA	Water	2320B-1997	

### Analysis Batch: 226371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63398-1	W-160411-PS-MW-08	Total/NA	Water	2340C-1997	
240-63398-2	W-160411-PS-MW-11	Total/NA	Water	2340C-1997	
240-63398-3	W-160411-PS-MW-25	Total/NA	Water	2340C-1997	
240-63398-4	W-160412-PS-MW-01	Total/NA	Water	2340C-1997	
240-63398-4 MS	W-160412-PS-MW-01	Total/NA	Water	2340C-1997	
240-63398-4 MSD	W-160412-PS-MW-01	Total/NA	Water	2340C-1997	
240-63398-5	W-160412-PS-MW-31	Total/NA	Water	2340C-1997	
LCS 240-226371/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-226371/1	Method Blank	Total/NA	Water	2340C-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-08**

**Lab Sample ID: 240-63398-1**

**Date Collected: 04/11/16 13:50**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	226607	04/20/16 04:59	RJQ	TAL CAN
Total/NA	Prep	3510C			225933	04/14/16 08:46	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226129	04/15/16 19:09	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 16:24	BPM	TAL CAN
Total/NA	Prep	8151A			173606	04/14/16 14:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173886	04/19/16 11:55	JMO	TAL PIT
Dissolved	Prep	3005A			225958	04/14/16 10:02	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 03:35	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	226101	04/14/16 19:58	JMB	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:04	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225843	04/14/16 00:35	LKG	TAL CAN
Total/NA	Analysis	300.0		1	225869	04/14/16 00:35	LKG	TAL CAN
Total/NA	Analysis	300.0		5	225992	04/14/16 18:10	JMB	TAL CAN
Total/NA	Analysis	9060		1	225974	04/14/16 08:01	TPH	TAL CAN

**Client Sample ID: W-160411-PS-MW-11**

**Lab Sample ID: 240-63398-2**

**Date Collected: 04/11/16 12:20**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	226607	04/20/16 05:22	RJQ	TAL CAN
Total/NA	Prep	3510C			225933	04/14/16 08:46	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226129	04/15/16 19:32	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 16:42	BPM	TAL CAN
Total/NA	Prep	8151A			173606	04/14/16 14:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173886	04/19/16 12:19	JMO	TAL PIT
Dissolved	Prep	3005A			225958	04/14/16 09:52	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 03:18	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	226101	04/14/16 20:09	JMB	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:09	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225843	04/14/16 01:24	LKG	TAL CAN
Total/NA	Analysis	300.0		1	225869	04/14/16 01:24	LKG	TAL CAN
Total/NA	Analysis	300.0		5	225992	04/14/16 18:27	JMB	TAL CAN
Total/NA	Analysis	9060		1	225974	04/14/16 08:43	TPH	TAL CAN

**Client Sample ID: W-160411-PS-MW-25**

**Lab Sample ID: 240-63398-3**

**Date Collected: 04/11/16 16:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	226607	04/20/16 05:45	RJQ	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160411-PS-MW-25**

**Lab Sample ID: 240-63398-3**

**Date Collected: 04/11/16 16:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			225933	04/14/16 08:46	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226129	04/15/16 20:19	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 16:59	BPM	TAL CAN
Total/NA	Prep	8151A			173606	04/14/16 14:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173886	04/19/16 12:42	JMO	TAL PIT
Dissolved	Prep	3005A			225958	04/14/16 09:52	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 03:22	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	226101	04/14/16 20:18	JMB	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:14	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225820	04/13/16 15:01	LCN	TAL CAN
Total/NA	Analysis	300.0		1	225867	04/13/16 15:01	LCN	TAL CAN
Total/NA	Analysis	9060		1	225974	04/14/16 09:10	TPH	TAL CAN

**Client Sample ID: W-160412-PS-MW-01**

**Lab Sample ID: 240-63398-4**

**Date Collected: 04/12/16 11:00**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	226685	04/20/16 15:44	LRW	TAL CAN
Total/NA	Prep	3510C			225933	04/14/16 08:46	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226129	04/15/16 19:56	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 17:16	BPM	TAL CAN
Total/NA	Prep	8151A			173606	04/14/16 14:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173886	04/19/16 13:06	JMO	TAL PIT
Dissolved	Prep	3005A			225958	04/14/16 09:52	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 03:26	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	226101	04/14/16 20:26	JMB	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:18	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225843	04/14/16 02:14	LKG	TAL CAN
Total/NA	Analysis	300.0		1	225869	04/14/16 02:14	LKG	TAL CAN
Total/NA	Analysis	9060		1	225974	04/14/16 09:35	TPH	TAL CAN

**Client Sample ID: W-160412-PS-MW-31**

**Lab Sample ID: 240-63398-5**

**Date Collected: 04/12/16 09:38**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	226685	04/20/16 16:07	LRW	TAL CAN
Total/NA	Prep	3510C			225933	04/14/16 08:46	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226129	04/15/16 20:43	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 17:33	BPM	TAL CAN
Total/NA	Prep	8151A			173606	04/14/16 14:00	CBY	TAL PIT

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

**Client Sample ID: W-160412-PS-MW-31**

**Lab Sample ID: 240-63398-5**

**Date Collected: 04/12/16 09:38**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8151A		4	173886	04/19/16 13:30	JMO	TAL PIT
Dissolved	Prep	3005A			225958	04/14/16 09:52	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 03:30	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	226101	04/14/16 20:35	JMB	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:33	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225843	04/14/16 02:30	LKG	TAL CAN
Total/NA	Analysis	300.0		1	225869	04/14/16 02:30	LKG	TAL CAN
Total/NA	Analysis	9060		1	225974	04/14/16 10:00	TPH	TAL CAN

**Client Sample ID: W-TRIPBLANK-PS-05**

**Lab Sample ID: 240-63398-6**

**Date Collected: 04/12/16 13:30**

**Matrix: Water**

**Date Received: 04/13/16 09:25**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	226685	04/20/16 16:30	LRW	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63398-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

TestAmerica

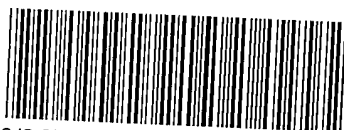
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TestAmerica Laboratories, Inc.

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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**

---



240-63398 Chain of Custody

- 1
- 2
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Client GHD Site Name \_\_\_\_\_ Cooler unpacked by: [Signature]

Cooler Received on 4/13/16 Opened on 4/13/16

FedEx: 1<sup>st</sup> Grd  Exp  UPS  FAS  Stetson Client Drop Off  TestAmerica Courier  Other

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

TestAmerica Cooler # \_\_\_\_\_ Foam Box  Client Cooler  Box  Other \_\_\_\_\_

Packing material used:  Bubble Wrap  Foam  Plastic Bag  None  Other \_\_\_\_\_

COOLANT:  Wet Ice  Blue Ice  Dry Ice  Water  None

1. Cooler temperature upon receipt  See Multiple Cooler Form

IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 3 Yes No

-Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA

-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

*If yes, Questions 12-16 have been checked at the originating laboratory.*

12. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC559158

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot# (Covered) Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_

Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.

Sample(s) \_\_\_\_\_ were received in a broken container.

Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.

Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_



Temperature readings:

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160411-PS-MW-08	240-63398-K-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160411-PS-MW-08	240-63398-M-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160411-PS-MW-11	240-63398-K-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160411-PS-MW-11	240-63398-M-2	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160411-PS-MW-25	240-63398-K-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160411-PS-MW-25	240-63398-M-3	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160412-PS-MW-01	240-63398-K-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160412-PS-MW-01	240-63398-M-4	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160412-PS-MW-31	240-63398-K-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160412-PS-MW-31	240-63398-M-5	Plastic 500ml - with Nitric Acid	<2	_____	_____

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63398-1

**Login Number: 63398**

**List Number: 2**

**Creator: Neri, Tom**

**List Source: TestAmerica Pittsburgh**

**List Creation: 04/14/16 09:54 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-63478-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

4/25/2016 2:03:16 PM

Denise Heckler, Project Manager II

(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

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results through

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Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Qualifiers

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Reported value was between the limit of detection and the limit of quantitation.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Job ID: 240-63478-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63478-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/14/2016 7:45 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.1° C and 0.7° C.

#### Receipt Exceptions

Method(s) 300.0: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-160412-PS-EW-07D (240-63478-1).

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

Method(s) 3510C, 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with analytical batch 240-226111.

Method(s) 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-173695.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63478-1	W-160412-PS-EW-07D	Water	04/12/16 15:15	04/14/16 07:45
240-63478-2	W-160413-PS-MW-09	Water	04/13/16 11:20	04/14/16 07:45
240-63478-3	W-160413-PS-MW-13	Water	04/13/16 10:05	04/14/16 07:45
240-63478-4	W-160413-PS-MW-23	Water	04/13/16 11:10	04/14/16 07:45
240-63478-5	W-TRIPBLANK-PS-06	Water	04/13/16 13:00	04/14/16 07:45

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Client Sample ID: W-160412-PS-EW-07D

## Lab Sample ID: 240-63478-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.59		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.31		0.094	0.015	ug/L	4		8151A	Total/NA
Copper	1.1	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	122		100	16.0	ug/L	1		6020	Dissolved
Manganese	210		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	127		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	174		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	23.7		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	6.6	H	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	8.4		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	1.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160413-PS-MW-09

## Lab Sample ID: 240-63478-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.28		0.10	0.016	ug/L	4		8151A	Total/NA
Copper	1.4	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	33.6	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	1.5	J	5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	26.6		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	37.2		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	0.99	J	1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.4		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	7.3		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	30.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160413-PS-MW-13

## Lab Sample ID: 240-63478-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.34		0.096	0.015	ug/L	4		8151A	Total/NA
Copper	3.2		2.0	0.75	ug/L	1		6020	Dissolved
Iron	449		100	16.0	ug/L	1		6020	Dissolved
Manganese	13.4		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	51.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	54.9		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	1.4		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.70		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	3.4		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	4.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160413-PS-MW-23

## Lab Sample ID: 240-63478-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.58	J	5.0	0.49	ug/L	1		6020	Dissolved
Iron	35.1	J	100	16.0	ug/L	1		6020	Dissolved
Alkalinity	197		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	255		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	29.5		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.8		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	7.1		1.0	0.13	mg/L	1		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Client Sample ID: W-160413-PS-MW-23 (Continued)

Lab Sample ID: 240-63478-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	0.62	J	1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIPBLANK-PS-06

Lab Sample ID: 240-63478-5

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160412-PS-EW-07D**

**Lab Sample ID: 240-63478-1**

**Date Collected: 04/12/16 15:15**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L	-		04/22/16 14:09	1
Ethylbenzene	<0.25		1.0	0.25	ug/L	-		04/22/16 14:09	1
Toluene	<0.23		1.0	0.23	ug/L	-		04/22/16 14:09	1
Xylenes, Total	<0.52		2.0	0.52	ug/L	-		04/22/16 14:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	93		78 - 125		04/22/16 14:09	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/22/16 14:09	1
Toluene-d8 (Surr)	91		80 - 120		04/22/16 14:09	1
Dibromofluoromethane (Surr)	95		79 - 120		04/22/16 14:09	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L	-	04/15/16 09:05	04/19/16 02:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	79		29 - 110	04/15/16 09:05	04/19/16 02:12	1
2-Fluorophenol (Surr)	30		15 - 110	04/15/16 09:05	04/19/16 02:12	1
2,4,6-Tribromophenol (Surr)	87		21 - 128	04/15/16 09:05	04/19/16 02:12	1
Nitrobenzene-d5 (Surr)	83		31 - 110	04/15/16 09:05	04/19/16 02:12	1
Phenol-d5 (Surr)	17		10 - 110	04/15/16 09:05	04/19/16 02:12	1
Terphenyl-d14 (Surr)	75		31 - 115	04/15/16 09:05	04/19/16 02:12	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.59		0.50	0.080	ug/L	-		04/18/16 17:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	101		66 - 132		04/18/16 17:50	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.31		0.094	0.015	ug/L	-	04/15/16 13:45	04/20/16 16:07	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	43		32 - 140	04/15/16 13:45	04/20/16 16:07	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L	-	04/15/16 08:45	04/18/16 22:26	1
Copper	1.1	J	2.0	0.75	ug/L	-	04/15/16 08:45	04/18/16 22:26	1
Iron	122		100	16.0	ug/L	-	04/15/16 08:45	04/18/16 22:26	1
Manganese	210		5.0	1.1	ug/L	-	04/15/16 08:45	04/18/16 22:26	1
Zinc	<7.3		20.0	7.3	ug/L	-	04/15/16 08:45	04/18/16 22:26	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	127		5.0	1.9	mg/L	-		04/22/16 18:01	1
Hardness as calcium carbonate	174		5.0	3.1	mg/L	-		04/18/16 13:38	1
Chloride	23.7		1.0	0.41	mg/L	-		04/15/16 00:28	1
Nitrate as N	6.6	H	0.10	0.035	mg/L	-		04/15/16 00:28	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160412-PS-EW-07D**

**Lab Sample ID: 240-63478-1**

**Date Collected: 04/12/16 15:15**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.4		1.0	0.13	mg/L			04/15/16 00:28	1
Total Organic Carbon	1.2		1.0	0.080	mg/L			04/18/16 13:38	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-09**

**Lab Sample ID: 240-63478-2**

**Date Collected: 04/13/16 11:20**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/22/16 14:32	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/22/16 14:32	1
Toluene	<0.23		1.0	0.23	ug/L			04/22/16 14:32	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/22/16 14:32	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	90		78 - 125		04/22/16 14:32	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/22/16 14:32	1
Toluene-d8 (Surr)	87		80 - 120		04/22/16 14:32	1
Dibromofluoromethane (Surr)	89		79 - 120		04/22/16 14:32	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/15/16 09:05	04/19/16 01:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/15/16 09:05	04/19/16 01:25	1
2-Fluorophenol (Surr)	29		15 - 110	04/15/16 09:05	04/19/16 01:25	1
2,4,6-Tribromophenol (Surr)	94		21 - 128	04/15/16 09:05	04/19/16 01:25	1
Nitrobenzene-d5 (Surr)	71		31 - 110	04/15/16 09:05	04/19/16 01:25	1
Phenol-d5 (Surr)	17		10 - 110	04/15/16 09:05	04/19/16 01:25	1
Terphenyl-d14 (Surr)	40		31 - 115	04/15/16 09:05	04/19/16 01:25	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 18:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	100		66 - 132		04/18/16 18:07	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.28		0.10	0.016	ug/L		04/15/16 13:45	04/20/16 16:31	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	58		32 - 140	04/15/16 13:45	04/20/16 16:31	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/15/16 08:45	04/18/16 22:30	1
Copper	1.4	J	2.0	0.75	ug/L		04/15/16 08:45	04/18/16 22:30	1
Iron	33.6	J	100	16.0	ug/L		04/15/16 08:45	04/18/16 22:30	1
Manganese	1.5	J	5.0	1.1	ug/L		04/15/16 08:45	04/18/16 22:30	1
Zinc	<7.3		20.0	7.3	ug/L		04/15/16 08:45	04/18/16 22:30	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	26.6		5.0	1.9	mg/L			04/22/16 17:51	1
Hardness as calcium carbonate	37.2		5.0	3.1	mg/L			04/18/16 13:43	1
Chloride	0.99	J	1.0	0.41	mg/L			04/15/16 00:44	1
Nitrate as N	1.4		0.10	0.035	mg/L			04/15/16 00:44	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-09**

**Lab Sample ID: 240-63478-2**

**Date Collected: 04/13/16 11:20**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.3		1.0	0.13	mg/L			04/15/16 00:44	1
Total Organic Carbon	30.2		1.0	0.080	mg/L			04/18/16 14:04	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-13**

**Lab Sample ID: 240-63478-3**

**Date Collected: 04/13/16 10:05**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/22/16 14:55	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/22/16 14:55	1
Toluene	<0.23		1.0	0.23	ug/L			04/22/16 14:55	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/22/16 14:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	89		78 - 125		04/22/16 14:55	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/22/16 14:55	1
Toluene-d8 (Surr)	88		80 - 120		04/22/16 14:55	1
Dibromofluoromethane (Surr)	89		79 - 120		04/22/16 14:55	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.065		0.21	0.065	ug/L		04/15/16 09:05	04/19/16 02:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	78		29 - 110	04/15/16 09:05	04/19/16 02:36	1
2-Fluorophenol (Surr)	38		15 - 110	04/15/16 09:05	04/19/16 02:36	1
2,4,6-Tribromophenol (Surr)	93		21 - 128	04/15/16 09:05	04/19/16 02:36	1
Nitrobenzene-d5 (Surr)	80		31 - 110	04/15/16 09:05	04/19/16 02:36	1
Phenol-d5 (Surr)	24		10 - 110	04/15/16 09:05	04/19/16 02:36	1
Terphenyl-d14 (Surr)	31		31 - 115	04/15/16 09:05	04/19/16 02:36	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 18:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	100		66 - 132		04/18/16 18:42	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.34		0.096	0.015	ug/L		04/15/16 13:45	04/20/16 16:55	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	65		32 - 140	04/15/16 13:45	04/20/16 16:55	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/15/16 08:45	04/18/16 22:34	1
Copper	3.2		2.0	0.75	ug/L		04/15/16 08:45	04/18/16 22:34	1
Iron	449		100	16.0	ug/L		04/15/16 08:45	04/18/16 22:34	1
Manganese	13.4		5.0	1.1	ug/L		04/15/16 08:45	04/18/16 22:34	1
Zinc	<7.3		20.0	7.3	ug/L		04/15/16 08:45	04/18/16 22:34	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	51.0		5.0	1.9	mg/L			04/22/16 16:57	1
Hardness as calcium carbonate	54.9		5.0	3.1	mg/L			04/18/16 13:47	1
Chloride	1.4		1.0	0.41	mg/L			04/15/16 01:00	1
Nitrate as N	0.70		0.10	0.035	mg/L			04/15/16 01:00	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-13**

**Lab Sample ID: 240-63478-3**

**Date Collected: 04/13/16 10:05**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	3.4		1.0	0.13	mg/L			04/15/16 01:00	1
Total Organic Carbon	4.2		1.0	0.080	mg/L			04/18/16 14:30	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-23**

**Lab Sample ID: 240-63478-4**

**Date Collected: 04/13/16 11:10**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/22/16 15:18	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/22/16 15:18	1
Toluene	<0.23		1.0	0.23	ug/L			04/22/16 15:18	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/22/16 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		78 - 125		04/22/16 15:18	1
4-Bromofluorobenzene (Surr)	91		61 - 120		04/22/16 15:18	1
Toluene-d8 (Surr)	96		80 - 120		04/22/16 15:18	1
Dibromofluoromethane (Surr)	97		79 - 120		04/22/16 15:18	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/15/16 09:05	04/19/16 01:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	82		29 - 110	04/15/16 09:05	04/19/16 01:48	1
2-Fluorophenol (Surr)	39		15 - 110	04/15/16 09:05	04/19/16 01:48	1
2,4,6-Tribromophenol (Surr)	98		21 - 128	04/15/16 09:05	04/19/16 01:48	1
Nitrobenzene-d5 (Surr)	86		31 - 110	04/15/16 09:05	04/19/16 01:48	1
Phenol-d5 (Surr)	22		10 - 110	04/15/16 09:05	04/19/16 01:48	1
Terphenyl-d14 (Surr)	64		31 - 115	04/15/16 09:05	04/19/16 01:48	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 18:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	98		66 - 132		04/18/16 18:59	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/15/16 13:45	04/20/16 17:19	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	52		32 - 140	04/15/16 13:45	04/20/16 17:19	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>0.58</b>	<b>J</b>	5.0	0.49	ug/L		04/15/16 08:45	04/18/16 22:38	1
Copper	<0.75		2.0	0.75	ug/L		04/15/16 08:45	04/18/16 22:38	1
<b>Iron</b>	<b>35.1</b>	<b>J</b>	100	16.0	ug/L		04/15/16 08:45	04/18/16 22:38	1
Manganese	<1.1		5.0	1.1	ug/L		04/15/16 08:45	04/18/16 22:38	1
Zinc	<7.3		20.0	7.3	ug/L		04/15/16 08:45	04/18/16 22:38	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>197</b>		5.0	1.9	mg/L			04/22/16 16:46	1
<b>Hardness as calcium carbonate</b>	<b>255</b>		5.0	3.1	mg/L			04/18/16 13:52	1
<b>Chloride</b>	<b>29.5</b>		1.0	0.41	mg/L			04/15/16 01:17	1
<b>Nitrate as N</b>	<b>1.8</b>		0.10	0.035	mg/L			04/15/16 01:17	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-23**

**Lab Sample ID: 240-63478-4**

**Date Collected: 04/13/16 11:10**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.1		1.0	0.13	mg/L			04/15/16 01:17	1
Total Organic Carbon	0.62	J	1.0	0.080	mg/L			04/18/16 14:56	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-TRIPBLANK-PS-06**

**Lab Sample ID: 240-63478-5**

**Date Collected: 04/13/16 13:00**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/22/16 15:40	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/22/16 15:40	1
Toluene	<0.23		1.0	0.23	ug/L			04/22/16 15:40	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/22/16 15:40	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	94		78 - 125		04/22/16 15:40	1
4-Bromofluorobenzene (Surr)	88		61 - 120		04/22/16 15:40	1
Toluene-d8 (Surr)	91		80 - 120		04/22/16 15:40	1
Dibromofluoromethane (Surr)	95		79 - 120		04/22/16 15:40	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63478-1	W-160412-PS-EW-07D	93	87	91	95
240-63478-2	W-160413-PS-MW-09	90	86	87	89
240-63478-3	W-160413-PS-MW-13	89	87	88	89
240-63478-4	W-160413-PS-MW-23	96	91	96	97
240-63478-5	W-TRIPBLANK-PS-06	94	88	91	95
LCS 240-227156/4	Lab Control Sample	114	110	109	113
MB 240-227156/6	Method Blank	95	87	91	94

#### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63478-1	W-160412-PS-EW-07D	79	30	87	83	17	75
240-63478-2	W-160413-PS-MW-09	70	29	94	71	17	40
240-63478-3	W-160413-PS-MW-13	78	38	93	80	24	31
240-63478-4	W-160413-PS-MW-23	82	39	98	86	22	64
LCS 240-226111/21-A	Lab Control Sample	84	64	110	85	43	106
MB 240-226111/20-A	Method Blank	85	67	100	84	53	84

#### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Trifluoroet (66-132)
240-63478-1	W-160412-PS-EW-07D	101
240-63478-2	W-160413-PS-MW-09	100
240-63478-3	W-160413-PS-MW-13	100
240-63478-4	W-160413-PS-MW-23	98
LCS 240-226380/5	Lab Control Sample	107
MB 240-226380/4	Method Blank	104

#### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63478-1	W-160412-PS-EW-07D	43	43
240-63478-2	W-160413-PS-MW-09	58	54
240-63478-3	W-160413-PS-MW-13	65	60
240-63478-4	W-160413-PS-MW-23	52	51
LCS 180-173695/2-A	Lab Control Sample	59	55
LCSD 180-173695/3-A	Lab Control Sample Dup	54	53
MB 180-173695/1-A	Method Blank	57	55

#### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-227156/6**  
**Matrix: Water**  
**Analysis Batch: 227156**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/22/16 11:05	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/22/16 11:05	1
Toluene	<0.23		1.0	0.23	ug/L			04/22/16 11:05	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/22/16 11:05	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	95		78 - 125		04/22/16 11:05	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/22/16 11:05	1
Toluene-d8 (Surr)	91		80 - 120		04/22/16 11:05	1
Dibromofluoromethane (Surr)	94		79 - 120		04/22/16 11:05	1

**Lab Sample ID: LCS 240-227156/4**  
**Matrix: Water**  
**Analysis Batch: 227156**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.9		ug/L		119	80 - 120
Ethylbenzene	10.0	11.4		ug/L		114	80 - 120
Toluene	10.0	11.5		ug/L		115	80 - 120
Xylenes, Total	20.0	22.5		ug/L		113	80 - 120
m-Xylene & p-Xylene	10.0	11.5		ug/L		115	80 - 120
o-Xylene	10.0	11.0		ug/L		110	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	114		78 - 125
4-Bromofluorobenzene (Surr)	110		61 - 120
Toluene-d8 (Surr)	109		80 - 120
Dibromofluoromethane (Surr)	113		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-226111/20-A**  
**Matrix: Water**  
**Analysis Batch: 226405**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 226111**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/15/16 09:05	04/18/16 21:27	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	85		29 - 110	04/15/16 09:05	04/18/16 21:27	1
2-Fluorophenol (Surr)	67		15 - 110	04/15/16 09:05	04/18/16 21:27	1
2,4,6-Tribromophenol (Surr)	100		21 - 128	04/15/16 09:05	04/18/16 21:27	1
Nitrobenzene-d5 (Surr)	84		31 - 110	04/15/16 09:05	04/18/16 21:27	1
Phenol-d5 (Surr)	53		10 - 110	04/15/16 09:05	04/18/16 21:27	1
Terphenyl-d14 (Surr)	84		31 - 115	04/15/16 09:05	04/18/16 21:27	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 240-226111/21-A**  
**Matrix: Water**  
**Analysis Batch: 226405**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 226111**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	16.6		ug/L		83	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	84		29 - 110
2-Fluorophenol (Surr)	64		15 - 110
2,4,6-Tribromophenol (Surr)	110		21 - 128
Nitrobenzene-d5 (Surr)	85		31 - 110
Phenol-d5 (Surr)	43		10 - 110
Terphenyl-d14 (Surr)	106		31 - 115

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-226380/4**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 15:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	104		66 - 132		04/18/16 15:33	1

**Lab Sample ID: LCS 240-226380/5**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	210		ug/L		106	76 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	107		66 - 132

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173695/1-A**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173695**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/15/16 13:45	04/20/16 15:44	4

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	57		32 - 140	04/15/16 13:45	04/20/16 15:44	4

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID:** LCS 180-173695/2-A  
**Matrix:** Water  
**Analysis Batch:** 174002

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA  
**Prep Batch:** 173695

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	1.00	0.725		ug/L		73	40 - 140
<b>Surrogate</b>		<b>LCS %Recovery</b>	<b>LCS Qualifier</b>				<b>Limits</b>
2,4-Dichlorophenylacetic acid		59					32 - 140

**Lab Sample ID:** LCSD 180-173695/3-A  
**Matrix:** Water  
**Analysis Batch:** 174002

**Client Sample ID:** Lab Control Sample Dup  
**Prep Type:** Total/NA  
**Prep Batch:** 173695

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	1.00	0.670		ug/L		67	40 - 140	8	30
<b>Surrogate</b>		<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>				<b>Limits</b>		
2,4-Dichlorophenylacetic acid		54					32 - 140		

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID:** MB 240-226104/1-A  
**Matrix:** Water  
**Analysis Batch:** 226486

**Client Sample ID:** Method Blank  
**Prep Type:** Total Recoverable  
**Prep Batch:** 226104

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/15/16 08:45	04/18/16 20:59	1
Copper	<0.75		2.0	0.75	ug/L		04/15/16 08:45	04/18/16 20:59	1
Iron	<16.0		100	16.0	ug/L		04/15/16 08:45	04/18/16 20:59	1
Manganese	<1.1		5.0	1.1	ug/L		04/15/16 08:45	04/18/16 20:59	1
Zinc	<7.3		20.0	7.3	ug/L		04/15/16 08:45	04/18/16 20:59	1

**Lab Sample ID:** LCS 240-226104/2-A  
**Matrix:** Water  
**Analysis Batch:** 226486

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total Recoverable  
**Prep Batch:** 226104

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	1000	844.7		ug/L		84	80 - 120
Copper	1000	875.0		ug/L		87	80 - 120
Iron	10000	8520		ug/L		85	80 - 120
Manganese	1000	878.0		ug/L		88	80 - 120
Zinc	1000	891.1		ug/L		89	80 - 120

## Method: 2320B-1997 - Alkalinity, Total

**Lab Sample ID:** MB 240-227207/2  
**Matrix:** Water  
**Analysis Batch:** 227207

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<1.9		5.0	1.9	mg/L			04/22/16 12:50	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 2320B-1997 - Alkalinity, Total (Continued)

Lab Sample ID: LCS 240-227207/3  
Matrix: Water  
Analysis Batch: 227207

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	271.4		mg/L		96	90 - 127

## Method: 2340C-1997 - Hardness, Total

Lab Sample ID: MB 240-226371/1  
Matrix: Water  
Analysis Batch: 226371

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/18/16 12:45	1

Lab Sample ID: LCS 240-226371/2  
Matrix: Water  
Analysis Batch: 226371

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	168.6		mg/L		99	88 - 110

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 240-225992/27  
Matrix: Water  
Analysis Batch: 225992

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/14/16 20:05	1
Sulfate	<0.13		1.0	0.13	mg/L			04/14/16 20:05	1

Lab Sample ID: LCS 240-225992/28  
Matrix: Water  
Analysis Batch: 225992

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.81		mg/L		108	90 - 110
Sulfate	50.0	50.36		mg/L		101	90 - 110

Lab Sample ID: MB 240-226036/27  
Matrix: Water  
Analysis Batch: 226036

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/14/16 20:05	1

Lab Sample ID: LCS 240-226036/28  
Matrix: Water  
Analysis Batch: 226036

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.56		mg/L		102	90 - 110

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# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-226436/4**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/18/16 12:34	1

**Lab Sample ID: LCS 240-226436/6**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	68.15		mg/L		98	88 - 115

**Lab Sample ID: LLCS 240-226436/5**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.91		mg/L		100	88 - 115



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## GC/MS VOA

### Analysis Batch: 227156

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	8260B	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	8260B	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	8260B	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	8260B	
240-63478-5	W-TRIPBLANK-PS-06	Total/NA	Water	8260B	
LCS 240-227156/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-227156/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 226111

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	3510C	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	3510C	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	3510C	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	3510C	
LCS 240-226111/21-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-226111/20-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 226405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	8270C	226111
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	8270C	226111
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	8270C	226111
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	8270C	226111
LCS 240-226111/21-A	Lab Control Sample	Total/NA	Water	8270C	226111
MB 240-226111/20-A	Method Blank	Total/NA	Water	8270C	226111

## GC VOA

### Analysis Batch: 226380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	RSK-175	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	RSK-175	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	RSK-175	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	RSK-175	
LCS 240-226380/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-226380/4	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 173695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	8151A	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	8151A	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	8151A	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	8151A	
LCS 180-173695/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-173695/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-173695/1-A	Method Blank	Total/NA	Water	8151A	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Analysis Batch: 174002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	8151A	173695
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	8151A	173695
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	8151A	173695
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	8151A	173695
LCS 180-173695/2-A	Lab Control Sample	Total/NA	Water	8151A	173695
LCSD 180-173695/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	173695
MB 180-173695/1-A	Method Blank	Total/NA	Water	8151A	173695

## Metals

### Prep Batch: 226104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Dissolved	Water	3005A	
240-63478-2	W-160413-PS-MW-09	Dissolved	Water	3005A	
240-63478-3	W-160413-PS-MW-13	Dissolved	Water	3005A	
240-63478-4	W-160413-PS-MW-23	Dissolved	Water	3005A	
LCS 240-226104/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-226104/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 226486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Dissolved	Water	6020	226104
240-63478-2	W-160413-PS-MW-09	Dissolved	Water	6020	226104
240-63478-3	W-160413-PS-MW-13	Dissolved	Water	6020	226104
240-63478-4	W-160413-PS-MW-23	Dissolved	Water	6020	226104
LCS 240-226104/2-A	Lab Control Sample	Total Recoverable	Water	6020	226104
MB 240-226104/1-A	Method Blank	Total Recoverable	Water	6020	226104

## General Chemistry

### Analysis Batch: 225992

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	300.0	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	300.0	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	300.0	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	300.0	
LCS 240-225992/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-225992/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	300.0	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	300.0	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	300.0	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	300.0	
LCS 240-226036/28	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226036/27	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226371

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	2340C-1997	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	2340C-1997	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## General Chemistry (Continued)

### Analysis Batch: 226371 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	2340C-1997	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	2340C-1997	
LCS 240-226371/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-226371/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 226436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	9060	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	9060	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	9060	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	9060	
LCS 240-226436/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-226436/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-226436/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 227207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63478-1	W-160412-PS-EW-07D	Total/NA	Water	2320B-1997	
240-63478-2	W-160413-PS-MW-09	Total/NA	Water	2320B-1997	
240-63478-3	W-160413-PS-MW-13	Total/NA	Water	2320B-1997	
240-63478-4	W-160413-PS-MW-23	Total/NA	Water	2320B-1997	
LCS 240-227207/3	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-227207/2	Method Blank	Total/NA	Water	2320B-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160412-PS-EW-07D**

**Lab Sample ID: 240-63478-1**

**Date Collected: 04/12/16 15:15**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227156	04/22/16 14:09	LEE	TAL CAN
Total/NA	Prep	3510C			226111	04/15/16 09:05	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226405	04/19/16 02:12	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 17:50	BPM	TAL CAN
Total/NA	Prep	8151A			173695	04/15/16 13:45	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 16:07	JMO	TAL PIT
Dissolved	Prep	3005A			226104	04/15/16 08:45	WKD	TAL CAN
Dissolved	Analysis	6020		1	226486	04/18/16 22:26	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 18:01	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:38	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225992	04/15/16 00:28	JMB	TAL CAN
Total/NA	Analysis	300.0		1	226036	04/15/16 00:28	JMB	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 13:38	TPH	TAL CAN

**Client Sample ID: W-160413-PS-MW-09**

**Lab Sample ID: 240-63478-2**

**Date Collected: 04/13/16 11:20**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227156	04/22/16 14:32	LEE	TAL CAN
Total/NA	Prep	3510C			226111	04/15/16 09:05	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226405	04/19/16 01:25	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 18:07	BPM	TAL CAN
Total/NA	Prep	8151A			173695	04/15/16 13:45	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 16:31	JMO	TAL PIT
Dissolved	Prep	3005A			226104	04/15/16 08:45	WKD	TAL CAN
Dissolved	Analysis	6020		1	226486	04/18/16 22:30	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 17:51	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:43	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225992	04/15/16 00:44	JMB	TAL CAN
Total/NA	Analysis	300.0		1	226036	04/15/16 00:44	JMB	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 14:04	TPH	TAL CAN

**Client Sample ID: W-160413-PS-MW-13**

**Lab Sample ID: 240-63478-3**

**Date Collected: 04/13/16 10:05**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227156	04/22/16 14:55	LEE	TAL CAN
Total/NA	Prep	3510C			226111	04/15/16 09:05	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226405	04/19/16 02:36	JMG	TAL CAN

TestAmerica Canton



# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

**Client Sample ID: W-160413-PS-MW-13**

**Lab Sample ID: 240-63478-3**

**Date Collected: 04/13/16 10:05**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	226380	04/18/16 18:42	BPM	TAL CAN
Total/NA	Prep	8151A			173695	04/15/16 13:45	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 16:55	JMO	TAL PIT
Dissolved	Prep	3005A			226104	04/15/16 08:45	WKD	TAL CAN
Dissolved	Analysis	6020		1	226486	04/18/16 22:34	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 16:57	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:47	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225992	04/15/16 01:00	JMB	TAL CAN
Total/NA	Analysis	300.0		1	226036	04/15/16 01:00	JMB	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 14:30	TPH	TAL CAN

**Client Sample ID: W-160413-PS-MW-23**

**Lab Sample ID: 240-63478-4**

**Date Collected: 04/13/16 11:10**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227156	04/22/16 15:18	LEE	TAL CAN
Total/NA	Prep	3510C			226111	04/15/16 09:05	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226405	04/19/16 01:48	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 18:59	BPM	TAL CAN
Total/NA	Prep	8151A			173695	04/15/16 13:45	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 17:19	JMO	TAL PIT
Dissolved	Prep	3005A			226104	04/15/16 08:45	WKD	TAL CAN
Dissolved	Analysis	6020		1	226486	04/18/16 22:38	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 16:46	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226371	04/18/16 13:52	JMB	TAL CAN
Total/NA	Analysis	300.0		1	225992	04/15/16 01:17	JMB	TAL CAN
Total/NA	Analysis	300.0		1	226036	04/15/16 01:17	JMB	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 14:56	TPH	TAL CAN

**Client Sample ID: W-TRIPBLANK-PS-06**

**Lab Sample ID: 240-63478-5**

**Date Collected: 04/13/16 13:00**

**Matrix: Water**

**Date Received: 04/14/16 07:45**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227156	04/22/16 15:40	LEE	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396  
TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63478-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

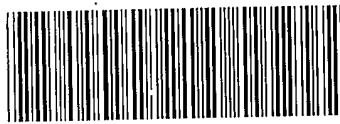
Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**

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240-63478 Chain of Custody

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TestAmerica Canton Sample Receipt Form/Narrative

Login # 103478

Canton Facility

Client GHD

Site Name Penta Wbsd

Cooler unpacked by:

Cooler Received on 4/14/16

Opened on 4/14/16

Armani

FedEx:  Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Canton Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap  Foam Plastic Bag None Other

COOLANT:  Wet Ice Blue Ice Dry Ice Water None

- Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C  
 IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C  
 IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
- Were custody seals on the outside of the cooler(s)? If Yes Quantity 2 ea  Yes  No  
 -Were custody seals on the outside of the cooler(s) signed & dated?  Yes  No  NA  
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No
- Shippers' packing slip attached to the cooler(s)?  Yes  No
- Did custody papers accompany the sample(s)?  Yes  No
- Were the custody papers relinquished & signed in the appropriate place?  Yes  No
- Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No
- Did all bottles arrive in good condition (Unbroken)?  Yes  No
- Could all bottle labels be reconciled with the COC?  Yes  No
- Were correct bottle(s) used for the test(s) indicated?  Yes  No
- Sufficient quantity received to perform indicated analyses?  Yes  No
- Are these work share samples?  Yes  No  
 If yes, Questions 12-16 have been checked at the originating laboratory.
- Were sample(s) at the correct pH upon receipt?  Yes  No  NA pH Strip Lot# HC559158
- Were VOAs on the COC?  Yes  No
- Were air bubbles >6 mm in any VOA vials?  Yes  No  NA
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # 348  Yes  No
- Was a LLHg or MeHg trip blank present?  Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other

Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
Sample(s) \_\_\_\_\_ were received in a broken container.  
Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160412-PS-EW-07D	240-63478-K-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160412-PS-EW-07D	240-63478-M-1	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160413-PS-MW-09	240-63478-K-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160413-PS-MW-09	240-63478-M-2	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160413-PS-MW-13	240-63478-K-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160413-PS-MW-13	240-63478-M-3	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160413-PS-MW-23	240-63478-K-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160413-PS-MW-23	240-63478-M-4	Plastic 500ml - with Nitric Acid	<2	_____	_____

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63478-1

**Login Number: 63478**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/15/16 11:14 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

TestAmerica Job ID: 240-63532-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.  
1801 Old Highway 8 NW  
Suite 114  
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:  
4/28/2016 10:23:18 AM

Denise Heckler, Project Manager II  
(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through  
**Total Access**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
X	Surrogate is outside control limits
J	Reported value was between the limit of detection and the limit of quantitation.

## Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

## General Chemistry

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Job ID: 240-63532-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63532-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/15/2016 9:00 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 5 coolers at receipt time were 0.3° C, 0.7° C, 1.1° C, 1.3° C and 1.5° C.

#### GC/MS VOA

Method(s) 8260B: There was an MS/MSD analyzed in batch 227375 but could not be reported because the associated sample needed reanalyzed in a different batch.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method(s) 8270C: The following sample was diluted due to the nature of the sample matrix: W-160413-PS-MW-29 (240-63532-1). Elevated reporting limits (RLs) are provided.

Method(s) 8270C: Six surrogates are used for this analysis. The laboratory's SOP allows one of these surrogates, per fraction, to be outside acceptance criteria without performing re-extraction/re-analysis. The following sample contained an allowable number of surrogate compounds outside limits: W-160414-PS-MW-02 (240-63532-5). These results have been reported and qualified.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) 8151A: The following sample was diluted due to the abundance of target analytes: W-160413-PS-MW-29 (240-63532-1)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63532-1	W-160413-PS-MW-29	Water	04/13/16 16:05	04/15/16 09:00
240-63532-2	W-160413-PS-MW-30	Water	04/13/16 14:40	04/15/16 09:00
240-63532-3	W-160414-PS-EW-11-S	Water	04/14/16 13:05	04/15/16 09:00
240-63532-4	W-160414-PS-EW-11-D	Water	04/14/16 12:00	04/15/16 09:00
240-63532-5	W-160414-PS-MW-02	Water	04/14/16 09:45	04/15/16 09:00
240-63532-6	W-160414-PS-MW-36	Water	04/14/16 09:20	04/15/16 09:00
240-63532-7	W-160414-PS-MW-37	Water	04/14/16 12:20	04/15/16 09:00
240-63532-8	W-TRIP BLANK-PS-07	Water	04/14/16 14:00	04/15/16 09:00

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Client Sample ID: W-160413-PS-MW-29

## Lab Sample ID: 240-63532-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.58	J	1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	0.90	J	1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	7.2		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	34		2.0	0.61	ug/L	10		8270C	Total/NA
Methane	1.4		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	14000		240	37	ug/L	10000		8151A	Total/NA
Copper	6.7		2.0	0.75	ug/L	1		6020	Dissolved
Iron	1660		100	16.0	ug/L	1		6020	Dissolved
Manganese	2270		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	87.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	120		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	4.5		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	6.4		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	70.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160413-PS-MW-30

## Lab Sample ID: 240-63532-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.72		0.095	0.015	ug/L	4		8151A	Total/NA
Copper	0.81	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	46.1	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	147		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	42.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	82.3		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	3.2		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	3.4		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	32.8		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	1.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160414-PS-EW-11-S

## Lab Sample ID: 240-63532-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.37		0.096	0.015	ug/L	4		8151A	Total/NA
Copper	3.4		2.0	0.75	ug/L	1		6020	Dissolved
Iron	451		100	16.0	ug/L	1		6020	Dissolved
Manganese	63.5		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	48.6		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	100		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	7.0		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	8.9		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	45.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	5.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160414-PS-EW-11-D

## Lab Sample ID: 240-63532-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	3.4		0.097	0.015	ug/L	4		8151A	Total/NA
Copper	1.1	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	657		100	16.0	ug/L	1		6020	Dissolved
Manganese	22.6		5.0	1.1	ug/L	1		6020	Dissolved

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Client Sample ID: W-160414-PS-EW-11-D (Continued)

Lab Sample ID: 240-63532-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil	Fac	D	Method	Prep Type
Zinc	46.4		20.0	7.3	ug/L	1			6020	Dissolved
Alkalinity	187		5.0	1.9	mg/L	1			2320B-1997	Total/NA
Hardness as calcium carbonate	282		5.0	3.1	mg/L	1			2340C-1997	Total/NA
Chloride	12.7		1.0	0.41	mg/L	1			300.0	Total/NA
Nitrate as N	2.0		0.10	0.035	mg/L	1			300.0	Total/NA
Sulfate	155		5.0	0.65	mg/L	5			300.0	Total/NA
Total Organic Carbon	1.0		1.0	0.080	mg/L	1			9060	Total/NA

## Client Sample ID: W-160414-PS-MW-02

Lab Sample ID: 240-63532-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil	Fac	D	Method	Prep Type
Pentachlorophenol	0.080	J	0.095	0.015	ug/L	4			8151A	Total/NA
Arsenic	1.3	J	5.0	0.49	ug/L	1			6020	Dissolved
Copper	20.1		2.0	0.75	ug/L	1			6020	Dissolved
Iron	6580		100	16.0	ug/L	1			6020	Dissolved
Manganese	171		5.0	1.1	ug/L	1			6020	Dissolved
Zinc	19.7	J	20.0	7.3	ug/L	1			6020	Dissolved
Alkalinity	34.4		5.0	1.9	mg/L	1			2320B-1997	Total/NA
Hardness as calcium carbonate	49.0		5.0	3.1	mg/L	1			2340C-1997	Total/NA
Chloride	0.51	J	1.0	0.41	mg/L	1			300.0	Total/NA
Nitrate as N	0.38		0.10	0.035	mg/L	1			300.0	Total/NA
Sulfate	1.8		1.0	0.13	mg/L	1			300.0	Total/NA
Total Organic Carbon	3.6		1.0	0.080	mg/L	1			9060	Total/NA

## Client Sample ID: W-160414-PS-MW-36

Lab Sample ID: 240-63532-6

No Detections.

## Client Sample ID: W-160414-PS-MW-37

Lab Sample ID: 240-63532-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil	Fac	D	Method	Prep Type
Methane	0.080	J	0.50	0.080	ug/L	1			RSK-175	Total/NA
Pentachlorophenol	2.5		0.095	0.015	ug/L	4			8151A	Total/NA
Iron	825		100	16.0	ug/L	1			6020	Dissolved
Manganese	27.4		5.0	1.1	ug/L	1			6020	Dissolved
Zinc	55.9		20.0	7.3	ug/L	1			6020	Dissolved
Alkalinity	190		5.0	1.9	mg/L	1			2320B-1997	Total/NA
Hardness as calcium carbonate	276		5.0	3.1	mg/L	1			2340C-1997	Total/NA
Chloride	12.8		1.0	0.41	mg/L	1			300.0	Total/NA
Nitrate as N	2.0		0.10	0.035	mg/L	1			300.0	Total/NA
Sulfate	198		1.0	0.13	mg/L	1			300.0	Total/NA
Total Organic Carbon	1.2		1.0	0.080	mg/L	1			9060	Total/NA

## Client Sample ID: W-TRIP BLANK-PS-07

Lab Sample ID: 240-63532-8

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160413-PS-MW-29**

**Lab Sample ID: 240-63532-1**

Date Collected: 04/13/16 16:05

Matrix: Water

Date Received: 04/15/16 09:00

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 15:52	1
Ethylbenzene	0.58	J	1.0	0.25	ug/L			04/25/16 15:52	1
Toluene	0.90	J	1.0	0.23	ug/L			04/25/16 15:52	1
Xylenes, Total	7.2		2.0	0.52	ug/L			04/25/16 15:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		78 - 125		04/25/16 15:52	1
4-Bromofluorobenzene (Surr)	94		61 - 120		04/25/16 15:52	1
Toluene-d8 (Surr)	89		80 - 120		04/25/16 15:52	1
Dibromofluoromethane (Surr)	95		79 - 120		04/25/16 15:52	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	34		2.0	0.61	ug/L		04/18/16 08:55	04/19/16 13:57	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	56		29 - 110	04/18/16 08:55	04/19/16 13:57	10
2-Fluorophenol (Surr)	38		15 - 110	04/18/16 08:55	04/19/16 13:57	10
2,4,6-Tribromophenol (Surr)	76		21 - 128	04/18/16 08:55	04/19/16 13:57	10
Nitrobenzene-d5 (Surr)	80		31 - 110	04/18/16 08:55	04/19/16 13:57	10
Phenol-d5 (Surr)	22		10 - 110	04/18/16 08:55	04/19/16 13:57	10
Terphenyl-d14 (Surr)	73		31 - 115	04/18/16 08:55	04/19/16 13:57	10

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.4		0.50	0.080	ug/L			04/18/16 19:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	98		66 - 132		04/18/16 19:16	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	14000		240	37	ug/L		04/16/16 11:59	04/22/16 11:34	10000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/16/16 11:59	04/22/16 11:34	10000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 00:45	1
Copper	6.7		2.0	0.75	ug/L		04/18/16 11:26	04/20/16 00:45	1
Iron	1660		100	16.0	ug/L		04/18/16 11:26	04/20/16 00:45	1
Manganese	2270		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 00:45	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 00:45	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	87.0		5.0	1.9	mg/L			04/22/16 17:40	1
Hardness as calcium carbonate	120		5.0	3.1	mg/L			04/19/16 11:16	1
Chloride	4.5		1.0	0.41	mg/L			04/15/16 12:57	1
Nitrate as N	<0.035		0.10	0.035	mg/L			04/15/16 12:57	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160413-PS-MW-29**

**Lab Sample ID: 240-63532-1**

**Date Collected: 04/13/16 16:05**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.4		1.0	0.13	mg/L			04/15/16 12:57	1
Total Organic Carbon	70.2		1.0	0.080	mg/L			04/18/16 15:36	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160413-PS-MW-30**

**Lab Sample ID: 240-63532-2**

**Date Collected: 04/13/16 14:40**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 16:15	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/25/16 16:15	1
Toluene	<0.23		1.0	0.23	ug/L			04/25/16 16:15	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/25/16 16:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/25/16 16:15	1
4-Bromofluorobenzene (Surr)	91		61 - 120		04/25/16 16:15	1
Toluene-d8 (Surr)	90		80 - 120		04/25/16 16:15	1
Dibromofluoromethane (Surr)	87		79 - 120		04/25/16 16:15	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/18/16 08:55	04/19/16 14:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	67		29 - 110	04/18/16 08:55	04/19/16 14:21	1
2-Fluorophenol (Surr)	31		15 - 110	04/18/16 08:55	04/19/16 14:21	1
2,4,6-Tribromophenol (Surr)	78		21 - 128	04/18/16 08:55	04/19/16 14:21	1
Nitrobenzene-d5 (Surr)	69		31 - 110	04/18/16 08:55	04/19/16 14:21	1
Phenol-d5 (Surr)	19		10 - 110	04/18/16 08:55	04/19/16 14:21	1
Terphenyl-d14 (Surr)	54		31 - 115	04/18/16 08:55	04/19/16 14:21	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 19:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	97		66 - 132		04/18/16 19:33	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.72		0.095	0.015	ug/L		04/16/16 11:59	04/22/16 10:23	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	79		32 - 140	04/16/16 11:59	04/22/16 10:23	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 00:49	1
Copper	0.81	J	2.0	0.75	ug/L		04/18/16 11:26	04/20/16 00:49	1
Iron	46.1	J	100	16.0	ug/L		04/18/16 11:26	04/20/16 00:49	1
Manganese	147		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 00:49	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 00:49	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	42.0		5.0	1.9	mg/L			04/22/16 17:29	1
Hardness as calcium carbonate	82.3		5.0	3.1	mg/L			04/19/16 11:19	1
Chloride	3.2		1.0	0.41	mg/L			04/15/16 12:40	1
Nitrate as N	3.4		0.10	0.035	mg/L			04/15/16 12:40	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160413-PS-MW-30**

**Lab Sample ID: 240-63532-2**

**Date Collected: 04/13/16 14:40**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	32.8		1.0	0.13	mg/L			04/15/16 12:40	1
Total Organic Carbon	1.2		1.0	0.080	mg/L			04/18/16 16:02	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-EW-11-S**

**Lab Sample ID: 240-63532-3**

**Date Collected: 04/14/16 13:05**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 16:38	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/25/16 16:38	1
Toluene	<0.23		1.0	0.23	ug/L			04/25/16 16:38	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/25/16 16:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/25/16 16:38	1
4-Bromofluorobenzene (Surr)	89		61 - 120		04/25/16 16:38	1
Toluene-d8 (Surr)	93		80 - 120		04/25/16 16:38	1
Dibromofluoromethane (Surr)	87		79 - 120		04/25/16 16:38	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/18/16 08:55	04/19/16 14:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/18/16 08:55	04/19/16 14:45	1
2-Fluorophenol (Surr)	28		15 - 110	04/18/16 08:55	04/19/16 14:45	1
2,4,6-Tribromophenol (Surr)	69		21 - 128	04/18/16 08:55	04/19/16 14:45	1
Nitrobenzene-d5 (Surr)	69		31 - 110	04/18/16 08:55	04/19/16 14:45	1
Phenol-d5 (Surr)	16		10 - 110	04/18/16 08:55	04/19/16 14:45	1
Terphenyl-d14 (Surr)	50		31 - 115	04/18/16 08:55	04/19/16 14:45	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 19:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	92		66 - 132		04/18/16 19:50	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.37		0.096	0.015	ug/L		04/16/16 11:59	04/20/16 12:10	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	60		32 - 140	04/16/16 11:59	04/20/16 12:10	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 00:53	1
Copper	3.4		2.0	0.75	ug/L		04/18/16 11:26	04/20/16 00:53	1
Iron	451		100	16.0	ug/L		04/18/16 11:26	04/20/16 00:53	1
Manganese	63.5		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 00:53	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 00:53	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	48.6		5.0	1.9	mg/L			04/22/16 17:18	1
Hardness as calcium carbonate	100		5.0	3.1	mg/L			04/19/16 11:22	1
Chloride	7.0		1.0	0.41	mg/L			04/15/16 13:13	1
Nitrate as N	8.9		0.10	0.035	mg/L			04/15/16 13:13	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-EW-11-S**

**Lab Sample ID: 240-63532-3**

**Date Collected: 04/14/16 13:05**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	45.1		1.0	0.13	mg/L			04/15/16 13:13	1
Total Organic Carbon	5.2		1.0	0.080	mg/L			04/18/16 16:28	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-EW-11-D**

**Lab Sample ID: 240-63532-4**

**Date Collected: 04/14/16 12:00**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/26/16 14:18	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/26/16 14:18	1
Toluene	<0.23		1.0	0.23	ug/L			04/26/16 14:18	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/26/16 14:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/26/16 14:18	1
4-Bromofluorobenzene (Surr)	83		61 - 120		04/26/16 14:18	1
Toluene-d8 (Surr)	93		80 - 120		04/26/16 14:18	1
Dibromofluoromethane (Surr)	86		79 - 120		04/26/16 14:18	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/18/16 08:55	04/19/16 15:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		29 - 110	04/18/16 08:55	04/19/16 15:09	1
2-Fluorophenol (Surr)	30		15 - 110	04/18/16 08:55	04/19/16 15:09	1
2,4,6-Tribromophenol (Surr)	71		21 - 128	04/18/16 08:55	04/19/16 15:09	1
Nitrobenzene-d5 (Surr)	66		31 - 110	04/18/16 08:55	04/19/16 15:09	1
Phenol-d5 (Surr)	17		10 - 110	04/18/16 08:55	04/19/16 15:09	1
Terphenyl-d14 (Surr)	52		31 - 115	04/18/16 08:55	04/19/16 15:09	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 20:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	93		66 - 132		04/18/16 20:07	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	3.4		0.097	0.015	ug/L		04/16/16 11:59	04/20/16 12:33	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	67		32 - 140	04/16/16 11:59	04/20/16 12:33	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 00:20	1
Copper	1.1	J	2.0	0.75	ug/L		04/18/16 11:26	04/20/16 00:20	1
Iron	657		100	16.0	ug/L		04/18/16 11:26	04/20/16 00:20	1
Manganese	22.6		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 00:20	1
Zinc	46.4		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 00:20	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	187		5.0	1.9	mg/L			04/22/16 14:37	1
Hardness as calcium carbonate	282		5.0	3.1	mg/L			04/19/16 11:08	1
Chloride	12.7		1.0	0.41	mg/L			04/15/16 13:30	1
Nitrate as N	2.0		0.10	0.035	mg/L			04/15/16 13:30	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-EW-11-D**

**Lab Sample ID: 240-63532-4**

**Date Collected: 04/14/16 12:00**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	155		5.0	0.65	mg/L			04/19/16 15:40	5
Total Organic Carbon	1.0		1.0	0.080	mg/L			04/18/16 12:57	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-MW-02**

**Lab Sample ID: 240-63532-5**

**Date Collected: 04/14/16 09:45**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L	-		04/25/16 17:01	1
Ethylbenzene	<0.25		1.0	0.25	ug/L	-		04/25/16 17:01	1
Toluene	<0.23		1.0	0.23	ug/L	-		04/25/16 17:01	1
Xylenes, Total	<0.52		2.0	0.52	ug/L	-		04/25/16 17:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/25/16 17:01	1
4-Bromofluorobenzene (Surr)	92		61 - 120		04/25/16 17:01	1
Toluene-d8 (Surr)	91		80 - 120		04/25/16 17:01	1
Dibromofluoromethane (Surr)	86		79 - 120		04/25/16 17:01	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L	-	04/18/16 08:55	04/19/16 16:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	69		29 - 110	04/18/16 08:55	04/19/16 16:21	1
2-Fluorophenol (Surr)	29		15 - 110	04/18/16 08:55	04/19/16 16:21	1
2,4,6-Tribromophenol (Surr)	71		21 - 128	04/18/16 08:55	04/19/16 16:21	1
Nitrobenzene-d5 (Surr)	68		31 - 110	04/18/16 08:55	04/19/16 16:21	1
Phenol-d5 (Surr)	19		10 - 110	04/18/16 08:55	04/19/16 16:21	1
Terphenyl-d14 (Surr)	30	X	31 - 115	04/18/16 08:55	04/19/16 16:21	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L	-		04/18/16 20:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	91		66 - 132		04/18/16 20:59	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.080	J	0.095	0.015	ug/L	-	04/16/16 11:59	04/20/16 13:45	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	61		32 - 140	04/16/16 11:59	04/20/16 13:45	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.3	J	5.0	0.49	ug/L	-	04/18/16 11:26	04/20/16 00:57	1
Copper	20.1		2.0	0.75	ug/L	-	04/18/16 11:26	04/20/16 00:57	1
Iron	6580		100	16.0	ug/L	-	04/18/16 11:26	04/20/16 00:57	1
Manganese	171		5.0	1.1	ug/L	-	04/18/16 11:26	04/20/16 00:57	1
Zinc	19.7	J	20.0	7.3	ug/L	-	04/18/16 11:26	04/20/16 00:57	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	34.4		5.0	1.9	mg/L	-		04/22/16 17:08	1
Hardness as calcium carbonate	49.0		5.0	3.1	mg/L	-		04/19/16 11:25	1
Chloride	0.51	J	1.0	0.41	mg/L	-		04/15/16 14:19	1
Nitrate as N	0.38		0.10	0.035	mg/L	-		04/15/16 14:19	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-MW-02**

**Lab Sample ID: 240-63532-5**

**Date Collected: 04/14/16 09:45**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	1.8		1.0	0.13	mg/L			04/15/16 14:19	1
Total Organic Carbon	3.6		1.0	0.080	mg/L			04/18/16 16:55	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-MW-36**

**Lab Sample ID: 240-63532-6**

**Date Collected: 04/14/16 09:20**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 17:24	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/25/16 17:24	1
Toluene	<0.23		1.0	0.23	ug/L			04/25/16 17:24	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/25/16 17:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/25/16 17:24	1
4-Bromofluorobenzene (Surr)	84		61 - 120		04/25/16 17:24	1
Toluene-d8 (Surr)	92		80 - 120		04/25/16 17:24	1
Dibromofluoromethane (Surr)	89		79 - 120		04/25/16 17:24	1

### Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.061		0.20	0.061	ug/L		04/18/16 08:55	04/19/16 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		29 - 110	04/18/16 08:55	04/19/16 16:45	1
2-Fluorophenol (Surr)	29		15 - 110	04/18/16 08:55	04/19/16 16:45	1
2,4,6-Tribromophenol (Surr)	73		21 - 128	04/18/16 08:55	04/19/16 16:45	1
Nitrobenzene-d5 (Surr)	68		31 - 110	04/18/16 08:55	04/19/16 16:45	1
Phenol-d5 (Surr)	16		10 - 110	04/18/16 08:55	04/19/16 16:45	1
Terphenyl-d14 (Surr)	77		31 - 115	04/18/16 08:55	04/19/16 16:45	1

### Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.096	0.015	ug/L		04/16/16 11:59	04/20/16 14:09	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	71		32 - 140	04/16/16 11:59	04/20/16 14:09	4

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 01:10	1
Copper	<0.75		2.0	0.75	ug/L		04/18/16 11:26	04/20/16 01:10	1
Iron	<16.0		100	16.0	ug/L		04/18/16 11:26	04/20/16 01:10	1
Manganese	<1.1		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 01:10	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 01:10	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-MW-37**

**Lab Sample ID: 240-63532-7**

**Date Collected: 04/14/16 12:20**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 17:46	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/25/16 17:46	1
Toluene	<0.23		1.0	0.23	ug/L			04/25/16 17:46	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/25/16 17:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/25/16 17:46	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/25/16 17:46	1
Toluene-d8 (Surr)	94		80 - 120		04/25/16 17:46	1
Dibromofluoromethane (Surr)	88		79 - 120		04/25/16 17:46	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/18/16 08:55	04/19/16 17:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	72		29 - 110	04/18/16 08:55	04/19/16 17:09	1
2-Fluorophenol (Surr)	27		15 - 110	04/18/16 08:55	04/19/16 17:09	1
2,4,6-Tribromophenol (Surr)	71		21 - 128	04/18/16 08:55	04/19/16 17:09	1
Nitrobenzene-d5 (Surr)	72		31 - 110	04/18/16 08:55	04/19/16 17:09	1
Phenol-d5 (Surr)	15		10 - 110	04/18/16 08:55	04/19/16 17:09	1
Terphenyl-d14 (Surr)	75		31 - 115	04/18/16 08:55	04/19/16 17:09	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.080	J	0.50	0.080	ug/L			04/18/16 21:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	92		66 - 132		04/18/16 21:16	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	2.5		0.095	0.015	ug/L		04/16/16 11:59	04/20/16 15:20	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	43		32 - 140	04/16/16 11:59	04/20/16 15:20	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 01:14	1
Copper	<0.75		2.0	0.75	ug/L		04/18/16 11:26	04/20/16 01:14	1
Iron	825		100	16.0	ug/L		04/18/16 11:26	04/20/16 01:14	1
Manganese	27.4		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 01:14	1
Zinc	55.9		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 01:14	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	190		5.0	1.9	mg/L			04/22/16 15:42	1
Hardness as calcium carbonate	276		5.0	3.1	mg/L			04/19/16 11:27	1
Chloride	12.8		1.0	0.41	mg/L			04/15/16 14:35	1
Nitrate as N	2.0		0.10	0.035	mg/L			04/15/16 14:35	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-MW-37**

**Lab Sample ID: 240-63532-7**

**Date Collected: 04/14/16 12:20**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	198		1.0	0.13	mg/L			04/15/16 14:35	1
Total Organic Carbon	1.2		1.0	0.080	mg/L			04/18/16 17:20	1

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# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-TRIP BLANK-PS-07**

**Lab Sample ID: 240-63532-8**

**Date Collected: 04/14/16 14:00**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 18:09	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/25/16 18:09	1
Toluene	<0.23		1.0	0.23	ug/L			04/25/16 18:09	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/25/16 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/25/16 18:09	1
4-Bromofluorobenzene (Surr)	85		61 - 120		04/25/16 18:09	1
Toluene-d8 (Surr)	89		80 - 120		04/25/16 18:09	1
Dibromofluoromethane (Surr)	87		79 - 120		04/25/16 18:09	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63532-1	W-160413-PS-MW-29	86	94	89	95
240-63532-2	W-160413-PS-MW-30	84	91	90	87
240-63532-3	W-160414-PS-EW-11-S	83	89	93	87
240-63532-4	W-160414-PS-EW-11-D	82	83	93	86
240-63532-4 MS	W-160414-PS-EW-11-D	80	90	93	89
240-63532-4 MSD	W-160414-PS-EW-11-D	83	87	92	90
240-63532-5	W-160414-PS-MW-02	83	92	91	86
240-63532-6	W-160414-PS-MW-36	84	84	92	89
240-63532-7	W-160414-PS-MW-37	82	86	94	88
240-63532-8	W-TRIP BLANK-PS-07	82	85	89	87
LCS 240-227375/4	Lab Control Sample	81	90	92	88
LCS 240-227575/4	Lab Control Sample	83	90	94	88
MB 240-227375/6	Method Blank	82	83	91	88
MB 240-227575/6	Method Blank	83	86	94	88

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63532-1	W-160413-PS-MW-29	56	38	76	80	22	73
240-63532-2	W-160413-PS-MW-30	67	31	78	69	19	54
240-63532-3	W-160414-PS-EW-11-S	70	28	69	69	16	50
240-63532-4	W-160414-PS-EW-11-D	64	30	71	66	17	52
240-63532-4 MS	W-160414-PS-EW-11-D	79	37	91	85	22	52
240-63532-4 MSD	W-160414-PS-EW-11-D	78	34	88	84	20	53
240-63532-5	W-160414-PS-MW-02	69	29	71	68	19	30 X
240-63532-6	W-160414-PS-MW-36	71	29	73	68	16	77
240-63532-7	W-160414-PS-MW-37	72	27	71	72	15	75
LCS 240-226310/21-A	Lab Control Sample	79	60	92	83	45	93
MB 240-226310/20-A	Method Blank	74	58	76	74	45	81

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroet (66-132)
240-63532-1	W-160413-PS-MW-29	98
240-63532-2	W-160413-PS-MW-30	97
240-63532-3	W-160414-PS-EW-11-S	92
240-63532-4	W-160414-PS-EW-11-D	93
240-63532-4 MS	W-160414-PS-EW-11-D	94
240-63532-4 MSD	W-160414-PS-EW-11-D	90
240-63532-5	W-160414-PS-MW-02	91
240-63532-7	W-160414-PS-MW-37	92
LCS 240-226380/5	Lab Control Sample	107
MB 240-226380/4	Method Blank	104

#### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63532-1	W-160413-PS-MW-29	0 X D	0 X D
240-63532-2	W-160413-PS-MW-30	79	72
240-63532-3	W-160414-PS-EW-11-S	59	60
240-63532-4	W-160414-PS-EW-11-D	67	58
240-63532-4 MS	W-160414-PS-EW-11-D	73	60
240-63532-4 MSD	W-160414-PS-EW-11-D	63	59
240-63532-5	W-160414-PS-MW-02	61	59
240-63532-6	W-160414-PS-MW-36	70	71
240-63532-7	W-160414-PS-MW-37	43	34
LCS 180-173720/2-A	Lab Control Sample	65	63
MB 180-173720/1-A	Method Blank	66	66

#### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid



# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-227375/6**  
**Matrix: Water**  
**Analysis Batch: 227375**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/25/16 13:13	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/25/16 13:13	1
Toluene	<0.23		1.0	0.23	ug/L			04/25/16 13:13	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/25/16 13:13	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/25/16 13:13	1
4-Bromofluorobenzene (Surr)	83		61 - 120		04/25/16 13:13	1
Toluene-d8 (Surr)	91		80 - 120		04/25/16 13:13	1
Dibromofluoromethane (Surr)	88		79 - 120		04/25/16 13:13	1

**Lab Sample ID: LCS 240-227375/4**  
**Matrix: Water**  
**Analysis Batch: 227375**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.83		ug/L		98	80 - 120
Ethylbenzene	10.0	9.70		ug/L		97	80 - 120
Toluene	10.0	10.1		ug/L		101	80 - 120
Xylenes, Total	20.0	19.7		ug/L		99	80 - 120
m-Xylene & p-Xylene	10.0	10.1		ug/L		101	80 - 120
o-Xylene	10.0	9.61		ug/L		96	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		78 - 125
4-Bromofluorobenzene (Surr)	90		61 - 120
Toluene-d8 (Surr)	92		80 - 120
Dibromofluoromethane (Surr)	88		79 - 120

**Lab Sample ID: MB 240-227575/6**  
**Matrix: Water**  
**Analysis Batch: 227575**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/26/16 13:09	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/26/16 13:09	1
Toluene	<0.23		1.0	0.23	ug/L			04/26/16 13:09	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/26/16 13:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/26/16 13:09	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/26/16 13:09	1
Toluene-d8 (Surr)	94		80 - 120		04/26/16 13:09	1
Dibromofluoromethane (Surr)	88		79 - 120		04/26/16 13:09	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 240-227575/4**  
**Matrix: Water**  
**Analysis Batch: 227575**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	9.84		ug/L		98	80 - 120
Ethylbenzene	10.0	9.84		ug/L		98	80 - 120
Toluene	10.0	10.0		ug/L		100	80 - 120
Xylenes, Total	20.0	19.6		ug/L		98	80 - 120
m-Xylene & p-Xylene	10.0	9.98		ug/L		100	80 - 120
o-Xylene	10.0	9.63		ug/L		96	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		78 - 125
4-Bromofluorobenzene (Surr)	90		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	88		79 - 120

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 227575**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.35		10.0	10.5		ug/L		105	73 - 121
Ethylbenzene	<0.25		10.0	10.0		ug/L		100	68 - 121
Toluene	<0.23		10.0	10.2		ug/L		102	72 - 122
Xylenes, Total	<0.52		20.0	20.1		ug/L		101	67 - 122
m-Xylene & p-Xylene	<0.24		10.0	10.1		ug/L		101	66 - 123
o-Xylene	<0.25		10.0	10.0		ug/L		100	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	80		78 - 125
4-Bromofluorobenzene (Surr)	90		61 - 120
Toluene-d8 (Surr)	93		80 - 120
Dibromofluoromethane (Surr)	89		79 - 120

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 227575**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.35		10.0	10.1		ug/L		101	73 - 121	3	13
Ethylbenzene	<0.25		10.0	9.99		ug/L		100	68 - 121	0	16
Toluene	<0.23		10.0	9.90		ug/L		99	72 - 122	3	15
Xylenes, Total	<0.52		20.0	19.4		ug/L		97	67 - 122	3	14
m-Xylene & p-Xylene	<0.24		10.0	9.96		ug/L		100	66 - 123	1	15
o-Xylene	<0.25		10.0	9.48		ug/L		95	68 - 121	5	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		78 - 125
4-Bromofluorobenzene (Surr)	87		61 - 120
Toluene-d8 (Surr)	92		80 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 227575**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Surrogate	MSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	90		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-226310/20-A**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/18/16 08:55	04/19/16 08:45	1
Surrogate	MB MB		Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	74		29 - 110				04/18/16 08:55	04/19/16 08:45	1
2-Fluorophenol (Surr)	58		15 - 110				04/18/16 08:55	04/19/16 08:45	1
2,4,6-Tribromophenol (Surr)	76		21 - 128				04/18/16 08:55	04/19/16 08:45	1
Nitrobenzene-d5 (Surr)	74		31 - 110				04/18/16 08:55	04/19/16 08:45	1
Phenol-d5 (Surr)	45		10 - 110				04/18/16 08:55	04/19/16 08:45	1
Terphenyl-d14 (Surr)	81		31 - 115				04/18/16 08:55	04/19/16 08:45	1

**Lab Sample ID: LCS 240-226310/21-A**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	14.6		ug/L		73	52 - 120
Surrogate	LCS LCS		Limits				
2-Fluorobiphenyl (Surr)	79		29 - 110				
2-Fluorophenol (Surr)	60		15 - 110				
2,4,6-Tribromophenol (Surr)	92		21 - 128				
Nitrobenzene-d5 (Surr)	83		31 - 110				
Phenol-d5 (Surr)	45		10 - 110				
Terphenyl-d14 (Surr)	93		31 - 115				

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Naphthalene	<0.063		19.8	15.3		ug/L		77	35 - 110
Surrogate	MS MS		Limits						
2-Fluorobiphenyl (Surr)	79		29 - 110						
2-Fluorophenol (Surr)	37		15 - 110						
2,4,6-Tribromophenol (Surr)	91		21 - 128						
Nitrobenzene-d5 (Surr)	85		31 - 110						
Phenol-d5 (Surr)	22		10 - 110						

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Surrogate	MS %Recovery	MS Qualifier	Limits
Terphenyl-d14 (Surr)	52		31 - 115

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	<0.063		19.0	14.1		ug/L		74	35 - 110	8	58

Surrogate	MSD %Recovery	MSD Qualifier	Limits
2-Fluorobiphenyl (Surr)	78		29 - 110
2-Fluorophenol (Surr)	34		15 - 110
2,4,6-Tribromophenol (Surr)	88		21 - 128
Nitrobenzene-d5 (Surr)	84		31 - 110
Phenol-d5 (Surr)	20		10 - 110
Terphenyl-d14 (Surr)	53		31 - 115

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-226380/4**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/18/16 15:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	104		66 - 132		04/18/16 15:33	1

**Lab Sample ID: LCS 240-226380/5**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	210		ug/L		106	76 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	107		66 - 132

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	<0.080		199	197		ug/L		99	34 - 153

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1,1,1-Trifluoroethane	94		66 - 132

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226380**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	<0.080		199	194		ug/L		98	34 - 153	2	22
Surrogate	MSD %Recovery	MSD Qualifier									
1,1,1-Trifluoroethane	90								66 - 132		

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173720/1-A**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173720**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/16/16 11:59	04/20/16 10:58	4
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	66		32 - 140				04/16/16 11:59	04/20/16 10:58	4

**Lab Sample ID: LCS 180-173720/2-A**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 173720**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1.00	0.794		ug/L		79	40 - 140
Surrogate	LCS %Recovery	LCS Qualifier	Limits				
2,4-Dichlorophenylacetic acid	65		32 - 140				

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**  
**Prep Batch: 173720**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	3.4		0.962	4.47		ug/L		112	40 - 140
Surrogate	MS %Recovery	MS Qualifier	Limits						
2,4-Dichlorophenylacetic acid	73		32 - 140						

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: 240-63532-4 MSD**

**Matrix: Water**

**Analysis Batch: 174002**

**Client Sample ID: W-160414-PS-EW-11-D**

**Prep Type: Total/NA**

**Prep Batch: 173720**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Pentachlorophenol	3.4		0.962	4.00		ug/L		63		40 - 140	11	30
<b>Surrogate</b>												
2,4-Dichlorophenylacetic acid												

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-226367/1-A**

**Matrix: Water**

**Analysis Batch: 226713**

**Client Sample ID: Method Blank**

**Prep Type: Total Recoverable**

**Prep Batch: 226367**

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/19/16 23:18	1
Copper	<0.75		2.0	0.75	ug/L		04/18/16 11:26	04/19/16 23:18	1
Iron	<16.0		100	16.0	ug/L		04/18/16 11:26	04/19/16 23:18	1
Manganese	<1.1		5.0	1.1	ug/L		04/18/16 11:26	04/19/16 23:18	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/19/16 23:18	1

**Lab Sample ID: LCS 240-226367/2-A**

**Matrix: Water**

**Analysis Batch: 226713**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total Recoverable**

**Prep Batch: 226367**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits
Arsenic	1000	916.1		ug/L		92		80 - 120
Copper	1000	922.9		ug/L		92		80 - 120
Iron	10000	9017		ug/L		90		80 - 120
Manganese	1000	932.7		ug/L		93		80 - 120
Zinc	1000	931.8		ug/L		93		80 - 120

**Lab Sample ID: 240-63532-4 MS**

**Matrix: Water**

**Analysis Batch: 226713**

**Client Sample ID: W-160414-PS-EW-11-D**

**Prep Type: Dissolved**

**Prep Batch: 226367**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.	Limits
	Result	Qualifier		Result	Qualifier					
Arsenic	<0.49		1000	1025		ug/L		103		75 - 125
Copper	1.1	J	1000	951.5		ug/L		95		75 - 125
Iron	657		10000	10360		ug/L		97		75 - 125
Manganese	22.6		1000	1019		ug/L		100		75 - 125
Zinc	46.4		1000	1019		ug/L		97		75 - 125

**Lab Sample ID: 240-63532-4 MSD**

**Matrix: Water**

**Analysis Batch: 226713**

**Client Sample ID: W-160414-PS-EW-11-D**

**Prep Type: Dissolved**

**Prep Batch: 226367**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier							
Arsenic	<0.49		1000	996.5		ug/L		100		75 - 125	3	20
Copper	1.1	J	1000	941.7		ug/L		94		75 - 125	1	20
Iron	657		10000	9971		ug/L		93		75 - 125	4	20

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 6020 - Metals (ICP/MS) (Continued)

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226713**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Dissolved**  
**Prep Batch: 226367**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Manganese	22.6		1000	966.5		ug/L		94	75 - 125	5	20
Zinc	46.4		1000	1004		ug/L		96	75 - 125	1	20

## Method: 2320B-1997 - Alkalinity, Total

**Lab Sample ID: MB 240-227207/2**  
**Matrix: Water**  
**Analysis Batch: 227207**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Alkalinity	<1.9		5.0	1.9	mg/L			04/22/16 12:50	1

**Lab Sample ID: LCS 240-227207/3**  
**Matrix: Water**  
**Analysis Batch: 227207**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.
		Result	Qualifier				Limits
Alkalinity	284	271.4		mg/L		96	90 - 127

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 227207**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.
	Result	Qualifier	Added	Result	Qualifier				Limits
Alkalinity	187		500	743.0		mg/L		111	10 - 160

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 227207**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier				Limits		
Alkalinity	187		500	679.2		mg/L		99	10 - 160	9	24

**Lab Sample ID: 240-63532-4 DU**  
**Matrix: Water**  
**Analysis Batch: 227207**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample	Sample	DU	DU	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier		Qualifier					
Alkalinity	187		188.0		mg/L			04/19/16 11:00	1

## Method: 2340C-1997 - Hardness, Total

**Lab Sample ID: MB 240-226552/1**  
**Matrix: Water**  
**Analysis Batch: 226552**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/19/16 11:00	1

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 2340C-1997 - Hardness, Total (Continued)

**Lab Sample ID:** LCS 240-226552/2  
**Matrix:** Water  
**Analysis Batch:** 226552

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	166.6		mg/L		98	88 - 110

**Lab Sample ID:** 240-63532-4 MS  
**Matrix:** Water  
**Analysis Batch:** 226552

**Client Sample ID:** W-160414-PS-EW-11-D  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	282		400	678.2		mg/L		99	87 - 114

**Lab Sample ID:** 240-63532-4 MSD  
**Matrix:** Water  
**Analysis Batch:** 226552

**Client Sample ID:** W-160414-PS-EW-11-D  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	282		400	682.9		mg/L		100	87 - 114	1	20

**Lab Sample ID:** 240-63532-4 DU  
**Matrix:** Water  
**Analysis Batch:** 226552

**Client Sample ID:** W-160414-PS-EW-11-D  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	DU Result	DU Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	282			282.2		mg/L				0	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID:** MB 240-226178/3  
**Matrix:** Water  
**Analysis Batch:** 226178

**Client Sample ID:** Method Blank  
**Prep Type:** Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/15/16 10:26	1
Sulfate	<0.13		1.0	0.13	mg/L			04/15/16 10:26	1

**Lab Sample ID:** LCS 240-226178/4  
**Matrix:** Water  
**Analysis Batch:** 226178

**Client Sample ID:** Lab Control Sample  
**Prep Type:** Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.13		mg/L		106	90 - 110
Sulfate	50.0	49.45		mg/L		99	90 - 110

**Lab Sample ID:** 240-63532-4 MS  
**Matrix:** Water  
**Analysis Batch:** 226178

**Client Sample ID:** W-160414-PS-EW-11-D  
**Prep Type:** Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.7		50.0	71.72		mg/L		118	80 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226178**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.7		50.0	70.97		mg/L		117	80 - 120	1	15

**Lab Sample ID: MB 240-226179/3**  
**Matrix: Water**  
**Analysis Batch: 226179**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/15/16 10:26	1

**Lab Sample ID: LCS 240-226179/4**  
**Matrix: Water**  
**Analysis Batch: 226179**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.62		mg/L		105	90 - 110

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226179**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.0		2.50	4.82		mg/L		112	80 - 120

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226179**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	2.0		2.50	4.79		mg/L		111	80 - 120	1	15

**Lab Sample ID: MB 240-226593/3**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.13		1.0	0.13	mg/L			04/19/16 14:34	1

**Lab Sample ID: LCS 240-226593/4**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	48.87		mg/L		98	90 - 110

**Lab Sample ID: 240-63532-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	155		50.0	206.9		mg/L		104	80 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Lab Sample ID: 240-63532-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: W-160414-PS-EW-11-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	155		50.0	199.3		mg/L		89	80 - 120	4	15

**Lab Sample ID: MB 240-226617/3**  
**Matrix: Water**  
**Analysis Batch: 226617**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/19/16 21:47	1
Sulfate	<0.13		1.0	0.13	mg/L			04/19/16 21:47	1

**Lab Sample ID: LCS 240-226617/28**  
**Matrix: Water**  
**Analysis Batch: 226617**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.46		mg/L		99	90 - 110
Sulfate	50.0	51.77		mg/L		104	90 - 110

**Lab Sample ID: LCS 240-226617/4**  
**Matrix: Water**  
**Analysis Batch: 226617**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	49.59		mg/L		99	90 - 110
Sulfate	50.0	51.64		mg/L		103	90 - 110

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-226436/4**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/18/16 12:34	1

**Lab Sample ID: LCS 240-226436/6**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	68.15		mg/L		98	88 - 115

**Lab Sample ID: LLCS 240-226436/5**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.91		mg/L		100	88 - 115

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# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

Lab Sample ID: 240-63532-4 MS  
 Matrix: Water  
 Analysis Batch: 226436

Client Sample ID: W-160414-PS-EW-11-D  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.0		25.0	26.70		mg/L		103	72 - 136

Lab Sample ID: 240-63532-4 MSD  
 Matrix: Water  
 Analysis Batch: 226436

Client Sample ID: W-160414-PS-EW-11-D  
 Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	1.0		25.0	27.92		mg/L		108	72 - 136	4	20



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## GC/MS VOA

### Analysis Batch: 227375

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	8260B	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	8260B	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	8260B	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	8260B	
240-63532-6	W-160414-PS-MW-36	Total/NA	Water	8260B	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	8260B	
240-63532-8	W-TRIP BLANK-PS-07	Total/NA	Water	8260B	
LCS 240-227375/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-227375/6	Method Blank	Total/NA	Water	8260B	

### Analysis Batch: 227575

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	8260B	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	8260B	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	8260B	
LCS 240-227575/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-227575/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 226310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	3510C	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	3510C	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	3510C	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	3510C	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	3510C	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	3510C	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	3510C	
240-63532-6	W-160414-PS-MW-36	Total/NA	Water	3510C	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	3510C	
LCS 240-226310/21-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-226310/20-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 226460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	8270C	226310
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	8270C	226310
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	8270C	226310
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	8270C	226310
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	8270C	226310
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	8270C	226310
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	8270C	226310
240-63532-6	W-160414-PS-MW-36	Total/NA	Water	8270C	226310
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	8270C	226310
LCS 240-226310/21-A	Lab Control Sample	Total/NA	Water	8270C	226310
MB 240-226310/20-A	Method Blank	Total/NA	Water	8270C	226310

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## GC VOA

### Analysis Batch: 226380

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	RSK-175	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	RSK-175	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	RSK-175	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	RSK-175	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	RSK-175	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	RSK-175	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	RSK-175	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	RSK-175	
LCS 240-226380/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-226380/4	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 173720

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	8151A	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	8151A	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	8151A	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	8151A	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	8151A	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	8151A	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	8151A	
240-63532-6	W-160414-PS-MW-36	Total/NA	Water	8151A	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	8151A	
LCS 180-173720/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 180-173720/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 174002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	8151A	173720
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	8151A	173720
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	8151A	173720
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	8151A	173720
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	8151A	173720
240-63532-6	W-160414-PS-MW-36	Total/NA	Water	8151A	173720
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	8151A	173720
LCS 180-173720/2-A	Lab Control Sample	Total/NA	Water	8151A	173720
MB 180-173720/1-A	Method Blank	Total/NA	Water	8151A	173720

### Analysis Batch: 174211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	8151A	173720
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	8151A	173720

## Metals

### Prep Batch: 226367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Dissolved	Water	3005A	
240-63532-2	W-160413-PS-MW-30	Dissolved	Water	3005A	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Metals (Continued)

### Prep Batch: 226367 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-3	W-160414-PS-EW-11-S	Dissolved	Water	3005A	
240-63532-4	W-160414-PS-EW-11-D	Dissolved	Water	3005A	
240-63532-4 MS	W-160414-PS-EW-11-D	Dissolved	Water	3005A	
240-63532-4 MSD	W-160414-PS-EW-11-D	Dissolved	Water	3005A	
240-63532-5	W-160414-PS-MW-02	Dissolved	Water	3005A	
240-63532-6	W-160414-PS-MW-36	Dissolved	Water	3005A	
240-63532-7	W-160414-PS-MW-37	Dissolved	Water	3005A	
LCS 240-226367/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-226367/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 226713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Dissolved	Water	6020	226367
240-63532-2	W-160413-PS-MW-30	Dissolved	Water	6020	226367
240-63532-3	W-160414-PS-EW-11-S	Dissolved	Water	6020	226367
240-63532-4	W-160414-PS-EW-11-D	Dissolved	Water	6020	226367
240-63532-4 MS	W-160414-PS-EW-11-D	Dissolved	Water	6020	226367
240-63532-4 MSD	W-160414-PS-EW-11-D	Dissolved	Water	6020	226367
240-63532-5	W-160414-PS-MW-02	Dissolved	Water	6020	226367
240-63532-6	W-160414-PS-MW-36	Dissolved	Water	6020	226367
240-63532-7	W-160414-PS-MW-37	Dissolved	Water	6020	226367
LCS 240-226367/2-A	Lab Control Sample	Total Recoverable	Water	6020	226367
MB 240-226367/1-A	Method Blank	Total Recoverable	Water	6020	226367

## General Chemistry

### Analysis Batch: 226178

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	300.0	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	300.0	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	300.0	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	300.0	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	300.0	
LCS 240-226178/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226178/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	300.0	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	300.0	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	300.0	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	300.0	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	300.0	
LCS 240-226179/4	Lab Control Sample	Total/NA	Water	300.0	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## General Chemistry (Continued)

### Analysis Batch: 226179 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 240-226179/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	9060	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	9060	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	9060	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	9060	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	9060	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	9060	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	9060	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	9060	
LCS 240-226436/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-226436/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-226436/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 226552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	2340C-1997	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	2340C-1997	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	2340C-1997	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	2340C-1997	
240-63532-4 DU	W-160414-PS-EW-11-D	Total/NA	Water	2340C-1997	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	2340C-1997	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	2340C-1997	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	2340C-1997	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	2340C-1997	
LCS 240-226552/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-226552/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 226593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	300.0	
LCS 240-226593/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226593/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226617

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-226617/28	Lab Control Sample	Total/NA	Water	300.0	
LCS 240-226617/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226617/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 227207

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-1	W-160413-PS-MW-29	Total/NA	Water	2320B-1997	
240-63532-2	W-160413-PS-MW-30	Total/NA	Water	2320B-1997	
240-63532-3	W-160414-PS-EW-11-S	Total/NA	Water	2320B-1997	
240-63532-4	W-160414-PS-EW-11-D	Total/NA	Water	2320B-1997	
240-63532-4 DU	W-160414-PS-EW-11-D	Total/NA	Water	2320B-1997	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## General Chemistry (Continued)

### Analysis Batch: 227207 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63532-4 MS	W-160414-PS-EW-11-D	Total/NA	Water	2320B-1997	
240-63532-4 MSD	W-160414-PS-EW-11-D	Total/NA	Water	2320B-1997	
240-63532-5	W-160414-PS-MW-02	Total/NA	Water	2320B-1997	
240-63532-7	W-160414-PS-MW-37	Total/NA	Water	2320B-1997	
LCS 240-227207/3	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-227207/2	Method Blank	Total/NA	Water	2320B-1997	

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# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160413-PS-MW-29**

**Lab Sample ID: 240-63532-1**

**Date Collected: 04/13/16 16:05**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 15:52	LRW	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		10	226460	04/19/16 13:57	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 19:16	BPM	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		10000	174211	04/22/16 11:34	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 00:45	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 17:40	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:16	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226178	04/15/16 12:57	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226179	04/15/16 12:57	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 15:36	TPH	TAL CAN

**Client Sample ID: W-160413-PS-MW-30**

**Lab Sample ID: 240-63532-2**

**Date Collected: 04/13/16 14:40**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 16:15	LRW	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 14:21	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 19:33	BPM	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174211	04/22/16 10:23	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 00:49	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 17:29	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:19	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226178	04/15/16 12:40	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226179	04/15/16 12:40	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 16:02	TPH	TAL CAN

**Client Sample ID: W-160414-PS-EW-11-S**

**Lab Sample ID: 240-63532-3**

**Date Collected: 04/14/16 13:05**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 16:38	LRW	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 14:45	TMH	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Client Sample ID: W-160414-PS-EW-11-S**

**Lab Sample ID: 240-63532-3**

**Date Collected: 04/14/16 13:05**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	226380	04/18/16 19:50	BPM	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 12:10	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 00:53	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 17:18	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:22	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226178	04/15/16 13:13	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226179	04/15/16 13:13	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 16:28	TPH	TAL CAN

**Client Sample ID: W-160414-PS-EW-11-D**

**Lab Sample ID: 240-63532-4**

**Date Collected: 04/14/16 12:00**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227575	04/26/16 14:18	RJQ	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 15:09	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 20:07	BPM	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 12:33	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 00:20	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 14:37	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:08	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226178	04/15/16 13:30	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226179	04/15/16 13:30	LKG	TAL CAN
Total/NA	Analysis	300.0		5	226593	04/19/16 15:40	LCN	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 12:57	TPH	TAL CAN

**Client Sample ID: W-160414-PS-MW-02**

**Lab Sample ID: 240-63532-5**

**Date Collected: 04/14/16 09:45**

**Matrix: Water**

**Date Received: 04/15/16 09:00**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 17:01	LRW	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 16:21	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 20:59	BPM	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 13:45	JMO	TAL PIT

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 00:57	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 17:08	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:25	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226178	04/15/16 14:19	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226179	04/15/16 14:19	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 16:55	TPH	TAL CAN

## Client Sample ID: W-160414-PS-MW-36

Lab Sample ID: 240-63532-6

Date Collected: 04/14/16 09:20

Matrix: Water

Date Received: 04/15/16 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 17:24	LRW	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 16:45	TMH	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 14:09	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 01:10	AS1	TAL CAN

## Client Sample ID: W-160414-PS-MW-37

Lab Sample ID: 240-63532-7

Date Collected: 04/14/16 12:20

Matrix: Water

Date Received: 04/15/16 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 17:46	LRW	TAL CAN
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 17:09	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	226380	04/18/16 21:16	BPM	TAL CAN
Total/NA	Prep	8151A			173720	04/16/16 11:59	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174002	04/20/16 15:20	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 01:14	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227207	04/22/16 15:42	JWW	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:27	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226178	04/15/16 14:35	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226179	04/15/16 14:35	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 17:20	TPH	TAL CAN

## Client Sample ID: W-TRIP BLANK-PS-07

Lab Sample ID: 240-63532-8

Date Collected: 04/14/16 14:00

Matrix: Water

Date Received: 04/15/16 09:00

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227375	04/25/16 18:09	LRW	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63532-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS



240-63532 Chain of Custody

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**TestAmerica Canton**  
 4101 Shuffel Street, N. H.  
 North Canton, OH 44720  
 Phone: 330.497.9396 Fax: 330.497.0772

1.6/CI.1  
 1.2/CO.7  
 1.8/CI.3

Chain of Custody Record  
 2.0/CI.5  
 0.8/CO.3

Regulatory Program:  DW  NPDES  RCRA  Other:

117686  
 grant.anderson@ghd.com

**TestAmerica**  
 THE LEADER IN ENVIRONMENTAL TESTING  
 TestAmerica Laboratories, Inc.  
 TAL-8210 (0713)

Company Name: GHD		Client Contact		Project Manager:		Site Contact:		Date: 4-14-16		COC No: / of / COCs	
Address: 1861 Old Hwy, S. Wark 114		Analysis Turnaround Time		TAT if different from Below		Lab Contact: D. Hecker		Carrier: FEDEX		Sampler: Peter Stralik	
City/State/Zip: St Paul, MN 55112		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		2 weeks		Diss Methane		For Lab Use Only:		Walk-in Client:	
Phone: 651-639-0913		STANDARD		1 week		BTEX		Lab Sampling:		Job / SDG No.:	
Fax: 651-639-0923		Sample Type (C=Comp, G=Grab)		2 days		TOC					
Project Name: Penta Wood		Sample Time		1 day		Hardness					
Site: 086165-03-10		Sample Date		Matrix		Alkalinity					
P O #		# of Cont.		Filtered Sample (Y/N)		Naphthalene - 8270					
Sample Identification		Sample Date		Sample Time		PCP - 8151					
W-160413-PS-MW-29		4-13-16		1605		NO <sub>2</sub> /SO <sub>4</sub> /CL					
30		↓		1440		NO <sub>3</sub> /NH <sub>4</sub> /NO <sub>2</sub> /NO <sub>3</sub> -N					
W-160414-PS-EW-11-S		4-14-16		1305		As (Cu, Zn, Fe, Mn, Ni)					
EW-11-D		↓		1200		Pb					
MW-02		↓		0945		MS/MSD					
MW-36		↓		0920							
MW-37		↓		1220							
W-TRIP BLANK-PS-07		↓		1400							
/ / /		/ / /		/ / /							
Sample Specific Notes:		Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other		Possible Hazard Identification: Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		Special Instructions/QC Requirements & Comments: Nitrate Analyses (248 hr)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Custody Seal No.:		Cooler Temp. (°C): Obs'd: Corr'd:		Therm ID No.:			
Relinquished by: [Signature]		Company: GHD		Date/Time: 4-14-16/1600		Received by:		Company:			
Relinquished by: [Signature]		Company:		Date/Time:		Received by:		Company:			
Relinquished by: [Signature]		Company:		Date/Time:		Received in Laboratory by: G. Guzman		Company: GHD		Date/Time: 4-15-16 9:00	

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TestAmerica Canton Sample Receipt Form/Narrative		Login # : <u>603532</u>
Canton Facility: _____		
Client: <u>GHD</u>	Site Name: _____	Cooler unpacked by: <u>G. Jemel</u>
Cooler Received on: <u>4-15-16</u>	Opened on: <u>4-15-16</u>	
FedEx: 1 <sup>st</sup> Grd <input checked="" type="checkbox"/> Exp <input type="checkbox"/> UPS <input type="checkbox"/> FAS <input type="checkbox"/> Stetson <input type="checkbox"/> Client Drop Off <input type="checkbox"/> TestAmerica Courier <input type="checkbox"/> Other <input type="checkbox"/>		
Receipt After-hours: Drop-off Date/Time _____		Storage Location _____
TestAmerica Cooler # _____	Foam Box <input type="checkbox"/>	Client Cooler <input type="checkbox"/> Box <input type="checkbox"/> Other <u>Multiple</u>
Packing material used: <u>Bubble Wrap</u> <input checked="" type="checkbox"/> Foam <input type="checkbox"/> Plastic Bag <input type="checkbox"/> None <input type="checkbox"/> Other _____		
COOLANT: <u>Wet Ice</u> <input checked="" type="checkbox"/> Blue Ice <input type="checkbox"/> Dry Ice <input type="checkbox"/> Water <input type="checkbox"/> None <input type="checkbox"/>		
1. Cooler temperature upon receipt _____	<input checked="" type="checkbox"/> See Multiple Cooler Form	
IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. _____ °C	Corrected Cooler Temp. _____ °C	
2. Were custody seals on the outside of the cooler(s)?	If Yes Quantity <u>2 Coolers</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
-Were custody seals on the outside of the cooler(s) signed & dated?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
3. Shippers' packing slip attached to the cooler(s)?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
4. Did custody papers accompany the sample(s)?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
5. Were the custody papers relinquished & signed in the appropriate place?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
6. Was/were the person(s) who collected the samples clearly identified on the COC?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
7. Did all bottles arrive in good condition (Unbroken)?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
8. Could all bottle labels be reconciled with the COC?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
9. Were correct bottle(s) used for the test(s) indicated?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
10. Sufficient quantity received to perform indicated analyses?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
11. Are these work share samples?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
<i>If yes, Questions 12-16 have been checked at the originating laboratory.</i>		
12. Were sample(s) at the correct pH upon receipt?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/> pH Strip Lot# <u>HC559158</u>
13. Were VOAs on the COC?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
14. Were air bubbles >6 mm in any VOA vials?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # <u>Covered</u>		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
16. Was a LL Hg or Me Hg trip blank present?		Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____		
Concerning _____		

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by: _____
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	

18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.

Sample(s) \_\_\_\_\_ were received in a broken container.

Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.

Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_





Temperature readings:

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160413-PS-MW-29	240-63532-K-1	Plastic 250ml - with Nitric Acid	<2		
W-160413-PS-MW-29	240-63532-M-1	Plastic 500ml - with Nitric Acid	<2		
W-160413-PS-MW-30	240-63532-K-2	Plastic 250ml - with Nitric Acid	<2		
W-160413-PS-MW-30	240-63532-M-2	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-EW-11-S	240-63532-K-3	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-EW-11-S	240-63532-M-3	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-EW-11-D	240-63532-AE-4	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-EW-11-D	240-63532-AF-4	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-EW-11-D	240-63532-AG-4	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-EW-11-D	240-63532-AK-4	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-EW-11-D	240-63532-AL-4	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-EW-11-D	240-63532-AM-4	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-MW-02	240-63532-K-5	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-MW-02	240-63532-M-5	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-MW-36	240-63532-D-6	Plastic 500ml - with Nitric Acid	<2		
W-160414-PS-MW-37	240-63532-K-7	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-MW-37	240-63532-M-7	Plastic 500ml - with Nitric Acid	<2		

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63532-1

**Login Number: 63532**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/16/16 11:20 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

TestAmerica Job ID: 240-63582-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.  
1801 Old Highway 8 NW  
Suite 114  
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:  
4/28/2016 12:07:07 PM

Denise Heckler, Project Manager II  
(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Qualifiers

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
X	Surrogate is outside control limits

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

**Job ID: 240-63582-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63582-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/16/2016 9:35 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.3° C.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) 8151A: The following samples was diluted due to the abundance of target analytes: W-160414-PS-EW-02-S (240-63582-1) and W-160414-PS-EW-02-D (240-63582-2)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

Method(s) 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-173925.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63582-1	W-160414-PS-EW-02-S	Water	04/14/16 16:15	04/16/16 09:35
240-63582-2	W-160414-PS-EW-02-D	Water	04/14/16 15:30	04/16/16 09:35

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# Detection Summary

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Client Sample ID: W-160414-PS-EW-02-S

## Lab Sample ID: 240-63582-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	2.5		0.19	0.060	ug/L	1		8270C	Total/NA
Methane	0.094	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	690		24	3.7	ug/L	1000		8151A	Total/NA
Copper	1.4	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	50.2	J	100	16.0	ug/L	1		6020	Dissolved
Manganese	39.3		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	30.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	41.2		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	10.5		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.0		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	7.0		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	2.7		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160414-PS-EW-02-D

## Lab Sample ID: 240-63582-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	1.7		0.19	0.061	ug/L	1		8270C	Total/NA
Methane	0.15	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	370		25	3.8	ug/L	1000		8151A	Total/NA
Arsenic	0.49	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	3.8		2.0	0.75	ug/L	1		6020	Dissolved
Iron	299		100	16.0	ug/L	1		6020	Dissolved
Manganese	384		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	46.7		20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	55.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	70.6		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	12.1		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.70		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	8.7		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	4.8		1.0	0.080	mg/L	1		9060	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

**Client Sample ID: W-160414-PS-EW-02-S**

**Lab Sample ID: 240-63582-1**

**Date Collected: 04/14/16 16:15**

**Matrix: Water**

**Date Received: 04/16/16 09:35**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>2.5</b>		0.19	0.060	ug/L		04/18/16 08:55	04/19/16 11:33	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2-Fluorobiphenyl (Surr)	68		29 - 110				04/18/16 08:55	04/19/16 11:33	1
2-Fluorophenol (Surr)	27		15 - 110				04/18/16 08:55	04/19/16 11:33	1
2,4,6-Tribromophenol (Surr)	79		21 - 128				04/18/16 08:55	04/19/16 11:33	1
Nitrobenzene-d5 (Surr)	66		31 - 110				04/18/16 08:55	04/19/16 11:33	1
Phenol-d5 (Surr)	14		10 - 110				04/18/16 08:55	04/19/16 11:33	1
Terphenyl-d14 (Surr)	64		31 - 115				04/18/16 08:55	04/19/16 11:33	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>0.094</b>	<b>J</b>	0.50	0.080	ug/L			04/27/16 21:08	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
1,1,1-Trifluoroethane	100		66 - 132					04/27/16 21:08	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>690</b>		24	3.7	ug/L		04/19/16 15:30	04/22/16 10:46	1000
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/19/16 15:30	04/22/16 10:46	1000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/20/16 01:18	1
<b>Copper</b>	<b>1.4</b>	<b>J</b>	2.0	0.75	ug/L		04/18/16 11:26	04/20/16 01:18	1
<b>Iron</b>	<b>50.2</b>	<b>J</b>	100	16.0	ug/L		04/18/16 11:26	04/20/16 01:18	1
<b>Manganese</b>	<b>39.3</b>		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 01:18	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 01:18	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>30.0</b>		5.0	1.9	mg/L			04/25/16 10:58	1
<b>Hardness as calcium carbonate</b>	<b>41.2</b>		5.0	3.1	mg/L			04/19/16 11:30	1
<b>Chloride</b>	<b>10.5</b>		1.0	0.41	mg/L			04/16/16 15:34	1
<b>Nitrate as N</b>	<b>1.0</b>		0.10	0.035	mg/L			04/16/16 15:34	1
<b>Sulfate</b>	<b>7.0</b>		1.0	0.13	mg/L			04/16/16 15:34	1
<b>Total Organic Carbon</b>	<b>2.7</b>		1.0	0.080	mg/L			04/18/16 18:27	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

**Client Sample ID: W-160414-PS-EW-02-D**

**Lab Sample ID: 240-63582-2**

**Date Collected: 04/14/16 15:30**

**Matrix: Water**

**Date Received: 04/16/16 09:35**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	1.7		0.19	0.061	ug/L		04/18/16 08:55	04/19/16 11:57	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	60		29 - 110				04/18/16 08:55	04/19/16 11:57	1
2-Fluorophenol (Surr)	29		15 - 110				04/18/16 08:55	04/19/16 11:57	1
2,4,6-Tribromophenol (Surr)	71		21 - 128				04/18/16 08:55	04/19/16 11:57	1
Nitrobenzene-d5 (Surr)	70		31 - 110				04/18/16 08:55	04/19/16 11:57	1
Phenol-d5 (Surr)	17		10 - 110				04/18/16 08:55	04/19/16 11:57	1
Terphenyl-d14 (Surr)	70		31 - 115				04/18/16 08:55	04/19/16 11:57	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.15	J	0.50	0.080	ug/L			04/27/16 21:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	98		66 - 132					04/27/16 21:25	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	370		25	3.8	ug/L		04/19/16 15:30	04/22/16 11:10	1000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/19/16 15:30	04/22/16 11:10	1000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.49	J	5.0	0.49	ug/L		04/18/16 11:26	04/20/16 01:22	1
Copper	3.8		2.0	0.75	ug/L		04/18/16 11:26	04/20/16 01:22	1
Iron	299		100	16.0	ug/L		04/18/16 11:26	04/20/16 01:22	1
Manganese	384		5.0	1.1	ug/L		04/18/16 11:26	04/20/16 01:22	1
Zinc	46.7		20.0	7.3	ug/L		04/18/16 11:26	04/20/16 01:22	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	55.0		5.0	1.9	mg/L			04/25/16 11:13	1
Hardness as calcium carbonate	70.6		5.0	3.1	mg/L			04/19/16 11:33	1
Chloride	12.1		1.0	0.41	mg/L			04/16/16 15:17	1
Nitrate as N	0.70		0.10	0.035	mg/L			04/16/16 15:17	1
Sulfate	8.7		1.0	0.13	mg/L			04/16/16 15:17	1
Total Organic Carbon	4.8		1.0	0.080	mg/L			04/18/16 17:45	1

TestAmerica Canton

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63582-1	W-160414-PS-EW-02-S	68	27	79	66	14	64
240-63582-2	W-160414-PS-EW-02-D	60	29	71	70	17	70
LCS 240-226310/21-A	Lab Control Sample	79	60	92	83	45	93
MB 240-226310/20-A	Method Blank	74	58	76	74	45	81

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Trifluoroet (66-132)
240-63582-1	W-160414-PS-EW-02-S	100
240-63582-2	W-160414-PS-EW-02-D	98
LCS 240-227833/5	Lab Control Sample	105
MB 240-227833/4	Method Blank	108

### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1 (32-140)	DCPA2 (32-140)
240-63582-1	W-160414-PS-EW-02-S	0 X D	0 X D
240-63582-2	W-160414-PS-EW-02-D	0 X D	0 X D
LCS 180-173925/2-A	Lab Control Sample	59	56
LCSD 180-173925/3-A	Lab Control Sample Dup	42	49
MB 180-173925/1-A	Method Blank	46	48

### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-226310/20-A**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/18/16 08:55	04/19/16 08:45	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	74		29 - 110				04/18/16 08:55	04/19/16 08:45	1
2-Fluorophenol (Surr)	58		15 - 110				04/18/16 08:55	04/19/16 08:45	1
2,4,6-Tribromophenol (Surr)	76		21 - 128				04/18/16 08:55	04/19/16 08:45	1
Nitrobenzene-d5 (Surr)	74		31 - 110				04/18/16 08:55	04/19/16 08:45	1
Phenol-d5 (Surr)	45		10 - 110				04/18/16 08:55	04/19/16 08:45	1
Terphenyl-d14 (Surr)	81		31 - 115				04/18/16 08:55	04/19/16 08:45	1

**Lab Sample ID: LCS 240-226310/21-A**  
**Matrix: Water**  
**Analysis Batch: 226460**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 226310**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	14.6		ug/L		73	52 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
2-Fluorobiphenyl (Surr)	79		29 - 110				
2-Fluorophenol (Surr)	60		15 - 110				
2,4,6-Tribromophenol (Surr)	92		21 - 128				
Nitrobenzene-d5 (Surr)	83		31 - 110				
Phenol-d5 (Surr)	45		10 - 110				
Terphenyl-d14 (Surr)	93		31 - 115				

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-227833/4**  
**Matrix: Water**  
**Analysis Batch: 227833**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/27/16 17:58	1
Surrogate	%Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	108		66 - 132					04/27/16 17:58	1

**Lab Sample ID: LCS 240-227833/5**  
**Matrix: Water**  
**Analysis Batch: 227833**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	211		ug/L		106	76 - 120
Surrogate	%Recovery	LCS Qualifier	Limits				
1,1,1-Trifluoroethane	105		66 - 132				

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173925/1-A**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 173925**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/19/16 15:30	04/20/16 18:30	4
Surrogate	%Recovery	MB Qualifier	Limits						
2,4-Dichlorophenylacetic acid	48		32 - 140						
							Prepared	Analyzed	Dil Fac
							04/19/16 15:30	04/20/16 18:30	4

**Lab Sample ID: LCS 180-173925/2-A**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 173925**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Pentachlorophenol	1.00	0.735		ug/L		74	40 - 140		
Surrogate	%Recovery	LCS Qualifier	Limits						
2,4-Dichlorophenylacetic acid	59		32 - 140						

**Lab Sample ID: LCSD 180-173925/3-A**  
**Matrix: Water**  
**Analysis Batch: 174002**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 173925**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	1.00	0.684		ug/L		68	40 - 140	7	30
Surrogate	%Recovery	LCSD Qualifier	Limits						
2,4-Dichlorophenylacetic acid	49		32 - 140						

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-226367/1-A**  
**Matrix: Water**  
**Analysis Batch: 226713**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226367**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/18/16 11:26	04/19/16 23:18	1
Copper	<0.75		2.0	0.75	ug/L		04/18/16 11:26	04/19/16 23:18	1
Iron	<16.0		100	16.0	ug/L		04/18/16 11:26	04/19/16 23:18	1
Manganese	<1.1		5.0	1.1	ug/L		04/18/16 11:26	04/19/16 23:18	1
Zinc	<7.3		20.0	7.3	ug/L		04/18/16 11:26	04/19/16 23:18	1

**Lab Sample ID: LCS 240-226367/2-A**  
**Matrix: Water**  
**Analysis Batch: 226713**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226367**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits		
Arsenic	1000	916.1		ug/L		92	80 - 120		
Copper	1000	922.9		ug/L		92	80 - 120		
Iron	10000	9017		ug/L		90	80 - 120		
Manganese	1000	932.7		ug/L		93	80 - 120		

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 240-226367/2-A  
Matrix: Water  
Analysis Batch: 226713

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 226367

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	1000	931.8		ug/L		93	80 - 120

## Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: LCS 240-227383/2  
Matrix: Water  
Analysis Batch: 227383

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	285.0		mg/L		100	90 - 127

Lab Sample ID: 240-63582-1 DU  
Matrix: Water  
Analysis Batch: 227383

Client Sample ID: W-160414-PS-EW-02-S  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	30.0		27.00		mg/L		11	20

## Method: 2340C-1997 - Hardness, Total

Lab Sample ID: MB 240-226552/1  
Matrix: Water  
Analysis Batch: 226552

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/19/16 11:00	1

Lab Sample ID: LCS 240-226552/2  
Matrix: Water  
Analysis Batch: 226552

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	166.6		mg/L		98	88 - 110

Lab Sample ID: 240-63582-2 DU  
Matrix: Water  
Analysis Batch: 226552

Client Sample ID: W-160414-PS-EW-02-D  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hardness as calcium carbonate	70.6		68.60		mg/L		3	20

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 240-226292/3  
Matrix: Water  
Analysis Batch: 226292

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/16/16 11:11	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: MB 240-226292/3**  
**Matrix: Water**  
**Analysis Batch: 226292**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.13		1.0	0.13	mg/L			04/16/16 11:11	1

**Lab Sample ID: LCS 240-226292/4**  
**Matrix: Water**  
**Analysis Batch: 226292**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	53.54		mg/L		107	90 - 110
Sulfate	50.0	50.14		mg/L		100	90 - 110

**Lab Sample ID: MB 240-226293/3**  
**Matrix: Water**  
**Analysis Batch: 226293**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/16/16 11:11	1

**Lab Sample ID: LCS 240-226293/4**  
**Matrix: Water**  
**Analysis Batch: 226293**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.56		mg/L		102	90 - 110

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-226436/4**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/18/16 12:34	1

**Lab Sample ID: LCS 240-226436/6**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	68.15		mg/L		98	88 - 115

**Lab Sample ID: LLCS 240-226436/5**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.91		mg/L		100	88 - 115

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# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 240-63582-2 MS**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: W-160414-PS-EW-02-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	4.8		25.0	30.41		mg/L		103	72 - 136

**Lab Sample ID: 240-63582-2 MSD**  
**Matrix: Water**  
**Analysis Batch: 226436**

**Client Sample ID: W-160414-PS-EW-02-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	4.8		25.0	32.22		mg/L		110	72 - 136	6	20



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## GC/MS Semi VOA

### Prep Batch: 226310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	3510C	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	3510C	
LCS 240-226310/21-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-226310/20-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 226460

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	8270C	226310
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	8270C	226310
LCS 240-226310/21-A	Lab Control Sample	Total/NA	Water	8270C	226310
MB 240-226310/20-A	Method Blank	Total/NA	Water	8270C	226310

## GC VOA

### Analysis Batch: 227833

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	RSK-175	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	RSK-175	
LCS 240-227833/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-227833/4	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 173925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	8151A	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	8151A	
LCS 180-173925/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-173925/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-173925/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 174002

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 180-173925/2-A	Lab Control Sample	Total/NA	Water	8151A	173925
LCSD 180-173925/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	173925
MB 180-173925/1-A	Method Blank	Total/NA	Water	8151A	173925

### Analysis Batch: 174211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	8151A	173925
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	8151A	173925

## Metals

### Prep Batch: 226367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Dissolved	Water	3005A	
240-63582-2	W-160414-PS-EW-02-D	Dissolved	Water	3005A	
LCS 240-226367/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-226367/1-A	Method Blank	Total Recoverable	Water	3005A	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Analysis Batch: 226713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Dissolved	Water	6020	226367
240-63582-2	W-160414-PS-EW-02-D	Dissolved	Water	6020	226367
LCS 240-226367/2-A	Lab Control Sample	Total Recoverable	Water	6020	226367
MB 240-226367/1-A	Method Blank	Total Recoverable	Water	6020	226367

## General Chemistry

### Analysis Batch: 226292

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	300.0	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	300.0	
LCS 240-226292/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226292/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226293

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	300.0	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	300.0	
LCS 240-226293/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226293/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226436

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	9060	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	9060	
240-63582-2 MS	W-160414-PS-EW-02-D	Total/NA	Water	9060	
240-63582-2 MSD	W-160414-PS-EW-02-D	Total/NA	Water	9060	
LCS 240-226436/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-226436/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-226436/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 226552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	2340C-1997	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	2340C-1997	
240-63582-2 DU	W-160414-PS-EW-02-D	Total/NA	Water	2340C-1997	
LCS 240-226552/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-226552/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 227383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63582-1	W-160414-PS-EW-02-S	Total/NA	Water	2320B-1997	
240-63582-1 DU	W-160414-PS-EW-02-S	Total/NA	Water	2320B-1997	
240-63582-2	W-160414-PS-EW-02-D	Total/NA	Water	2320B-1997	
LCS 240-227383/2	Lab Control Sample	Total/NA	Water	2320B-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

**Client Sample ID: W-160414-PS-EW-02-S**

**Lab Sample ID: 240-63582-1**

**Date Collected: 04/14/16 16:15**

**Matrix: Water**

**Date Received: 04/16/16 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 11:33	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	227833	04/27/16 21:08	BPM	TAL CAN
Total/NA	Prep	8151A			173925	04/19/16 15:30	CBY	TAL PIT
Total/NA	Analysis	8151A		1000	174211	04/22/16 10:46	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 01:18	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 10:58	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:30	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226292	04/16/16 15:34	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226293	04/16/16 15:34	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 18:27	TPH	TAL CAN

**Client Sample ID: W-160414-PS-EW-02-D**

**Lab Sample ID: 240-63582-2**

**Date Collected: 04/14/16 15:30**

**Matrix: Water**

**Date Received: 04/16/16 09:35**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			226310	04/18/16 08:55	JDR	TAL CAN
Total/NA	Analysis	8270C		1	226460	04/19/16 11:57	TMH	TAL CAN
Total/NA	Analysis	RSK-175		1	227833	04/27/16 21:25	BPM	TAL CAN
Total/NA	Prep	8151A			173925	04/19/16 15:30	CBY	TAL PIT
Total/NA	Analysis	8151A		1000	174211	04/22/16 11:10	JMO	TAL PIT
Dissolved	Prep	3005A			226367	04/18/16 11:26	WKD	TAL CAN
Dissolved	Analysis	6020		1	226713	04/20/16 01:22	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 11:13	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	226552	04/19/16 11:33	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226292	04/16/16 15:17	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226293	04/16/16 15:17	LKG	TAL CAN
Total/NA	Analysis	9060		1	226436	04/18/16 17:45	TPH	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63582-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

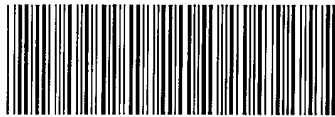
## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**



240-63582 Chain of Custody



TestAmerica Canton  
4101 Shuffel Street, N. W.

1.8/CL3

Chain of Custody Record

120205

TestAmerica  
THE LEADER IN ENVIRONMENTAL TESTING  
TestAmerica Laboratories, Inc.  
TAL-8210 (0719)

North Canton, OH 44720  
Phone: 330.497.9396 Fax: 330.497.0772

grant.anderson@ghd.com

Regulatory Program:  DW  NPDES  RCRA  Other:

Client Contact  
Company Name: GHD  
Address: 1801 Old Highway 8 NW  
City/State/Zip: St. Paul, MN 55112  
Phone: 651-639-0913  
Fax: 651-639-0923  
Project Name: Penta Wood  
Site: 086165-03-10  
P O #

Project Manager:  
Tel/Fax:  
Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

Site Contact:  
Lab Contact:  
Date: 4-15-16  
Carrier: Fed Ex  
COC No.: 1 of 1 COCS

Sampler: Peter Storick  
For Lab Use Only:  
Walk-in Client:  
Lab Sampling:  
Job / SDG No.:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	NO <sub>3</sub> SO <sub>4</sub> CL	PCP-8151	Naphthalene-8270	Alkalinity	Hardness	TOC	Diss Methane	As, Cu, Zn, Fe, Mn (Diss)
W-160414-PS-EW-02-S	4-14-16	16:15	G	W	14	X	X	X	X	X	X	X	X	X	X
W-160414-PS-EW-02-D	4-14-16	15:30	G	W	14	X	X	X	X	X	X	X	X	X	X

Sample Specific Notes:  
EW02S  
EW02D

Preservation Used: (1= Ice, 2= HCl; 3= H2SO4; 4= HNO3; 5= NaOH; 6= Other)  
Possible Hazard Identification:  
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:  
Nitrates (48 W)  
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)  
 Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Custody Seal No.:  
Custody Seals Intact:  Yes  No  
Relinquished by: [Signature]  
Date/Time: 4-15-16/12:00  
Company: GHD

Received by:  
Date/Time:  
Company:

Received in Laboratory by: [Signature]  
Date/Time: 4-16-16 9:35  
Company: TANC





Client GHD Site Name \_\_\_\_\_ Cooler unpacked by: F. Jemel  
 Cooler Received on 4-16-16 Opened on 4-16-16  
 FedEx: 1<sup>st</sup> Grd  UPS  FAS  Stetson Client Drop Off  TestAmerica Courier  Other \_\_\_\_\_  
 Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_  
 TestAmerica Cooler # A3 Foam Box  Client Cooler  Box  Other \_\_\_\_\_  
 Packing material used:  Bubble Wrap  Foam  Plastic Bag  None  Other \_\_\_\_\_  
 COOLANT:  Wet Ice  Blue Ice  Dry Ice  Water  None  
 1. Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# I8 (CF -0.5 °C) Observed Cooler Temp. 1.8 °C Corrected Cooler Temp. 1.3 °C  
 2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 2  Yes  No  
 -Were custody seals on the outside of the cooler(s) signed & dated?  Yes  No NA  
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No  
 3. Shippers' packing slip attached to the cooler(s)?  Yes  No  
 4. Did custody papers accompany the sample(s)?  Yes  No  
 5. Were the custody papers relinquished & signed in the appropriate place?  Yes  No  
 6. Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No  
 7. Did all bottles arrive in good condition (Unbroken)?  Yes  No  
 8. Could all bottle labels be reconciled with the COC?  Yes  No  
 9. Were correct bottle(s) used for the test(s) indicated?  Yes  No  
 10. Sufficient quantity received to perform indicated analyses?  Yes  No  
 11. Are these work share samples?  Yes  No  
 If yes, Questions 12-16 have been checked at the originating laboratory.  
 12. Were sample(s) at the correct pH upon receipt?  Yes  No NA pH Strip Lot# HC559158  
 13. Were VOAs on the COC?  Yes  No  
 14. Were air bubbles >6 mm in any VOA vials?  Yes  No NA  
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_ Yes  No  
 16. Was a LL Hg or Me Hg trip blank present? \_\_\_\_\_ Yes  No  
 Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

18. SAMPLE CONDITION  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_

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Temperature readings:

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160414-PS-EW-02-S	240-63582-H-1	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-EW-02-S	240-63582-J-1	Plastic 500ml - w/ Nitric - Dis.	<2		
W-160414-PS-EW-02-D	240-63582-H-2	Plastic 250ml - with Nitric Acid	<2		
W-160414-PS-EW-02-D	240-63582-J-2	Plastic 500ml - w/ Nitric - Dis.	<2		

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63582-1

**Login Number: 63582**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/19/16 10:54 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton  
4101 Shuffel Street NW  
North Canton, OH 44720  
Tel: (330)497-9396

TestAmerica Job ID: 240-63636-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.  
1801 Old Highway 8 NW  
Suite 114  
St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:  
4/29/2016 9:55:39 AM

Denise Heckler, Project Manager II  
(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through  
**TotalAccess**

Have a Question?



Visit us at:  
[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
X	Surrogate is outside control limits

### Metals

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Reported value was between the limit of detection and the limit of quantitation.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Job ID: 240-63636-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63636-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/19/2016 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) 8151A: The following samples was diluted due to the abundance of target analytes: W-160418-PS-EW-04-S (240-63636-3) and W-160418-PS-EW-04-D (240-63636-4) Surrogates and spiked compounds were diluted out.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

Method(s) 3510C, 625: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 240-226701.

Method(s) 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-174167.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63636-1	W-160414-PS-EW-02-S	Water	04/14/16 16:15	04/19/16 09:30
240-63636-2	W-160414-PS-EW-02-D	Water	04/14/16 15:30	04/19/16 09:30
240-63636-3	W-160418-PS-EW-04-S	Water	04/18/16 10:55	04/19/16 09:30
240-63636-4	W-160418-PS-EW-04-D	Water	04/18/16 12:04	04/19/16 09:30
240-63636-5	W-TRIPBLANK-PS-08	Water	04/18/16 14:00	04/19/16 09:30

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Client Sample ID: W-160414-PS-EW-02-S

Lab Sample ID: 240-63636-1

No Detections.

## Client Sample ID: W-160414-PS-EW-02-D

Lab Sample ID: 240-63636-2

No Detections.

## Client Sample ID: W-160418-PS-EW-04-S

Lab Sample ID: 240-63636-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.25		0.19	0.060	ug/L	1		8270C	Total/NA
Methane	0.12	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	210		94	15	ug/L	4000		8151A	Total/NA
Copper	2.4		2.0	0.75	ug/L	1		6020	Dissolved
Iron	567	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	385		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	81.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	98.0		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	9.9		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.92		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	8.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	7.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160418-PS-EW-04-D

Lab Sample ID: 240-63636-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.16	J	0.19	0.060	ug/L	1		8270C	Total/NA
Methane	0.33	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	24		0.94	0.15	ug/L	40		8151A	Total/NA
Copper	2.2		2.0	0.75	ug/L	1		6020	Dissolved
Iron	3060	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	316		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	172		20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	129		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	131		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	16.5		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	1.9		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	6.0		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	5.3		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIPBLANK-PS-08

Lab Sample ID: 240-63636-5

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160414-PS-EW-02-S**

**Lab Sample ID: 240-63636-1**

**Date Collected: 04/14/16 16:15**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/27/16 00:39	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/27/16 00:39	1
Toluene	<0.23		1.0	0.23	ug/L			04/27/16 00:39	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/27/16 00:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		78 - 125		04/27/16 00:39	1
4-Bromofluorobenzene (Surr)	93		61 - 120		04/27/16 00:39	1
Toluene-d8 (Surr)	88		80 - 120		04/27/16 00:39	1
Dibromofluoromethane (Surr)	110		79 - 120		04/27/16 00:39	1

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160414-PS-EW-02-D**

**Lab Sample ID: 240-63636-2**

**Date Collected: 04/14/16 15:30**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/27/16 01:01	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/27/16 01:01	1
Toluene	<0.23		1.0	0.23	ug/L			04/27/16 01:01	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/27/16 01:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/27/16 01:01	1
4-Bromofluorobenzene (Surr)	100		61 - 120		04/27/16 01:01	1
Toluene-d8 (Surr)	86		80 - 120		04/27/16 01:01	1
Dibromofluoromethane (Surr)	104		79 - 120		04/27/16 01:01	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160418-PS-EW-04-S**

**Lab Sample ID: 240-63636-3**

**Date Collected: 04/18/16 10:55**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/27/16 12:24	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/27/16 12:24	1
Toluene	<0.23		1.0	0.23	ug/L			04/27/16 12:24	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/27/16 12:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/27/16 12:24	1
4-Bromofluorobenzene (Surr)	84		61 - 120		04/27/16 12:24	1
Toluene-d8 (Surr)	92		80 - 120		04/27/16 12:24	1
Dibromofluoromethane (Surr)	89		79 - 120		04/27/16 12:24	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.25		0.19	0.060	ug/L		04/20/16 08:51	04/22/16 18:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	78		29 - 110	04/20/16 08:51	04/22/16 18:09	1
2-Fluorophenol (Surr)	35		15 - 110	04/20/16 08:51	04/22/16 18:09	1
2,4,6-Tribromophenol (Surr)	97		21 - 128	04/20/16 08:51	04/22/16 18:09	1
Nitrobenzene-d5 (Surr)	77		31 - 110	04/20/16 08:51	04/22/16 18:09	1
Phenol-d5 (Surr)	20		10 - 110	04/20/16 08:51	04/22/16 18:09	1
Terphenyl-d14 (Surr)	55		31 - 115	04/20/16 08:51	04/22/16 18:09	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.12	J	0.50	0.080	ug/L			04/28/16 21:13	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	95		66 - 132		04/28/16 21:13	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	210		94	15	ug/L		04/21/16 15:00	04/26/16 07:04	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/21/16 15:00	04/26/16 07:04	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/20/16 09:29	04/22/16 01:43	1
Copper	2.4		2.0	0.75	ug/L		04/20/16 09:29	04/22/16 01:43	1
Iron	567	B	100	16.0	ug/L		04/20/16 09:29	04/22/16 01:43	1
Manganese	385		5.0	1.1	ug/L		04/20/16 09:29	04/22/16 01:43	1
Zinc	<7.3		20.0	7.3	ug/L		04/20/16 09:29	04/22/16 01:43	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	81.0		5.0	1.9	mg/L			04/25/16 14:51	1
Hardness as calcium carbonate	98.0		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	9.9		1.0	0.41	mg/L			04/20/16 15:45	1
Nitrate as N	0.92		0.10	0.035	mg/L			04/19/16 15:07	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160418-PS-EW-04-S**

**Lab Sample ID: 240-63636-3**

**Date Collected: 04/18/16 10:55**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	8.1		1.0	0.13	mg/L			04/19/16 15:07	1
Total Organic Carbon	7.2		1.0	0.080	mg/L			04/20/16 16:59	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160418-PS-EW-04-D**

**Lab Sample ID: 240-63636-4**

**Date Collected: 04/18/16 12:04**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/27/16 14:41	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/27/16 14:41	1
Toluene	<0.23		1.0	0.23	ug/L			04/27/16 14:41	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/27/16 14:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/27/16 14:41	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/27/16 14:41	1
Toluene-d8 (Surr)	92		80 - 120		04/27/16 14:41	1
Dibromofluoromethane (Surr)	86		79 - 120		04/27/16 14:41	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	0.16	J	0.19	0.060	ug/L		04/20/16 08:51	04/22/16 17:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	78		29 - 110	04/20/16 08:51	04/22/16 17:44	1
2-Fluorophenol (Surr)	39		15 - 110	04/20/16 08:51	04/22/16 17:44	1
2,4,6-Tribromophenol (Surr)	94		21 - 128	04/20/16 08:51	04/22/16 17:44	1
Nitrobenzene-d5 (Surr)	78		31 - 110	04/20/16 08:51	04/22/16 17:44	1
Phenol-d5 (Surr)	22		10 - 110	04/20/16 08:51	04/22/16 17:44	1
Terphenyl-d14 (Surr)	69		31 - 115	04/20/16 08:51	04/22/16 17:44	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.33	J	0.50	0.080	ug/L			04/28/16 21:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	95		66 - 132		04/28/16 21:30	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	24		0.94	0.15	ug/L		04/21/16 15:00	04/26/16 07:28	40

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	97		32 - 140	04/21/16 15:00	04/26/16 07:28	40

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/20/16 09:29	04/22/16 01:56	1
Copper	2.2		2.0	0.75	ug/L		04/20/16 09:29	04/22/16 01:56	1
Iron	3060	B	100	16.0	ug/L		04/20/16 09:29	04/22/16 01:56	1
Manganese	316		5.0	1.1	ug/L		04/20/16 09:29	04/22/16 01:56	1
Zinc	172		20.0	7.3	ug/L		04/20/16 09:29	04/22/16 01:56	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	129		5.0	1.9	mg/L			04/25/16 14:59	1
Hardness as calcium carbonate	131		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	16.5		1.0	0.41	mg/L			04/20/16 16:34	1
Nitrate as N	1.9		0.10	0.035	mg/L			04/19/16 15:23	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160418-PS-EW-04-D**

**Lab Sample ID: 240-63636-4**

**Date Collected: 04/18/16 12:04**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.0		1.0	0.13	mg/L			04/19/16 15:23	1
Total Organic Carbon	5.3		1.0	0.080	mg/L			04/20/16 18:06	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-TRIPBLANK-PS-08**

**Lab Sample ID: 240-63636-5**

**Date Collected: 04/18/16 14:00**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/27/16 15:04	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/27/16 15:04	1
Toluene	<0.23		1.0	0.23	ug/L			04/27/16 15:04	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/27/16 15:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/27/16 15:04	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/27/16 15:04	1
Toluene-d8 (Surr)	92		80 - 120		04/27/16 15:04	1
Dibromofluoromethane (Surr)	87		79 - 120		04/27/16 15:04	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63636-1	W-160414-PS-EW-02-S	106	93	88	110
240-63636-2	W-160414-PS-EW-02-D	102	100	86	104
240-63636-3	W-160418-PS-EW-04-S	83	84	92	89
240-63636-3 MS	W-160418-PS-EW-04-S	83	90	94	89
240-63636-3 MSD	W-160418-PS-EW-04-S	81	91	94	90
240-63636-4	W-160418-PS-EW-04-D	83	87	92	86
240-63636-5	W-TRIPBLANK-PS-08	84	87	92	87
LCS 240-227635/5	Lab Control Sample	98	105	98	104
LCS 240-227737/10	Lab Control Sample	82	89	94	89
MB 240-227635/7	Method Blank	106	107	105	107
MB 240-227737/6	Method Blank	84	83	92	90

#### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63636-3	W-160418-PS-EW-04-S	78	35	97	77	20	55
240-63636-4	W-160418-PS-EW-04-D	78	39	94	78	22	69
LCS 240-226701/10-A	Lab Control Sample	82	66	88	88	50	97
MB 240-226701/9-A	Method Blank	81	66	72	79	50	94

#### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Trifluoroet (66-132)
240-63636-3	W-160418-PS-EW-04-S	95
240-63636-4	W-160418-PS-EW-04-D	95
LCS 240-228000/5	Lab Control Sample	108
MB 240-228000/4	Method Blank	101

#### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

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# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63636-3	W-160418-PS-EW-04-S	0 X D	0 X D
240-63636-4	W-160418-PS-EW-04-D	97	60 p
LCS 180-174167/2-A	Lab Control Sample	67	71
LCSD 180-174167/3-A	Lab Control Sample Dup	67	67
MB 180-174167/1-A	Method Blank	57	57

#### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-227635/7**

**Matrix: Water**

**Analysis Batch: 227635**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/26/16 17:41	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/26/16 17:41	1
Toluene	<0.23		1.0	0.23	ug/L			04/26/16 17:41	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/26/16 17:41	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	106		78 - 125		04/26/16 17:41	1
4-Bromofluorobenzene (Surr)	107		61 - 120		04/26/16 17:41	1
Toluene-d8 (Surr)	105		80 - 120		04/26/16 17:41	1
Dibromofluoromethane (Surr)	107		79 - 120		04/26/16 17:41	1

**Lab Sample ID: LCS 240-227635/5**

**Matrix: Water**

**Analysis Batch: 227635**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.5		ug/L		105	80 - 120
Ethylbenzene	10.0	9.89		ug/L		99	80 - 120
Toluene	10.0	9.78		ug/L		98	80 - 120
Xylenes, Total	20.0	19.8		ug/L		99	80 - 120
m-Xylene & p-Xylene	10.0	9.78		ug/L		98	80 - 120
o-Xylene	10.0	10.0		ug/L		100	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		78 - 125
4-Bromofluorobenzene (Surr)	105		61 - 120
Toluene-d8 (Surr)	98		80 - 120
Dibromofluoromethane (Surr)	104		79 - 120

**Lab Sample ID: MB 240-227737/6**

**Matrix: Water**

**Analysis Batch: 227737**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/27/16 12:01	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/27/16 12:01	1
Toluene	<0.23		1.0	0.23	ug/L			04/27/16 12:01	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/27/16 12:01	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/27/16 12:01	1
4-Bromofluorobenzene (Surr)	83		61 - 120		04/27/16 12:01	1
Toluene-d8 (Surr)	92		80 - 120		04/27/16 12:01	1
Dibromofluoromethane (Surr)	90		79 - 120		04/27/16 12:01	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 240-227737/10**

**Matrix: Water**

**Analysis Batch: 227737**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.2		ug/L		112	80 - 120
Ethylbenzene	10.0	11.0		ug/L		110	80 - 120
Toluene	10.0	11.0		ug/L		110	80 - 120
Xylenes, Total	20.0	21.5		ug/L		108	80 - 120
m-Xylene & p-Xylene	10.0	10.9		ug/L		109	80 - 120
o-Xylene	10.0	10.6		ug/L		106	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	82		78 - 125
4-Bromofluorobenzene (Surr)	89		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	89		79 - 120

**Lab Sample ID: 240-63636-3 MS**

**Matrix: Water**

**Analysis Batch: 227737**

**Client Sample ID: W-160418-PS-EW-04-S**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.35		10.0	10.6		ug/L		106	73 - 121
Ethylbenzene	<0.25		10.0	10.4		ug/L		104	68 - 121
Toluene	<0.23		10.0	10.6		ug/L		106	72 - 122
Xylenes, Total	<0.52		20.0	20.6		ug/L		103	67 - 122
m-Xylene & p-Xylene	<0.24		10.0	10.3		ug/L		103	66 - 123
o-Xylene	<0.25		10.0	10.3		ug/L		103	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		78 - 125
4-Bromofluorobenzene (Surr)	90		61 - 120
Toluene-d8 (Surr)	94		80 - 120
Dibromofluoromethane (Surr)	89		79 - 120

**Lab Sample ID: 240-63636-3 MSD**

**Matrix: Water**

**Analysis Batch: 227737**

**Client Sample ID: W-160418-PS-EW-04-S**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.35		10.0	10.5		ug/L		105	73 - 121	1	13
Ethylbenzene	<0.25		10.0	10.2		ug/L		102	68 - 121	2	16
Toluene	<0.23		10.0	10.4		ug/L		104	72 - 122	2	15
Xylenes, Total	<0.52		20.0	20.2		ug/L		101	67 - 122	2	14
m-Xylene & p-Xylene	<0.24		10.0	10.2		ug/L		102	66 - 123	1	15
o-Xylene	<0.25		10.0	9.97		ug/L		100	68 - 121	3	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		78 - 125
4-Bromofluorobenzene (Surr)	91		61 - 120
Toluene-d8 (Surr)	94		80 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63636-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 227737**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Surrogate	MSD		Limits
	%Recovery	Qualifier	
Dibromofluoromethane (Surr)	90		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-226701/9-A**  
**Matrix: Water**  
**Analysis Batch: 226916**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 226701**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/20/16 08:51	04/21/16 10:41	1
Surrogate	MB		Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
2-Fluorobiphenyl (Surr)	81		29 - 110				04/20/16 08:51	04/21/16 10:41	1
2-Fluorophenol (Surr)	66		15 - 110				04/20/16 08:51	04/21/16 10:41	1
2,4,6-Tribromophenol (Surr)	72		21 - 128				04/20/16 08:51	04/21/16 10:41	1
Nitrobenzene-d5 (Surr)	79		31 - 110				04/20/16 08:51	04/21/16 10:41	1
Phenol-d5 (Surr)	50		10 - 110				04/20/16 08:51	04/21/16 10:41	1
Terphenyl-d14 (Surr)	94		31 - 115				04/20/16 08:51	04/21/16 10:41	1

**Lab Sample ID: LCS 240-226701/10-A**  
**Matrix: Water**  
**Analysis Batch: 226916**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 226701**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	16.4		ug/L		82	52 - 120
Surrogate	LCS		Limits			D	%Rec
	%Recovery	Qualifier					
2-Fluorobiphenyl (Surr)	82		29 - 110				
2-Fluorophenol (Surr)	66		15 - 110				
2,4,6-Tribromophenol (Surr)	88		21 - 128				
Nitrobenzene-d5 (Surr)	88		31 - 110				
Phenol-d5 (Surr)	50		10 - 110				
Terphenyl-d14 (Surr)	97		31 - 115				

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-228000/4**  
**Matrix: Water**  
**Analysis Batch: 228000**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			04/28/16 16:37	1
Surrogate	MB		Limits			D	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
1,1,1-Trifluoroethane	101		66 - 132					04/28/16 16:37	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCS 240-228000/5**  
**Matrix: Water**  
**Analysis Batch: 228000**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	213		ug/L		107	76 - 120
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
1,1,1-Trifluoroethane		108					66 - 132

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-174167/1-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 174167**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/21/16 15:00	04/26/16 15:26	4
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2,4-Dichlorophenylacetic acid	57		32 - 140				04/21/16 15:00	04/26/16 15:26	4

**Lab Sample ID: LCS 180-174167/2-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 174167**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1.00	0.947		ug/L		95	40 - 140
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>
2,4-Dichlorophenylacetic acid		71					32 - 140

**Lab Sample ID: LCSD 180-174167/3-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 174167**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	1.00	0.791		ug/L		79	40 - 140	18	30
<b>Surrogate</b>		<b>%Recovery</b>	<b>Qualifier</b>				<b>Limits</b>		
2,4-Dichlorophenylacetic acid		67					32 - 140		

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-226721/1-A**  
**Matrix: Water**  
**Analysis Batch: 227165**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226721**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/20/16 09:29	04/22/16 00:18	1
Copper	<0.75		2.0	0.75	ug/L		04/20/16 09:29	04/22/16 00:18	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 6020 - Metals (ICP/MS) (Continued)

**Lab Sample ID: MB 240-226721/1-A**  
**Matrix: Water**  
**Analysis Batch: 227165**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226721**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Iron	36.91	J	100	16.0	ug/L		04/20/16 09:29	04/22/16 00:18	1
Manganese	<1.1		5.0	1.1	ug/L		04/20/16 09:29	04/22/16 00:18	1
Zinc	<7.3		20.0	7.3	ug/L		04/20/16 09:29	04/22/16 00:18	1

**Lab Sample ID: LCS 240-226721/2-A**  
**Matrix: Water**  
**Analysis Batch: 227165**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226721**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	895.6		ug/L		90	80 - 120
Copper	1000	1010		ug/L		101	80 - 120
Iron	10000	9322		ug/L		93	80 - 120
Manganese	1000	910.2		ug/L		91	80 - 120
Zinc	1000	937.0		ug/L		94	80 - 120

## Method: 2320B-1997 - Alkalinity, Total

**Lab Sample ID: LCS 240-227383/29**  
**Matrix: Water**  
**Analysis Batch: 227383**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	296.0		mg/L		104	90 - 127

## Method: 2340C-1997 - Hardness, Total

**Lab Sample ID: MB 240-227183/1**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/22/16 08:20	1

**Lab Sample ID: LCS 240-227183/2**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	166.6		mg/L		98	88 - 110

**Lab Sample ID: 240-63636-3 MS**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	98.0		200	301.8		mg/L		102	87 - 114

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 2340C-1997 - Hardness, Total (Continued)

**Lab Sample ID: 240-63636-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	98.0		200	301.8		mg/L		102	87 - 114	0	20

**Lab Sample ID: 240-63636-3 DU**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hardness as calcium carbonate	98.0		98.00		mg/L		0	20

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 240-226593/27**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/19/16 21:12	1
Sulfate	<0.13		1.0	0.13	mg/L			04/19/16 21:12	1

**Lab Sample ID: MB 240-226593/3**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.13		1.0	0.13	mg/L			04/19/16 14:34	1

**Lab Sample ID: LCS 240-226593/28**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.32		mg/L		105	90 - 110
Sulfate	50.0	48.77		mg/L		98	90 - 110

**Lab Sample ID: LCS 240-226593/4**  
**Matrix: Water**  
**Analysis Batch: 226593**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	48.87		mg/L		98	90 - 110

**Lab Sample ID: MB 240-226594/3**  
**Matrix: Water**  
**Analysis Batch: 226594**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/19/16 14:34	1

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 240-226594/4**  
**Matrix: Water**  
**Analysis Batch: 226594**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.52		mg/L		101	90 - 110

**Lab Sample ID: MB 240-226764/3**  
**Matrix: Water**  
**Analysis Batch: 226764**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/20/16 12:16	1
Sulfate	<0.13		1.0	0.13	mg/L			04/20/16 12:16	1

**Lab Sample ID: LCS 240-226764/4**  
**Matrix: Water**  
**Analysis Batch: 226764**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	51.97		mg/L		104	90 - 110
Sulfate	50.0	48.76		mg/L		98	90 - 110

**Lab Sample ID: 240-63636-3 MS**  
**Matrix: Water**  
**Analysis Batch: 226764**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	9.9		50.0	65.08		mg/L		110	80 - 120
Sulfate	8.0		50.0	61.86		mg/L		108	80 - 120

**Lab Sample ID: 240-63636-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 226764**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Chloride	9.9		50.0	64.52		mg/L		109	80 - 120	1	15
Sulfate	8.0		50.0	59.90		mg/L		104	80 - 120	3	15

**Lab Sample ID: MB 240-226765/3**  
**Matrix: Water**  
**Analysis Batch: 226765**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/20/16 12:16	1

**Lab Sample ID: LCS 240-226765/4**  
**Matrix: Water**  
**Analysis Batch: 226765**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.52		mg/L		101	90 - 110

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-226890/4**  
**Matrix: Water**  
**Analysis Batch: 226890**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/20/16 11:46	1

**Lab Sample ID: LCS 240-226890/6**  
**Matrix: Water**  
**Analysis Batch: 226890**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	68.50		mg/L		99	88 - 115

**Lab Sample ID: LLCS 240-226890/5**  
**Matrix: Water**  
**Analysis Batch: 226890**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.66		mg/L		96	88 - 115

**Lab Sample ID: 240-63636-3 MS**  
**Matrix: Water**  
**Analysis Batch: 226890**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	7.2		25.0	34.02		mg/L		107	72 - 136

**Lab Sample ID: 240-63636-3 MSD**  
**Matrix: Water**  
**Analysis Batch: 226890**

**Client Sample ID: W-160418-PS-EW-04-S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	7.2		25.0	35.23		mg/L		112	72 - 136	4	20

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## GC/MS VOA

### Analysis Batch: 227635

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-1	W-160414-PS-EW-02-S	Total/NA	Water	8260B	
240-63636-2	W-160414-PS-EW-02-D	Total/NA	Water	8260B	
LCS 240-227635/5	Lab Control Sample	Total/NA	Water	8260B	
MB 240-227635/7	Method Blank	Total/NA	Water	8260B	

### Analysis Batch: 227737

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	8260B	
240-63636-3 MS	W-160418-PS-EW-04-S	Total/NA	Water	8260B	
240-63636-3 MSD	W-160418-PS-EW-04-S	Total/NA	Water	8260B	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	8260B	
240-63636-5	W-TRIPBLANK-PS-08	Total/NA	Water	8260B	
LCS 240-227737/10	Lab Control Sample	Total/NA	Water	8260B	
MB 240-227737/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 226701

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	3510C	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	3510C	
LCS 240-226701/10-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-226701/9-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 226916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-226701/10-A	Lab Control Sample	Total/NA	Water	8270C	226701
MB 240-226701/9-A	Method Blank	Total/NA	Water	8270C	226701

### Analysis Batch: 227098

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	8270C	226701
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	8270C	226701

## GC VOA

### Analysis Batch: 228000

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	RSK-175	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	RSK-175	
LCS 240-228000/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-228000/4	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 174167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	8151A	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	8151A	
LCS 180-174167/2-A	Lab Control Sample	Total/NA	Water	8151A	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## GC Semi VOA (Continued)

### Prep Batch: 174167 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 180-174167/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-174167/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 174434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	8151A	174167
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	8151A	174167
LCS 180-174167/2-A	Lab Control Sample	Total/NA	Water	8151A	174167
LCSD 180-174167/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	174167
MB 180-174167/1-A	Method Blank	Total/NA	Water	8151A	174167

## Metals

### Prep Batch: 226721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Dissolved	Water	3005A	
240-63636-4	W-160418-PS-EW-04-D	Dissolved	Water	3005A	
LCS 240-226721/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-226721/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 227165

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Dissolved	Water	6020	226721
240-63636-4	W-160418-PS-EW-04-D	Dissolved	Water	6020	226721
LCS 240-226721/2-A	Lab Control Sample	Total Recoverable	Water	6020	226721
MB 240-226721/1-A	Method Blank	Total Recoverable	Water	6020	226721

## General Chemistry

### Analysis Batch: 226593

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	300.0	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	300.0	
LCS 240-226593/28	Lab Control Sample	Total/NA	Water	300.0	
LCS 240-226593/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226593/27	Method Blank	Total/NA	Water	300.0	
MB 240-226593/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226594

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	300.0	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	300.0	
LCS 240-226594/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226594/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	300.0	
240-63636-3 MS	W-160418-PS-EW-04-S	Total/NA	Water	300.0	
240-63636-3 MSD	W-160418-PS-EW-04-S	Total/NA	Water	300.0	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## General Chemistry (Continued)

### Analysis Batch: 226764 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	300.0	
LCS 240-226764/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226764/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-226765/4	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226765/3	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 226890

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	9060	
240-63636-3 MS	W-160418-PS-EW-04-S	Total/NA	Water	9060	
240-63636-3 MSD	W-160418-PS-EW-04-S	Total/NA	Water	9060	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	9060	
LCS 240-226890/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-226890/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-226890/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 227183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	2340C-1997	
240-63636-3 DU	W-160418-PS-EW-04-S	Total/NA	Water	2340C-1997	
240-63636-3 MS	W-160418-PS-EW-04-S	Total/NA	Water	2340C-1997	
240-63636-3 MSD	W-160418-PS-EW-04-S	Total/NA	Water	2340C-1997	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	2340C-1997	
LCS 240-227183/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-227183/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 227383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63636-3	W-160418-PS-EW-04-S	Total/NA	Water	2320B-1997	
240-63636-4	W-160418-PS-EW-04-D	Total/NA	Water	2320B-1997	
LCS 240-227383/29	Lab Control Sample	Total/NA	Water	2320B-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

**Client Sample ID: W-160414-PS-EW-02-S**

**Date Collected: 04/14/16 16:15**

**Date Received: 04/19/16 09:30**

**Lab Sample ID: 240-63636-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227635	04/27/16 00:39	RJQ	TAL CAN

**Client Sample ID: W-160414-PS-EW-02-D**

**Date Collected: 04/14/16 15:30**

**Date Received: 04/19/16 09:30**

**Lab Sample ID: 240-63636-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227635	04/27/16 01:01	RJQ	TAL CAN

**Client Sample ID: W-160418-PS-EW-04-S**

**Date Collected: 04/18/16 10:55**

**Date Received: 04/19/16 09:30**

**Lab Sample ID: 240-63636-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227737	04/27/16 12:24	RJQ	TAL CAN
Total/NA	Prep	3510C			226701	04/20/16 08:51	JDR	TAL CAN
Total/NA	Analysis	8270C		1	227098	04/22/16 18:09	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	228000	04/28/16 21:13	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 07:04	JMO	TAL PIT
Dissolved	Prep	3005A			226721	04/20/16 09:29	WKD	TAL CAN
Dissolved	Analysis	6020		1	227165	04/22/16 01:43	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 14:51	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226593	04/19/16 15:07	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226594	04/19/16 15:07	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226764	04/20/16 15:45	LCN	TAL CAN
Total/NA	Analysis	9060		1	226890	04/20/16 16:59	TPH	TAL CAN

**Client Sample ID: W-160418-PS-EW-04-D**

**Date Collected: 04/18/16 12:04**

**Date Received: 04/19/16 09:30**

**Lab Sample ID: 240-63636-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227737	04/27/16 14:41	RJQ	TAL CAN
Total/NA	Prep	3510C			226701	04/20/16 08:51	JDR	TAL CAN
Total/NA	Analysis	8270C		1	227098	04/22/16 17:44	MRU	TAL CAN
Total/NA	Analysis	RSK-175		1	228000	04/28/16 21:30	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		40	174434	04/26/16 07:28	JMO	TAL PIT
Dissolved	Prep	3005A			226721	04/20/16 09:29	WKD	TAL CAN
Dissolved	Analysis	6020		1	227165	04/22/16 01:56	AS1	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 14:59	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226593	04/19/16 15:23	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226594	04/19/16 15:23	LCN	TAL CAN
Total/NA	Analysis	300.0		1	226764	04/20/16 16:34	LCN	TAL CAN
Total/NA	Analysis	9060		1	226890	04/20/16 18:06	TPH	TAL CAN

**Client Sample ID: W-TRIPBLANK-PS-08**

**Lab Sample ID: 240-63636-5**

**Date Collected: 04/18/16 14:00**

**Matrix: Water**

**Date Received: 04/19/16 09:30**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227737	04/27/16 15:04	RJQ	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63636-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**



240-63636 Chain of Custody

- 1
- 2
- 3
- 4
- 5
- 6
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- 14
- 15

**TestAmerica Lanton**  
4101 Shuffel Street, N. H.

North Canton, OH 44720  
Phone: 330.497.9396 Fax: 330.497.0772

2.6/C2.1

**Chain of Custody Record**

117687

gant.anderson@ghd.com

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING  
TestAmerica Laboratories, Inc.  
TAL-8210 (0713)

<b>Company Name:</b> 640 <b>Address:</b> 1801 Old Hwy 8 <b>City/State/Zip:</b> St Paul MD 21112 <b>Phone:</b> 410-639-0913 <b>Fax:</b> 410-639-0923 <b>Project Name:</b> 086165-03-10 <b>Site:</b> Penton Wood <b>P O #</b>		<b>Client Contact</b> <b>Company Name:</b> 640 <b>Address:</b> 1801 Old Hwy 8 <b>City/State/Zip:</b> St Paul MD 21112 <b>Phone:</b> 410-639-0913 <b>Fax:</b> 410-639-0923 <b>Project Name:</b> 086165-03-10 <b>Site:</b> Penton Wood <b>P O #</b>		<b>Project Manager:</b> [ ] DW [ ] NPDES [ ] RCRA [ ] Other: [ ] <b>Tel/Fax:</b>		<b>Site Contact:</b> <b>Lab Contact:</b>		<b>Date:</b> 4-18-16 <b>Carrier:</b> Fed Ex <b>Sampler:</b> P. Starke <b>For Lab Use Only:</b> <b>Walk-in Client:</b> <b>Lab Sampling:</b> <b>Job / SDG No.:</b>		<b>COC No.:</b> 1 of 1 COCs	
<b>Analysis Turnaround Time</b> <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <b>STANDARD</b>		<b>Filtered Sample (Y/N)</b> <b>Perform MS/MSD (Y/N)</b>		<b>Sample Specific Notes:</b>		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months		<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months	
<b>Sample Identification</b> W-160414-PS-EW-02-S W-160418-PS-EW-04-S W-TAP-BLANK-PS-08		<b>Sample Date</b> 4-14-16 4-18-16 4-18-16		<b>Sample Time</b> 1615 1530 1055 1204 1400		<b>Sample Type (C=Comp, G=Grab)</b> G ↓ ↓ ↓		<b>Matrix</b> W ↓ ↓ ↓		<b># of Cont.</b> 3 17 17 1	
<b>Preservation Used:</b> 1=Ice, 2=HC, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other <b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.		<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Poison B		<b>Special Instructions/QC Requirements &amp; Comments:</b> Nitrate analyses (500-hr)		<b>Custody Seals Intact:</b> <input type="checkbox"/> Yes <input type="checkbox"/> No		<b>Therm ID No.:</b>		<b>Company:</b>	
<b>Relinquished by:</b> [Signature]		<b>Relinquished by:</b> [Signature]		<b>Relinquished by:</b> [Signature]		<b>Received by:</b> [Signature]		<b>Received by:</b> [Signature]		<b>Received in Laboratory by:</b> [Signature]	
<b>Date:</b> 4/18/16		<b>Date:</b> 4/18/16		<b>Date:</b> 4/18/16		<b>Date:</b> 4/18/16		<b>Date:</b> 4/18/16		<b>Date:</b> 4-18-16	

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Client SHD Site Name \_\_\_\_\_ Cooler unpacked by: A. Jemel  
 Cooler Received on 4-19-16 Opened on 4-19-16  
 FedEx: 1<sup>st</sup> Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

TestAmerica Cooler # \_\_\_\_\_ Foam Box Client Cooler Box \_\_\_\_\_ Other \_\_\_\_\_  
 Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_  
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

- Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. 2.40 °C Corrected Cooler Temp. 2.1 °C
- Were custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No  
 -Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA  
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
- Shippers' packing slip attached to the cooler(s)? Yes No
- Did custody papers accompany the sample(s)? Yes No
- Were the custody papers relinquished & signed in the appropriate place? Yes No
- Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
- Did all bottles arrive in good condition (Unbroken)? Yes No
- Could all bottle labels be reconciled with the COC? Yes No
- Were correct bottle(s) used for the test(s) indicated? Yes No
- Sufficient quantity received to perform indicated analyses? Yes No
- Are these work share samples? Yes No  
 If yes, Questions 12-16 have been checked at the originating laboratory.
- Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC559158
- Were VOAs on the COC? Yes No
- Were air bubbles >6 mm in any VOA vials? Yes No NA
- Was a VOA trip blank present in the cooler(s)? Trip Blank Lot# Covered Yes No
- Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: \_\_\_\_\_

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18. SAMPLE CONDITION  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_

~~Temperature readings:~~

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container</u> <u>pH</u>	<u>Preservative</u> <u>Added (mls)</u>	<u>Lot #</u>
W-160418-PS-EW-04-S	240-63636-K-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160418-PS-EW-04-S	240-63636-M-3	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160418-PS-EW-04-D	240-63636-K-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160418-PS-EW-04-D	240-63636-M-4	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63636-1

**Login Number: 63636**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/20/16 12:04 PM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-63702-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

5/2/2016 4:29:06 PM

Denise Heckler, Project Manager II

(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



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[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
X	Surrogate is outside control limits

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
B	Compound was found in the blank and sample.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
J	Reported value was between the limit of detection and the limit of quantitation.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Job ID: 240-63702-1

### Laboratory: TestAmerica Canton

#### Narrative

#### Job Narrative 240-63702-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/20/2016 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 3 coolers at receipt time were 0.5° C, 1.7° C and 1.9° C.

#### GC/MS Semi VOA

Method(s) 8270C: Six surrogates are used for this analysis. The laboratory's SOP allows one acid and one base of these surrogates to be outside acceptance criteria without performing re-extraction/re-analysis. The following samples contained an allowable number of surrogate compounds outside limits: W-160419-PS-MW-6S (240-63702-4) and W-160419-PS-EW-13-S (240-63702-5). These results have been reported and qualified.

Method(s) 8270C: The following samples were diluted due to the nature of the sample matrix: W-160418-PS-EW-03-S (240-63702-1), W-160418-PS-EW-03-D (240-63702-2), W-160418-PS-MW-10S (240-63702-3) and W-160419-PS-EW-13-D (240-63702-6). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) 8151A: The following samples was diluted due to the abundance of target analytes: W-160418-PS-EW-03-S (240-63702-1), W-160418-PS-EW-03-D (240-63702-2), W-160418-PS-MW-10S (240-63702-3), W-160419-PS-EW-13-S (240-63702-5) and W-160419-PS-EW-13-D (240-63702-6) Surrogates and spiked compounds were diluted out.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-160418-PS-EW-03-S (240-63702-1), W-160418-PS-EW-03-D (240-63702-2) and W-160418-PS-MW-10S (240-63702-3).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

Method(s) 8151A: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-174167.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63702-1	W-160418-PS-EW-03-S	Water	04/18/16 15:22	04/20/16 09:20
240-63702-2	W-160418-PS-EW-03-D	Water	04/18/16 14:55	04/20/16 09:20
240-63702-3	W-160418-PS-MW-10S	Water	04/18/16 16:35	04/20/16 09:20
240-63702-4	W-160419-PS-MW-6S	Water	04/19/16 11:50	04/20/16 09:20
240-63702-5	W-160419-PS-EW-13-S	Water	04/19/16 12:13	04/20/16 09:20
240-63702-6	W-160419-PS-EW-13-D	Water	04/19/16 09:34	04/20/16 09:20

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# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Client Sample ID: W-160418-PS-EW-03-S

## Lab Sample ID: 240-63702-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	12		3.8	1.2	ug/L	20		8270C	Total/NA
Methane	0.15	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	14000		470	73	ug/L	20000		8151A	Total/NA
Arsenic	0.53	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	10.8		2.0	0.75	ug/L	1		6020	Dissolved
Iron	1050	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	3530		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	88.0		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	220		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	73.8		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.29	H	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	39.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	59.1		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160418-PS-EW-03-D

## Lab Sample ID: 240-63702-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	2.4		0.80	0.25	ug/L	4		8270C	Total/NA
Methane	1.3		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	3500		95	15	ug/L	4000		8151A	Total/NA
Arsenic	2.7	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	9.8		2.0	0.75	ug/L	1		6020	Dissolved
Iron	12500	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	1780		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	398		20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	184		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	169		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	13.4		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	25.6		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	10		2.0	0.16	mg/L	2		9060	Total/NA

## Client Sample ID: W-160418-PS-MW-10S

## Lab Sample ID: 240-63702-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	4.7		0.76	0.24	ug/L	4		8270C	Total/NA
Pentachlorophenol	3500		95	15	ug/L	4000		8151A	Total/NA
Arsenic	0.59	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	2.6		2.0	0.75	ug/L	1		6020	Dissolved
Iron	190	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	388		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	102		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	92.1		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	7.8		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	9.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	9.5		2.0	0.16	mg/L	2		9060	Total/NA

## Client Sample ID: W-160419-PS-MW-6S

## Lab Sample ID: 240-63702-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.20		0.10	0.016	ug/L	4		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Client Sample ID: W-160419-PS-MW-6S (Continued)

## Lab Sample ID: 240-63702-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.51	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	4.7		2.0	0.75	ug/L	1		6020	Dissolved
Iron	831	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	15.4		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	42.0		10.0	3.8	mg/L	2		2320B-1997	Total/NA
Hardness as calcium carbonate	70.6		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	7.4		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	4.8		0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	6.3		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	18.2		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160419-PS-EW-13-S

## Lab Sample ID: 240-63702-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	2.0		0.19	0.060	ug/L	1		8270C	Total/NA
Methane	4.9		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	770		94	15	ug/L	4000		8151A	Total/NA
Arsenic	23.2		5.0	0.49	ug/L	1		6020	Dissolved
Copper	37.7		2.0	0.75	ug/L	1		6020	Dissolved
Iron	14100	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	2340		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	13.8	J	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	370		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	229		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	20.7		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	9.6		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	36.6		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160419-PS-EW-13-D

## Lab Sample ID: 240-63702-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	13		0.76	0.24	ug/L	4		8270C	Total/NA
Methane	1100		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	2100		94	15	ug/L	4000		8151A	Total/NA
Arsenic	1.6	J	5.0	0.49	ug/L	1		6020	Dissolved
Iron	7660	B	100	16.0	ug/L	1		6020	Dissolved
Manganese	956		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	11.7	J	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	180		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	167		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	15.1		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.093	J	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	2.0		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	20.7		1.0	0.080	mg/L	1		9060	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160418-PS-EW-03-S**

**Lab Sample ID: 240-63702-1**

**Date Collected: 04/18/16 15:22**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>12</b>		3.8	1.2	ug/L		04/22/16 09:04	04/26/16 18:59	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	69		29 - 110				04/22/16 09:04	04/26/16 18:59	20
2-Fluorophenol (Surr)	26		15 - 110				04/22/16 09:04	04/26/16 18:59	20
2,4,6-Tribromophenol (Surr)	57		21 - 128				04/22/16 09:04	04/26/16 18:59	20
Nitrobenzene-d5 (Surr)	74		31 - 110				04/22/16 09:04	04/26/16 18:59	20
Phenol-d5 (Surr)	18		10 - 110				04/22/16 09:04	04/26/16 18:59	20
Terphenyl-d14 (Surr)	31		31 - 115				04/22/16 09:04	04/26/16 18:59	20

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>0.15</b>	<b>J</b>	0.50	0.080	ug/L			05/01/16 16:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	106		66 - 132					05/01/16 16:25	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>14000</b>		470	73	ug/L		04/21/16 15:00	04/26/16 07:52	20000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/21/16 15:00	04/26/16 07:52	20000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>0.53</b>	<b>J</b>	5.0	0.49	ug/L		04/21/16 10:08	04/29/16 22:12	1
<b>Copper</b>	<b>10.8</b>		2.0	0.75	ug/L		04/21/16 10:08	04/29/16 22:12	1
<b>Iron</b>	<b>1050</b>	<b>B</b>	100	16.0	ug/L		04/21/16 10:08	04/29/16 22:12	1
<b>Manganese</b>	<b>3530</b>		5.0	1.1	ug/L		04/21/16 10:08	04/29/16 22:12	1
Zinc	<7.3		20.0	7.3	ug/L		04/21/16 10:08	04/29/16 22:12	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>88.0</b>		5.0	1.9	mg/L			04/25/16 16:09	1
<b>Hardness as calcium carbonate</b>	<b>220</b>		5.0	3.1	mg/L			04/22/16 08:20	1
<b>Chloride</b>	<b>73.8</b>		1.0	0.41	mg/L			04/21/16 09:16	1
<b>Nitrate as N</b>	<b>0.29</b>	<b>H</b>	0.10	0.035	mg/L			04/21/16 09:16	1
<b>Sulfate</b>	<b>39.1</b>		1.0	0.13	mg/L			04/21/16 09:16	1
<b>Total Organic Carbon</b>	<b>59.1</b>		1.0	0.080	mg/L			04/28/16 11:06	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160418-PS-EW-03-D**

**Lab Sample ID: 240-63702-2**

**Date Collected: 04/18/16 14:55**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>2.4</b>		0.80	0.25	ug/L		04/22/16 09:04	04/26/16 20:34	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	73		29 - 110				04/22/16 09:04	04/26/16 20:34	4
2-Fluorophenol (Surr)	30		15 - 110				04/22/16 09:04	04/26/16 20:34	4
2,4,6-Tribromophenol (Surr)	52		21 - 128				04/22/16 09:04	04/26/16 20:34	4
Nitrobenzene-d5 (Surr)	75		31 - 110				04/22/16 09:04	04/26/16 20:34	4
Phenol-d5 (Surr)	17		10 - 110				04/22/16 09:04	04/26/16 20:34	4
Terphenyl-d14 (Surr)	43		31 - 115				04/22/16 09:04	04/26/16 20:34	4

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>1.3</b>		0.50	0.080	ug/L			05/01/16 16:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	104		66 - 132					05/01/16 16:42	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>3500</b>		95	15	ug/L		04/21/16 15:00	04/26/16 08:16	4000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/21/16 15:00	04/26/16 08:16	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>2.7</b>	<b>J</b>	5.0	0.49	ug/L		04/21/16 10:08	04/29/16 22:16	1
<b>Copper</b>	<b>9.8</b>		2.0	0.75	ug/L		04/21/16 10:08	04/29/16 22:16	1
<b>Iron</b>	<b>12500</b>	<b>B</b>	100	16.0	ug/L		04/21/16 10:08	04/29/16 22:16	1
<b>Manganese</b>	<b>1780</b>		5.0	1.1	ug/L		04/21/16 10:08	04/29/16 22:16	1
<b>Zinc</b>	<b>398</b>		20.0	7.3	ug/L		04/21/16 10:08	04/29/16 22:16	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>184</b>		5.0	1.9	mg/L			04/25/16 16:16	1
<b>Hardness as calcium carbonate</b>	<b>169</b>		5.0	3.1	mg/L			04/22/16 08:20	1
<b>Chloride</b>	<b>13.4</b>		1.0	0.41	mg/L			04/21/16 09:32	1
Nitrate as N	<0.035	H	0.10	0.035	mg/L			04/21/16 09:32	1
<b>Sulfate</b>	<b>25.6</b>		1.0	0.13	mg/L			04/21/16 09:32	1
<b>Total Organic Carbon</b>	<b>10</b>		2.0	0.16	mg/L			04/28/16 11:33	2

TestAmerica Canton



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160418-PS-MW-10S**

**Lab Sample ID: 240-63702-3**

**Date Collected: 04/18/16 16:35**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>4.7</b>		0.76	0.24	ug/L		04/22/16 09:04	04/26/16 20:10	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		29 - 110				04/22/16 09:04	04/26/16 20:10	4
2-Fluorophenol (Surr)	29		15 - 110				04/22/16 09:04	04/26/16 20:10	4
2,4,6-Tribromophenol (Surr)	59		21 - 128				04/22/16 09:04	04/26/16 20:10	4
Nitrobenzene-d5 (Surr)	74		31 - 110				04/22/16 09:04	04/26/16 20:10	4
Phenol-d5 (Surr)	18		10 - 110				04/22/16 09:04	04/26/16 20:10	4
Terphenyl-d14 (Surr)	41		31 - 115				04/22/16 09:04	04/26/16 20:10	4

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			05/01/16 16:59	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	104		66 - 132					05/01/16 16:59	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>3500</b>		95	15	ug/L		04/21/16 15:00	04/26/16 08:40	4000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/21/16 15:00	04/26/16 08:40	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>0.59</b>	<b>J</b>	5.0	0.49	ug/L		04/21/16 10:08	04/29/16 22:20	1
<b>Copper</b>	<b>2.6</b>		2.0	0.75	ug/L		04/21/16 10:08	04/29/16 22:20	1
<b>Iron</b>	<b>190</b>	<b>B</b>	100	16.0	ug/L		04/21/16 10:08	04/29/16 22:20	1
<b>Manganese</b>	<b>388</b>		5.0	1.1	ug/L		04/21/16 10:08	04/29/16 22:20	1
Zinc	<7.3		20.0	7.3	ug/L		04/21/16 10:08	04/29/16 22:20	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>102</b>		5.0	1.9	mg/L			04/25/16 16:24	1
<b>Hardness as calcium carbonate</b>	<b>92.1</b>		5.0	3.1	mg/L			04/22/16 08:20	1
<b>Chloride</b>	<b>7.8</b>		1.0	0.41	mg/L			04/21/16 09:48	1
Nitrate as N	<0.035	H	0.10	0.035	mg/L			04/21/16 09:48	1
<b>Sulfate</b>	<b>9.1</b>		1.0	0.13	mg/L			04/21/16 09:48	1
<b>Total Organic Carbon</b>	<b>9.5</b>		2.0	0.16	mg/L			04/28/16 11:59	2

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160419-PS-MW-6S**

**Lab Sample ID: 240-63702-4**

**Date Collected: 04/19/16 11:50**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/22/16 09:04	04/26/16 12:13	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	75		29 - 110				04/22/16 09:04	04/26/16 12:13	1
2-Fluorophenol (Surr)	27		15 - 110				04/22/16 09:04	04/26/16 12:13	1
2,4,6-Tribromophenol (Surr)	56		21 - 128				04/22/16 09:04	04/26/16 12:13	1
Nitrobenzene-d5 (Surr)	75		31 - 110				04/22/16 09:04	04/26/16 12:13	1
Phenol-d5 (Surr)	16		10 - 110				04/22/16 09:04	04/26/16 12:13	1
Terphenyl-d14 (Surr)	24	X	31 - 115				04/22/16 09:04	04/26/16 12:13	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			05/01/16 17:16	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	103		66 - 132					05/01/16 17:16	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.20		0.10	0.016	ug/L		04/21/16 15:00	04/26/16 09:05	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	70		32 - 140				04/21/16 15:00	04/26/16 09:05	4

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.51	J	5.0	0.49	ug/L		04/21/16 10:08	04/29/16 22:24	1
Copper	4.7		2.0	0.75	ug/L		04/21/16 10:08	04/29/16 22:24	1
Iron	831	B	100	16.0	ug/L		04/21/16 10:08	04/29/16 22:24	1
Manganese	15.4		5.0	1.1	ug/L		04/21/16 10:08	04/29/16 22:24	1
Zinc	<7.3		20.0	7.3	ug/L		04/21/16 10:08	04/29/16 22:24	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	42.0		10.0	3.8	mg/L			04/25/16 16:32	2
Hardness as calcium carbonate	70.6		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	7.4		1.0	0.41	mg/L			04/21/16 08:26	1
Nitrate as N	4.8		0.10	0.035	mg/L			04/21/16 08:26	1
Sulfate	6.3		1.0	0.13	mg/L			04/21/16 08:26	1
Total Organic Carbon	18.2		1.0	0.080	mg/L			04/28/16 12:23	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160419-PS-EW-13-S**

**Lab Sample ID: 240-63702-5**

**Date Collected: 04/19/16 12:13**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

### Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	2.0		0.19	0.060	ug/L		04/22/16 09:04	04/26/16 12:37	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	44		29 - 110				04/22/16 09:04	04/26/16 12:37	1
2-Fluorophenol (Surr)	26		15 - 110				04/22/16 09:04	04/26/16 12:37	1
2,4,6-Tribromophenol (Surr)	42		21 - 128				04/22/16 09:04	04/26/16 12:37	1
Nitrobenzene-d5 (Surr)	57		31 - 110				04/22/16 09:04	04/26/16 12:37	1
Phenol-d5 (Surr)	15		10 - 110				04/22/16 09:04	04/26/16 12:37	1
Terphenyl-d14 (Surr)	27	X	31 - 115				04/22/16 09:04	04/26/16 12:37	1

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.9		0.50	0.080	ug/L			05/01/16 17:34	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	100		66 - 132					05/01/16 17:34	1

### Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	770		94	15	ug/L		04/21/16 15:00	04/26/16 09:29	4000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/21/16 15:00	04/26/16 09:29	4000

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	23.2		5.0	0.49	ug/L		04/21/16 10:09	04/29/16 22:28	1
Copper	37.7		2.0	0.75	ug/L		04/21/16 10:09	04/29/16 22:28	1
Iron	14100	B	100	16.0	ug/L		04/21/16 10:09	04/29/16 22:28	1
Manganese	2340		5.0	1.1	ug/L		04/21/16 10:09	04/29/16 22:28	1
Zinc	13.8	J	20.0	7.3	ug/L		04/21/16 10:09	04/29/16 22:28	1

### General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	370		5.0	1.9	mg/L			04/25/16 16:40	1
Hardness as calcium carbonate	229		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	20.7		1.0	0.41	mg/L			04/21/16 08:43	1
Nitrate as N	<0.035		0.10	0.035	mg/L			04/21/16 08:43	1
Sulfate	9.6		1.0	0.13	mg/L			04/21/16 08:43	1
Total Organic Carbon	36.6		1.0	0.080	mg/L			04/28/16 13:06	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160419-PS-EW-13-D**

**Lab Sample ID: 240-63702-6**

**Date Collected: 04/19/16 09:34**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>13</b>		0.76	0.24	ug/L		04/22/16 09:04	04/26/16 20:58	4
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	45		29 - 110				04/22/16 09:04	04/26/16 20:58	4
2-Fluorophenol (Surr)	25		15 - 110				04/22/16 09:04	04/26/16 20:58	4
2,4,6-Tribromophenol (Surr)	43		21 - 128				04/22/16 09:04	04/26/16 20:58	4
Nitrobenzene-d5 (Surr)	70		31 - 110				04/22/16 09:04	04/26/16 20:58	4
Phenol-d5 (Surr)	14		10 - 110				04/22/16 09:04	04/26/16 20:58	4
Terphenyl-d14 (Surr)	38		31 - 115				04/22/16 09:04	04/26/16 20:58	4

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>1100</b>		0.50	0.080	ug/L			05/01/16 17:51	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	99		66 - 132					05/01/16 17:51	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>2100</b>		94	15	ug/L		04/21/16 15:00	04/26/16 11:05	4000
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140				04/21/16 15:00	04/26/16 11:05	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Arsenic</b>	<b>1.6</b>	<b>J</b>	5.0	0.49	ug/L		04/21/16 10:09	04/29/16 22:33	1
Copper	<0.75		2.0	0.75	ug/L		04/21/16 10:09	04/29/16 22:33	1
<b>Iron</b>	<b>7660</b>	<b>B</b>	100	16.0	ug/L		04/21/16 10:09	04/29/16 22:33	1
<b>Manganese</b>	<b>956</b>		5.0	1.1	ug/L		04/21/16 10:09	04/29/16 22:33	1
<b>Zinc</b>	<b>11.7</b>	<b>J</b>	20.0	7.3	ug/L		04/21/16 10:09	04/29/16 22:33	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>180</b>		5.0	1.9	mg/L			04/25/16 16:55	1
<b>Hardness as calcium carbonate</b>	<b>167</b>		5.0	3.1	mg/L			04/22/16 08:20	1
<b>Chloride</b>	<b>15.1</b>		1.0	0.41	mg/L			04/21/16 08:59	1
<b>Nitrate as N</b>	<b>0.093</b>	<b>J</b>	0.10	0.035	mg/L			04/21/16 08:59	1
<b>Sulfate</b>	<b>2.0</b>		1.0	0.13	mg/L			04/21/16 08:59	1
<b>Total Organic Carbon</b>	<b>20.7</b>		1.0	0.080	mg/L			04/28/16 13:32	1

TestAmerica Canton

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63702-1	W-160418-PS-EW-03-S	69	26	57	74	18	31
240-63702-2	W-160418-PS-EW-03-D	73	30	52	75	17	43
240-63702-3	W-160418-PS-MW-10S	71	29	59	74	18	41
240-63702-4	W-160419-PS-MW-6S	75	27	56	75	16	24 X
240-63702-5	W-160419-PS-EW-13-S	44	26	42	57	15	27 X
240-63702-6	W-160419-PS-EW-13-D	45	25	43	70	14	38
LCS 240-227131/22-A	Lab Control Sample	79	54	68	82	40	86
MB 240-227131/21-A	Method Blank	79	58	61	84	44	96

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		Trifluoroethane (66-132)
240-63702-1	W-160418-PS-EW-03-S	106
240-63702-2	W-160418-PS-EW-03-D	104
240-63702-3	W-160418-PS-MW-10S	104
240-63702-4	W-160419-PS-MW-6S	103
240-63702-5	W-160419-PS-EW-13-S	100
240-63702-6	W-160419-PS-EW-13-D	99
LCS 240-228288/5	Lab Control Sample	107
MB 240-228288/4	Method Blank	107

### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1 (32-140)	DCPA2 (32-140)
240-63702-1	W-160418-PS-EW-03-S	0 X D	0 X D
240-63702-2	W-160418-PS-EW-03-D	0 X D	0 X D
240-63702-3	W-160418-PS-MW-10S	0 X D	0 X D
240-63702-4	W-160419-PS-MW-6S	70	70
240-63702-5	W-160419-PS-EW-13-S	0 X D	0 X D
240-63702-6	W-160419-PS-EW-13-D	0 X D	0 X D
LCS 180-174167/2-A	Lab Control Sample	67	71
LCSD 180-174167/3-A	Lab Control Sample Dup	67	67
MB 180-174167/1-A	Method Blank	57	57

TestAmerica Canton

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-227131/21-A**  
**Matrix: Water**  
**Analysis Batch: 227389**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 227131**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/22/16 09:04	04/25/16 12:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	79		29 - 110	04/22/16 09:04	04/25/16 12:04	1
2-Fluorophenol (Surr)	58		15 - 110	04/22/16 09:04	04/25/16 12:04	1
2,4,6-Tribromophenol (Surr)	61		21 - 128	04/22/16 09:04	04/25/16 12:04	1
Nitrobenzene-d5 (Surr)	84		31 - 110	04/22/16 09:04	04/25/16 12:04	1
Phenol-d5 (Surr)	44		10 - 110	04/22/16 09:04	04/25/16 12:04	1
Terphenyl-d14 (Surr)	96		31 - 115	04/22/16 09:04	04/25/16 12:04	1

**Lab Sample ID: LCS 240-227131/22-A**  
**Matrix: Water**  
**Analysis Batch: 227389**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 227131**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	14.4		ug/L		72	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	79		29 - 110
2-Fluorophenol (Surr)	54		15 - 110
2,4,6-Tribromophenol (Surr)	68		21 - 128
Nitrobenzene-d5 (Surr)	82		31 - 110
Phenol-d5 (Surr)	40		10 - 110
Terphenyl-d14 (Surr)	86		31 - 115

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-228288/4**  
**Matrix: Water**  
**Analysis Batch: 228288**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			05/01/16 15:16	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	107		66 - 132		05/01/16 15:16	1

**Lab Sample ID: LCS 240-228288/5**  
**Matrix: Water**  
**Analysis Batch: 228288**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	199	212		ug/L		107	76 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	107		66 - 132

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-174167/1-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 174167**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/21/16 15:00	04/26/16 15:26	4

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	57		32 - 140	04/21/16 15:00	04/26/16 15:26	4

**Lab Sample ID: LCS 180-174167/2-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 174167**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	1.00	0.947		ug/L		95	40 - 140

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2,4-Dichlorophenylacetic acid	71		32 - 140

**Lab Sample ID: LCSD 180-174167/3-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**  
**Prep Batch: 174167**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	1.00	0.791		ug/L		79	40 - 140	18	30

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	67		32 - 140

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-226957/1-A**  
**Matrix: Water**  
**Analysis Batch: 228358**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226957**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/21/16 10:08	04/29/16 20:36	1
Copper	<0.75		2.0	0.75	ug/L		04/21/16 10:08	04/29/16 20:36	1
Iron	73.43	J	100	16.0	ug/L		04/21/16 10:08	04/29/16 20:36	1
Manganese	<1.1		5.0	1.1	ug/L		04/21/16 10:08	04/29/16 20:36	1
Zinc	<7.3		20.0	7.3	ug/L		04/21/16 10:08	04/29/16 20:36	1

**Lab Sample ID: LCS 240-226957/3-A**  
**Matrix: Water**  
**Analysis Batch: 228358**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 226957**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Arsenic	1000	997.2		ug/L		100	80 - 120
Copper	1000	993.3		ug/L		99	80 - 120
Iron	10000	9550		ug/L		95	80 - 120
Manganese	1000	953.8		ug/L		95	80 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Method: 6020 - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 240-226957/3-A  
Matrix: Water  
Analysis Batch: 228358

Client Sample ID: Lab Control Sample  
Prep Type: Total Recoverable  
Prep Batch: 226957

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Zinc	1000	954.2		ug/L		95	80 - 120

## Method: 2320B-1997 - Alkalinity, Total

Lab Sample ID: LCS 240-227383/2  
Matrix: Water  
Analysis Batch: 227383

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	285.0		mg/L		100	90 - 127

Lab Sample ID: LCS 240-227383/29  
Matrix: Water  
Analysis Batch: 227383

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	296.0		mg/L		104	90 - 127

## Method: 2340C-1997 - Hardness, Total

Lab Sample ID: MB 240-227183/1  
Matrix: Water  
Analysis Batch: 227183

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/22/16 08:20	1

Lab Sample ID: LCS 240-227183/2  
Matrix: Water  
Analysis Batch: 227183

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	166.6		mg/L		98	88 - 110

## Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 240-226962/12  
Matrix: Water  
Analysis Batch: 226962

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/21/16 11:12	1
Sulfate	<0.13		1.0	0.13	mg/L			04/21/16 11:12	1

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 240-226962/13**  
**Matrix: Water**  
**Analysis Batch: 226962**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	50.77		mg/L		102	90 - 110
Sulfate	50.0	47.85		mg/L		96	90 - 110

**Lab Sample ID: 240-63702-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226962**

**Client Sample ID: W-160419-PS-MW-6S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	7.4		50.0	62.11		mg/L		109	80 - 120
Sulfate	6.3		50.0	58.94		mg/L		105	80 - 120

**Lab Sample ID: 240-63702-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226962**

**Client Sample ID: W-160419-PS-MW-6S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	7.4		50.0	60.72		mg/L		107	80 - 120	2	15
Sulfate	6.3		50.0	57.84		mg/L		103	80 - 120	2	15

**Lab Sample ID: MB 240-226963/12**  
**Matrix: Water**  
**Analysis Batch: 226963**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/21/16 11:12	1

**Lab Sample ID: LCS 240-226963/13**  
**Matrix: Water**  
**Analysis Batch: 226963**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.47		mg/L		99	90 - 110

**Lab Sample ID: 240-63702-4 MS**  
**Matrix: Water**  
**Analysis Batch: 226963**

**Client Sample ID: W-160419-PS-MW-6S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	4.8		2.50	7.68		mg/L		113	80 - 120

**Lab Sample ID: 240-63702-4 MSD**  
**Matrix: Water**  
**Analysis Batch: 226963**

**Client Sample ID: W-160419-PS-MW-6S**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	4.8		2.50	7.62		mg/L		111	80 - 120	1	15

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-228072/4**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/28/16 10:02	1

**Lab Sample ID: LCS 240-228072/6**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	67.79		mg/L		98	88 - 115

**Lab Sample ID: LLCS 240-228072/5**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.59		mg/L		95	88 - 115



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## GC/MS Semi VOA

### Prep Batch: 227131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	3510C	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	3510C	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	3510C	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	3510C	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	3510C	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	3510C	
LCS 240-227131/22-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-227131/21-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 227389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 240-227131/22-A	Lab Control Sample	Total/NA	Water	8270C	227131
MB 240-227131/21-A	Method Blank	Total/NA	Water	8270C	227131

### Analysis Batch: 227535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	8270C	227131
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	8270C	227131
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	8270C	227131
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	8270C	227131
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	8270C	227131
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	8270C	227131

## GC VOA

### Analysis Batch: 228288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	RSK-175	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	RSK-175	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	RSK-175	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	RSK-175	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	RSK-175	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	RSK-175	
LCS 240-228288/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-228288/4	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 174167

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	8151A	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	8151A	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	8151A	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	8151A	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	8151A	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	8151A	
LCS 180-174167/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-174167/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-174167/1-A	Method Blank	Total/NA	Water	8151A	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## GC Semi VOA (Continued)

### Analysis Batch: 174434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	8151A	174167
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	8151A	174167
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	8151A	174167
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	8151A	174167
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	8151A	174167
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	8151A	174167
LCS 180-174167/2-A	Lab Control Sample	Total/NA	Water	8151A	174167
LCS D 180-174167/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	174167
MB 180-174167/1-A	Method Blank	Total/NA	Water	8151A	174167

## Metals

### Prep Batch: 226957

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Dissolved	Water	3005A	
240-63702-2	W-160418-PS-EW-03-D	Dissolved	Water	3005A	
240-63702-3	W-160418-PS-MW-10S	Dissolved	Water	3005A	
240-63702-4	W-160419-PS-MW-6S	Dissolved	Water	3005A	
240-63702-5	W-160419-PS-EW-13-S	Dissolved	Water	3005A	
240-63702-6	W-160419-PS-EW-13-D	Dissolved	Water	3005A	
LCS 240-226957/3-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-226957/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 228358

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Dissolved	Water	6020	226957
240-63702-2	W-160418-PS-EW-03-D	Dissolved	Water	6020	226957
240-63702-3	W-160418-PS-MW-10S	Dissolved	Water	6020	226957
240-63702-4	W-160419-PS-MW-6S	Dissolved	Water	6020	226957
240-63702-5	W-160419-PS-EW-13-S	Dissolved	Water	6020	226957
240-63702-6	W-160419-PS-EW-13-D	Dissolved	Water	6020	226957
LCS 240-226957/3-A	Lab Control Sample	Total Recoverable	Water	6020	226957
MB 240-226957/1-A	Method Blank	Total Recoverable	Water	6020	226957

## General Chemistry

### Analysis Batch: 226962

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	300.0	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	300.0	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	300.0	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	300.0	
240-63702-4 MS	W-160419-PS-MW-6S	Total/NA	Water	300.0	
240-63702-4 MSD	W-160419-PS-MW-6S	Total/NA	Water	300.0	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	300.0	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	300.0	
LCS 240-226962/13	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226962/12	Method Blank	Total/NA	Water	300.0	

TestAmerica Canton

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## General Chemistry (Continued)

### Analysis Batch: 226963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	300.0	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	300.0	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	300.0	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	300.0	
240-63702-4 MS	W-160419-PS-MW-6S	Total/NA	Water	300.0	
240-63702-4 MSD	W-160419-PS-MW-6S	Total/NA	Water	300.0	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	300.0	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	300.0	
LCS 240-226963/13	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226963/12	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 227183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	2340C-1997	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	2340C-1997	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	2340C-1997	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	2340C-1997	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	2340C-1997	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	2340C-1997	
LCS 240-227183/2	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-227183/1	Method Blank	Total/NA	Water	2340C-1997	

### Analysis Batch: 227383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	2320B-1997	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	2320B-1997	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	2320B-1997	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	2320B-1997	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	2320B-1997	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	2320B-1997	
LCS 240-227383/2	Lab Control Sample	Total/NA	Water	2320B-1997	
LCS 240-227383/29	Lab Control Sample	Total/NA	Water	2320B-1997	

### Analysis Batch: 228072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63702-1	W-160418-PS-EW-03-S	Total/NA	Water	9060	
240-63702-2	W-160418-PS-EW-03-D	Total/NA	Water	9060	
240-63702-3	W-160418-PS-MW-10S	Total/NA	Water	9060	
240-63702-4	W-160419-PS-MW-6S	Total/NA	Water	9060	
240-63702-5	W-160419-PS-EW-13-S	Total/NA	Water	9060	
240-63702-6	W-160419-PS-EW-13-D	Total/NA	Water	9060	
LCS 240-228072/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-228072/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-228072/4	Method Blank	Total/NA	Water	9060	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160418-PS-EW-03-S**

**Lab Sample ID: 240-63702-1**

**Date Collected: 04/18/16 15:22**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		20	227535	04/26/16 18:59	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 16:25	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		20000	174434	04/26/16 07:52	JMO	TAL PIT
Dissolved	Prep	3005A			226957	04/21/16 10:08	WKD	TAL CAN
Dissolved	Analysis	6020		1	228358	04/29/16 22:12	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 16:09	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226962	04/21/16 09:16	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 09:16	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 11:06	TPH	TAL CAN

**Client Sample ID: W-160418-PS-EW-03-D**

**Lab Sample ID: 240-63702-2**

**Date Collected: 04/18/16 14:55**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		4	227535	04/26/16 20:34	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 16:42	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 08:16	JMO	TAL PIT
Dissolved	Prep	3005A			226957	04/21/16 10:08	WKD	TAL CAN
Dissolved	Analysis	6020		1	228358	04/29/16 22:16	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 16:16	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226962	04/21/16 09:32	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 09:32	LKG	TAL CAN
Total/NA	Analysis	9060		2	228072	04/28/16 11:33	TPH	TAL CAN

**Client Sample ID: W-160418-PS-MW-10S**

**Lab Sample ID: 240-63702-3**

**Date Collected: 04/18/16 16:35**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		4	227535	04/26/16 20:10	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 16:59	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 08:40	JMO	TAL PIT
Dissolved	Prep	3005A			226957	04/21/16 10:08	WKD	TAL CAN

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# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160418-PS-MW-10S**

**Lab Sample ID: 240-63702-3**

**Date Collected: 04/18/16 16:35**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	6020		1	228358	04/29/16 22:20	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 16:24	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226962	04/21/16 09:48	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 09:48	LKG	TAL CAN
Total/NA	Analysis	9060		2	228072	04/28/16 11:59	TPH	TAL CAN

**Client Sample ID: W-160419-PS-MW-6S**

**Lab Sample ID: 240-63702-4**

**Date Collected: 04/19/16 11:50**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		1	227535	04/26/16 12:13	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 17:16	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174434	04/26/16 09:05	JMO	TAL PIT
Dissolved	Prep	3005A			226957	04/21/16 10:08	WKD	TAL CAN
Dissolved	Analysis	6020		1	228358	04/29/16 22:24	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		2	227383	04/25/16 16:32	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226962	04/21/16 08:26	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 08:26	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 12:23	TPH	TAL CAN

**Client Sample ID: W-160419-PS-EW-13-S**

**Lab Sample ID: 240-63702-5**

**Date Collected: 04/19/16 12:13**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		1	227535	04/26/16 12:37	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 17:34	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 09:29	JMO	TAL PIT
Dissolved	Prep	3005A			226957	04/21/16 10:09	WKD	TAL CAN
Dissolved	Analysis	6020		1	228358	04/29/16 22:28	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 16:40	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226962	04/21/16 08:43	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 08:43	LKG	TAL CAN

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# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

**Client Sample ID: W-160419-PS-EW-13-S**

**Lab Sample ID: 240-63702-5**

**Date Collected: 04/19/16 12:13**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	228072	04/28/16 13:06	TPH	TAL CAN

**Client Sample ID: W-160419-PS-EW-13-D**

**Lab Sample ID: 240-63702-6**

**Date Collected: 04/19/16 09:34**

**Matrix: Water**

**Date Received: 04/20/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		4	227535	04/26/16 20:58	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 17:51	BPM	TAL CAN
Total/NA	Prep	8151A			174167	04/21/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 11:05	JMO	TAL PIT
Dissolved	Prep	3005A			226957	04/21/16 10:09	WKD	TAL CAN
Dissolved	Analysis	6020		1	228358	04/29/16 22:33	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	227383	04/25/16 16:55	DTN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226962	04/21/16 08:59	LKG	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 08:59	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 13:32	TPH	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63702-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

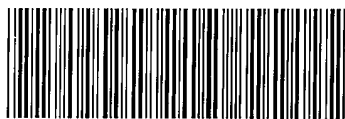
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**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**



240-63702 Chain of Custody

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Client: GTD Site Name: Rensselaer Cooler unpacked by: \_\_\_\_\_  
 Cooler Received on: 4/20/16 Opened on: 4/20/16  
 FedEx: 1<sup>st</sup> Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other \_\_\_\_\_

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

TestAmerica Cooler # \_\_\_\_\_ Foam Box  Client Cooler  Box  Other MeR  
 Packing material used: Bubble Wrap Foam Plastic Bag None Other \_\_\_\_\_  
 COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt  See Multiple Cooler Form  
 IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity lean  Yes  No  
 -Were custody seals on the outside of the cooler(s) signed & dated?  Yes  No  NA  
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?  Yes  No

3. Shippers' packing slip attached to the cooler(s)?  Yes  No  
 4. Did custody papers accompany the sample(s)?  Yes  No  
 5. Were the custody papers relinquished & signed in the appropriate place?  Yes  No  
 6. Was/were the person(s) who collected the samples clearly identified on the COC?  Yes  No  
 7. Did all bottles arrive in good condition (Unbroken)?  Yes  No  
 8. Could all bottle labels be reconciled with the COC?  Yes  No  
 9. Were correct bottle(s) used for the test(s) indicated?  Yes  No  
 10. Sufficient quantity received to perform indicated analyses?  Yes  No

11. Are these work share samples?  Yes  No  
*If yes, Questions 12-16 have been checked at the originating laboratory.*

12. Were sample(s) at the correct pH upon receipt?  Yes  No  NA pH Strip Lot# HC559158  
 13. Were VOAs on the COC?  Yes  No  NA  
 14. Were air bubbles >6 mm in any VOA vials?  Yes  No  NA  
 15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # \_\_\_\_\_  Yes  No  
 16. Was a LL Hg or Me Hg trip blank present?  Yes  No

Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES Samples processed by: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

18. SAMPLE CONDITION  
 Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION  
 Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_

Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160418-PS-EW-03-S	240-63702-H-1	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160418-PS-EW-03-S	240-63702-J-1	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160418-PS-EW-03-D	240-63702-H-2	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160418-PS-EW-03-D	240-63702-J-2	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160418-PS-EW-10S	240-63702-H-3	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160418-PS-EW-10S	240-63702-J-3	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160419-PS-EW-6S	240-63702-H-4	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160419-PS-EW-6S	240-63702-J-4	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160419-PS-EW-13-S	240-63702-H-5	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160419-PS-EW-13-S	240-63702-J-5	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
W-160419-PS-EW-13-D	240-63702-H-6	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160419-PS-EW-13-D	240-63702-J-6	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63702-1

**Login Number: 63702**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/21/16 10:45 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-63770-1

Client Project/Site: 86165-03-10, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

5/4/2016 7:48:32 AM

Denise Heckler, Project Manager II

(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

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results through

Total Access

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[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a dilution may be flagged with a D.
X	Surrogate is outside control limits
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
J	Reported value was between the limit of detection and the limit of quantitation.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

### Metals

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### General Chemistry

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time
B	Compound was found in the blank and sample.
J	Reported value was between the limit of detection and the limit of quantitation.
F1	MS and/or MSD Recovery is outside acceptance limits.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Job ID: 240-63770-1

### Laboratory: TestAmerica Canton

#### Narrative

#### Job Narrative 240-63770-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/21/2016 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 6 coolers at receipt time were 0.3° C, 0.5° C, 0.9° C, 1.1° C, 2.1° C and 2.5° C.

#### GC/MS VOA

Method(s) 8260B: The following volatiles sample was diluted due to foaming at the time of purging during the original sample analysis: W-160418-PS-EW-03-S (240-63770-1). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC/MS Semi VOA

Method(s) 8270C: The following samples were diluted due to the nature of the sample matrix: W-160420-PS-EW-10-D (240-63770-15), W-160420-PS-EW-10-D (240-63770-15[MS]) and W-160420-PS-EW-10-D (240-63770-15[MSD]). Elevated reporting limits (RLs) are provided.

Method(s) 8270C: The following samples were diluted due to the nature of the sample matrix: W-160420-PS-EW-05-D (240-63770-11) and W-160420-PS-MW-40 (240-63770-13). Elevated reporting limits (RLs) are provided.

Method(s) 8270C: The following samples were diluted due to the nature of the sample matrix: W-160419-PS-EW-14-D (240-63770-9), W-160419-PS-MW-38 (240-63770-10) and W-160420-PS-EW-12-D (240-63770-12). Elevated reporting limits (RLs) are provided.

Method(s) 8270C: The following sample was diluted due to the nature of the sample matrix: W-160419-PS-MW-38 (240-63770-10). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) 8151A: The following samples was diluted due to the abundance of target analytes: W-160419-PS-MW-06 (240-63770-8), W-160419-PS-EW-14-D (240-63770-9), W-160419-PS-MW-38 (240-63770-10), W-160420-PS-EW-12-D (240-63770-12), W-160420-PS-MW-40 (240-63770-13), W-160420-PS-EW-10-D (240-63770-15), W-160420-PS-EW-10-D (240-63770-15[MS]) and W-160420-PS-EW-10-D (240-63770-15[MSD]) Surrogates and spiked compounds were diluted out.

Method(s) 8151A: The following sample was diluted due to the abundance of target analytes: W-160420-PS-EW-05-D (240-63770-11)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Metals

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### General Chemistry

Method(s) 300.0: The following sample(s) was received with less than 2 days remaining on the holding time or less than one shift (8 hours) remaining on a test with a holding time of 48 hours or less. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-160419-PS-MW-06 (240-63770-8), W-160419-PS-EW-14-D (240-63770-9) and W-160419-PS-MW-38 (240-63770-10).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

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## Job ID: 240-63770-1 (Continued)

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### Laboratory: TestAmerica Canton (Continued)

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
6020	Metals (ICP/MS)	SW846	TAL CAN
2320B-1997	Alkalinity, Total	SM	TAL CAN
2340C-1997	Hardness, Total	SM	TAL CAN
300.0	Anions, Ion Chromatography	MCAWW	TAL CAN
9060	Organic Carbon, Total (TOC)	SW846	TAL CAN

#### Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

#### Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63770-1	W-160418-PS-EW-03-S	Water	04/18/16 15:22	04/21/16 09:20
240-63770-2	W-160418-PS-EW-03-D	Water	04/18/16 14:55	04/21/16 09:20
240-63770-3	W-160418-PS-MW-10S	Water	04/18/16 16:35	04/21/16 09:20
240-63770-4	W-160419-PS-MW-6S	Water	04/19/16 11:50	04/21/16 09:20
240-63770-5	W-160419-PS-EW-13-S	Water	04/19/16 12:13	04/21/16 09:20
240-63770-6	W-160419-PS-EW-13-D	Water	04/19/16 09:34	04/21/16 09:20
240-63770-7	W-160419-PS-MW-39	Water	04/19/16 15:55	04/21/16 09:20
240-63770-8	W-160419-PS-MW-06	Water	04/19/16 16:25	04/21/16 09:20
240-63770-9	W-160419-PS-EW-14-D	Water	04/19/16 14:50	04/21/16 09:20
240-63770-10	W-160419-PS-MW-38	Water	04/19/16 15:00	04/21/16 09:20
240-63770-11	W-160420-PS-EW-05-D	Water	04/20/16 12:08	04/21/16 09:20
240-63770-12	W-160420-PS-EW-12-D	Water	04/20/16 10:59	04/21/16 09:20
240-63770-13	W-160420-PS-MW-40	Water	04/20/16 09:35	04/21/16 09:20
240-63770-14	W-160420-PS-MW-41	Water	04/20/16 08:00	04/21/16 09:20
240-63770-15	W-160420-PS-EW-10-D	Water	04/20/16 09:20	04/21/16 09:20
240-63770-16	W-TRIPBLANK-PS-09	Water	04/20/16 13:00	04/21/16 09:20

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Client Sample ID: W-160418-PS-EW-03-S

## Lab Sample ID: 240-63770-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	5.2		4.0	1.0	ug/L	2		8260B	Total/NA

## Client Sample ID: W-160418-PS-EW-03-D

## Lab Sample ID: 240-63770-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.33	J	1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total	3.6		2.0	0.52	ug/L	1		8260B	Total/NA

## Client Sample ID: W-160418-PS-MW-10S

## Lab Sample ID: 240-63770-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	2.7		2.0	0.52	ug/L	1		8260B	Total/NA

## Client Sample ID: W-160419-PS-MW-6S

## Lab Sample ID: 240-63770-4

No Detections.

## Client Sample ID: W-160419-PS-EW-13-S

## Lab Sample ID: 240-63770-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.26	J	1.0	0.25	ug/L	1		8260B	Total/NA
Xylenes, Total	4.2		2.0	0.52	ug/L	1		8260B	Total/NA

## Client Sample ID: W-160419-PS-EW-13-D

## Lab Sample ID: 240-63770-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.27	J	1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	0.32	J	1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	4.8		2.0	0.52	ug/L	1		8260B	Total/NA

## Client Sample ID: W-160419-PS-MW-39

## Lab Sample ID: 240-63770-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.050	J p	0.098	0.015	ug/L	4		8151A	Total/NA
Manganese	3.2	J	5.0	1.1	ug/L	1		6020	Dissolved

## Client Sample ID: W-160419-PS-MW-06

## Lab Sample ID: 240-63770-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.78		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	170		97	15	ug/L	4000		8151A	Total/NA
Copper	5.2		2.0	0.75	ug/L	1		6020	Dissolved
Iron	282		100	16.0	ug/L	1		6020	Dissolved
Manganese	5.6		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	9.0	J	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	183		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	245		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	35.0		5.0	2.0	mg/L	5		300.0	Total/NA
Nitrate as N	10.2	H	0.50	0.18	mg/L	5		300.0	Total/NA
Sulfate	26.3		5.0	0.65	mg/L	5		300.0	Total/NA
Total Organic Carbon	6.2		1.0	0.080	mg/L	1		9060	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Client Sample ID: W-160419-PS-EW-14-D

## Lab Sample ID: 240-63770-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	2.4		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	3.5		0.77	0.24	ug/L	4		8270C	Total/NA
Methane	4.2		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	2800		95	15	ug/L	4000		8151A	Total/NA
Copper	3.4		2.0	0.75	ug/L	1		6020	Dissolved
Iron	301		100	16.0	ug/L	1		6020	Dissolved
Manganese	77.4		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	17.5	J	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	137		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	139		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	12.0		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.48	H	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	7.2		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	6.5		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160419-PS-MW-38

## Lab Sample ID: 240-63770-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Xylenes, Total	2.4		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	3.1		0.79	0.25	ug/L	4		8270C	Total/NA
Methane	3.5		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	2700		100	16	ug/L	4000		8151A	Total/NA
Iron	292		100	16.0	ug/L	1		6020	Dissolved
Manganese	77.8		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	17.2	J	20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	136		5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	145		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	11.9		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.48	H	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	7.1		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	6.3		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160420-PS-EW-05-D

## Lab Sample ID: 240-63770-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.79	J	1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	0.95	J	1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	6.7		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	19		1.9	0.60	ug/L	10		8270C	Total/NA
Methane	0.44	J	0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	7500		480	74	ug/L	20000		8151A	Total/NA
Arsenic	2.7	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	8.6		2.0	0.75	ug/L	1		6020	Dissolved
Iron	8430		100	16.0	ug/L	1		6020	Dissolved
Manganese	1980		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	372		20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	145	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	171		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	14.4		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	17.0		1.0	0.13	mg/L	1		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Canton



# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Client Sample ID: W-160420-PS-EW-05-D (Continued)

## Lab Sample ID: 240-63770-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Total Organic Carbon	36.7		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160420-PS-EW-12-D

## Lab Sample ID: 240-63770-12

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.58	J	1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	0.50	J	1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	7.2		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	12		0.81	0.25	ug/L	4		8270C	Total/NA
Methane	4.0		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	2500		99	15	ug/L	4000		8151A	Total/NA
Arsenic	2.2	J	5.0	0.49	ug/L	1		6020	Dissolved
Copper	1.3	J	2.0	0.75	ug/L	1		6020	Dissolved
Iron	3820		100	16.0	ug/L	1		6020	Dissolved
Manganese	1620		5.0	1.1	ug/L	1		6020	Dissolved
Alkalinity	90.0	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	80.4		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	5.4		1.0	0.41	mg/L	1		300.0	Total/NA
Sulfate	6.4		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	15.7		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160420-PS-MW-40

## Lab Sample ID: 240-63770-13

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1.3		1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	1.9		1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	12		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	19		1.9	0.61	ug/L	10		8270C	Total/NA
Methane	1.3		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	4800		95	15	ug/L	4000		8151A	Total/NA
Arsenic	7.6		5.0	0.49	ug/L	1		6020	Dissolved
Copper	12.1		2.0	0.75	ug/L	1		6020	Dissolved
Iron	3720		100	16.0	ug/L	1		6020	Dissolved
Manganese	2170		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	114		20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	136	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	184		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	23.9		1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.060	J	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	20.3		1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	41.0		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-160420-PS-MW-41

## Lab Sample ID: 240-63770-14

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.24		0.095	0.015	ug/L	4		8151A	Total/NA
Copper	0.89	J	2.0	0.75	ug/L	1		6020	Dissolved

## Client Sample ID: W-160420-PS-EW-10-D

## Lab Sample ID: 240-63770-15

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Client Sample ID: W-160420-PS-EW-10-D (Continued)

## Lab Sample ID: 240-63770-15

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	1.4		1.0	0.25	ug/L	1		8260B	Total/NA
Toluene	1.8		1.0	0.23	ug/L	1		8260B	Total/NA
Xylenes, Total	12		2.0	0.52	ug/L	1		8260B	Total/NA
Naphthalene	19		1.9	0.60	ug/L	10		8270C	Total/NA
Methane	1.1		0.50	0.080	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	5000		95	15	ug/L	4000		8151A	Total/NA
Arsenic	6.5		5.0	0.49	ug/L	1		6020	Dissolved
Copper	10.3		2.0	0.75	ug/L	1		6020	Dissolved
Iron	3350		100	16.0	ug/L	1		6020	Dissolved
Manganese	2200		5.0	1.1	ug/L	1		6020	Dissolved
Zinc	81.0		20.0	7.3	ug/L	1		6020	Dissolved
Alkalinity	135	B	5.0	1.9	mg/L	1		2320B-1997	Total/NA
Hardness as calcium carbonate	180		5.0	3.1	mg/L	1		2340C-1997	Total/NA
Chloride	25.7	F1	1.0	0.41	mg/L	1		300.0	Total/NA
Nitrate as N	0.057	J F1	0.10	0.035	mg/L	1		300.0	Total/NA
Sulfate	21.8	F1	1.0	0.13	mg/L	1		300.0	Total/NA
Total Organic Carbon	41.8		1.0	0.080	mg/L	1		9060	Total/NA

## Client Sample ID: W-TRIPBLANK-PS-09

## Lab Sample ID: 240-63770-16

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160418-PS-EW-03-S**

**Lab Sample ID: 240-63770-1**

**Date Collected: 04/18/16 15:22**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.70		1.0	0.70	ug/L			04/28/16 21:50	2
Ethylbenzene	<0.50		2.0	0.50	ug/L			04/28/16 21:50	2
Toluene	<0.46		2.0	0.46	ug/L			04/28/16 21:50	2
<b>Xylenes, Total</b>	<b>5.2</b>		4.0	1.0	ug/L			04/28/16 21:50	2

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		78 - 125		04/28/16 21:50	2
4-Bromofluorobenzene (Surr)	90		61 - 120		04/28/16 21:50	2
Toluene-d8 (Surr)	94		80 - 120		04/28/16 21:50	2
Dibromofluoromethane (Surr)	88		79 - 120		04/28/16 21:50	2

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160418-PS-EW-03-D**

**Lab Sample ID: 240-63770-2**

**Date Collected: 04/18/16 14:55**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 15:45	1
<b>Ethylbenzene</b>	<b>0.33</b>	<b>J</b>	1.0	0.25	ug/L			04/28/16 15:45	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 15:45	1
<b>Xylenes, Total</b>	<b>3.6</b>		2.0	0.52	ug/L			04/28/16 15:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/28/16 15:45	1
4-Bromofluorobenzene (Surr)	90		61 - 120		04/28/16 15:45	1
Toluene-d8 (Surr)	92		80 - 120		04/28/16 15:45	1
Dibromofluoromethane (Surr)	85		79 - 120		04/28/16 15:45	1

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160418-PS-MW-10S**

**Lab Sample ID: 240-63770-3**

**Date Collected: 04/18/16 16:35**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 16:08	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 16:08	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 16:08	1
<b>Xylenes, Total</b>	<b>2.7</b>		2.0	0.52	ug/L			04/28/16 16:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/28/16 16:08	1
4-Bromofluorobenzene (Surr)	90		61 - 120		04/28/16 16:08	1
Toluene-d8 (Surr)	93		80 - 120		04/28/16 16:08	1
Dibromofluoromethane (Surr)	85		79 - 120		04/28/16 16:08	1

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-6S**

**Lab Sample ID: 240-63770-4**

**Date Collected: 04/19/16 11:50**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 16:31	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 16:31	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 16:31	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/28/16 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/28/16 16:31	1
4-Bromofluorobenzene (Surr)	94		61 - 120		04/28/16 16:31	1
Toluene-d8 (Surr)	93		80 - 120		04/28/16 16:31	1
Dibromofluoromethane (Surr)	83		79 - 120		04/28/16 16:31	1

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-EW-13-S**

**Lab Sample ID: 240-63770-5**

**Date Collected: 04/19/16 12:13**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 16:54	1
<b>Ethylbenzene</b>	<b>0.26</b>	<b>J</b>	1.0	0.25	ug/L			04/28/16 16:54	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 16:54	1
<b>Xylenes, Total</b>	<b>4.2</b>		2.0	0.52	ug/L			04/28/16 16:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/28/16 16:54	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/28/16 16:54	1
Toluene-d8 (Surr)	94		80 - 120		04/28/16 16:54	1
Dibromofluoromethane (Surr)	85		79 - 120		04/28/16 16:54	1

# Client Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-EW-13-D**

**Lab Sample ID: 240-63770-6**

**Date Collected: 04/19/16 09:34**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 17:16	1
Ethylbenzene	0.27	J	1.0	0.25	ug/L			04/28/16 17:16	1
Toluene	0.32	J	1.0	0.23	ug/L			04/28/16 17:16	1
Xylenes, Total	4.8		2.0	0.52	ug/L			04/28/16 17:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		78 - 125		04/28/16 17:16	1
4-Bromofluorobenzene (Surr)	88		61 - 120		04/28/16 17:16	1
Toluene-d8 (Surr)	93		80 - 120		04/28/16 17:16	1
Dibromofluoromethane (Surr)	86		79 - 120		04/28/16 17:16	1



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-39**

**Lab Sample ID: 240-63770-7**

**Date Collected: 04/19/16 15:55**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 17:39	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 17:39	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 17:39	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/28/16 17:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		78 - 125		04/28/16 17:39	1
4-Bromofluorobenzene (Surr)	87		61 - 120		04/28/16 17:39	1
Toluene-d8 (Surr)	93		80 - 120		04/28/16 17:39	1
Dibromofluoromethane (Surr)	83		79 - 120		04/28/16 17:39	1

### Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.066		0.21	0.066	ug/L		04/22/16 09:04	04/25/16 23:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	75		29 - 110	04/22/16 09:04	04/25/16 23:12	1
2-Fluorophenol (Surr)	34		15 - 110	04/22/16 09:04	04/25/16 23:12	1
2,4,6-Tribromophenol (Surr)	57		21 - 128	04/22/16 09:04	04/25/16 23:12	1
Nitrobenzene-d5 (Surr)	76		31 - 110	04/22/16 09:04	04/25/16 23:12	1
Phenol-d5 (Surr)	20		10 - 110	04/22/16 09:04	04/25/16 23:12	1
Terphenyl-d14 (Surr)	74		31 - 115	04/22/16 09:04	04/25/16 23:12	1

### Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.050	J p	0.098	0.015	ug/L		04/22/16 15:00	04/26/16 11:53	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	66		32 - 140	04/22/16 15:00	04/26/16 11:53	4

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 18:39	1
Copper	<0.75		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 18:39	1
Iron	<16.0		100	16.0	ug/L		04/22/16 12:00	05/02/16 18:39	1
Manganese	3.2	J	5.0	1.1	ug/L		04/22/16 12:00	05/02/16 18:39	1
Zinc	<7.3		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 18:39	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-06**

**Lab Sample ID: 240-63770-8**

**Date Collected: 04/19/16 16:25**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 18:02	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 18:02	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 18:02	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/28/16 18:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	82		78 - 125		04/28/16 18:02	1
4-Bromofluorobenzene (Surr)	90		61 - 120		04/28/16 18:02	1
Toluene-d8 (Surr)	96		80 - 120		04/28/16 18:02	1
Dibromofluoromethane (Surr)	86		79 - 120		04/28/16 18:02	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/22/16 09:04	04/26/16 13:01	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/22/16 09:04	04/26/16 13:01	1
2-Fluorophenol (Surr)	29		15 - 110	04/22/16 09:04	04/26/16 13:01	1
2,4,6-Tribromophenol (Surr)	63		21 - 128	04/22/16 09:04	04/26/16 13:01	1
Nitrobenzene-d5 (Surr)	73		31 - 110	04/22/16 09:04	04/26/16 13:01	1
Phenol-d5 (Surr)	16		10 - 110	04/22/16 09:04	04/26/16 13:01	1
Terphenyl-d14 (Surr)	53		31 - 115	04/22/16 09:04	04/26/16 13:01	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.78		0.50	0.080	ug/L			05/01/16 18:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	100		66 - 132		05/01/16 18:25	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	170		97	15	ug/L		04/22/16 15:00	04/26/16 12:17	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/22/16 15:00	04/26/16 12:17	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 18:43	1
Copper	5.2		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 18:43	1
Iron	282		100	16.0	ug/L		04/22/16 12:00	05/02/16 18:43	1
Manganese	5.6		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 18:43	1
Zinc	9.0	J	20.0	7.3	ug/L		04/22/16 12:00	05/02/16 18:43	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	183		5.0	1.9	mg/L			05/02/16 07:44	1
Hardness as calcium carbonate	245		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	35.0		5.0	2.0	mg/L			04/22/16 10:21	5
Nitrate as N	10.2	H	0.50	0.18	mg/L			04/22/16 10:21	5

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-06**

**Lab Sample ID: 240-63770-8**

**Date Collected: 04/19/16 16:25**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	26.3		5.0	0.65	mg/L			04/22/16 10:21	5
Total Organic Carbon	6.2		1.0	0.080	mg/L			04/28/16 15:16	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-EW-14-D**

**Lab Sample ID: 240-63770-9**

Date Collected: 04/19/16 14:50

Matrix: Water

Date Received: 04/21/16 09:20

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 18:25	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 18:25	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 18:25	1
<b>Xylenes, Total</b>	<b>2.4</b>		2.0	0.52	ug/L			04/28/16 18:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		78 - 125		04/28/16 18:25	1
4-Bromofluorobenzene (Surr)	91		61 - 120		04/28/16 18:25	1
Toluene-d8 (Surr)	96		80 - 120		04/28/16 18:25	1
Dibromofluoromethane (Surr)	87		79 - 120		04/28/16 18:25	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>3.5</b>		0.77	0.24	ug/L		04/22/16 09:04	04/27/16 19:29	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	63		29 - 110	04/22/16 09:04	04/27/16 19:29	4
2-Fluorophenol (Surr)	33		15 - 110	04/22/16 09:04	04/27/16 19:29	4
2,4,6-Tribromophenol (Surr)	52		21 - 128	04/22/16 09:04	04/27/16 19:29	4
Nitrobenzene-d5 (Surr)	78		31 - 110	04/22/16 09:04	04/27/16 19:29	4
Phenol-d5 (Surr)	19		10 - 110	04/22/16 09:04	04/27/16 19:29	4
Terphenyl-d14 (Surr)	71		31 - 115	04/22/16 09:04	04/27/16 19:29	4

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>4.2</b>		0.50	0.080	ug/L			05/01/16 18:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	101		66 - 132		05/01/16 18:42	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>2800</b>		95	15	ug/L		04/22/16 15:00	04/26/16 12:41	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/22/16 15:00	04/26/16 12:41	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 18:47	1
<b>Copper</b>	<b>3.4</b>		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 18:47	1
<b>Iron</b>	<b>301</b>		100	16.0	ug/L		04/22/16 12:00	05/02/16 18:47	1
<b>Manganese</b>	<b>77.4</b>		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 18:47	1
<b>Zinc</b>	<b>17.5 J</b>		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 18:47	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>137</b>		5.0	1.9	mg/L			05/02/16 07:44	1
<b>Hardness as calcium carbonate</b>	<b>139</b>		5.0	3.1	mg/L			04/22/16 08:20	1
<b>Chloride</b>	<b>12.0</b>		1.0	0.41	mg/L			04/22/16 10:38	1
<b>Nitrate as N</b>	<b>0.48 H</b>		0.10	0.035	mg/L			04/22/16 10:38	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-EW-14-D**

**Lab Sample ID: 240-63770-9**

**Date Collected: 04/19/16 14:50**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.2		1.0	0.13	mg/L			04/22/16 10:38	1
Total Organic Carbon	6.5		1.0	0.080	mg/L			04/28/16 13:59	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-38**

**Lab Sample ID: 240-63770-10**

Date Collected: 04/19/16 15:00

Matrix: Water

Date Received: 04/21/16 09:20

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 18:48	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 18:48	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 18:48	1
<b>Xylenes, Total</b>	<b>2.4</b>		2.0	0.52	ug/L			04/28/16 18:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		78 - 125		04/28/16 18:48	1
4-Bromofluorobenzene (Surr)	91		61 - 120		04/28/16 18:48	1
Toluene-d8 (Surr)	94		80 - 120		04/28/16 18:48	1
Dibromofluoromethane (Surr)	86		79 - 120		04/28/16 18:48	1

### Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>3.1</b>		0.79	0.25	ug/L		04/22/16 09:04	04/29/16 21:05	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	60		29 - 110	04/22/16 09:04	04/29/16 21:05	4
2-Fluorophenol (Surr)	31		15 - 110	04/22/16 09:04	04/29/16 21:05	4
2,4,6-Tribromophenol (Surr)	50		21 - 128	04/22/16 09:04	04/29/16 21:05	4
Nitrobenzene-d5 (Surr)	72		31 - 110	04/22/16 09:04	04/29/16 21:05	4
Phenol-d5 (Surr)	18		10 - 110	04/22/16 09:04	04/29/16 21:05	4
Terphenyl-d14 (Surr)	68		31 - 115	04/22/16 09:04	04/29/16 21:05	4

### Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Methane</b>	<b>3.5</b>		0.50	0.080	ug/L			05/01/16 18:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	98		66 - 132		05/01/16 18:59	1

### Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>2700</b>		100	16	ug/L		04/22/16 15:00	04/26/16 13:02	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/22/16 15:00	04/26/16 13:02	4000

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 19:00	1
Copper	<0.75		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 19:00	1
<b>Iron</b>	<b>292</b>		100	16.0	ug/L		04/22/16 12:00	05/02/16 19:00	1
<b>Manganese</b>	<b>77.8</b>		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 19:00	1
<b>Zinc</b>	<b>17.2 J</b>		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 19:00	1

### General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Alkalinity</b>	<b>136</b>		5.0	1.9	mg/L			05/02/16 08:44	1
<b>Hardness as calcium carbonate</b>	<b>145</b>		5.0	3.1	mg/L			04/22/16 08:20	1
<b>Chloride</b>	<b>11.9</b>		1.0	0.41	mg/L			04/22/16 10:54	1
<b>Nitrate as N</b>	<b>0.48 H</b>		0.10	0.035	mg/L			04/22/16 10:54	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-38**

**Lab Sample ID: 240-63770-10**

**Date Collected: 04/19/16 15:00**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.1		1.0	0.13	mg/L			04/22/16 10:54	1
Total Organic Carbon	6.3		1.0	0.080	mg/L			04/28/16 14:25	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-05-D**

**Lab Sample ID: 240-63770-11**

Date Collected: 04/20/16 12:08

Matrix: Water

Date Received: 04/21/16 09:20

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 19:10	1
Ethylbenzene	0.79	J	1.0	0.25	ug/L			04/28/16 19:10	1
Toluene	0.95	J	1.0	0.23	ug/L			04/28/16 19:10	1
Xylenes, Total	6.7		2.0	0.52	ug/L			04/28/16 19:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/28/16 19:10	1
4-Bromofluorobenzene (Surr)	91		61 - 120		04/28/16 19:10	1
Toluene-d8 (Surr)	94		80 - 120		04/28/16 19:10	1
Dibromofluoromethane (Surr)	85		79 - 120		04/28/16 19:10	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	19		1.9	0.60	ug/L		04/22/16 09:04	04/26/16 19:23	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	64		29 - 110	04/22/16 09:04	04/26/16 19:23	10
2-Fluorophenol (Surr)	30		15 - 110	04/22/16 09:04	04/26/16 19:23	10
2,4,6-Tribromophenol (Surr)	51		21 - 128	04/22/16 09:04	04/26/16 19:23	10
Nitrobenzene-d5 (Surr)	80		31 - 110	04/22/16 09:04	04/26/16 19:23	10
Phenol-d5 (Surr)	20		10 - 110	04/22/16 09:04	04/26/16 19:23	10
Terphenyl-d14 (Surr)	57		31 - 115	04/22/16 09:04	04/26/16 19:23	10

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	0.44	J	0.50	0.080	ug/L			05/01/16 19:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	98		66 - 132		05/01/16 19:17	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	7500		480	74	ug/L		04/22/16 15:00	04/27/16 08:35	20000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	D X	32 - 140	04/22/16 15:00	04/27/16 08:35	20000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.7	J	5.0	0.49	ug/L		04/22/16 12:00	05/02/16 19:04	1
Copper	8.6		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 19:04	1
Iron	8430		100	16.0	ug/L		04/22/16 12:00	05/02/16 19:04	1
Manganese	1980		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 19:04	1
Zinc	372		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 19:04	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	145	B	5.0	1.9	mg/L			05/03/16 10:11	1
Hardness as calcium carbonate	171		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	14.4		1.0	0.41	mg/L			04/22/16 10:05	1
Nitrate as N	<0.035		0.10	0.035	mg/L			04/22/16 10:05	1

TestAmerica Canton



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-05-D**

**Lab Sample ID: 240-63770-11**

**Date Collected: 04/20/16 12:08**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17.0		1.0	0.13	mg/L			04/22/16 10:05	1
Total Organic Carbon	36.7		1.0	0.080	mg/L			04/28/16 14:49	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-12-D**

**Lab Sample ID: 240-63770-12**

Date Collected: 04/20/16 10:59

Matrix: Water

Date Received: 04/21/16 09:20

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 19:33	1
Ethylbenzene	0.58	J	1.0	0.25	ug/L			04/28/16 19:33	1
Toluene	0.50	J	1.0	0.23	ug/L			04/28/16 19:33	1
Xylenes, Total	7.2		2.0	0.52	ug/L			04/28/16 19:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		78 - 125		04/28/16 19:33	1
4-Bromofluorobenzene (Surr)	93		61 - 120		04/28/16 19:33	1
Toluene-d8 (Surr)	92		80 - 120		04/28/16 19:33	1
Dibromofluoromethane (Surr)	86		79 - 120		04/28/16 19:33	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	12		0.81	0.25	ug/L		04/22/16 09:04	04/27/16 19:52	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	48		29 - 110	04/22/16 09:04	04/27/16 19:52	4
2-Fluorophenol (Surr)	28		15 - 110	04/22/16 09:04	04/27/16 19:52	4
2,4,6-Tribromophenol (Surr)	46		21 - 128	04/22/16 09:04	04/27/16 19:52	4
Nitrobenzene-d5 (Surr)	72		31 - 110	04/22/16 09:04	04/27/16 19:52	4
Phenol-d5 (Surr)	15		10 - 110	04/22/16 09:04	04/27/16 19:52	4
Terphenyl-d14 (Surr)	63		31 - 115	04/22/16 09:04	04/27/16 19:52	4

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	4.0		0.50	0.080	ug/L			05/01/16 19:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	95		66 - 132		05/01/16 19:34	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	2500		99	15	ug/L		04/22/16 15:00	04/26/16 13:50	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/22/16 15:00	04/26/16 13:50	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	2.2	J	5.0	0.49	ug/L		04/22/16 12:00	05/02/16 19:08	1
Copper	1.3	J	2.0	0.75	ug/L		04/22/16 12:00	05/02/16 19:08	1
Iron	3820		100	16.0	ug/L		04/22/16 12:00	05/02/16 19:08	1
Manganese	1620		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 19:08	1
Zinc	<7.3		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 19:08	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	90.0	B	5.0	1.9	mg/L			05/03/16 10:11	1
Hardness as calcium carbonate	80.4		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	5.4		1.0	0.41	mg/L			04/22/16 09:48	1
Nitrate as N	<0.035		0.10	0.035	mg/L			04/22/16 09:48	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-12-D**

**Lab Sample ID: 240-63770-12**

**Date Collected: 04/20/16 10:59**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.4		1.0	0.13	mg/L			04/22/16 09:48	1
Total Organic Carbon	15.7		1.0	0.080	mg/L			04/28/16 15:57	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-MW-40**

**Lab Sample ID: 240-63770-13**

Date Collected: 04/20/16 09:35

Matrix: Water

Date Received: 04/21/16 09:20

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 19:56	1
Ethylbenzene	1.3		1.0	0.25	ug/L			04/28/16 19:56	1
Toluene	1.9		1.0	0.23	ug/L			04/28/16 19:56	1
Xylenes, Total	12		2.0	0.52	ug/L			04/28/16 19:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		78 - 125		04/28/16 19:56	1
4-Bromofluorobenzene (Surr)	92		61 - 120		04/28/16 19:56	1
Toluene-d8 (Surr)	92		80 - 120		04/28/16 19:56	1
Dibromofluoromethane (Surr)	88		79 - 120		04/28/16 19:56	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	19		1.9	0.61	ug/L		04/22/16 09:04	04/26/16 19:46	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	63		29 - 110	04/22/16 09:04	04/26/16 19:46	10
2-Fluorophenol (Surr)	30		15 - 110	04/22/16 09:04	04/26/16 19:46	10
2,4,6-Tribromophenol (Surr)	50		21 - 128	04/22/16 09:04	04/26/16 19:46	10
Nitrobenzene-d5 (Surr)	76		31 - 110	04/22/16 09:04	04/26/16 19:46	10
Phenol-d5 (Surr)	16		10 - 110	04/22/16 09:04	04/26/16 19:46	10
Terphenyl-d14 (Surr)	56		31 - 115	04/22/16 09:04	04/26/16 19:46	10

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.3		0.50	0.080	ug/L			05/01/16 19:51	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	93		66 - 132		05/01/16 19:51	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	4800		95	15	ug/L		04/22/16 15:00	04/26/16 14:14	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/22/16 15:00	04/26/16 14:14	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	7.6		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 19:12	1
Copper	12.1		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 19:12	1
Iron	3720		100	16.0	ug/L		04/22/16 12:00	05/02/16 19:12	1
Manganese	2170		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 19:12	1
Zinc	114		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 19:12	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	136	B	5.0	1.9	mg/L			05/03/16 10:11	1
Hardness as calcium carbonate	184		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	23.9		1.0	0.41	mg/L			04/22/16 09:32	1
Nitrate as N	0.060	J	0.10	0.035	mg/L			04/22/16 09:32	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-MW-40**

**Lab Sample ID: 240-63770-13**

**Date Collected: 04/20/16 09:35**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20.3		1.0	0.13	mg/L			04/22/16 09:32	1
Total Organic Carbon	41.0		1.0	0.080	mg/L			04/28/16 16:22	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-MW-41**

**Lab Sample ID: 240-63770-14**

**Date Collected: 04/20/16 08:00**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

### Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 20:19	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 20:19	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 20:19	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/28/16 20:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	81		78 - 125		04/28/16 20:19	1
4-Bromofluorobenzene (Surr)	89		61 - 120		04/28/16 20:19	1
Toluene-d8 (Surr)	93		80 - 120		04/28/16 20:19	1
Dibromofluoromethane (Surr)	85		79 - 120		04/28/16 20:19	1

### Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.065		0.21	0.065	ug/L		04/22/16 09:04	04/25/16 22:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	85		29 - 110	04/22/16 09:04	04/25/16 22:48	1
2-Fluorophenol (Surr)	39		15 - 110	04/22/16 09:04	04/25/16 22:48	1
2,4,6-Tribromophenol (Surr)	68		21 - 128	04/22/16 09:04	04/25/16 22:48	1
Nitrobenzene-d5 (Surr)	87		31 - 110	04/22/16 09:04	04/25/16 22:48	1
Phenol-d5 (Surr)	23		10 - 110	04/22/16 09:04	04/25/16 22:48	1
Terphenyl-d14 (Surr)	85		31 - 115	04/22/16 09:04	04/25/16 22:48	1

### Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.24		0.095	0.015	ug/L		04/22/16 15:00	04/26/16 15:50	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	50		32 - 140	04/22/16 15:00	04/26/16 15:50	4

### Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 19:16	1
Copper	0.89	J	2.0	0.75	ug/L		04/22/16 12:00	05/02/16 19:16	1
Iron	<16.0		100	16.0	ug/L		04/22/16 12:00	05/02/16 19:16	1
Manganese	<1.1		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 19:16	1
Zinc	<7.3		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 19:16	1

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-10-D**

**Lab Sample ID: 240-63770-15**

Date Collected: 04/20/16 09:20

Matrix: Water

Date Received: 04/21/16 09:20

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 13:28	1
Ethylbenzene	1.4		1.0	0.25	ug/L			04/28/16 13:28	1
Toluene	1.8		1.0	0.23	ug/L			04/28/16 13:28	1
Xylenes, Total	12		2.0	0.52	ug/L			04/28/16 13:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	85		78 - 125		04/28/16 13:28	1
4-Bromofluorobenzene (Surr)	91		61 - 120		04/28/16 13:28	1
Toluene-d8 (Surr)	92		80 - 120		04/28/16 13:28	1
Dibromofluoromethane (Surr)	89		79 - 120		04/28/16 13:28	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	19		1.9	0.60	ug/L		04/22/16 09:04	04/25/16 20:25	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	57		29 - 110	04/22/16 09:04	04/25/16 20:25	10
2-Fluorophenol (Surr)	31		15 - 110	04/22/16 09:04	04/25/16 20:25	10
2,4,6-Tribromophenol (Surr)	50		21 - 128	04/22/16 09:04	04/25/16 20:25	10
Nitrobenzene-d5 (Surr)	74		31 - 110	04/22/16 09:04	04/25/16 20:25	10
Phenol-d5 (Surr)	19		10 - 110	04/22/16 09:04	04/25/16 20:25	10
Terphenyl-d14 (Surr)	56		31 - 115	04/22/16 09:04	04/25/16 20:25	10

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	1.1		0.50	0.080	ug/L			05/01/16 20:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	95		66 - 132		05/01/16 20:08	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	5000		95	15	ug/L		04/22/16 15:00	04/26/16 16:14	4000

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	0	X D	32 - 140	04/22/16 15:00	04/26/16 16:14	4000

## Method: 6020 - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	6.5		5.0	0.49	ug/L		04/22/16 12:00	05/02/16 18:19	1
Copper	10.3		2.0	0.75	ug/L		04/22/16 12:00	05/02/16 18:19	1
Iron	3350		100	16.0	ug/L		04/22/16 12:00	05/02/16 18:19	1
Manganese	2200		5.0	1.1	ug/L		04/22/16 12:00	05/02/16 18:19	1
Zinc	81.0		20.0	7.3	ug/L		04/22/16 12:00	05/02/16 18:19	1

## General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	135	B	5.0	1.9	mg/L			05/03/16 10:11	1
Hardness as calcium carbonate	180		5.0	3.1	mg/L			04/22/16 08:20	1
Chloride	25.7	F1	1.0	0.41	mg/L			04/22/16 09:16	1
Nitrate as N	0.057	J F1	0.10	0.035	mg/L			04/22/16 09:16	1

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-10-D**

**Lab Sample ID: 240-63770-15**

**Date Collected: 04/20/16 09:20**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

## General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	21.8	F1	1.0	0.13	mg/L			04/22/16 09:16	1
Total Organic Carbon	41.8		1.0	0.080	mg/L			04/28/16 10:23	1

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# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-TRIPBLANK-PS-09**

**Lab Sample ID: 240-63770-16**

**Date Collected: 04/20/16 13:00**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

**Method: 8260B - Volatile Organic Compounds (GC/MS)**

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 20:42	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 20:42	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 20:42	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/28/16 20:42	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		78 - 125		04/28/16 20:42	1
4-Bromofluorobenzene (Surr)	90		61 - 120		04/28/16 20:42	1
Toluene-d8 (Surr)	95		80 - 120		04/28/16 20:42	1
Dibromofluoromethane (Surr)	87		79 - 120		04/28/16 20:42	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63770-1	W-160418-PS-EW-03-S	86	90	94	88
240-63770-2	W-160418-PS-EW-03-D	82	90	92	85
240-63770-3	W-160418-PS-MW-10S	82	90	93	85
240-63770-4	W-160419-PS-MW-6S	84	94	93	83
240-63770-5	W-160419-PS-EW-13-S	84	87	94	85
240-63770-6	W-160419-PS-EW-13-D	80	88	93	86
240-63770-7	W-160419-PS-MW-39	81	87	93	83
240-63770-8	W-160419-PS-MW-06	82	90	96	86
240-63770-9	W-160419-PS-EW-14-D	85	91	96	87
240-63770-10	W-160419-PS-MW-38	86	91	94	86
240-63770-11	W-160420-PS-EW-05-D	83	91	94	85
240-63770-12	W-160420-PS-EW-12-D	83	93	92	86
240-63770-13	W-160420-PS-MW-40	84	92	92	88
240-63770-14	W-160420-PS-MW-41	81	89	93	85
240-63770-15	W-160420-PS-EW-10-D	85	91	92	89
240-63770-15 MS	W-160420-PS-EW-10-D	83	89	92	88
240-63770-15 MSD	W-160420-PS-EW-10-D	85	93	92	86
240-63770-16	W-TRIPBLANK-PS-09	86	90	95	87
LCS 240-227975/4	Lab Control Sample	81	89	96	88
MB 240-227975/6	Method Blank	86	86	92	88

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63770-7	W-160419-PS-MW-39	75	34	57	76	20	74
240-63770-8	W-160419-PS-MW-06	70	29	63	73	16	53
240-63770-9	W-160419-PS-EW-14-D	63	33	52	78	19	71
240-63770-10	W-160419-PS-MW-38	60	31	50	72	18	68
240-63770-11	W-160420-PS-EW-05-D	64	30	51	80	20	57
240-63770-12	W-160420-PS-EW-12-D	48	28	46	72	15	63
240-63770-13	W-160420-PS-MW-40	63	30	50	76	16	56
240-63770-14	W-160420-PS-MW-41	85	39	68	87	23	85
240-63770-15	W-160420-PS-EW-10-D	57	31	50	74	19	56
240-63770-15 MS	W-160420-PS-EW-10-D	62	27	64	88	17	54
240-63770-15 MSD	W-160420-PS-EW-10-D	62	31	53	87	19	68
LCS 240-227131/22-A	Lab Control Sample	79	54	68	82	40	86
MB 240-227131/21-A	Method Blank	79	58	61	84	44	96

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)

TestAmerica Canton

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	Trifluoroethane (66-132)
240-63770-8	W-160419-PS-MW-06	100
240-63770-9	W-160419-PS-EW-14-D	101
240-63770-10	W-160419-PS-MW-38	98
240-63770-11	W-160420-PS-EW-05-D	98
240-63770-12	W-160420-PS-EW-12-D	95
240-63770-13	W-160420-PS-MW-40	93
240-63770-15	W-160420-PS-EW-10-D	95
240-63770-15 MS	W-160420-PS-EW-10-D	95
240-63770-15 MSD	W-160420-PS-EW-10-D	90
LCS 240-228288/5	Lab Control Sample	107
MB 240-228288/4	Method Blank	107

### Surrogate Legend

1,1,1-Trifluoroethane = 1,1,1-Trifluoroethane

## Method: 8151A - Herbicides (GC)

Matrix: Water

Prep Type: Total/NA

### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1 (32-140)	DCPA2 (32-140)
240-63770-7	W-160419-PS-MW-39	64	66
240-63770-8	W-160419-PS-MW-06	0 X D	0 X D
240-63770-9	W-160419-PS-EW-14-D	0 X D	0 X D
240-63770-10	W-160419-PS-MW-38	0 X D	0 X D
240-63770-11	W-160420-PS-EW-05-D	0 D X	0 D X
240-63770-12	W-160420-PS-EW-12-D	0 X D	0 X D
240-63770-13	W-160420-PS-MW-40	0 X D	0 X D
240-63770-14	W-160420-PS-MW-41	43	50
240-63770-15	W-160420-PS-EW-10-D	0 X D	0 X D
240-63770-15 MS	W-160420-PS-EW-10-D	0 D X	0 D X
240-63770-15 MSD	W-160420-PS-EW-10-D	0 D X	0 D X
LCS 180-174283/2-A	Lab Control Sample	45	50
MB 180-174283/1-A	Method Blank	47	49

### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-227975/6**  
**Matrix: Water**  
**Analysis Batch: 227975**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/28/16 13:02	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/28/16 13:02	1
Toluene	<0.23		1.0	0.23	ug/L			04/28/16 13:02	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/28/16 13:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	86		78 - 125		04/28/16 13:02	1
4-Bromofluorobenzene (Surr)	86		61 - 120		04/28/16 13:02	1
Toluene-d8 (Surr)	92		80 - 120		04/28/16 13:02	1
Dibromofluoromethane (Surr)	88		79 - 120		04/28/16 13:02	1

**Lab Sample ID: LCS 240-227975/4**  
**Matrix: Water**  
**Analysis Batch: 227975**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	10.3		ug/L		103	80 - 120
Ethylbenzene	10.0	10.6		ug/L		106	80 - 120
Toluene	10.0	11.0		ug/L		110	80 - 120
Xylenes, Total	20.0	20.7		ug/L		104	80 - 120
m-Xylene & p-Xylene	10.0	10.5		ug/L		105	80 - 120
o-Xylene	10.0	10.2		ug/L		102	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	81		78 - 125
4-Bromofluorobenzene (Surr)	89		61 - 120
Toluene-d8 (Surr)	96		80 - 120
Dibromofluoromethane (Surr)	88		79 - 120

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 227975**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.35		10.0	10.7		ug/L		107	73 - 121
Ethylbenzene	1.4		10.0	11.9		ug/L		105	68 - 121
Toluene	1.8		10.0	12.5		ug/L		107	72 - 122
Xylenes, Total	12		20.0	33.6		ug/L		107	67 - 122
m-Xylene & p-Xylene	6.4		10.0	17.1		ug/L		107	66 - 123
o-Xylene	5.9		10.0	16.5		ug/L		106	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		78 - 125
4-Bromofluorobenzene (Surr)	89		61 - 120
Toluene-d8 (Surr)	92		80 - 120
Dibromofluoromethane (Surr)	88		79 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63770-15 MSD**

**Matrix: Water**

**Analysis Batch: 227975**

**Client Sample ID: W-160420-PS-EW-10-D**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.35		10.0	10.4		ug/L		104	73 - 121	2	13
Ethylbenzene	1.4		10.0	12.2		ug/L		109	68 - 121	3	16
Toluene	1.8		10.0	12.7		ug/L		109	72 - 122	2	15
Xylenes, Total	12		20.0	34.9		ug/L		113	67 - 122	4	14
m-Xylene & p-Xylene	6.4		10.0	17.7		ug/L		112	66 - 123	3	15
o-Xylene	5.9		10.0	17.2		ug/L		112	68 - 121	4	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	85		78 - 125
4-Bromofluorobenzene (Surr)	93		61 - 120
Toluene-d8 (Surr)	92		80 - 120
Dibromofluoromethane (Surr)	86		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-227131/21-A**

**Matrix: Water**

**Analysis Batch: 227389**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 227131**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/22/16 09:04	04/25/16 12:04	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	79		29 - 110	04/22/16 09:04	04/25/16 12:04	1
2-Fluorophenol (Surr)	58		15 - 110	04/22/16 09:04	04/25/16 12:04	1
2,4,6-Tribromophenol (Surr)	61		21 - 128	04/22/16 09:04	04/25/16 12:04	1
Nitrobenzene-d5 (Surr)	84		31 - 110	04/22/16 09:04	04/25/16 12:04	1
Phenol-d5 (Surr)	44		10 - 110	04/22/16 09:04	04/25/16 12:04	1
Terphenyl-d14 (Surr)	96		31 - 115	04/22/16 09:04	04/25/16 12:04	1

**Lab Sample ID: LCS 240-227131/22-A**

**Matrix: Water**

**Analysis Batch: 227389**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 227131**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	14.4		ug/L		72	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	79		29 - 110
2-Fluorophenol (Surr)	54		15 - 110
2,4,6-Tribromophenol (Surr)	68		21 - 128
Nitrobenzene-d5 (Surr)	82		31 - 110
Phenol-d5 (Surr)	40		10 - 110
Terphenyl-d14 (Surr)	86		31 - 115

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63770-15 MS**

**Matrix: Water**

**Analysis Batch: 227389**

**Client Sample ID: W-160420-PS-EW-10-D**

**Prep Type: Total/NA**

**Prep Batch: 227131**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Naphthalene	19		19.2	38.1		ug/L		98	35 - 110
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>MS Limits</b>						
2-Fluorobiphenyl (Surr)	62		29 - 110						
2-Fluorophenol (Surr)	27		15 - 110						
2,4,6-Tribromophenol (Surr)	64		21 - 128						
Nitrobenzene-d5 (Surr)	88		31 - 110						
Phenol-d5 (Surr)	17		10 - 110						
Terphenyl-d14 (Surr)	54		31 - 115						

**Lab Sample ID: 240-63770-15 MSD**

**Matrix: Water**

**Analysis Batch: 227389**

**Client Sample ID: W-160420-PS-EW-10-D**

**Prep Type: Total/NA**

**Prep Batch: 227131**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Naphthalene	19		19.2	37.1		ug/L		93	35 - 110	3	58
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>MSD Limits</b>								
2-Fluorobiphenyl (Surr)	62		29 - 110								
2-Fluorophenol (Surr)	31		15 - 110								
2,4,6-Tribromophenol (Surr)	53		21 - 128								
Nitrobenzene-d5 (Surr)	87		31 - 110								
Phenol-d5 (Surr)	19		10 - 110								
Terphenyl-d14 (Surr)	68		31 - 115								

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 240-228288/4**

**Matrix: Water**

**Analysis Batch: 228288**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.080		0.50	0.080	ug/L			05/01/16 15:16	1
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>						
1,1,1-Trifluoroethane	107		66 - 132						
				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>			
				05/01/16 15:16		1			

**Lab Sample ID: LCS 240-228288/5**

**Matrix: Water**

**Analysis Batch: 228288**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Methane	199	212		ug/L		107	76 - 120
<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
1,1,1-Trifluoroethane	107		66 - 132				

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 228288**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane	1.1		199	202		ug/L		101	34 - 153
<b>Surrogate</b>	<b>%Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
1,1,1-Trifluoroethane	95		66 - 132						

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 228288**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	1.1		199	201		ug/L		101	34 - 153	0	22
<b>Surrogate</b>	<b>%Recovery</b>	<b>MSD Qualifier</b>	<b>Limits</b>								
1,1,1-Trifluoroethane	90		66 - 132								

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-174283/1-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 174283**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/22/16 15:00	04/26/16 18:38	4
<b>Surrogate</b>	<b>%Recovery</b>	<b>MB Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2,4-Dichlorophenylacetic acid	49		32 - 140				04/22/16 15:00	04/26/16 18:38	4

**Lab Sample ID: LCS 180-174283/2-A**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 174283**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	1.00	0.807		ug/L		81	40 - 140
<b>Surrogate</b>	<b>LCS %Recovery</b>	<b>LCS Qualifier</b>	<b>Limits</b>				
2,4-Dichlorophenylacetic acid	50		32 - 140				

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**  
**Prep Batch: 174283**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	5000		0.952	4720	4	ug/L		-2932	40 - 140

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**  
**Prep Batch: 174283**

Surrogate	%Recovery	MS MS Qualifier	Limits
2,4-Dichlorophenylacetic acid	0	D X	32 - 140

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 174434**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**  
**Prep Batch: 174283**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	5000		0.952	4940	4	ug/L		-6180	40 - 140	5	30

Surrogate	%Recovery	MSD MSD Qualifier	Limits
2,4-Dichlorophenylacetic acid	0	D X	32 - 140

## Method: 6020 - Metals (ICP/MS)

**Lab Sample ID: MB 240-227171/1-A**  
**Matrix: Water**  
**Analysis Batch: 228558**

**Client Sample ID: Method Blank**  
**Prep Type: Total Recoverable**  
**Prep Batch: 227171**

Analyte	MB MB Result Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.49	5.0	0.49	ug/L		04/22/16 12:00	05/02/16 18:10	1
Copper	<0.75	2.0	0.75	ug/L		04/22/16 12:00	05/02/16 18:10	1
Iron	<16.0	100	16.0	ug/L		04/22/16 12:00	05/02/16 18:10	1
Manganese	<1.1	5.0	1.1	ug/L		04/22/16 12:00	05/02/16 18:10	1
Zinc	<7.3	20.0	7.3	ug/L		04/22/16 12:00	05/02/16 18:10	1

**Lab Sample ID: LCS 240-227171/2-A**  
**Matrix: Water**  
**Analysis Batch: 228558**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total Recoverable**  
**Prep Batch: 227171**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1000	984.2		ug/L		98	80 - 120
Copper	1000	1070		ug/L		107	80 - 120
Iron	10000	9899		ug/L		99	80 - 120
Manganese	1000	1015		ug/L		102	80 - 120
Zinc	1000	1005		ug/L		100	80 - 120

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 228558**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Dissolved**  
**Prep Batch: 227171**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS MS Result Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	6.5		1000	1011	ug/L		101	75 - 125
Copper	10.3		1000	1048	ug/L		104	75 - 125
Iron	3350		10000	12880	ug/L		95	75 - 125
Manganese	2200		1000	3140	ug/L		94	75 - 125
Zinc	81.0		1000	1048	ug/L		97	75 - 125

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 6020 - Metals (ICP/MS) (Continued)

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 228558**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Dissolved**  
**Prep Batch: 227171**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	6.5		1000	984.9		ug/L		98	75 - 125	3	20
Copper	10.3		1000	1047		ug/L		104	75 - 125	0	20
Iron	3350		10000	12890		ug/L		95	75 - 125	0	20
Manganese	2200		1000	3097		ug/L		89	75 - 125	1	20
Zinc	81.0		1000	1047		ug/L		97	75 - 125	0	20

## Method: 2320B-1997 - Alkalinity, Total

**Lab Sample ID: LCS 240-228336/2**  
**Matrix: Water**  
**Analysis Batch: 228336**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	259.0		mg/L		91	90 - 127

**Lab Sample ID: 240-63770-10 DU**  
**Matrix: Water**  
**Analysis Batch: 228336**

**Client Sample ID: W-160419-PS-MW-38**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	136		133.0		mg/L		2	20

**Lab Sample ID: MB 240-228589/3**  
**Matrix: Water**  
**Analysis Batch: 228589**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	3.00	J	5.0	1.9	mg/L			05/03/16 10:11	1

**Lab Sample ID: LCS 240-228589/2**  
**Matrix: Water**  
**Analysis Batch: 228589**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	284	295.0		mg/L		104	90 - 127

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 228589**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	135	B	500	642.0		mg/L		101	10 - 160

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 228589**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Alkalinity	135	B	500	624.0		mg/L		98	10 - 160	3	24

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 2320B-1997 - Alkalinity, Total (Continued)

**Lab Sample ID: 240-63770-15 DU**  
**Matrix: Water**  
**Analysis Batch: 228589**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Alkalinity	135	B	138.0		mg/L		2	20

## Method: 2340C-1997 - Hardness, Total

**Lab Sample ID: MB 240-227183/27**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	<3.1		5.0	3.1	mg/L			04/22/16 08:20	1

**Lab Sample ID: LCS 240-227183/28**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	170	164.6		mg/L		97	88 - 110

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Hardness as calcium carbonate	180		200	382.2		mg/L		101	87 - 114

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Hardness as calcium carbonate	180		200	382.2		mg/L		101	87 - 114	0	20

**Lab Sample ID: 240-63770-10 DU**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160419-PS-MW-38**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hardness as calcium carbonate	145		145.0		mg/L		0	20

**Lab Sample ID: 240-63770-15 DU**  
**Matrix: Water**  
**Analysis Batch: 227183**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Hardness as calcium carbonate	180		182.3		mg/L		1	20

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 300.0 - Anions, Ion Chromatography

**Lab Sample ID: MB 240-226963/35**  
**Matrix: Water**  
**Analysis Batch: 226963**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/21/16 17:30	1

**Lab Sample ID: LCS 240-226963/36**  
**Matrix: Water**  
**Analysis Batch: 226963**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.50		mg/L		100	90 - 110

**Lab Sample ID: MB 240-227132/17**  
**Matrix: Water**  
**Analysis Batch: 227132**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.41		1.0	0.41	mg/L			04/22/16 13:05	1
Sulfate	<0.13		1.0	0.13	mg/L			04/22/16 13:05	1

**Lab Sample ID: LCS 240-227132/18**  
**Matrix: Water**  
**Analysis Batch: 227132**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.00		mg/L		104	90 - 110
Sulfate	50.0	48.74		mg/L		97	90 - 110

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 227132**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.7	F1	50.0	87.27	F1	mg/L		123	80 - 120
Sulfate	21.8	F1	50.0	80.76		mg/L		118	80 - 120

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 227132**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	25.7	F1	50.0	89.25	F1	mg/L		127	80 - 120	2	15
Sulfate	21.8	F1	50.0	82.28	F1	mg/L		121	80 - 120	2	15

**Lab Sample ID: MB 240-227133/17**  
**Matrix: Water**  
**Analysis Batch: 227133**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.035		0.10	0.035	mg/L			04/22/16 13:05	1

TestAmerica Canton

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 300.0 - Anions, Ion Chromatography (Continued)

**Lab Sample ID: LCS 240-227133/18**  
**Matrix: Water**  
**Analysis Batch: 227133**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.50	2.51		mg/L		100	90 - 110

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 227133**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	0.057	J F1	2.50	3.18	H F1	mg/L		125	80 - 120

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 227133**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Nitrate as N	0.057	J F1	2.50	3.21	H F1	mg/L		126	80 - 120	1	15

## Method: 9060 - Organic Carbon, Total (TOC)

**Lab Sample ID: MB 240-228072/4**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	<0.080		1.0	0.080	mg/L			04/28/16 10:02	1

**Lab Sample ID: LCS 240-228072/6**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	69.3	67.79		mg/L		98	88 - 115

**Lab Sample ID: LLCS 240-228072/5**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.93	6.59		mg/L		95	88 - 115

**Lab Sample ID: 240-63770-8 MS**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: W-160419-PS-MW-06**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	6.2		25.0	32.22		mg/L		104	72 - 136

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# QC Sample Results

Client: GHD Services Inc.  
 Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Method: 9060 - Organic Carbon, Total (TOC) (Continued)

**Lab Sample ID: 240-63770-8 MSD**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: W-160419-PS-MW-06**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	6.2		25.0	33.88		mg/L		111	72 - 136	5	20

**Lab Sample ID: 240-63770-15 MS**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	41.8		25.0	64.37		mg/L		90	72 - 136		

**Lab Sample ID: 240-63770-15 MSD**  
**Matrix: Water**  
**Analysis Batch: 228072**

**Client Sample ID: W-160420-PS-EW-10-D**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	41.8		25.0	65.94		mg/L		97	72 - 136	2	20

# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## GC/MS VOA

### Analysis Batch: 227975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-1	W-160418-PS-EW-03-S	Total/NA	Water	8260B	
240-63770-2	W-160418-PS-EW-03-D	Total/NA	Water	8260B	
240-63770-3	W-160418-PS-MW-10S	Total/NA	Water	8260B	
240-63770-4	W-160419-PS-MW-6S	Total/NA	Water	8260B	
240-63770-5	W-160419-PS-EW-13-S	Total/NA	Water	8260B	
240-63770-6	W-160419-PS-EW-13-D	Total/NA	Water	8260B	
240-63770-7	W-160419-PS-MW-39	Total/NA	Water	8260B	
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	8260B	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	8260B	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	8260B	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	8260B	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	8260B	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	8260B	
240-63770-14	W-160420-PS-MW-41	Total/NA	Water	8260B	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	8260B	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	8260B	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	8260B	
240-63770-16	W-TRIPBLANK-PS-09	Total/NA	Water	8260B	
LCS 240-227975/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-227975/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 227131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-7	W-160419-PS-MW-39	Total/NA	Water	3510C	
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	3510C	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	3510C	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	3510C	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	3510C	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	3510C	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	3510C	
240-63770-14	W-160420-PS-MW-41	Total/NA	Water	3510C	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	3510C	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	3510C	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	3510C	
LCS 240-227131/22-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-227131/21-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 227389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-7	W-160419-PS-MW-39	Total/NA	Water	8270C	227131
240-63770-14	W-160420-PS-MW-41	Total/NA	Water	8270C	227131
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	8270C	227131
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	8270C	227131
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	8270C	227131
LCS 240-227131/22-A	Lab Control Sample	Total/NA	Water	8270C	227131
MB 240-227131/21-A	Method Blank	Total/NA	Water	8270C	227131

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## GC/MS Semi VOA (Continued)

### Analysis Batch: 227535

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	8270C	227131
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	8270C	227131
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	8270C	227131

### Analysis Batch: 227708

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	8270C	227131
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	8270C	227131

### Analysis Batch: 228123

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	8270C	227131

## GC VOA

### Analysis Batch: 228288

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	RSK-175	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	RSK-175	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	RSK-175	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	RSK-175	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	RSK-175	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	RSK-175	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	RSK-175	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	RSK-175	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	RSK-175	
LCS 240-228288/5	Lab Control Sample	Total/NA	Water	RSK-175	
MB 240-228288/4	Method Blank	Total/NA	Water	RSK-175	

## GC Semi VOA

### Prep Batch: 174283

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-7	W-160419-PS-MW-39	Total/NA	Water	8151A	
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	8151A	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	8151A	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	8151A	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	8151A	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	8151A	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	8151A	
240-63770-14	W-160420-PS-MW-41	Total/NA	Water	8151A	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	8151A	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	8151A	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	8151A	
LCS 180-174283/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 180-174283/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 174434

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-7	W-160419-PS-MW-39	Total/NA	Water	8151A	174283

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## GC Semi VOA (Continued)

### Analysis Batch: 174434 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	8151A	174283
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	8151A	174283
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	8151A	174283
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	8151A	174283
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	8151A	174283
240-63770-14	W-160420-PS-MW-41	Total/NA	Water	8151A	174283
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	8151A	174283
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	8151A	174283
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	8151A	174283
LCS 180-174283/2-A	Lab Control Sample	Total/NA	Water	8151A	174283
MB 180-174283/1-A	Method Blank	Total/NA	Water	8151A	174283

### Analysis Batch: 174552

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	8151A	174283

## Metals

### Prep Batch: 227171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-7	W-160419-PS-MW-39	Dissolved	Water	3005A	
240-63770-8	W-160419-PS-MW-06	Dissolved	Water	3005A	
240-63770-9	W-160419-PS-EW-14-D	Dissolved	Water	3005A	
240-63770-10	W-160419-PS-MW-38	Dissolved	Water	3005A	
240-63770-11	W-160420-PS-EW-05-D	Dissolved	Water	3005A	
240-63770-12	W-160420-PS-EW-12-D	Dissolved	Water	3005A	
240-63770-13	W-160420-PS-MW-40	Dissolved	Water	3005A	
240-63770-14	W-160420-PS-MW-41	Dissolved	Water	3005A	
240-63770-15	W-160420-PS-EW-10-D	Dissolved	Water	3005A	
240-63770-15 MS	W-160420-PS-EW-10-D	Dissolved	Water	3005A	
240-63770-15 MSD	W-160420-PS-EW-10-D	Dissolved	Water	3005A	
LCS 240-227171/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
MB 240-227171/1-A	Method Blank	Total Recoverable	Water	3005A	

### Analysis Batch: 228558

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-7	W-160419-PS-MW-39	Dissolved	Water	6020	227171
240-63770-8	W-160419-PS-MW-06	Dissolved	Water	6020	227171
240-63770-9	W-160419-PS-EW-14-D	Dissolved	Water	6020	227171
240-63770-10	W-160419-PS-MW-38	Dissolved	Water	6020	227171
240-63770-11	W-160420-PS-EW-05-D	Dissolved	Water	6020	227171
240-63770-12	W-160420-PS-EW-12-D	Dissolved	Water	6020	227171
240-63770-13	W-160420-PS-MW-40	Dissolved	Water	6020	227171
240-63770-14	W-160420-PS-MW-41	Dissolved	Water	6020	227171
240-63770-15	W-160420-PS-EW-10-D	Dissolved	Water	6020	227171
240-63770-15 MS	W-160420-PS-EW-10-D	Dissolved	Water	6020	227171
240-63770-15 MSD	W-160420-PS-EW-10-D	Dissolved	Water	6020	227171
LCS 240-227171/2-A	Lab Control Sample	Total Recoverable	Water	6020	227171
MB 240-227171/1-A	Method Blank	Total Recoverable	Water	6020	227171

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## General Chemistry

### Analysis Batch: 226963

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	300.0	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	300.0	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	300.0	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
LCS 240-226963/36	Lab Control Sample	Total/NA	Water	300.0	
MB 240-226963/35	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 227132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	300.0	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	300.0	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	300.0	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	300.0	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	300.0	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	300.0	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
LCS 240-227132/18	Lab Control Sample	Total/NA	Water	300.0	
MB 240-227132/17	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 227133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	300.0	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	300.0	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	300.0	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	300.0	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	300.0	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	300.0	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	300.0	
LCS 240-227133/18	Lab Control Sample	Total/NA	Water	300.0	
MB 240-227133/17	Method Blank	Total/NA	Water	300.0	

### Analysis Batch: 227183

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	2340C-1997	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	2340C-1997	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	2340C-1997	
240-63770-10 DU	W-160419-PS-MW-38	Total/NA	Water	2340C-1997	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	2340C-1997	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	2340C-1997	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	2340C-1997	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	2340C-1997	
240-63770-15 DU	W-160420-PS-EW-10-D	Total/NA	Water	2340C-1997	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	2340C-1997	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	2340C-1997	
LCS 240-227183/28	Lab Control Sample	Total/NA	Water	2340C-1997	
MB 240-227183/27	Method Blank	Total/NA	Water	2340C-1997	

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# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## General Chemistry (Continued)

### Analysis Batch: 228072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	9060	
240-63770-8 MS	W-160419-PS-MW-06	Total/NA	Water	9060	
240-63770-8 MSD	W-160419-PS-MW-06	Total/NA	Water	9060	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	9060	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	9060	
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	9060	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	9060	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	9060	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	9060	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	9060	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	9060	
LCS 240-228072/6	Lab Control Sample	Total/NA	Water	9060	
LLCS 240-228072/5	Lab Control Sample	Total/NA	Water	9060	
MB 240-228072/4	Method Blank	Total/NA	Water	9060	

### Analysis Batch: 228336

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-8	W-160419-PS-MW-06	Total/NA	Water	2320B-1997	
240-63770-9	W-160419-PS-EW-14-D	Total/NA	Water	2320B-1997	
240-63770-10	W-160419-PS-MW-38	Total/NA	Water	2320B-1997	
240-63770-10 DU	W-160419-PS-MW-38	Total/NA	Water	2320B-1997	
LCS 240-228336/2	Lab Control Sample	Total/NA	Water	2320B-1997	

### Analysis Batch: 228589

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63770-11	W-160420-PS-EW-05-D	Total/NA	Water	2320B-1997	
240-63770-12	W-160420-PS-EW-12-D	Total/NA	Water	2320B-1997	
240-63770-13	W-160420-PS-MW-40	Total/NA	Water	2320B-1997	
240-63770-15	W-160420-PS-EW-10-D	Total/NA	Water	2320B-1997	
240-63770-15 DU	W-160420-PS-EW-10-D	Total/NA	Water	2320B-1997	
240-63770-15 MS	W-160420-PS-EW-10-D	Total/NA	Water	2320B-1997	
240-63770-15 MSD	W-160420-PS-EW-10-D	Total/NA	Water	2320B-1997	
LCS 240-228589/2	Lab Control Sample	Total/NA	Water	2320B-1997	
MB 240-228589/3	Method Blank	Total/NA	Water	2320B-1997	

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160418-PS-EW-03-S**

**Date Collected: 04/18/16 15:22**

**Date Received: 04/21/16 09:20**

**Lab Sample ID: 240-63770-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		2	227975	04/28/16 21:50	RJQ	TAL CAN

**Client Sample ID: W-160418-PS-EW-03-D**

**Date Collected: 04/18/16 14:55**

**Date Received: 04/21/16 09:20**

**Lab Sample ID: 240-63770-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 15:45	RJQ	TAL CAN

**Client Sample ID: W-160418-PS-MW-10S**

**Date Collected: 04/18/16 16:35**

**Date Received: 04/21/16 09:20**

**Lab Sample ID: 240-63770-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 16:08	RJQ	TAL CAN

**Client Sample ID: W-160419-PS-MW-6S**

**Date Collected: 04/19/16 11:50**

**Date Received: 04/21/16 09:20**

**Lab Sample ID: 240-63770-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 16:31	RJQ	TAL CAN

**Client Sample ID: W-160419-PS-EW-13-S**

**Date Collected: 04/19/16 12:13**

**Date Received: 04/21/16 09:20**

**Lab Sample ID: 240-63770-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 16:54	RJQ	TAL CAN

**Client Sample ID: W-160419-PS-EW-13-D**

**Date Collected: 04/19/16 09:34**

**Date Received: 04/21/16 09:20**

**Lab Sample ID: 240-63770-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 17:16	RJQ	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-MW-39**

**Lab Sample ID: 240-63770-7**

**Date Collected: 04/19/16 15:55**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 17:39	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		1	227389	04/25/16 23:12	JMG	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174434	04/26/16 11:53	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 18:39	AS1	TAL CAN

**Client Sample ID: W-160419-PS-MW-06**

**Lab Sample ID: 240-63770-8**

**Date Collected: 04/19/16 16:25**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 18:02	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		1	227535	04/26/16 13:01	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 18:25	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 12:17	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 18:43	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228336	05/02/16 07:44	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		5	227132	04/22/16 10:21	LKG	TAL CAN
Total/NA	Analysis	300.0		5	227133	04/22/16 10:21	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 15:16	TPH	TAL CAN

**Client Sample ID: W-160419-PS-EW-14-D**

**Lab Sample ID: 240-63770-9**

**Date Collected: 04/19/16 14:50**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 18:25	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		4	227708	04/27/16 19:29	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 18:42	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 12:41	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 18:47	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228336	05/02/16 07:44	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160419-PS-EW-14-D**

**Lab Sample ID: 240-63770-9**

**Date Collected: 04/19/16 14:50**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	227132	04/22/16 10:38	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227133	04/22/16 10:38	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 13:59	TPH	TAL CAN

**Client Sample ID: W-160419-PS-MW-38**

**Lab Sample ID: 240-63770-10**

**Date Collected: 04/19/16 15:00**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 18:48	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		4	228123	04/29/16 21:05	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 18:59	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 13:02	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 19:00	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228336	05/02/16 08:44	LKG	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	227132	04/22/16 10:54	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227133	04/22/16 10:54	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 14:25	TPH	TAL CAN

**Client Sample ID: W-160420-PS-EW-05-D**

**Lab Sample ID: 240-63770-11**

**Date Collected: 04/20/16 12:08**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 19:10	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		10	227535	04/26/16 19:23	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 19:17	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		20000	174552	04/27/16 08:35	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 19:04	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228589	05/03/16 10:11	LCN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 19:25	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227132	04/22/16 10:05	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227133	04/22/16 10:05	LKG	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-EW-05-D**

**Lab Sample ID: 240-63770-11**

**Date Collected: 04/20/16 12:08**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	9060		1	228072	04/28/16 14:49	TPH	TAL CAN

**Client Sample ID: W-160420-PS-EW-12-D**

**Lab Sample ID: 240-63770-12**

**Date Collected: 04/20/16 10:59**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 19:33	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		4	227708	04/27/16 19:52	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 19:34	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 13:50	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 19:08	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228589	05/03/16 10:11	LCN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 19:41	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227132	04/22/16 09:48	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227133	04/22/16 09:48	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 15:57	TPH	TAL CAN

**Client Sample ID: W-160420-PS-MW-40**

**Lab Sample ID: 240-63770-13**

**Date Collected: 04/20/16 09:35**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 19:56	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		10	227535	04/26/16 19:46	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 19:51	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 14:14	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 19:12	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228589	05/03/16 10:11	LCN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 19:57	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227132	04/22/16 09:32	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227133	04/22/16 09:32	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 16:22	TPH	TAL CAN

TestAmerica Canton

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

**Client Sample ID: W-160420-PS-MW-41**

**Lab Sample ID: 240-63770-14**

**Date Collected: 04/20/16 08:00**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 20:19	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		1	227389	04/25/16 22:48	JMG	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	174434	04/26/16 15:50	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 19:16	AS1	TAL CAN

**Client Sample ID: W-160420-PS-EW-10-D**

**Lab Sample ID: 240-63770-15**

**Date Collected: 04/20/16 09:20**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 13:28	RJQ	TAL CAN
Total/NA	Prep	3510C			227131	04/22/16 09:04	CS	TAL CAN
Total/NA	Analysis	8270C		10	227389	04/25/16 20:25	JMG	TAL CAN
Total/NA	Analysis	RSK-175		1	228288	05/01/16 20:08	BPM	TAL CAN
Total/NA	Prep	8151A			174283	04/22/16 15:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4000	174434	04/26/16 16:14	JMO	TAL PIT
Dissolved	Prep	3005A			227171	04/22/16 12:00	WKD	TAL CAN
Dissolved	Analysis	6020		1	228558	05/02/16 18:19	AS1	TAL CAN
Total/NA	Analysis	2320B-1997		1	228589	05/03/16 10:11	LCN	TAL CAN
Total/NA	Analysis	2340C-1997		1	227183	04/22/16 08:20	TPH	TAL CAN
Total/NA	Analysis	300.0		1	226963	04/21/16 20:14	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227132	04/22/16 09:16	LKG	TAL CAN
Total/NA	Analysis	300.0		1	227133	04/22/16 09:16	LKG	TAL CAN
Total/NA	Analysis	9060		1	228072	04/28/16 10:23	TPH	TAL CAN

**Client Sample ID: W-TRIPBLANK-PS-09**

**Lab Sample ID: 240-63770-16**

**Date Collected: 04/20/16 13:00**

**Matrix: Water**

**Date Received: 04/21/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	227975	04/28/16 20:42	RJQ	TAL CAN

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396  
TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-10, Penta Wood

TestAmerica Job ID: 240-63770-1

## Laboratory: TestAmerica Canton

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
RSK-175		Water	Methane

## Laboratory: TestAmerica Pittsburgh

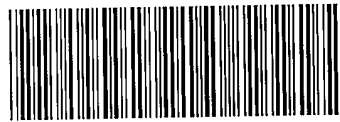
The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15



**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**



240-63770 Chain of Custody

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Chain of Custody Record  
 117696  
 08/10/03  
 grant.anderson@ghd.com

TestAmerica Canton 14100.9 301025  
 4101 Shuffel Street, N. H. 10/CD.5 26/C2.1 1.6/C1.1  
 North Canton, OH 44720  
 Phone: 330.497.9396 Fax: 330.497.0772  
 Regulatory Program:  DW  NPDES  RCRA  Other:

Company Name:	Client Contact	Project Manager:	Site Contact:	Date:	COC No.:
1801 Old Hwy 8	GHD	Tel/Fax:	Lab Contact:	Carrier:	1 of 2 COCS
City/State/Zip: <del>10000</del> MN 55012		Analysis Turnaround Time	Performs MS / MSD (Y / N)	Sampler: <i>Perk Starline</i>	
Phone: <del>651-639-0913</del>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS	Filtered Sample (Y/N)	For Lab Use Only:	
Fax: <del>651-639-0923</del>		TAT if different from Below		Walk-in Client:	
Project Name: <del>086165-03-10</del>		<input type="checkbox"/> 2 weeks	Sample Date	Lab Sampling:	
Site: <i>PENTA WORK</i>		<input type="checkbox"/> 1 week	Sample Time	Job / SDG No.:	
P.O.#		<input type="checkbox"/> 2 days	Sample Type (C=Comp, G=Grab)		
		<input type="checkbox"/> 1 day	Matrix		
			# of Cont.		
W-160418-PS-EW-03-S		4/18/1522	G	W	3
EW-03-D		1455			3
MW-10S		1635			3
W-160419-PS-MW-6S		4/19/161150			3
EW-13-S		1213			3
EW-13-D		0934			3
MW-39		1555			3
MW-06		1625			8
EW-14-D		1450			17
MW-38		1500			17
W-160420-PS-EW-05-D		4/20/161208			17
EW-12-D		1059			17
Preservation Used: 1=Ice, 2=IC; 3=H2SO4; 4=HNO3; 5=NaOH; 6=Other Possible Hazard Identification: <i>Nitrates (48 hr)</i> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					
Special Instructions/QC Requirements & Comments:					
Custody Seal Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No Relinquished by: <i>[Signature]</i> Company: <i>GHD</i> Date/Time: <i>4/20/16/160</i> Relinquished by: Company: Date/Time: Relinquished by: Company: Date/Time: <i>4/21/16 920</i>					



**TestAmerica Canton**  
4101 Shuffel Street, N. W.

North Canton, OH 44720  
Phone: 330.497.9394 Fax: 330.497.0772

**Chain of Custody Record**

117695

grant.anderson@ghd.com

**TestAmerica**

THE LEADER IN ENVIRONMENTAL TESTING  
TestAmerica Laboratories, Inc.  
TAL-8210 (0713)

<b>Company Name:</b> GHD <b>Address:</b> 1801 Old Hwy 8 <b>City/State/Zip:</b> Lindstrom, MN 55112 <b>Phone:</b> 651-639-0913 <b>Fax:</b> 651-639-0923 <b>Project Name:</b> 086165-03-10 <b>Site:</b> Penta Wood <b>P O #:</b>		<b>Client Contact:</b> <b>Project Manager:</b> <b>Tel/Fax:</b> <b>Regulatory Program:</b> <input type="checkbox"/> DW <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> Other:		<b>Date:</b> 4-20-16 <b>Carrier:</b> Fed Ex <b>COC No.:</b> 1 of 2 COCS <b>Sampler:</b> Petek-Stevik <b>For Lab Use Only:</b> <b>Walk-in Client:</b> <b>Lab Sampling:</b> <b>Job / SDG No.:</b>	
<b>Analysis Turnaround Time</b> <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS TAT if different from Below _____ <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day <b>STANDARD</b>		<b>Site Contact:</b> <b>Lab Contact:</b> <b>Filtered Sample (Y/N)</b> <b>Perform MS / MSD (Y/N)</b>		<b>Sample Specific Notes:</b>	
<b>Sample Identification</b> W-160420-PS-MW-40 -MW-41 -EW-10-D W-TB-18 BLANK-PS-09		<b>Sample Date</b> 4/20/16 0935 0800 0920 1300		<b>Sample Type (C=Comp, G=Grab)</b> G ↓ ↓ ↓	
<b>Matrix</b> W ↓ ↓ ↓		<b># of Cont.</b> 17 8 47 1		MS/MSD MS/MSD MS/MSD	
<b>Preservation Used:</b> 1=Ice, 2=HCl, 3=H2SO4, 4=HNO3, 5=NaOH, 6=Other <b>Possible Hazard Identification:</b> Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.					
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Return to Client <input checked="" type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months					
<b>Special Instructions/QC Requirements &amp; Comments:</b> Nitrites (48-hr)					
<b>Custody Seal No.:</b> <b>Relinquished by:</b> [Signature] <b>Relinquished by:</b> [Signature] <b>Relinquished by:</b> [Signature]		<b>Cooler Temp. (°C):</b> Obs'd: _____ <b>Received by:</b> GHD <b>Received by:</b> [Signature] <b>Received in Laboratory by:</b> [Signature]		<b>Therm ID No.:</b> _____ <b>Date/Time:</b> 4/20/16 1600 <b>Date/Time:</b> [Signature] <b>Date/Time:</b> 4/20/16 920	



TestAmerica Canton Sample Receipt Form/Narrative

Login # : 63770

Canton Facility

Client GKD Site Name Pensacola

Cooler unpacked by: [Signature]

Cooler Received on 4/21/16 Opened on 4/21/16

FedEx: 1<sup>st</sup> Grd  Exp  UPS  FAS  Stetson  Client Drop Off  TestAmerica Courier  Other

Receipt After-hours: Drop-off Date/Time \_\_\_\_\_ Storage Location \_\_\_\_\_

TestAmerica Cooler # \_\_\_\_\_ Foam Box  Client Cooler  Box  Other  MCE

Packing material used: Bubble Wrap  Foam  Plastic Bag  None  Other \_\_\_\_\_

COOLANT: Wet Ice  Blue Ice  Dry Ice  Water  None

1. Cooler temperature upon receipt \_\_\_\_\_  See Multiple Cooler Form  
 IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C  
 IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. \_\_\_\_\_ °C Corrected Cooler Temp. \_\_\_\_\_ °C
  2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1 each Yes  No   
 -Were custody seals on the outside of the cooler(s) signed & dated? Yes  No  NA   
 -Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes  No
  3. Shippers' packing slip attached to the cooler(s)? Yes  No
  4. Did custody papers accompany the sample(s)? Yes  No
  5. Were the custody papers relinquished & signed in the appropriate place? Yes  No
  6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes  No
  7. Did all bottles arrive in good condition (Unbroken)? Yes  No
  8. Could all bottle labels be reconciled with the COC? Yes  No
  9. Were correct bottle(s) used for the test(s) indicated? Yes  No
  10. Sufficient quantity received to perform indicated analyses? Yes  No
  11. Are these work share samples? Yes  No   
 If yes, Questions 12-16 have been checked at the originating laboratory.
  12. Were sample(s) at the correct pH upon receipt? Yes  No  NA  pH Strip Lot# HC559158
  13. Were VOAs on the COC? Yes  No
  14. Were air bubbles >6 mm in any VOA vials? Yes  No  NA
  15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # B536301VR Yes  No
  16. Was a LL Hg or Me Hg trip blank present? Yes  No
- Contacted PM \_\_\_\_\_ Date \_\_\_\_\_ by \_\_\_\_\_ via Verbal Voice Mail Other \_\_\_\_\_  
 Concerning \_\_\_\_\_

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by: \_\_\_\_\_

Received 1x 40ml HCL vial empty for sample W-160470-P5-EW-10-D

18. SAMPLE CONDITION

Sample(s) \_\_\_\_\_ were received after the recommended holding time had expired.  
 Sample(s) \_\_\_\_\_ were received in a broken container.  
 Sample(s) \_\_\_\_\_ were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) \_\_\_\_\_ were further preserved in the laboratory.  
 Time preserved: \_\_\_\_\_ Preservative(s) added/Lot number(s): \_\_\_\_\_



Temperature readings: \_\_\_\_\_

<u>Client Sample ID</u>	<u>Lab ID</u>	<u>Container Type</u>	<u>Container pH</u>	<u>Preservative Added (mls)</u>	<u>Lot #</u>
W-160419-PS-MW-39	240-63770-D-7	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160419-PS-MW-06	240-63770-K-8	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160419-PS-MW-06	240-63770-M-8	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160419-PS-EW-14-D	240-63770-K-9	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160419-PS-EW-14-D	240-63770-M-9	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160419-PS-MW-38	240-63770-K-10	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160419-PS-MW-38	240-63770-M-10	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-05-D	240-63770-K-11	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-05-D	240-63770-M-11	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-12-D	240-63770-K-12	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-12-D	240-63770-M-12	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-MW-40	240-63770-K-13	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160420-PS-MW-40	240-63770-M-13	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-MW-41	240-63770-D-14	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-10-D	240-63770-AD-15	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-10-D	240-63770-AE-15	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-10-D	240-63770-AF-15	Plastic 250ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-10-D	240-63770-AJ-15	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-10-D	240-63770-AK-15	Plastic 500ml - with Nitric Acid	<2	_____	_____
W-160420-PS-EW-10-D	240-63770-AL-15	Plastic 500ml - with Nitric Acid	<2	_____	_____

## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63770-1

**Login Number: 63770**  
**List Number: 2**  
**Creator: Butcher, Ryan M**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/22/16 11:52 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



Appendix D  
Residential Well Water Sample  
Laboratory Report and Data Validation



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton

4101 Shuffel Street NW

North Canton, OH 44720

Tel: (330)497-9396

TestAmerica Job ID: 240-63164-1

Client Project/Site: 86165-03-12, Penta Wood

For:

GHD Services Inc.

1801 Old Highway 8 NW

Suite 114

St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson



Authorized for release by:

4/19/2016 1:03:25 PM

Denise Heckler, Project Manager II

(330)966-9477

[denise.heckler@testamericainc.com](mailto:denise.heckler@testamericainc.com)

### LINKS

Review your project  
results through

Total Access

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*

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# Definitions/Glossary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Qualifiers

### GC/MS Semi VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.

### GC Semi VOA

Qualifier	Qualifier Description
J	Reported value was between the limit of detection and the limit of quantitation.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Job ID: 240-63164-1**

**Laboratory: TestAmerica Canton**

## Narrative

### Job Narrative 240-63164-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 4/7/2016 9:20 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 7 coolers at receipt time were 0.3° C, 0.5° C, 0.5° C, 0.9° C, 0.9° C, 1.7° C and 2.3° C.

#### GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC/MS Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### GC Semi VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

# Method Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CAN
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT

**Protocol References:**

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058



# Sample Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-63164-1	W-160405-PS-RW-01	Water	04/05/16 10:24	04/07/16 09:20
240-63164-2	W-160405-PS-RW-02	Water	04/05/16 10:51	04/07/16 09:20
240-63164-3	W-160405-PS-RW-03	Water	04/05/16 11:45	04/07/16 09:20
240-63164-4	W-160405-PS-RW-04	Water	04/05/16 11:15	04/07/16 09:20
240-63164-5	W-160405-PS-RW-05	Water	04/05/16 10:04	04/07/16 09:20
240-63164-6	W-160405-PS-RW-06	Water	04/05/16 13:10	04/07/16 09:20
240-63164-7	W-160405-PS-RW-07	Water	04/05/16 15:20	04/07/16 09:20
240-63164-8	W-160405-PS-RW-08	Water	04/05/16 15:45	04/07/16 09:20
240-63164-9	W-160405-PS-DW-01	Water	04/05/16 15:11	04/07/16 09:20
240-63164-10	W-TRIPBLANK-02	Water	04/05/16 14:00	04/07/16 09:20



# Detection Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-01**

**Lab Sample ID: 240-63164-1**

No Detections.

**Client Sample ID: W-160405-PS-RW-02**

**Lab Sample ID: 240-63164-2**

No Detections.

**Client Sample ID: W-160405-PS-RW-03**

**Lab Sample ID: 240-63164-3**

No Detections.

**Client Sample ID: W-160405-PS-RW-04**

**Lab Sample ID: 240-63164-4**

No Detections.

**Client Sample ID: W-160405-PS-RW-05**

**Lab Sample ID: 240-63164-5**

No Detections.

**Client Sample ID: W-160405-PS-RW-06**

**Lab Sample ID: 240-63164-6**

No Detections.

**Client Sample ID: W-160405-PS-RW-07**

**Lab Sample ID: 240-63164-7**

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.019	J p	0.097	0.015	ug/L	4		8151A	Total/NA

**Client Sample ID: W-160405-PS-RW-08**

**Lab Sample ID: 240-63164-8**

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.050	J	0.094	0.015	ug/L	4		8151A	Total/NA

**Client Sample ID: W-160405-PS-DW-01**

**Lab Sample ID: 240-63164-9**

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.14	J	0.19	0.060	ug/L	1		8270C	Total/NA
Pentachlorophenol	0.025	J p	0.095	0.015	ug/L	4		8151A	Total/NA

**Client Sample ID: W-TRIPBLANK-02**

**Lab Sample ID: 240-63164-10**

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Canton

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-01**

**Lab Sample ID: 240-63164-1**

**Date Collected: 04/05/16 10:24**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 02:45	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 02:45	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 02:45	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 02:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		78 - 125		04/14/16 02:45	1
4-Bromofluorobenzene (Surr)	80		61 - 120		04/14/16 02:45	1
Toluene-d8 (Surr)	96		80 - 120		04/14/16 02:45	1
Dibromofluoromethane (Surr)	108		79 - 120		04/14/16 02:45	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 13:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/08/16 09:01	04/11/16 13:47	1
2-Fluorophenol (Surr)	28		15 - 110	04/08/16 09:01	04/11/16 13:47	1
2,4,6-Tribromophenol (Surr)	68		21 - 128	04/08/16 09:01	04/11/16 13:47	1
Nitrobenzene-d5 (Surr)	62		31 - 110	04/08/16 09:01	04/11/16 13:47	1
Phenol-d5 (Surr)	14		10 - 110	04/08/16 09:01	04/11/16 13:47	1
Terphenyl-d14 (Surr)	51		31 - 115	04/08/16 09:01	04/11/16 13:47	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/08/16 12:30	04/12/16 09:49	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	48		32 - 140	04/08/16 12:30	04/12/16 09:49	4



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-02**

**Lab Sample ID: 240-63164-2**

**Date Collected: 04/05/16 10:51**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 03:07	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 03:07	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 03:07	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 03:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		78 - 125		04/14/16 03:07	1
4-Bromofluorobenzene (Surr)	79		61 - 120		04/14/16 03:07	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 03:07	1
Dibromofluoromethane (Surr)	108		79 - 120		04/14/16 03:07	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 14:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		29 - 110	04/08/16 09:01	04/11/16 14:11	1
2-Fluorophenol (Surr)	30		15 - 110	04/08/16 09:01	04/11/16 14:11	1
2,4,6-Tribromophenol (Surr)	64		21 - 128	04/08/16 09:01	04/11/16 14:11	1
Nitrobenzene-d5 (Surr)	65		31 - 110	04/08/16 09:01	04/11/16 14:11	1
Phenol-d5 (Surr)	14		10 - 110	04/08/16 09:01	04/11/16 14:11	1
Terphenyl-d14 (Surr)	53		31 - 115	04/08/16 09:01	04/11/16 14:11	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/08/16 12:30	04/12/16 10:12	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	46		32 - 140	04/08/16 12:30	04/12/16 10:12	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-03**

**Lab Sample ID: 240-63164-3**

**Date Collected: 04/05/16 11:45**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 03:30	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 03:30	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 03:30	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 03:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		78 - 125		04/14/16 03:30	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 03:30	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 03:30	1
Dibromofluoromethane (Surr)	107		79 - 120		04/14/16 03:30	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 14:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	68		29 - 110	04/08/16 09:01	04/11/16 14:34	1
2-Fluorophenol (Surr)	30		15 - 110	04/08/16 09:01	04/11/16 14:34	1
2,4,6-Tribromophenol (Surr)	69		21 - 128	04/08/16 09:01	04/11/16 14:34	1
Nitrobenzene-d5 (Surr)	61		31 - 110	04/08/16 09:01	04/11/16 14:34	1
Phenol-d5 (Surr)	15		10 - 110	04/08/16 09:01	04/11/16 14:34	1
Terphenyl-d14 (Surr)	52		31 - 115	04/08/16 09:01	04/11/16 14:34	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.094	0.015	ug/L		04/08/16 12:30	04/12/16 10:36	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	64		32 - 140	04/08/16 12:30	04/12/16 10:36	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-04**

**Lab Sample ID: 240-63164-4**

**Date Collected: 04/05/16 11:15**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 03:52	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 03:52	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 03:52	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 03:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		78 - 125		04/14/16 03:52	1
4-Bromofluorobenzene (Surr)	77		61 - 120		04/14/16 03:52	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 03:52	1
Dibromofluoromethane (Surr)	107		79 - 120		04/14/16 03:52	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 16:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	69		29 - 110	04/08/16 09:01	04/11/16 16:09	1
2-Fluorophenol (Surr)	26		15 - 110	04/08/16 09:01	04/11/16 16:09	1
2,4,6-Tribromophenol (Surr)	65		21 - 128	04/08/16 09:01	04/11/16 16:09	1
Nitrobenzene-d5 (Surr)	65		31 - 110	04/08/16 09:01	04/11/16 16:09	1
Phenol-d5 (Surr)	13		10 - 110	04/08/16 09:01	04/11/16 16:09	1
Terphenyl-d14 (Surr)	48		31 - 115	04/08/16 09:01	04/11/16 16:09	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.094	0.015	ug/L		04/08/16 12:30	04/12/16 11:09	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	35		32 - 140	04/08/16 12:30	04/12/16 11:09	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-05**

**Lab Sample ID: 240-63164-5**

**Date Collected: 04/05/16 10:04**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 04:14	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 04:14	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 04:14	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 04:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		78 - 125		04/14/16 04:14	1
4-Bromofluorobenzene (Surr)	79		61 - 120		04/14/16 04:14	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 04:14	1
Dibromofluoromethane (Surr)	106		79 - 120		04/14/16 04:14	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 16:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	71		29 - 110	04/08/16 09:01	04/11/16 16:33	1
2-Fluorophenol (Surr)	33		15 - 110	04/08/16 09:01	04/11/16 16:33	1
2,4,6-Tribromophenol (Surr)	70		21 - 128	04/08/16 09:01	04/11/16 16:33	1
Nitrobenzene-d5 (Surr)	66		31 - 110	04/08/16 09:01	04/11/16 16:33	1
Phenol-d5 (Surr)	16		10 - 110	04/08/16 09:01	04/11/16 16:33	1
Terphenyl-d14 (Surr)	54		31 - 115	04/08/16 09:01	04/11/16 16:33	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/08/16 12:30	04/12/16 11:33	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	51		32 - 140	04/08/16 12:30	04/12/16 11:33	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-06**

**Lab Sample ID: 240-63164-6**

**Date Collected: 04/05/16 13:10**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 04:36	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 04:36	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 04:36	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 04:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	101		78 - 125		04/14/16 04:36	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 04:36	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 04:36	1
Dibromofluoromethane (Surr)	107		79 - 120		04/14/16 04:36	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		04/08/16 09:01	04/11/16 16:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/08/16 09:01	04/11/16 16:57	1
2-Fluorophenol (Surr)	29		15 - 110	04/08/16 09:01	04/11/16 16:57	1
2,4,6-Tribromophenol (Surr)	67		21 - 128	04/08/16 09:01	04/11/16 16:57	1
Nitrobenzene-d5 (Surr)	64		31 - 110	04/08/16 09:01	04/11/16 16:57	1
Phenol-d5 (Surr)	14		10 - 110	04/08/16 09:01	04/11/16 16:57	1
Terphenyl-d14 (Surr)	50		31 - 115	04/08/16 09:01	04/11/16 16:57	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.015		0.095	0.015	ug/L		04/08/16 12:30	04/13/16 11:33	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	49		32 - 140	04/08/16 12:30	04/13/16 11:33	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-07**

**Lab Sample ID: 240-63164-7**

**Date Collected: 04/05/16 15:20**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 04:59	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 04:59	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 04:59	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 04:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 04:59	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 04:59	1
Toluene-d8 (Surr)	91		80 - 120		04/14/16 04:59	1
Dibromofluoromethane (Surr)	107		79 - 120		04/14/16 04:59	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.062		0.20	0.062	ug/L		04/08/16 09:01	04/11/16 17:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/08/16 09:01	04/11/16 17:20	1
2-Fluorophenol (Surr)	29		15 - 110	04/08/16 09:01	04/11/16 17:20	1
2,4,6-Tribromophenol (Surr)	64		21 - 128	04/08/16 09:01	04/11/16 17:20	1
Nitrobenzene-d5 (Surr)	64		31 - 110	04/08/16 09:01	04/11/16 17:20	1
Phenol-d5 (Surr)	15		10 - 110	04/08/16 09:01	04/11/16 17:20	1
Terphenyl-d14 (Surr)	49		31 - 115	04/08/16 09:01	04/11/16 17:20	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.019	J p	0.097	0.015	ug/L		04/08/16 12:30	04/13/16 11:56	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	35		32 - 140	04/08/16 12:30	04/13/16 11:56	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-08**

**Lab Sample ID: 240-63164-8**

**Date Collected: 04/05/16 15:45**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 05:21	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 05:21	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 05:21	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 05:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 05:21	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 05:21	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 05:21	1
Dibromofluoromethane (Surr)	108		79 - 120		04/14/16 05:21	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.061		0.19	0.061	ug/L		04/08/16 09:01	04/11/16 17:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	70		29 - 110	04/08/16 09:01	04/11/16 17:44	1
2-Fluorophenol (Surr)	27		15 - 110	04/08/16 09:01	04/11/16 17:44	1
2,4,6-Tribromophenol (Surr)	64		21 - 128	04/08/16 09:01	04/11/16 17:44	1
Nitrobenzene-d5 (Surr)	63		31 - 110	04/08/16 09:01	04/11/16 17:44	1
Phenol-d5 (Surr)	13		10 - 110	04/08/16 09:01	04/11/16 17:44	1
Terphenyl-d14 (Surr)	59		31 - 115	04/08/16 09:01	04/11/16 17:44	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.050	J	0.094	0.015	ug/L		04/08/16 12:30	04/13/16 12:20	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	38		32 - 140	04/08/16 12:30	04/13/16 12:20	4

# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-DW-01**

**Lab Sample ID: 240-63164-9**

**Date Collected: 04/05/16 15:11**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 07:35	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 07:35	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 07:35	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 07:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 07:35	1
4-Bromofluorobenzene (Surr)	79		61 - 120		04/14/16 07:35	1
Toluene-d8 (Surr)	94		80 - 120		04/14/16 07:35	1
Dibromofluoromethane (Surr)	107		79 - 120		04/14/16 07:35	1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Naphthalene</b>	<b>0.14</b>	<b>J</b>	0.19	0.060	ug/L		04/08/16 09:01	04/11/16 14:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	72		29 - 110	04/08/16 09:01	04/11/16 14:58	1
2-Fluorophenol (Surr)	25		15 - 110	04/08/16 09:01	04/11/16 14:58	1
2,4,6-Tribromophenol (Surr)	72		21 - 128	04/08/16 09:01	04/11/16 14:58	1
Nitrobenzene-d5 (Surr)	62		31 - 110	04/08/16 09:01	04/11/16 14:58	1
Phenol-d5 (Surr)	12		10 - 110	04/08/16 09:01	04/11/16 14:58	1
Terphenyl-d14 (Surr)	61		31 - 115	04/08/16 09:01	04/11/16 14:58	1

## Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
<b>Pentachlorophenol</b>	<b>0.025</b>	<b>J p</b>	0.095	0.015	ug/L		04/08/16 12:30	04/13/16 12:43	4

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	35		32 - 140	04/08/16 12:30	04/13/16 12:43	4



# Client Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-TRIPBLANK-02**

**Lab Sample ID: 240-63164-10**

**Date Collected: 04/05/16 14:00**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 05:43	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 05:43	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 05:43	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 05:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	102		78 - 125		04/14/16 05:43	1
4-Bromofluorobenzene (Surr)	76		61 - 120		04/14/16 05:43	1
Toluene-d8 (Surr)	93		80 - 120		04/14/16 05:43	1
Dibromofluoromethane (Surr)	105		79 - 120		04/14/16 05:43	1

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (78-125)	BFB (61-120)	TOL (80-120)	DBFM (79-120)
240-63164-1	W-160405-PS-RW-01	100	80	96	108
240-63164-2	W-160405-PS-RW-02	100	79	94	108
240-63164-3	W-160405-PS-RW-03	101	78	95	107
240-63164-4	W-160405-PS-RW-04	101	77	95	107
240-63164-5	W-160405-PS-RW-05	100	79	95	106
240-63164-6	W-160405-PS-RW-06	101	78	95	107
240-63164-7	W-160405-PS-RW-07	102	78	91	107
240-63164-8	W-160405-PS-RW-08	102	78	95	108
240-63164-9	W-160405-PS-DW-01	102	79	94	107
240-63164-9 MS	W-160405-PS-DW-01	89	96	101	97
240-63164-9 MSD	W-160405-PS-DW-01	89	94	101	98
240-63164-10	W-TRIPBLANK-02	102	76	93	105
LCS 240-225866/4	Lab Control Sample	87	93	101	96
MB 240-225866/6	Method Blank	96	78	95	102

### Surrogate Legend

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene (Surr)  
TOL = Toluene-d8 (Surr)  
DBFM = Dibromofluoromethane (Surr)

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		FBP (29-110)	2FP (15-110)	TBP (21-128)	NBZ (31-110)	PHL (10-110)	TPH (31-115)
240-63164-1	W-160405-PS-RW-01	70	28	68	62	14	51
240-63164-2	W-160405-PS-RW-02	71	30	64	65	14	53
240-63164-3	W-160405-PS-RW-03	68	30	69	61	15	52
240-63164-4	W-160405-PS-RW-04	69	26	65	65	13	48
240-63164-5	W-160405-PS-RW-05	71	33	70	66	16	54
240-63164-6	W-160405-PS-RW-06	70	29	67	64	14	50
240-63164-7	W-160405-PS-RW-07	70	29	64	64	15	49
240-63164-8	W-160405-PS-RW-08	70	27	64	63	13	59
240-63164-9	W-160405-PS-DW-01	72	25	72	62	12	61
240-63164-9 MS	W-160405-PS-DW-01	75	36	87	69	18	60
240-63164-9 MSD	W-160405-PS-DW-01	79	34	87	72	17	64
LCS 240-225166/18-A	Lab Control Sample	90	80	98	84	58	102
MB 240-225166/17-A	Method Blank	80	74	80	73	55	99

### Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)  
2FP = 2-Fluorophenol (Surr)  
TBP = 2,4,6-Tribromophenol (Surr)  
NBZ = Nitrobenzene-d5 (Surr)  
PHL = Phenol-d5 (Surr)  
TPH = Terphenyl-d14 (Surr)

TestAmerica Canton

# Surrogate Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Method: 8151A - Herbicides (GC)**

**Matrix: Water**

**Prep Type: Total/NA**

## Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	DCPA1	DCPA2
		(32-140)	(32-140)
240-63164-1	W-160405-PS-RW-01	47	48
240-63164-2	W-160405-PS-RW-02	44	46
240-63164-3	W-160405-PS-RW-03	63	64
240-63164-4	W-160405-PS-RW-04	34	35
240-63164-5	W-160405-PS-RW-05	49	51
240-63164-6	W-160405-PS-RW-06	48	49
240-63164-7	W-160405-PS-RW-07	35	35
240-63164-8	W-160405-PS-RW-08	38	37
240-63164-9	W-160405-PS-DW-01	34	35
240-63164-9 MS	W-160405-PS-DW-01	44	47
240-63164-9 MSD	W-160405-PS-DW-01	41	42
LCS 180-173100/2-A	Lab Control Sample	47	51
MB 180-173100/1-A	Method Blank	43	45

### Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Method: 8260B - Volatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225866/6**  
**Matrix: Water**  
**Analysis Batch: 225866**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.35		0.50	0.35	ug/L			04/14/16 00:09	1
Ethylbenzene	<0.25		1.0	0.25	ug/L			04/14/16 00:09	1
Toluene	<0.23		1.0	0.23	ug/L			04/14/16 00:09	1
Xylenes, Total	<0.52		2.0	0.52	ug/L			04/14/16 00:09	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	96		78 - 125		04/14/16 00:09	1
4-Bromofluorobenzene (Surr)	78		61 - 120		04/14/16 00:09	1
Toluene-d8 (Surr)	95		80 - 120		04/14/16 00:09	1
Dibromofluoromethane (Surr)	102		79 - 120		04/14/16 00:09	1

**Lab Sample ID: LCS 240-225866/4**  
**Matrix: Water**  
**Analysis Batch: 225866**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	10.0	11.0		ug/L		110	80 - 120
Ethylbenzene	10.0	10.2		ug/L		102	80 - 120
Toluene	10.0	10.8		ug/L		108	80 - 120
Xylenes, Total	20.0	20.2		ug/L		101	80 - 120
m-Xylene & p-Xylene	10.0	10.3		ug/L		103	80 - 120
o-Xylene	10.0	9.85		ug/L		99	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		78 - 125
4-Bromofluorobenzene (Surr)	93		61 - 120
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	96		79 - 120

**Lab Sample ID: 240-63164-9 MS**  
**Matrix: Water**  
**Analysis Batch: 225866**

**Client Sample ID: W-160405-PS-DW-01**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.35		10.0	9.92		ug/L		99	73 - 121
Ethylbenzene	<0.25		10.0	8.33		ug/L		83	68 - 121
Toluene	<0.23		10.0	9.31		ug/L		93	72 - 122
Xylenes, Total	<0.52		20.0	17.2		ug/L		86	67 - 122
m-Xylene & p-Xylene	<0.24		10.0	8.64		ug/L		86	66 - 123
o-Xylene	<0.25		10.0	8.53		ug/L		85	68 - 121

Surrogate	MS %Recovery	MS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		78 - 125
4-Bromofluorobenzene (Surr)	96		61 - 120
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	97		79 - 120

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Method: 8260B - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63164-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 225866**

**Client Sample ID: W-160405-PS-DW-01**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.35		10.0	9.81		ug/L		98	73 - 121	1	13
Ethylbenzene	<0.25		10.0	8.49		ug/L		85	68 - 121	2	16
Toluene	<0.23		10.0	9.37		ug/L		94	72 - 122	1	15
Xylenes, Total	<0.52		20.0	17.1		ug/L		85	67 - 122	1	14
m-Xylene & p-Xylene	<0.24		10.0	8.60		ug/L		86	66 - 123	1	15
o-Xylene	<0.25		10.0	8.46		ug/L		85	68 - 121	1	14

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	89		78 - 125
4-Bromofluorobenzene (Surr)	94		61 - 120
Toluene-d8 (Surr)	101		80 - 120
Dibromofluoromethane (Surr)	98		79 - 120

## Method: 8270C - Semivolatile Organic Compounds (GC/MS)

**Lab Sample ID: MB 240-225166/17-A**  
**Matrix: Water**  
**Analysis Batch: 225387**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**  
**Prep Batch: 225166**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		04/08/16 09:01	04/11/16 11:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	80		29 - 110	04/08/16 09:01	04/11/16 11:02	1
2-Fluorophenol (Surr)	74		15 - 110	04/08/16 09:01	04/11/16 11:02	1
2,4,6-Tribromophenol (Surr)	80		21 - 128	04/08/16 09:01	04/11/16 11:02	1
Nitrobenzene-d5 (Surr)	73		31 - 110	04/08/16 09:01	04/11/16 11:02	1
Phenol-d5 (Surr)	55		10 - 110	04/08/16 09:01	04/11/16 11:02	1
Terphenyl-d14 (Surr)	99		31 - 115	04/08/16 09:01	04/11/16 11:02	1

**Lab Sample ID: LCS 240-225166/18-A**  
**Matrix: Water**  
**Analysis Batch: 225387**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**  
**Prep Batch: 225166**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	17.6		ug/L		88	52 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl (Surr)	90		29 - 110
2-Fluorophenol (Surr)	80		15 - 110
2,4,6-Tribromophenol (Surr)	98		21 - 128
Nitrobenzene-d5 (Surr)	84		31 - 110
Phenol-d5 (Surr)	58		10 - 110
Terphenyl-d14 (Surr)	102		31 - 115

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Method: 8270C - Semivolatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: 240-63164-9 MS**

**Matrix: Water**

**Analysis Batch: 225387**

**Client Sample ID: W-160405-PS-DW-01**

**Prep Type: Total/NA**

**Prep Batch: 225166**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Naphthalene	0.14	J	19.0	14.4		ug/L		75	35 - 110
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
2-Fluorobiphenyl (Surr)	75		29 - 110						
2-Fluorophenol (Surr)	36		15 - 110						
2,4,6-Tribromophenol (Surr)	87		21 - 128						
Nitrobenzene-d5 (Surr)	69		31 - 110						
Phenol-d5 (Surr)	18		10 - 110						
Terphenyl-d14 (Surr)	60		31 - 115						

**Lab Sample ID: 240-63164-9 MSD**

**Matrix: Water**

**Analysis Batch: 225387**

**Client Sample ID: W-160405-PS-DW-01**

**Prep Type: Total/NA**

**Prep Batch: 225166**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Naphthalene	0.14	J	19.0	14.9		ug/L		77	35 - 110	3	58
<b>Surrogate</b>											
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
2-Fluorobiphenyl (Surr)	79		29 - 110								
2-Fluorophenol (Surr)	34		15 - 110								
2,4,6-Tribromophenol (Surr)	87		21 - 128								
Nitrobenzene-d5 (Surr)	72		31 - 110								
Phenol-d5 (Surr)	17		10 - 110								
Terphenyl-d14 (Surr)	64		31 - 115								

## Method: 8151A - Herbicides (GC)

**Lab Sample ID: MB 180-173100/1-A**

**Matrix: Water**

**Analysis Batch: 173280**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

**Prep Batch: 173100**

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		04/08/16 12:30	04/12/16 08:38	4
<b>Surrogate</b>									
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				<b>Prepared</b>	<b>Analyzed</b>	<b>Dil Fac</b>
2,4-Dichlorophenylacetic acid	45		32 - 140				04/08/16 12:30	04/12/16 08:38	4

**Lab Sample ID: LCS 180-173100/2-A**

**Matrix: Water**

**Analysis Batch: 173280**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

**Prep Batch: 173100**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	1.00	0.786		ug/L		79	40 - 140
<b>Surrogate</b>							
	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>				
2,4-Dichlorophenylacetic acid	51		32 - 140				

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# QC Sample Results

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Method: 8151A - Herbicides (GC) (Continued)

**Lab Sample ID: 240-63164-9 MS**  
**Matrix: Water**  
**Analysis Batch: 173399**

**Client Sample ID: W-160405-PS-DW-01**  
**Prep Type: Total/NA**  
**Prep Batch: 173100**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	0.025	J p	0.952	0.753		ug/L		76	40 - 140
<b>MS MS</b>									
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>						
2,4-Dichlorophenylacetic acid	47		32 - 140						

**Lab Sample ID: 240-63164-9 MSD**  
**Matrix: Water**  
**Analysis Batch: 173399**

**Client Sample ID: W-160405-PS-DW-01**  
**Prep Type: Total/NA**  
**Prep Batch: 173100**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Pentachlorophenol	0.025	J p	0.952	0.606		ug/L		61	40 - 140	22	30
<b>MSD MSD</b>											
<b>Surrogate</b>	<b>%Recovery</b>	<b>Qualifier</b>	<b>Limits</b>								
2,4-Dichlorophenylacetic acid	42		32 - 140								



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## GC/MS VOA

### Analysis Batch: 225866

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63164-1	W-160405-PS-RW-01	Total/NA	Water	8260B	
240-63164-2	W-160405-PS-RW-02	Total/NA	Water	8260B	
240-63164-3	W-160405-PS-RW-03	Total/NA	Water	8260B	
240-63164-4	W-160405-PS-RW-04	Total/NA	Water	8260B	
240-63164-5	W-160405-PS-RW-05	Total/NA	Water	8260B	
240-63164-6	W-160405-PS-RW-06	Total/NA	Water	8260B	
240-63164-7	W-160405-PS-RW-07	Total/NA	Water	8260B	
240-63164-8	W-160405-PS-RW-08	Total/NA	Water	8260B	
240-63164-9	W-160405-PS-DW-01	Total/NA	Water	8260B	
240-63164-9 MS	W-160405-PS-DW-01	Total/NA	Water	8260B	
240-63164-9 MSD	W-160405-PS-DW-01	Total/NA	Water	8260B	
240-63164-10	W-TRIPBLANK-02	Total/NA	Water	8260B	
LCS 240-225866/4	Lab Control Sample	Total/NA	Water	8260B	
MB 240-225866/6	Method Blank	Total/NA	Water	8260B	

## GC/MS Semi VOA

### Prep Batch: 225166

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63164-1	W-160405-PS-RW-01	Total/NA	Water	3510C	
240-63164-2	W-160405-PS-RW-02	Total/NA	Water	3510C	
240-63164-3	W-160405-PS-RW-03	Total/NA	Water	3510C	
240-63164-4	W-160405-PS-RW-04	Total/NA	Water	3510C	
240-63164-5	W-160405-PS-RW-05	Total/NA	Water	3510C	
240-63164-6	W-160405-PS-RW-06	Total/NA	Water	3510C	
240-63164-7	W-160405-PS-RW-07	Total/NA	Water	3510C	
240-63164-8	W-160405-PS-RW-08	Total/NA	Water	3510C	
240-63164-9	W-160405-PS-DW-01	Total/NA	Water	3510C	
240-63164-9 MS	W-160405-PS-DW-01	Total/NA	Water	3510C	
240-63164-9 MSD	W-160405-PS-DW-01	Total/NA	Water	3510C	
LCS 240-225166/18-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-225166/17-A	Method Blank	Total/NA	Water	3510C	

### Analysis Batch: 225387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63164-1	W-160405-PS-RW-01	Total/NA	Water	8270C	225166
240-63164-2	W-160405-PS-RW-02	Total/NA	Water	8270C	225166
240-63164-3	W-160405-PS-RW-03	Total/NA	Water	8270C	225166
240-63164-4	W-160405-PS-RW-04	Total/NA	Water	8270C	225166
240-63164-5	W-160405-PS-RW-05	Total/NA	Water	8270C	225166
240-63164-6	W-160405-PS-RW-06	Total/NA	Water	8270C	225166
240-63164-7	W-160405-PS-RW-07	Total/NA	Water	8270C	225166
240-63164-8	W-160405-PS-RW-08	Total/NA	Water	8270C	225166
240-63164-9	W-160405-PS-DW-01	Total/NA	Water	8270C	225166
240-63164-9 MS	W-160405-PS-DW-01	Total/NA	Water	8270C	225166
240-63164-9 MSD	W-160405-PS-DW-01	Total/NA	Water	8270C	225166
LCS 240-225166/18-A	Lab Control Sample	Total/NA	Water	8270C	225166
MB 240-225166/17-A	Method Blank	Total/NA	Water	8270C	225166

TestAmerica Canton



# QC Association Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## GC Semi VOA

### Prep Batch: 173100

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63164-1	W-160405-PS-RW-01	Total/NA	Water	8151A	
240-63164-2	W-160405-PS-RW-02	Total/NA	Water	8151A	
240-63164-3	W-160405-PS-RW-03	Total/NA	Water	8151A	
240-63164-4	W-160405-PS-RW-04	Total/NA	Water	8151A	
240-63164-5	W-160405-PS-RW-05	Total/NA	Water	8151A	
240-63164-6	W-160405-PS-RW-06	Total/NA	Water	8151A	
240-63164-7	W-160405-PS-RW-07	Total/NA	Water	8151A	
240-63164-8	W-160405-PS-RW-08	Total/NA	Water	8151A	
240-63164-9	W-160405-PS-DW-01	Total/NA	Water	8151A	
240-63164-9 MS	W-160405-PS-DW-01	Total/NA	Water	8151A	
240-63164-9 MSD	W-160405-PS-DW-01	Total/NA	Water	8151A	
LCS 180-173100/2-A	Lab Control Sample	Total/NA	Water	8151A	
MB 180-173100/1-A	Method Blank	Total/NA	Water	8151A	

### Analysis Batch: 173280

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63164-1	W-160405-PS-RW-01	Total/NA	Water	8151A	173100
240-63164-2	W-160405-PS-RW-02	Total/NA	Water	8151A	173100
240-63164-3	W-160405-PS-RW-03	Total/NA	Water	8151A	173100
240-63164-4	W-160405-PS-RW-04	Total/NA	Water	8151A	173100
240-63164-5	W-160405-PS-RW-05	Total/NA	Water	8151A	173100
LCS 180-173100/2-A	Lab Control Sample	Total/NA	Water	8151A	173100
MB 180-173100/1-A	Method Blank	Total/NA	Water	8151A	173100

### Analysis Batch: 173399

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-63164-6	W-160405-PS-RW-06	Total/NA	Water	8151A	173100
240-63164-7	W-160405-PS-RW-07	Total/NA	Water	8151A	173100
240-63164-8	W-160405-PS-RW-08	Total/NA	Water	8151A	173100
240-63164-9	W-160405-PS-DW-01	Total/NA	Water	8151A	173100
240-63164-9 MS	W-160405-PS-DW-01	Total/NA	Water	8151A	173100
240-63164-9 MSD	W-160405-PS-DW-01	Total/NA	Water	8151A	173100

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-01**

**Lab Sample ID: 240-63164-1**

**Date Collected: 04/05/16 10:24**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 02:45	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 13:47	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173280	04/12/16 09:49	JMO	TAL PIT

**Client Sample ID: W-160405-PS-RW-02**

**Lab Sample ID: 240-63164-2**

**Date Collected: 04/05/16 10:51**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 03:07	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 14:11	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173280	04/12/16 10:12	JMO	TAL PIT

**Client Sample ID: W-160405-PS-RW-03**

**Lab Sample ID: 240-63164-3**

**Date Collected: 04/05/16 11:45**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 03:30	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 14:34	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173280	04/12/16 10:36	JMO	TAL PIT

**Client Sample ID: W-160405-PS-RW-04**

**Lab Sample ID: 240-63164-4**

**Date Collected: 04/05/16 11:15**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 03:52	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 16:09	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173280	04/12/16 11:09	JMO	TAL PIT

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-RW-05**

**Lab Sample ID: 240-63164-5**

**Date Collected: 04/05/16 10:04**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 04:14	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 16:33	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173280	04/12/16 11:33	JMO	TAL PIT

**Client Sample ID: W-160405-PS-RW-06**

**Lab Sample ID: 240-63164-6**

**Date Collected: 04/05/16 13:10**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 04:36	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 16:57	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 11:33	JMO	TAL PIT

**Client Sample ID: W-160405-PS-RW-07**

**Lab Sample ID: 240-63164-7**

**Date Collected: 04/05/16 15:20**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 04:59	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 17:20	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 11:56	JMO	TAL PIT

**Client Sample ID: W-160405-PS-RW-08**

**Lab Sample ID: 240-63164-8**

**Date Collected: 04/05/16 15:45**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 05:21	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 17:44	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 12:20	JMO	TAL PIT

# Lab Chronicle

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

**Client Sample ID: W-160405-PS-DW-01**

**Lab Sample ID: 240-63164-9**

**Date Collected: 04/05/16 15:11**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 07:35	LRW	TAL CAN
Total/NA	Prep	3510C			225166	04/08/16 09:01	JDR	TAL CAN
Total/NA	Analysis	8270C		1	225387	04/11/16 14:58	JMG	TAL CAN
Total/NA	Prep	8151A			173100	04/08/16 12:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	173399	04/13/16 12:43	JMO	TAL PIT

**Client Sample ID: W-TRIPBLANK-02**

**Lab Sample ID: 240-63164-10**

**Date Collected: 04/05/16 14:00**

**Matrix: Water**

**Date Received: 04/07/16 09:20**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	225866	04/14/16 05:43	LRW	TAL CAN

## Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

# Certification Summary

Client: GHD Services Inc.  
Project/Site: 86165-03-12, Penta Wood

TestAmerica Job ID: 240-63164-1

## Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

## Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

1

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**CHAIN OF CUSTODY  
AND  
RECEIVING DOCUMENTS**

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240-63164 Chain of Custody

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14
- 15

Regulatory Program:  DW  NPDES  RCRA  Other:  *grant. anderson@ghd.com*

Client Contact		Project Manager:		Site Contact:		Date:	
Company Name: <b>GHD</b>		Tel/Fax:		Lab Contact: <b>D. Hester</b>		Carrier:	
Address: <b>1801 Old Hwy 8</b>		Analysis Turnaround Time		Perform MS/MSD (Y/N)		COC No: <b>1</b> of <b>1</b> COCs	
City/State/Zip: <b>St. Paul, MN</b>		<input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING DAYS		Filtered Sample (Y/N)		Sampler: <b>P. Styrice</b>	
Phone: <b>651-639-0913</b>		TAT if different from Below		Naphthalene-8270		For Lab Use Only:	
Fax: <b>651-639-0923</b>		<input type="checkbox"/> 2 weeks		PC-8151		Walk-in Client:	
Project Name: <b>Penta Wood</b>		<input type="checkbox"/> 1 week		BTEX		Lab Sampling:	
Site # <b>08665-03-12</b>		<input type="checkbox"/> 2 days		XX		Job / SDG No.:	
P O #		<input type="checkbox"/> 1 day		XX		Sample Specific Notes:	
Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	MS/MSD	
W-160405-PS-RW-01	4/5/16	1024	G	W	7		
02		1051			7		
03		1145			7		
04		1115			7		
05		1004			7		
06		1310			7		
07		1520			7		
08		1545			7		
W-160405-PS-DW-01		1511			13	MS/MSD	
W-Trip Blank - 08		1400			1		

Preservation Used: (1=Ice, 2=HCl; 3=H2SO4; 4=HNO3; 5=NaOH; 6= Other)

Possible Hazard Identification: **(MS/MSD)**

Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown

Special Instructions/QC Requirements & Comments:

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return to Client  Disposal by Lab  Archive for \_\_\_\_\_ Months

Cooler Temp. (°C): Obs'd: \_\_\_\_\_ Cor'd: \_\_\_\_\_ Therm ID No.: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_

Relinquished by: **GH** Company: **GHD** Date/Time: **4-6-16/1000**

Relinquished by: **GH** Company: **GHD** Date/Time: **4-7-16 920**

Relinquished by: \_\_\_\_\_ Company: \_\_\_\_\_ Date/Time: \_\_\_\_\_



Canton Facility

Client GLD Site Name

Cooler unpacked by:

Cooler Received on 4-7-16 Opened on 4-7-16

FedEx: 1<sup>st</sup> Grd Exp UPS FAS Stetson Client Drop Off TestAmerica Courier Other

Receipt After-hours: Drop-off Date/Time Storage Location

TestAmerica Cooler # Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

- 1. Cooler temperature upon receipt  See Multiple Cooler Form
  - IR GUN# 48 (CF -1.9 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
  - IR GUN# 36 (CF -1.5 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C
  - IR GUN# 18 (CF -0.5 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

- 2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 14 Yes No
  - Were custody seals on the outside of the cooler(s) signed & dated? Yes No NA
  - Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No

3. Shippers' packing slip attached to the cooler(s)? Yes No

4. Did custody papers accompany the sample(s)? Yes No

5. Were the custody papers relinquished & signed in the appropriate place? Yes No

6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No

7. Did all bottles arrive in good condition (Unbroken)? Yes No

8. Could all bottle labels be reconciled with the COC? Yes No

9. Were correct bottle(s) used for the test(s) indicated? Yes No

10. Sufficient quantity received to perform indicated analyses? Yes No

11. Are these work share samples? Yes No

*If yes, Questions 12-16 have been checked at the originating laboratory.*

12. Were sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC559158

13. Were VOAs on the COC? Yes No

14. Were air bubbles >6 mm in any VOA vials? Yes No NA

15. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # Yes No

16. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM Date by via Verbal Voice Mail Other

Concerning

17. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

18. SAMPLE CONDITION

- Sample(s) were received after the recommended holding time had expired.
- Sample(s) 1xL R-05 were received in a broken container.
- Sample(s) were received with bubble >6 mm in diameter. (Notify PM)

19. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.  
Time preserved: Preservative(s) added/Lot number(s):





## Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-63164-1

**Login Number: 63164**  
**List Number: 2**  
**Creator: Watson, Debbie**

**List Source: TestAmerica Pittsburgh**  
**List Creation: 04/08/16 11:39 AM**

Question	Answer	Comment
Radioactivity wasn't checked or is <math>\leq</math> background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <math><6\text{mm}</math> (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	





# Memorandum

To: Tim Ree, GHD

Ref. No.: 086165-03-12

From: Grant Anderson/sb/3 

Date: May 18, 2016

CC: Tim Braun, GHD

**Re: Analytical Results and Reduced Validation  
Residential Water Sampling Event  
Penta Wood Site  
Siren, Wisconsin  
April 2016**

## 1. Introduction

This document details a reduced validation of analytical results for residential water samples collected at the Penta Wood Site during April 2016. Samples were submitted to TestAmerica Laboratories, Inc. (TA) located in North Canton, Ohio. BTEX and naphthalene analyses were performed at TA's North Canton laboratory. Pentachlorophenol analyses were performed at TA's Pittsburgh, Pennsylvania laboratory. A sample collection and analysis summary is presented in Table 1. The validated analytical results are summarized in Table 2. A summary of the analytical methodology is presented in Table 3.

Standard GHD Services, Inc. (GHD) report deliverables were submitted by the laboratory. The final results and supporting quality assurance/quality control (QA/QC) data were assessed. Evaluation of the data was based on information obtained from the chain of custody forms, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QC samples.

The QA/QC criteria by which these data have been assessed are outlined in the analytical methods referenced in Table 3 and applicable guidance from the documents entitled:

- i) "Quality Assurance Project Plan, Long Term Response Action, Rev. II, February 2005 with addendums
- ii) "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", USEPA 540/R-99/008, October 1999

Item ii) will subsequently be referred to as the "Guidelines" in this Memorandum.

## 2. Sample Holding Time and Preservation

The sample holding time criteria for the analyses are summarized in Table 3. The sample chain of custody documents and analytical report were used to determine sample holding times. All samples were prepared and analyzed within the required holding times.

All samples were properly preserved, delivered on ice, and stored by the laboratory at the required temperature (0-6°C).

## 3. Laboratory Method Blank Analyses

Method blanks are prepared from a purified matrix and analyzed with investigative samples to determine the existence and magnitude of sample contamination introduced during the analytical procedures.

Laboratory method blanks were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

All method blank results were non-detect; indicating that laboratory contamination was not a factor for this investigation.

## 4. Surrogate Spike Recoveries

In accordance with the methods employed, all samples, blanks, and QC samples analyzed for organics are spiked with surrogate compounds prior to sample extraction and/or analysis. Surrogate recoveries provide a means to evaluate the effects of laboratory performance on individual sample matrices.

All samples submitted for BTEX, naphthalene, and pentachlorophenol analyses were spiked with the appropriate number of surrogate compounds prior to sample extraction or analysis.

Each individual surrogate compound is expected to meet the laboratory control limits.

Surrogate recoveries were assessed against laboratory control limits. All surrogate recoveries met the above criteria.

## 5. Laboratory Control Sample Analyses

LCS are prepared and analyzed as samples to assess the analytical efficiencies of the methods employed, independent of sample matrix effects.

LCS were analyzed at a minimum frequency of 1 per 20 investigative samples and/or 1 per analytical batch.

The LCS contained all compounds of interest. All LCS recoveries were within the laboratory control limits, demonstrating acceptable analytical accuracy.

## 6. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

To evaluate the effects of the sample preparation process, measurement procedures, and accuracy of a particular analysis, samples are spiked with a known concentration of the analyte of concern and analyzed as MS/MSD samples. The RPD between the MS and MSD is used to assess analytical precision. If the original sample concentration is significantly greater than the spike concentration, the recovery is not assessed.

MS/MSD analyses were performed as specified in Table 1.

The MS/MSD samples were spiked with all compounds of interest. All percent recoveries and RPD values were within the laboratory control limits.

## 7. Field QA/QC Samples

The field QA/QC consisted of one trip blank sample, one field blank sample and one field duplicate sample set.

### ***Trip Blank Sample Analysis***

To evaluate contamination from sample collection, transportation, storage, and analytical activities, a trip blank sample was submitted to the laboratory for BTEX analysis. All results were non-detect for the compounds of interest.

### ***Field Blank Sample Analysis***

To assess ambient conditions at the site and cleanliness of sample containers, a field blank was submitted for analysis, as identified in Table 1. The field blank sample yielded a detectable concentration of pentachlorophenol. Table 4 lists compounds detected in the field blank. Associated sample data are qualified as noted in the table.

### ***Field Duplicate Sample Analysis***

To assess the analytical and sampling protocol precision, a field duplicate sample set was collected and submitted "blind" to the laboratory, as specified in Table 1. The RPDs associated with the duplicate samples must be less than 50 percent. If the reported concentration in either the investigative sample or its duplicate is less than five times the reporting limit (RL), the evaluation criteria is one times the RL value.

All field duplicate results were within acceptable agreement, demonstrating acceptable sampling and analytical precision.

## 8. Analyte Reporting

The laboratory reported detected results down to the laboratory's method detection limit (MDL) for each analyte. Positive analyte detections less than the RL but greater than the MDL were qualified as estimated (J) in Table 2 unless qualified otherwise in this memorandum. Non-detect results were presented as non-detect at the MDL in Table 2.

## 9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable with the qualifications noted herein.

Table 1

**Sample Collection and Analysis Summary  
Residential Water Sampling Event  
Penta Wood Site  
Siren, Wisconsin  
April 2016**

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters			Comments
					BTEX	Naphthalene	Pentachlorophenol	
W-160405-PS-RW-01	RW01	water	04/05/2016	10:24:00	X	X	X	
W-160405-PS-RW-02	RW02	water	04/05/2016	10:51:00	X	X	X	
W-160405-PS-RW-03	RW03	water	04/05/2016	11:45:00	X	X	X	
W-160405-PS-RW-04	RW04	water	04/05/2016	11:15:00	X	X	X	
W-160405-PS-RW-05	RW05	water	04/05/2016	10:04:00	X	X	X	
W-160405-PS-RW-06	RW06	water	04/05/2016	13:10:00	X	X	X	
W-160405-PS-RW-07	DW01	water	04/05/2016	15:20:00	X	X	X	duplicate (DW-01)
W-160405-PS-RW-08	DW01	water	04/05/2016	15:45:00	X	X	X	field blank
W-160405-PS-DW-01	DW01	water	04/05/2016	15:11:00	X	X	X	MS/MSD
W-TRIPBLANK-02	Lab	water	04/05/2016	14:00:00	X			trip blank

## Notes:

MS/MSD - Matrix spike/matrix spike duplicate

BTEX - Benzene, toluene, ethylbenzene, and xylenes (total)

**Validated Analytical Results Summary  
Residential Water Sampling Event  
Penta Wood Site  
Siren, Wisconsin  
April 2016**

Location ID:	DW01	DW01	RW01	RW02	RW03
Sample Name:	W-160405-PS-DW-01	W-160405-PS-RW-07	W-160405-PS-RW-01	W-160405-PS-RW-02	W-160405-PS-RW-03
Sample Date:	4/5/2016	4/5/2016 duplicate	4/5/2016	4/5/2016	4/5/2016
Parameters	Unit				
<b>Herbicides</b>					
Pentachlorophenol	ug/L	0.095U	0.097U	0.015U	0.015U
<b>Semivolatile Organic Compounds</b>					
Naphthalene	ug/L	0.14J	0.062U	0.060U	0.060U
<b>Volatile Organic Compounds</b>					
Benzene	ug/L	0.35U	0.35U	0.35U	0.35U
Ethylbenzene	ug/L	0.25U	0.25U	0.25U	0.25U
Toluene	ug/L	0.23U	0.23U	0.23U	0.23U
Xylenes (total)	ug/L	0.52U	0.52U	0.52U	0.52U



**Validated Analytical Results Summary  
Residential Water Sampling Event  
Penta Wood Site  
Siren, Wisconsin  
April 2016**

Location ID: Sample Name: Sample Date:		RW04 W-160405-PS-RW-04 4/5/2016	RW05 W-160405-PS-RW-05 4/5/2016	RW06 W-160405-PS-RW-06 4/5/2016	DW01 W-160405-PS-RW-08 4/5/2016 field blank	Lab W-TRIPBLANK-02 4/5/2016 trip blank
<b>Parameters</b>	<b>Unit</b>					
<b>Herbicides</b>						
Pentachlorophenol	ug/L	0.015U	0.015U	0.015U	0.050J	--
<b>Semivolatile Organic Compounds</b>						
Naphthalene	ug/L	0.060U	0.060U	0.060U	0.061U	--
<b>Volatile Organic Compounds</b>						
Benzene	ug/L	0.35U	0.35U	0.35U	0.35U	0.35U
Ethylbenzene	ug/L	0.25U	0.25U	0.25U	0.25U	0.25U
Toluene	ug/L	0.23U	0.23U	0.23U	0.23U	0.23U
Xylenes (total)	ug/L	0.52U	0.52U	0.52U	0.52U	0.52U

## Note:

U - Not detected at the associated reporting limit

J - Estimated concentration

Table 3

**Analytical Methods and Holding Time Criteria  
Residential Water Sampling Event  
Penta Wood Site  
Siren, Wisconsin  
April 2016**

Parameter	Method	Matrix	Holding Time	
			Collection to Extraction (Days)	Collection or Extraction to Analysis (Days)
BTEX	SW 8260B	Water	-	14
Naphthalene	SW 8270C	Water	7	40
Pentachlorophenol	SW 8151	Water	7	40

Notes:

Method References:

SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition, 1986, with subsequent revisions

Table 4

**Qualified Sample Data Due To Analyte Concentrations In Field Blank  
Residential Water Sampling Event  
Penta Wood Site  
Siren, Wisconsin  
April 2016**

Parameter	Rinse Blank ID	Blank Date	Analyte	Blank Result	Associated Sample ID	Original Result	Qualified Result	Units
Herbicides	W-160405-PS-RW-08	4/5/2016	Pentachlorophenol	0.050J	W-160405-PS-DW-01	0.025 J	0.095 U	ug/L
					W-160405-PS-RW-07	0.019 J	0.097 U	ug/L

## Notes:

U - Not detected at the associated reporting limit

J - Estimated concentration

# Appendix E

## Waste Disposal Documentation



# WASTE MATERIAL PROFILE SHEET

## Clean Harbors Profile No. CH81546B

**A. GENERAL INFORMATION**

GENERATOR EPA ID #/REGISTRATION # **WID006176945** GENERATOR NAME: **WDNR-Former Pentawood Products Site**  
 GENERATOR CODE (Assigned by Clean Harbors) **PE1250** CITY **Siren** STATE/PROVINCE **WI** ZIP/POSTAL CODE **54872**  
 ADDRESS **8682 Daniels 70** PHONE: **(262) 255-4468**  
 CUSTOMER CODE (Assigned by Clean Harbors) **NOR1722** CUSTOMER NAME: **North Shore Environmental Cons**  
 ADDRESS **N117 W18493 Fulton Drive** CITY **Germantown** STATE/PROVINCE **WI** ZIP/POSTAL CODE **53022**

**B. WASTE DESCRIPTION**WASTE DESCRIPTION: **F032 Contaminated Carbon In Vac Boxes**PROCESS GENERATING WASTE: **Remediation of Pentachlorophenol Site**IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No****C. PHYSICAL PROPERTIES (at 25C or 77F)**

<b>PHYSICAL STATE</b> <input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b> 1 2 3 TOP <b>0.00</b> % BY VOLUME (Approx.) MIDDLE <b>0.00</b> BOTTOM <b>0.00</b>				<b>VISCOSITY (If liquid present)</b> 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000		<b>COLOR</b>  <b>black</b>
	<b>ODOR</b> NONE <input checked="" type="checkbox"/> MILD STRONG Describe:		<b>BOILING POINT °F (°C)</b> <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) >= 130 (>54)		<b>MELTING POINT °F (°C)</b> < 140 (<60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (>93)		
<b>FLASH POINT °F (°C)</b> < 73 (<23) 73 - 100 (23-38) 101 -140 (38-60) 141 -200 (60-93) > 200 (>93)	<b>pH</b> <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5	<b>SPECIFIC GRAVITY</b> < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) <input checked="" type="checkbox"/> > 1.2 (e.g. Methylene Chloride)	<b>ASH</b> < 0.1 0.1 - 1.0 1.1 - 5.0 5.1 - 20.0 <input checked="" type="checkbox"/> Unknown		<b>BTU/LB (MJ/kg)</b> < 2,000 (<4.6) 2,000-5,000 (4.6-11.6) <input checked="" type="checkbox"/> 5,000-10,000 (11.6-23.2) > 10,000 (>23.2)  Actual:		

**D. COMPOSITION** (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	MAX	UOM
ARSENIC	0.0000000	1.7000000	PPM
BARIIUM	0.0000000	32.6000000	PPM
CADMIUM			Trace
CARBON	80.0000000	100.0000000	%
CHROMIUM	0.0000000	11.1000000	PPM
LEAD	0.0000000	2.0000000	PPM
MERCURY	0.0000000	0.0140000	PPM
MOISTURE	0.0000000	5.0000000	%
PENTACHLOROPHENOL	0.0000000	1.0000000	%
PPE (GLOVES, TYVEKS, ABSORBANT PADS)	0.0000000	1.0000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES  NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES  NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES  NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES  NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES  NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G43** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W310**



**E. CONSTITUENTS**

Are these values based on testing or knowledge? Knowledge  Testing

If constituent concentrations are based on analytical testing, analysis must be provided. Please attach document(s) using the link on the Submit tab.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0		1.7000000	PPM	
D005	BARIUM	100.0		32.6000000	PPM	
D006	CADMIUM	1.0			Trace	
D007	CHROMIUM	5.0		11.1000000	PPM	
D008	LEAD	5.0		2.0000000	PPM	
D009	MERCURY	0.2			Trace	
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>
D011	SILVER	5.0			Trace	
<b>VOLATILE COMPOUNDS</b>						
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				
D021	CHLOROGENZENE	100.0				
D022	CHLOROFORM	5.0				
D028	1,2-DICHLOROETHANE	0.5				
D029	1,1-DICHLOROETHYLENE	0.7				
D035	METHYL ETHYL KETONE	200.0				
D039	TETRACHLOROETHYLENE	0.7				
D040	TRICHLOROETHYLENE	0.5				
D043	VINYL CHLORIDE	0.2				
<b>SEMI-VOLATILE COMPOUNDS</b>						
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0	100.0000			
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
<b>PESTICIDES AND HERBICIDES</b>						
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			<input checked="" type="checkbox"/>
CHLORINE			<input checked="" type="checkbox"/>
FLUORINE			<input checked="" type="checkbox"/>
IODINE			<input checked="" type="checkbox"/>
SULFUR			<input checked="" type="checkbox"/>
POTASSIUM			<input checked="" type="checkbox"/>
SODIUM			<input checked="" type="checkbox"/>
AMMONIA			<input checked="" type="checkbox"/>
CYANIDE AMENABLE			<input checked="" type="checkbox"/>
CYANIDE REACTIVE			<input checked="" type="checkbox"/>
CYANIDE TOTAL			<input checked="" type="checkbox"/>
SULFIDE REACTIVE			<input checked="" type="checkbox"/>

HOCs	PCBs
NONE	<input checked="" type="checkbox"/> NONE
< 1000 PPM	< 50 PPM
<input checked="" type="checkbox"/> >= 1000 PPM	>= 50 PPM
	IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?
	YES NO

**ADDITIONAL HAZARDS**

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES  NO (If yes, explain)

**CHOOSE ALL THAT APPLY**

- DEA REGULATED SUBSTANCES
- EXPLOSIVE
- FUMING
- OSHA REGULATED CARCINOGENS
- POLYMERIZABLE
- RADIOACTIVE
- REACTIVE MATERIAL
- NONE OF THE ABOVE





F. REGULATORY STATUS

YES  NO USEPA HAZARDOUS WASTE?  
 YES  NO DO ANY STATE WASTE CODES APPLY?  
Texas Waste Code

YES  NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?  
 YES  NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
LDR CATEGORY:  **This is subject to LDR.**  
VARIANCE INFO:

YES  NO IS THIS A UNIVERSAL WASTE?  
YES  NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?  
YES  NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?  
YES  NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?  
YES  NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?  
YES  NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?  
YES  NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?  
YES  NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES  NO IS THIS CERCLA REGULATED (SUPERFUND ) WASTE ?  
YES  NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
Hazardous Organic NESHAP (HON) rule (subpart G)      Pharmaceuticals production (subpart GGG)

YES  NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
YES  NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
YES  NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?  
What is the TAB quantity for your facility?  Megagram/year (1 Mg = 2,200 lbs)  
The basis for this determination is: Knowledge of the Waste Or Test Data      Knowledge      Testing  
Describe the knowledge :

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

RQ, UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III (F032)  
UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY MONTHLY QUARTERLY  YEARLY OTHER Other

CONTAINERIZED		BULK LIQUID		<input checked="" type="checkbox"/> BULK SOLID	
0-0 CONTAINERS/SHIPMENT		GALLONS/SHIPMENT: 0 Min - 0 Max		SHIPMENT UOM: <input checked="" type="checkbox"/> TON      YARD	
STORAGE CAPACITY:				TONS/YARDS/SHIPMENT: 10.00 Min - 20.00 Max	
CONTAINER TYPE:					
PORTABLE TOTE TANK	BOX CARTON CASE				
CUBIC YARD BOX	DRUM				
OTHER:	DRUM SIZE:				

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:

Burton Prenote 531994 line 25 C34, Y04 Expires 11/23/2016 AOC 012740/8E/15 WS#14

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
	Phil Richard	WDRR Project Manager	2/5/16

\*40 CFR Sec. 264.12 required notice:

As required by Federal Resource Conservation and Recovery Act regulations found in 40 CFR Part 264.12(b) and all equivalent State hazardous waste regulations, notice is hereby provided that all Clean Harbors facilities that may be used to treat, store, and/or dispose of the hazardous waste described on this waste profile have the appropriate permits and the capacity to manage these wastes.

Please note this profile must be submitted for re-evaluation if there has been a change in the waste generating process or when there have been changes in the chemical composition or physical characteristics of the material.



**Addendum**

**D. COMPOSITION**

CHEMICAL	MIN	--	MAX	UOM
SILVER	0.00000	--	0.2100	PPM
	00		000	

**G. DOT/TDG INFORMATION**



## Mark Norris

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**From:** Clean Harbors <NOREPLY@Cleanharbors.com>  
**Sent:** Saturday, January 30, 2016 3:02 AM  
**To:** Mark Norris  
**Subject:** Clean Harbors Profile Approval Notification



## Profile Approval Notification

---

The profile(s) listed below are approved\* and ready for shipment. You can schedule your drum pick up online or contact your account representative for support.

You can reach us at 1-877-333-4244.

Click here to [Login](#) to your account.

Generator code	Generator Name	Profile #	Waste Description	Waste Classification Code
PE1250	WDNR-Former Pentawood Products Site	CH81546B	F032 Contaminated Carbon in Vac Boxes	CCRT

*\*Profile approval is based upon information provided, you are required to notify Clean Harbors immediately of any change.*

Thank you for choosing Clean Harbors. We appreciate your business.

This email was sent from a notification only address that cannot accept incoming email. Please do not reply to this message.

You are receiving this message because you have submitted a profile for approval and are a registered user of Clean Harbors Online Services.

We do not rent or sell your information to any third parties. For more information, please read our [Privacy Policy](#). Our address is 42 Longwater Drive, Norwell, MA 02061.



Land Disposal Restriction  
Notification Form

Printed Date : Feb 01, 2016

MANIFEST INFORMATION

Generator : WDNR-Former Pentawood Products Site	Manifest Tracking Info.
Address: 8682 Daniels 70 Siren, WI 54872	008772294FLE
EPA ID #: WID006176945	Sales Order No: 1600350995

LINE ITEM INFORMATION				
Line Item:	Page No:	Profile No:	Treatability Group:	LDR Disposal Category
1.	1	CH81546B	NON-WASTEWATER	2 (This is subject to LDR.)
EPA Waste Code			EPA Waste SubCategory	
F032			NONE	

Certification

Applies to  
Manifest Line  
Items

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

1.

Waste analysis data, where available, is attached.

Signature : *Phil Richard*

Print Name Phil Richard

Title : WDNR Project Manager

Date : 2/01/16



Land Disposal Restriction  
Notification Form

Printed Date : Feb 01, 2016

MANIFEST INFORMATION

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1.	1	CH81546B	NON-WASTEWATER	2 (This is subject to LDR.)
EPA Waste Code			EPA Waste SubCategory	
F032			NONE	

Certification

Applies to  
Manifest Line  
Items

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

1.

Waste analysis data, where available, is attached.

Signature : Phil E. Rhee

Print Name Phil Richard

Title : WDNR Project Manager

Date : 2/8/16

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>WID006176345</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3718</b>	4. Manifest Tracking Number <b>008772294 FLE</b>		
5. Generator's Name and Mailing Address <b>WDNR Former Pentawood Products Site N117 W18493 Fulton Drive Gerrantown, WI 53022</b>				Generator's Site Address (if different than mailing address) <b>8582 Daniels 70 Siren, WI 54672</b>			
6. Transporter 1 Company Name		U.S. EPA ID Number <b>MA0039322250</b>		7. Transporter 2 Company Name		U.S. EPA ID Number	
8. Designated Facility Name and Site Address <b>Clean Harbors Canada, Inc. 4090 Teller Road Corunna, ON N0N 1G0</b>				U.S. EPA ID Number <b>MIR000035204</b>			
Facility's Phone: <b>(519) 894-1021</b>							
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
		No.	Type				
x	<b>RQ, UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III (F032)</b>	<b>01</b>	<b>CM</b>	<b>15000 P</b>		<b>F032</b>	
14. Special Handling Instructions and Additional Information <b>1. CHS 1545B ERG#171 AOC#12740/15 CN# DFT 15165</b> <b>CHESI, EPA ID NO. MIRO00014530, IS ACTUALLY THE PRIMARY EXPORTER ON BEHALF OF THE GENERATOR.</b> <b>Box # CHVB 9912</b>							
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.							
Generator's/Offeror's Printed/Typed Name <b>Phil Richard</b>				Signature <b>Phil Richard</b>		Month Day Year <b>12 8 16</b>	
16. International Shipments <input type="checkbox"/> Import to U.S. <input checked="" type="checkbox"/> Export from U.S. Port of entry/exit: <b>Port Huron</b> Transporter signature (for exports only): <b>Roy Vandulnele</b> Date leaving U.S.: <b>Feb 12/16</b>							
17. Transporter Acknowledgment of Receipt of Materials							
Transporter 1 Printed/Typed Name <b>ROY VANDULNELE</b>				Signature <b>Roy Vandulnele</b>		Month Day Year <b>02 01 16</b>	
Transporter 2 Printed/Typed Name				Signature		Month Day Year	
18. Discrepancy							
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:							
18b. Alternate Facility (or Generator)				U.S. EPA ID Number			
Facility's Phone:							
18c. Signature of Alternate Facility (or Generator)						Month Day Year	
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)							
1. <b>H129</b>		2.		3.		4.	
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a							
Printed/Typed Name <b>Tim Baehler</b>				Signature <b>Tim Baehler</b>		Month Day Year <b>02 12 16</b>	

GENERATOR

TRANSPORTER INT'L

DESIGNATED FACILITY

Clean Harbors has the appropriate permits for and will accept the waste the generator is shipping.

# MOVEMENT DOCUMENT / MANIFEST DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.  
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement et le transport.

**DF91246-5**

Movement Document / Manifest Reference No.  
N° de référence du document de mouvement/manifeste

<b>A Generator / consigneur</b> <b>Producteur / expéditeur</b> Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial 2000 0000 0000 0000		<b>B Carrier</b> <b>Transporteur</b> Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial 23301		Reference Nos. of other movement document(s)/manifest(s) used / N° de référence des autres documents de mouvement/manifestes utilisés	
Company name / Nom de l'entreprise Clean Harbors Environmental Services, Inc.		Company name / Nom de l'entreprise Clean Harbors Canada, Inc.		<b>C Receiver / consignee</b> <b>Réceptionnaire / destinataire</b> Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial AC-1006	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal 24475 Southport Highway Sarnia ON N6A 4S2		Mailing address / Adresse postale City / Ville Province Postal code / Code postal 1794 Inverness Drive Sarnia ON N7A 5T3		Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire est la même qu'à la Partie A <input checked="" type="checkbox"/> Yes / Oui <input type="checkbox"/> No, complete the box below / Non, remplir la case ci-dessous	
E-mail / Courriel électronique Tel. No. / N° de tél. Tel. No. / N° de tél. (813) 713-2700		E-mail / Courriel électronique Tel. No. / N° de tél. Tel. No. / N° de tél. (519) 332-1111		Company name / Nom de l'entreprise CLEAN HARBORS CANADA INC. Mailing address / Adresse postale R.R. #1, 4090 TELEER ROAD City / Ville Province Postal code / Code postal CORUNNA, ONTARIO N0N 1G0 E-mail / Courriel électronique Tel. No. / N° de tél. 519-864-1021 Receiving site address / Adresse du lieu de destination Same	
Shipping site address / Adresse du lieu de l'expédition 24475 Southport Highway City / Ville Province Postal code / Code postal Sarnia ON N6A 4S2		Vehicle / Véhicule Registration No. / N° d'immatriculation Trailer - Rail car No. 1 1 <sup>re</sup> remorque - wagon 7482436 Trailer - Rail car No. 2 2 <sup>e</sup> remorque - wagon 116		Port of entry Point d'entrée International use only <input checked="" type="checkbox"/> <input type="checkbox"/> Port of exit Point de sortie International use only	
Intended Receiver / consignee Réceptionnaire / destinataire prévu Clean Harbors Canada, Inc. Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial 2-021808		Carrier Certification: I certify that I have received waste or recyclable material from the generator / consigneur for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. Attestation du transporteur: J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.		Date received / Date de réception Year / Année Month / Mois Day / Jour 16 02 12 Time / Heure 10:40 AM	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal 24475 Southport Highway Sarnia ON N6A 4S2		Name of authorized person (print): Nom de l'agent autorisé (caractères d'imprimerie): Mike Kenderdine Tel. No. / N° de tél. (519) 332-1111		If waste or recyclable material to be transferred, specify intended company name / Si les déchets ou matières recyclables doivent être transférés, préciser le nom du destinataire Registration No./Provincial ID No. N° d'immatriculation/d'id provincial	
E-mail / Courriel électronique Tel. No. / N° de tél. Tel. No. / N° de tél. (813) 713-2700		Year / Année Month / Mois Day / Jour Signature: 16 02 12 Mike Kenderdine		Quantity received / Quantité reçue Units / L or / ou Kg / Unités 10150 Kg Comments / Commentaires Please see attached variance explanation Handling Code / Code de manutention 03 Yr	
Receiving site address / Adresse du lieu de l'expédition 24475 Southport Highway City / Ville Province Postal code / Code postal Sarnia ON N6A 4S2		Name of authorized person (print): Nom de l'agent autorisé (caractères d'imprimerie): Mike Kenderdine Tel. No. / N° de tél. (519) 332-1111		If handling code "Other" (specify) Si code de manutention « autre » (spécifier)	
Shipping name Appellation réglementaire WASTE RECYCLABLES SOLID, N.O.S. (partially incinerated)		Class / Classe Sub. class(es) / Classes(s) sub. UN No. / N° NU 1502?? Packing / risk gr. / Gr. d'emballage / de risque III		Quantity shipped / Quantité expédiée 10150 Units / L or / ou Kg / Unités Kg	
Notice No. / N° de notification 21204		Notice Line No. / N° de ligne de la notification 13		National code in country of / Code du pays Export / Importation Importation	
Shipment / Envoi 200		D or R code / Code É ou R 005		Customs code(s) / Code(s) de douanes 3513 60 00 00	
Of / De 200		C code / Code C 074		Customs code(s) / Code(s) de douanes 3513 60 00 00	
Basel Annex VIII or OECD Code / Annexe VIII de Bâle ou Code OCDE 1502		H code / Code H N12		Customs code(s) / Code(s) de douanes 3513 60 00 00	
Y code / Code Y Y04		National code in country of / Code du pays 0000		Customs code(s) / Code(s) de douanes 3513 60 00 00	
International use only					
Generator / consigneur certification: I certify that the information contained in Part A is correct and complete. Attestation du producteur / expéditeur: J'atteste que tous les renseignements à la partie A sont exacts et complets.		Name of authorized person (print) Nom de l'agent autorisé (caractère d'imprimerie) Mike Kenderdine Signature Mike Kenderdine Tel. No. / N° de tél. (519) 332-1111		Receiver / consignee certification: I certify that the information contained in Part C is correct and complete. Attestation du réceptionnaire / destinataire: J'atteste que tous les renseignements à la partie C sont exacts et complets.	
Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour 16 02 12		Time / Heure 10:40 AM		Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour 16 02 12	

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>	1. Generator ID Number <b>WID006176945</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3718</b>	4. Manifest Tracking Number <b>008772295 FLE</b>
5. Generator's Name and Mailing Address <b>WDNR Former Pentawood Products Site N117 W18499 Fulton Drive Gennantown, WI 53022</b>		Generator's Site Address (if different than mailing address) <b>8682 Daniels 70 Siren, WI 54872</b>		
6. Transporter 1 Company Name <b>CLEAN HARBORS ENVIRONMENTAL SERVICES INC</b>		U.S. EPA ID Number <b>MAD039302250</b>		
7. Transporter 2 Company Name		U.S. EPA ID Number		
8. Designated Facility Name and Site Address <b>Clean Harbors Canada, Inc 4090 Tetra Road Corunna ON N0N 1G0</b>		U.S. EPA ID Number <b>MIR000035204</b>		
Facility's Phone: <b>(519) 884-1021</b>				
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No. Type		11. Total Quantity
				12. Unit Wt./Vol.
				13. Waste Codes
1	<b>RQ UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III (F032)</b>	<b>01</b>	<b>CM</b>	<b>15,000</b>
				<b>lbs</b>
				<b>F032</b>
14. Special Handling Instructions and Additional Information <b>1. CHB1546E EPC#171 AOC# 12740/8E/15 CN# DF912915 1</b> <b>CHESI, EPA DD NO MIR000014530 IS ACTING AS THE PRIMARY EXPORTER ON BEHALF OF THE GENERATOR.</b> <b>CHUB 0879.</b>				
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.				
Generator's/Offoror's Printed/Typed Name <b>Phil Richard</b>		Signature <i>Phil Richard</i>		Month Day Year <b>2   8   16</b>
16. International Shipments <input type="checkbox"/> Import to U.S. <input checked="" type="checkbox"/> Export from U.S. Port of entry/exit: <b>PORT HURON, MI</b> Transporter signature (for exports only): <i>Murray Balula</i> Date leaving U.S.: <b>2/11/16</b>				
17. Transporter Acknowledgment of Receipt of Materials				
Transporter 1 Printed/Typed Name <b>MURRAY BABULA</b>		Signature <i>Murray Balula</i>		Month Day Year <b>2   11   16</b>
Transporter 2 Printed/Typed Name		Signature		Month Day Year
18. Discrepancy				
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:				
18b. Alternate Facility (or Generator)		U.S. EPA ID Number		
Facility's Phone:				
18c. Signature of Alternate Facility (or Generator) Month Day Year				
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)				
1.	2.	3.	4.	
<b>H129</b>				
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a				
Printed/Typed Name <b>Paul Fidler</b>		Signature <i>Paul Fidler</i>		Month Day Year <b>12   18   16</b>

GENERATOR  
TRANSPORTER INTL  
DESIGNATED FACILITY







Clean Harbors Canada, Inc.  
 4090 Telfer Road  
 Corunna ON, N0N 1G0  
 MIR000035204  
 (519) 864-1021

**CERTIFICATE OF DISPOSAL**

Manifest Mailing Name : WDNR-Former Pentawood Products Site  
 Manifest Mailing Address: N117 W18493 Fulton Drive Job Address: 8682 Daniels 70  
 Germantown, WI 53022 Siren, WI 54872  
 Customer Contact Name: Mr Mark Norris Generator Contact Name: Mr Mark Norris  
 Sales Order #: 1600350995 Date Received: 2/12/2016  
 Generator EPA ID: WID006176945 Manifest #: 008772294FLE

Line #	Profile/Description	Disposal Date	Method of Disposal	Disposal Facility
1	CH81546B F032 Contaminated Carbon in Vac Boxes	5/12/2016	Thermal Treatment	Lambton, ON Facility

Under Civil and Criminal Penalties of Law for the making or submission of false or fraudulent statements or representations (18 U.S.C. 1001 and 15 U.S.C. 2615), I certify that the information contained in or accompanying this document is true, accurate, and complete. As to the identified section(s) of this document for which I cannot personally verify truth and accuracy, I certify as the company official having supervisory responsibility for the persons who, acting under my direct instructions, made the verification that this information is true, accurate, and complete.

Name: Paul A. Wells  
 Title: VP Environmental Applications  
 Date: Friday, May 13, 2016







# WASTE MATERIAL PROFILE SHEET

Clean Harbors Profile No. CH81542B

### A. GENERAL INFORMATION

GENERATOR EPA ID #/REGISTRATION # **WID006176945** GENERATOR NAME: **WDNR-Former Pentawood Products Site**  
 GENERATOR CODE (Assigned by Clean Harbors) **PE1250** CITY **Siren** STATE/PROVINCE **WI** ZIP/POSTAL CODE **54872**  
 ADDRESS **8682 Daniels 70** PHONE: **(262) 255-4468**  
 CUSTOMER CODE (Assigned by Clean Harbors) **NOR1722** CUSTOMER NAME: **North Shore Environmental Cons**  
 ADDRESS **N117 W18493 Fulton Drive** CITY **Germantown** STATE/PROVINCE **WI** ZIP/POSTAL CODE **53022**

### B. WASTE DESCRIPTION

WASTE DESCRIPTION: **F032 Sludge / Filter Cake/ debris**

PROCESS GENERATING WASTE: **Waste Water Treatment of Pentachlorophenol Contaminated Site**

IS THIS WASTE CONTAINED IN SMALL PACKAGING CONTAINED WITHIN A LARGER SHIPPING CONTAINER? **No**

### C. PHYSICAL PROPERTIES (at 25C or 77F)

<b>PHYSICAL STATE</b> <input checked="" type="checkbox"/> SOLID WITHOUT FREE LIQUID POWDER MONOLITHIC SOLID LIQUID WITH NO SOLIDS LIQUID/SOLID MIXTURE % FREE LIQUID % SETTLED SOLID % TOTAL SUSPENDED SOLID SLUDGE GAS/AEROSOL	<b>NUMBER OF PHASES/LAYERS</b> 1 2 3 TOP <b>0.00</b> % BY VOLUME (Approx.) MIDDLE <b>0.00</b> BOTTOM <b>0.00</b>				<b>VISCOSITY (If liquid present)</b> 1 - 100 (e.g. Water) 101 - 500 (e.g. Motor Oil) 501 - 10,000 (e.g. Molasses) > 10,000		<b>COLOR</b>  <b>brown</b>
	<b>ODOR</b> NONE <input checked="" type="checkbox"/> MILD STRONG Describe:		<b>BOILING POINT °F (°C)</b> <= 95 (<=35) 95 - 100 (35-38) 101 - 129 (38-54) >= 130 (>54)		<b>MELTING POINT °F (°C)</b> < 140 (<60) 140-200 (60-93) <input checked="" type="checkbox"/> > 200 (>93)		
<b>FLASH POINT °F (°C)</b> < 73 (<23) 73 - 100 (23-38) 101 -140 (38-60) 141 -200 (60-93) > 200 (>93)	<b>pH</b> <= 2 2.1 - 6.9 <input checked="" type="checkbox"/> 7 (Neutral) 7.1 - 12.4 >= 12.5	<b>SPECIFIC GRAVITY</b> < 0.8 (e.g. Gasoline) 0.8-1.0 (e.g. Ethanol) 1.0 (e.g. Water) 1.0-1.2 (e.g. Antifreeze) <input checked="" type="checkbox"/> > 1.2 (e.g. Methylene Chloride)	<b>ASH</b> < 0.1 0.1 - 1.0 1.1 - 5.0 5.1 - 20.0		<b>BTU/LB (MJ/kg)</b> < 2,000 (<4.6) <input checked="" type="checkbox"/> 2,000-5,000 (4.6-11.6) 5,000-10,000 (11.6-23.2) > 10,000 (>23.2) Actual:		

### D. COMPOSITION (List the complete composition of the waste, include any inert components and/or debris. Ranges for individual components are acceptable. If a trade name is used, please supply an MSDS. Please do not use abbreviations.)

CHEMICAL	MIN	--	MAX	UOM
BAG FILTERS	0.000000	--	5.000000	%
CARBON	0.000000	--	3.000000	%
DEBRIS (PLASTIC, PPE, TRASH, ETC)	25.000000	--	50.000000	%
F032 FILTER CAKE W/ UP TO 5% PENTACHLOROPHENOL	45.000000	--	55.000000	%
PLASTIC PIPING	0.000000	--	2.000000	%
SOIL CUTTINGS	0.000000	--	5.000000	%
WATER	0.000000	--	1.000000	%

DOES THIS WASTE CONTAIN ANY HEAVY GAUGE METAL DEBRIS OR OTHER LARGE OBJECTS (EX., METAL PLATE OR PIPING >1/4" THICK OR >12" LONG, METAL REINFORCED HOSE >12" LONG, METAL WIRE >12" LONG, METAL VALVES, PIPE FITTINGS, CONCRETE REINFORCING BAR OR PIECES OF CONCRETE >3")? YES  NO

If yes, describe, including dimensions:

DOES THIS WASTE CONTAIN ANY METALS IN POWDERED OR OTHER FINELY DIVIDED FORM? YES  NO

DOES THIS WASTE CONTAIN OR HAS IT CONTACTED ANY OF THE FOLLOWING; ANIMAL WASTES, HUMAN BLOOD, BLOOD PRODUCTS, BODY FLUIDS, MICROBIOLOGICAL WASTE, PATHOLOGICAL WASTE, HUMAN OR ANIMAL DERIVED SERUMS OR PROTEINS OR ANY OTHER POTENTIALLY INFECTIOUS MATERIAL? YES  NO

I acknowledge that this waste material is neither infectious nor does it contain any organism known to be a threat to human health. This certification is based on my knowledge of the material. Select the answer below that applies:

The waste was never exposed to potentially infectious material. YES  NO

Chemical disinfection or some other form of sterilization has been applied to the waste. YES  NO

I ACKNOWLEDGE THAT THIS PROFILE MEETS THE CLEAN HARBORS BATTERY PACKAGING REQUIREMENTS. YES NO

I ACKNOWLEDGE THAT MY FRIABLE ASBESTOS WASTE IS DOUBLE BAGGED AND WETTED. YES NO

SPECIFY THE SOURCE CODE ASSOCIATED WITH THE WASTE. **G43** SPECIFY THE FORM CODE ASSOCIATED WITH THE WASTE. **W409**





E. CONSTITUENTS

Are these values based on testing or knowledge?  Knowledge  Testing

If based on knowledge, please describe in detail, the rationale applied to identify and characterize the waste material. Please include reference to Material Safety Data Sheets (MSDS) when applicable. Include the chemical or trade-name represented by the MSDS, and or detailed process or operating procedures which generate the waste.

Sample sent to Sarnia for approval and verification.

Please indicate which constituents below apply. Concentrations must be entered when applicable to assist in accurate review and expedited approval of your waste profile. Please note that the total regulated metals and other constituents sections require answers.

RCRA	REGULATED METALS	REGULATORY LEVEL (mg/l)	TCLP mg/l	TOTAL	UOM	NOT APPLICABLE
D004	ARSENIC	5.0				<input checked="" type="checkbox"/>
D005	BARIUM	100.0				<input checked="" type="checkbox"/>
D006	CADMIUM	1.0				<input checked="" type="checkbox"/>
D007	CHROMIUM	5.0				<input checked="" type="checkbox"/>
D008	LEAD	5.0				<input checked="" type="checkbox"/>
D009	MERCURY	0.2				<input checked="" type="checkbox"/>
D010	SELENIUM	1.0				<input checked="" type="checkbox"/>
D011	SILVER	5.0				<input checked="" type="checkbox"/>
<b>VOLATILE COMPOUNDS</b>						
D018	BENZENE	0.5				
D019	CARBON TETRACHLORIDE	0.5				<input checked="" type="checkbox"/>
D021	CHLOROBENZENE	100.0				<input checked="" type="checkbox"/>
D022	CHLOROFORM	6.0				<input checked="" type="checkbox"/>
D028	1,2-DICHLOROETHANE	0.5				<input checked="" type="checkbox"/>
D029	1,1-DICHLOROETHYLENE	0.7				<input checked="" type="checkbox"/>
D035	METHYL ETHYL KETONE	200.0				<input checked="" type="checkbox"/>
D039	TETRACHLOROETHYLENE	0.7				<input checked="" type="checkbox"/>
D040	TRICHLOROETHYLENE	0.5				<input checked="" type="checkbox"/>
D043	VINYL CHLORIDE	0.2				<input checked="" type="checkbox"/>
<b>SEMI-VOLATILE COMPOUNDS</b>						
D023	o-CRESOL	200.0				
D024	m-CRESOL	200.0				
D025	p-CRESOL	200.0				
D026	CRESOL (TOTAL)	200.0				
D027	1,4-DICHLOROBENZENE	7.5				
D030	2,4-DINITROTOLUENE	0.13				
D032	HEXACHLOROBENZENE	0.13				
D033	HEXACHLOROBUTADIENE	0.5				
D034	HEXACHLOROETHANE	3.0				
D036	NITROBENZENE	2.0				
D037	PENTACHLOROPHENOL	100.0	100.0000			
D038	PYRIDINE	5.0				
D041	2,4,5-TRICHLOROPHENOL	400.0				
D042	2,4,6-TRICHLOROPHENOL	2.0				
<b>PESTICIDES AND HERBICIDES</b>						
D012	ENDRIN	0.02				
D013	LINDANE	0.4				
D014	METHOXYCHLOR	10.0				
D015	TOXAPHENE	0.5				
D016	2,4-D	10.0				
D017	2,4,5-TP (SILVEX)	1.0				
D020	CHLORDANE	0.03				
D031	HEPTACHLOR (AND ITS EPOXIDE)	0.008				

OTHER CONSTITUENTS	MAX	UOM	NOT APPLICABLE
BROMINE			<input checked="" type="checkbox"/>
CHLORINE			<input checked="" type="checkbox"/>
FLUORINE			<input checked="" type="checkbox"/>
IODINE			<input checked="" type="checkbox"/>
SULFUR			<input checked="" type="checkbox"/>
POTASSIUM			<input checked="" type="checkbox"/>
SODIUM			<input checked="" type="checkbox"/>
AMMONIA			<input checked="" type="checkbox"/>
CYANIDE AMENABLE			<input checked="" type="checkbox"/>
CYANIDE REACTIVE			<input checked="" type="checkbox"/>
CYANIDE TOTAL			<input checked="" type="checkbox"/>
SULFIDE REACTIVE			<input checked="" type="checkbox"/>

HOCs	PCBs
<input checked="" type="checkbox"/> NONE	<input checked="" type="checkbox"/> NONE
< 1000 PPM	< 50 PPM
>= 1000 PPM	>= 50 PPM
IF PCBs ARE PRESENT, IS THE WASTE REGULATED BY TSCA 40 CFR 761?	
YES	NO

ADDITIONAL HAZARDS

DOES THIS WASTE HAVE ANY UNDISCLOSED HAZARDS OR PRIOR INCIDENTS ASSOCIATED WITH IT, WHICH COULD AFFECT THE WAY IT SHOULD BE HANDLED?

YES  NO (If yes, explain)

CHOOSE ALL THAT APPLY

- DEA REGULATED SUBSTANCES
- EXPLOSIVE
- FUMING
- OSHA REGULATED CARCINOGENS
- POLYMERIZABLE
- RADIOACTIVE
- REACTIVE MATERIAL
- NONE OF THE ABOVE





F. REGULATORY STATUS

YES  NO USEPA HAZARDOUS WASTE?  
**F032**

YES  NO DO ANY STATE WASTE CODES APPLY?  
 Texas Waste Code \_\_\_\_\_

YES  NO DO ANY CANADIAN PROVINCIAL WASTE CODES APPLY?  
**242H**

YES  NO IS THIS WASTE PROHIBITED FROM LAND DISPOSAL WITHOUT FURTHER TREATMENT PER 40 CFR PART 268?  
 LDR CATEGORY: **This is subject to LDR.**  
 VARIANCE INFO: \_\_\_\_\_

YES  NO IS THIS A UNIVERSAL WASTE?

YES  NO IS THE GENERATOR OF THE WASTE CLASSIFIED AS CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR (CESQG)?

YES  NO IS THIS MATERIAL GOING TO BE MANAGED AS A RCRA EXEMPT COMMERCIAL PRODUCT, WHICH IS FUEL (40 CFR 261.2 (C)(2)(II))?

YES  NO DOES TREATMENT OF THIS WASTE GENERATE A F006 OR F019 SLUDGE?

YES  NO IS THIS WASTE STREAM SUBJECT TO THE INORGANIC METAL BEARING WASTE PROHIBITION FOUND AT 40 CFR 268.3(C)?

YES  NO DOES THIS WASTE CONTAIN VOC'S IN CONCENTRATIONS >=500 PPM?

YES  NO DOES THE WASTE CONTAIN GREATER THAN 20% OF ORGANIC CONSTITUENTS WITH A VAPOR PRESSURE >= .3KPA (.044 PSIA)?

YES  NO DOES THIS WASTE CONTAIN AN ORGANIC CONSTITUENT WHICH IN ITS PURE FORM HAS A VAPOR PRESSURE > 77 KPA (11.2 PSIA)?

YES  NO IS THIS CERCLA REGULATED (SUPERFUND ) WASTE ?

YES  NO IS THE WASTE SUBJECT TO ONE OF THE FOLLOWING NESHAP RULES?  
 Hazardous Organic NESHAP (HON) rule (subpart G)      Pharmaceuticals production (subpart GGG)

YES  NO IF THIS IS A US EPA HAZARDOUS WASTE, DOES THIS WASTE STREAM CONTAIN BENZENE?  
 YES  NO Does the waste stream come from a facility with one of the SIC codes listed under benzene NESHAP or is this waste regulated under the benzene NESHAP rules because the original source of the waste is from a chemical manufacturing, coke by-product recovery, or petroleum refinery process?  
 YES  NO Is the generating source of this waste stream a facility with Total Annual Benzene (TAB) >10 Mg/year?  
 What is the TAB quantity for your facility? \_\_\_\_\_ Megagram/year (1 Mg = 2,200 lbs)  
 The basis for this determination is: Knowledge of the Waste Or Test Data      Knowledge      Testing  
 Describe the knowledge : \_\_\_\_\_

G. DOT/TDG INFORMATION

DOT/TDG PROPER SHIPPING NAME:

**RQ, UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III (F032)  
UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III**

H. TRANSPORTATION REQUIREMENTS

ESTIMATED SHIPMENT FREQUENCY ONE TIME WEEKLY  MONTHLY QUARTERLY YEARLY OTHER Other

CONTAINERIZED		BULK LIQUID		<input checked="" type="checkbox"/> BULK SOLID	
<u>0-0</u> CONTAINERS/SHIPMENT		GALLONS/SHIPMENT: <u>0 Min -0 Max</u>	GAL.	SHIPMENT UOM: <input checked="" type="checkbox"/> TON	YARD
STORAGE CAPACITY:				TONS/YARDS/SHIPMENT: <u>10.00 Min - 20.00 Max</u>	
CONTAINER TYPE:					
CUBIC YARD BOX	PALLET				
TOTE TANK	DRUM				
OTHER:	DRUM SIZE:				

I. SPECIAL REQUEST

COMMENTS OR REQUESTS:  
*Burton prenote 531818 Lline 25 Expires January 05,2016 AOC 01025/11E/14 WS# 14*

GENERATOR'S CERTIFICATION

I certify that I am authorized to execute this document as an authorized agent. I hereby certify that all information submitted in this and attached documents is correct to the best of my knowledge. I also certify that any samples submitted are representative of the actual waste. If Clean Harbors discovers a discrepancy during the approval process, Generator grants Clean Harbors the authority to amend the profile, as Clean Harbors deems necessary, to reflect the discrepancy.

AUTHORIZED SIGNATURE	NAME (PRINT)	TITLE	DATE
	<u>Phil Richard</u>	<u>WDRR Project Manager</u>	<u>2/5/16</u>



Land Disposal Restriction Notification Form

Printed Date : Feb 01, 2016

MANIFEST INFORMATION

Generator : WDNR-Former Pentawood Products Site
Address: 8682 Daniels 70 Siren, WI 54872

Manifest Tracking Info.

008772291FLE

EPA ID #: WID006176945

Sales Order No: 1600349512

LINE ITEM INFORMATION

Table with 5 columns: Line Item, Page No, Profile No, Treatability Group, LDR Disposal Category. Row 1: 1, 1, CH81542B, NON-WASTEWATER, 2 (This is subject to LDR.)

Table with 2 columns: EPA Waste Code, EPA Waste SubCategory. Row 1: F032, NONE

Certification

Applies to Manifest Line Items

Pursuant to 40 CFR 268.7(a), I hereby notify that this shipment contains waste restricted under 40 CFR Part 268.

1.

Waste analysis data, where available, is attached.

Signature : [Handwritten Signature]

Print Name

Title : WDAK Project Manager

Date :

Phil Richard

2/8/16



## Mark Norris

---

**From:** Clean Harbors <NOREPLY@Cleanharbors.com>  
**Sent:** Saturday, January 23, 2016 3:02 AM  
**To:** Mark Norris  
**Subject:** Clean Harbors Profile Approval Notification



## Profile Approval Notification

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The profile(s) listed below are approved\* and ready for shipment. You can schedule your drum pick up online or contact your account representative for support.

You can reach us at 1-877-333-4244.

Click here to [Login](#) to your account.

Generator code	Generator Name	Profile #	Waste Description	Waste Classification Code
PE1250	WDNR-Former Pentawood Products Site	CH81542B	F032 Sludge / Filter Cake/ debris	CCRT

*\*Profile approval is based upon information provided, you are required to notify Clean Harbors immediately of any change.*

Thank you for choosing Clean Harbors. We appreciate your business.

This email was sent from a notification only address that cannot accept incoming email. Please do not reply to this message.

You are receiving this message because you have submitted a profile for approval and are a registered user of Clean Harbors Online Services. Your information is safe with us. We do not rent or sell your information to any third parties. For more information, please read our [Privacy Policy](#). Our address is 42 Longwater Drive, Norwell, MA, 02061

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>	1. Generator ID Number <b>WLD000178945</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>(800) 483-3712</b>	4. Manifest Tracking Number <b>008772291 FLE</b>
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5. Generator's Name and Mailing Address  
**WDNR Former Pentawood Products Site**  
**1117 W18493 Fulton Drive**  
**Germantown, WI 53022**  
 Generator's Phone: **(262) 285-4458** **ATTN: Mark Norris**

Generator's Site Address (if different than mailing address)  
**8682 Daniels 70**  
**Siron, WI 54872**

6. Transporter 1 Company Name  
**CLEAN HARBORS ENVIRONMENTAL SERVICES** U.S. EPA ID Number  
**MAD039322250**

7. Transporter 2 Company Name U.S. EPA ID Number

8. Designated Facility Name and Site Address  
**Clean Harbors Canada, Inc.**  
**4090 Telfer Road**  
**Corunna, ON N0N 1G0**  
 Facility's Phone: **(519) 462-1021**

U.S. EPA ID Number  
**MIR000035204**

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes		
		No.	Type					
x	1. <b>RQ, UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S., (PENTACHLOROPHENOL), 9, PG III (F032)</b>	01	CM	10,000	P	F032		
	2.							
	3.							
	4.							

14. Special Handling Instructions and Additional Information  
**1. CHS 15 42B** **ERG#171**  
**Box# CHRT 24868**

15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.

Generator's/Offoror's Printed/Typed Name: **Phil Richard** Signature: *Phil E. Rhl* Month: **12** Day: **8** Year: **16**

16. International Shipments  Import to U.S.  Export from U.S. Port of entry/exit: **Port Huron, Mich**  
 Transporter signature (for exports only): *Ray Vandulude* Date leaving U.S.: **Feb. 19/16**

17. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: **Ray Vandulude** Signature: *Ray Vandulude* Month: **02** Day: **18** Year: **16**

Transporter 2 Printed/Typed Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

18. Discrepancy

18a. Discrepancy Indication Space  Quantity  Type  Residue  Partial Rejection  Full Rejection

18b. Alternate Facility (or Generator) Manifest Reference Number: \_\_\_\_\_ U.S. EPA ID Number: \_\_\_\_\_

Facility's Phone: \_\_\_\_\_

18c. Signature of Alternate Facility (or Generator) \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)

1. <b>H129</b>	2. _____	3. _____	4. _____
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20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a

Printed/Typed Name: \_\_\_\_\_ Signature: \_\_\_\_\_ Month: \_\_\_\_\_ Day: \_\_\_\_\_ Year: \_\_\_\_\_

<b>UNIFORM HAZARDOUS WASTE MANIFEST</b>		1. Generator ID Number <b>W1D006176945</b>	2. Page 1 of <b>1</b>	3. Emergency Response Phone <b>800-483-7718</b>	4. Manifest Tracking Number <b>008772291 FLE</b>	
5. Generator's Name and Mailing Address <b>Winn-Dixie Food Products Site 3117 W184th Fulton Drive Greenwood, WI 53072</b>			Generator's Site Address (if different than mailing address) <b>2682 Daniels RD Green, WI 54072</b>			
Generator's Phone: <b>262-250-4458</b> ATTN: Mark Norris						
6. Transporter 1 Company Name <b>CLEAN HARBOR ENVIRONMENTAL SERVICES</b>			U.S. EPA ID Number <b>MAD03932250</b>			
7. Transporter 2 Company Name			U.S. EPA ID Number			
8. Designated Facility Name and Site Address <b>Clean Harbor Canada, Inc. 4090 Teller Road Coruna, ON N0N 1G0</b>			U.S. EPA ID Number <b>MIR000035204</b>			
Facility's Phone: <b>(519) 364-1001</b>						
9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes
		No.	Type			
1.	<b>RQ UN3077, WASTE ENVIRONMENTALLY HAZARDOUS SUBSTANCES, SOLID, N.O.S. (PENTACHLOROPHTHEROL), 9 PG III (P032)</b>	<b>01</b>	<b>CM</b>	<b>10,000</b>	<b>P</b>	<b>P032</b>
2.						
3.						
4.						
14. Special Handling Instructions and Additional Information <b>AOC#1 12740/02/15 CN# 07912952</b> <b>1. CHLORINE</b> <b>EROSION</b> <b>CHESI, EPAID NO. MIRO00014530, IS ACTING AS THE PRIMARY EXPORTER ON BEHALF OF THE GENERATOR.</b> <b>DOX CHAT 2/2/16</b>						
15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.						
Generator's/Offoror's Printed/Typed Name <b>Phil Richard</b>			Signature <i>Phil E. Rhl</i>		Month Day Year <b>2 8 16</b>	
16. International Shipments <input type="checkbox"/> Import to U.S. <input checked="" type="checkbox"/> Export from U.S. Port of entry/exit: <b>Port Huron, MI</b> Transporter signature (for exports only): <i>Ray Vandulude</i> Date leaving U.S.: <b>Feb. 19/16</b>						
17. Transporter Acknowledgment of Receipt of Materials						
Transporter 1 Printed/Typed Name <b>RAY VANDULUDE</b>			Signature <i>Ray Vandulude</i>		Month Day Year <b>02 18 16</b>	
Transporter 2 Printed/Typed Name			Signature		Month Day Year	
18. Discrepancy						
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection Manifest Reference Number:						
18b. Alternate Facility (or Generator)			U.S. EPA ID Number			
Facility's Phone:						
18c. Signature of Alternate Facility (or Generator)			Month Day Year			
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)						
1.	<b>W129</b>	2.		3.		4.
20. Designated Facility Owner or Operator. Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a						
Printed/Typed Name <b>Mark Fidler</b>			Signature <i>Mark Fidler</i>		Month Day Year <b>02 19 16</b>	



# MOVEMENT DOCUMENT / MANIFEST DOCUMENT DE MOUVEMENT / MANIFESTE

This Movement document/manifest conforms to all federal and provincial transport and environmental legislation.  
Ce document de mouvement/manifeste est conforme aux législations fédérale et provinciale sur l'environnement et le transport.

## DF91295-2

Movement Document / Manifest Reference No.  
N° de référence du document de mouvement/manifeste

<b>A Generator / consignor</b> <b>Producteur / expéditeur</b>		<b>B Carrier</b> <b>Transporteur</b>		<b>C Receiver / consignee</b> <b>Réceptionnaire / destinataire</b>	
Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial		Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial		Reference Nos. of other movement document(s)/manifest(s) used / N° de référence des autres documents de mouvement/manifestes utilisés	
Company name / Nom de l'entreprise		Company name / Nom de l'entreprise		Registration No. / Provincial ID No. N° d'immatriculation - d'id. provincial	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal		Mailing address / Adresse postale City / Ville Province Postal code / Code postal		Receiver / consignee information same as in Part A Les renseignements du réceptionnaire / destinataire est la même qu'à la Partie A <input type="checkbox"/> Yes / Oui <input type="checkbox"/> No, complete the box below / Non, remplir la case ci-dessous	
E-mail / Courrier électronique Tel. No. / N° de tél.		E-mail / Courrier électronique Tel. No. / N° de tél.		Company name / Nom de l'entreprise <b>CLEAN HARBORS CANADA INC.</b> Mailing address / Adresse postale <b>R.R. #1, 4090 TELFER ROAD</b> City / Ville Province Postal code / Code postal <b>CORUNNA, ONTARIO N0N 1G0</b> E-mail / Courrier électronique <b>519-864-1021</b> Receiving site address / Adresse du lieu de destination Same	
Shipping site address / Adresse du lieu de l'expédition City / Ville Province Postal code / Code postal		Vehicle / Véhicule Trailer - Rail car No. 1 1 <sup>er</sup> remorque - wagon Trailer - Rail car No. 2 2 <sup>e</sup> remorque - wagon Registration No. / N° d'immatriculation <b>T483936</b> Prov. 24 <b>ILL</b>		Date received / Date de réception Year / Année Month / Mois Day / Jour Time / Heure <b>16/01/19 14:32</b> <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
Intended Receiver / consignee Réceptionnaire / destinataire prévu		Port of entry Point d'entrée International use only <input checked="" type="checkbox"/>		Port of exit Point de sortie International use only	
Mailing address / Adresse postale City / Ville Province Postal code / Code postal		Carrier Certification : I certify that I have received waste or recyclable material from the generator / consignor for delivery to the receiver / consignee as set out in Part A and that the information contained in Part B is complete and correct. Attestation du transporteur : J'atteste avoir reçu les déchets ou matières recyclables du producteur / expéditeur en vue de leur livraison au réceptionnaire / destinataire, tels qu'ils figurent à la partie A et que les renseignements inscrits à la partie B sont exacts et complets.		If waste or recyclable material to be transferred, specify intended company name / Si les déchets ou matières recyclables doivent être transférés, préciser le nom du destinataire	
E-mail / Courrier électronique Tel. No. / N° de tél.		Name of authorized person (print) Nom de l'agent autorisé (caractères d'imprimerie) <b>Karl Hildebrand</b> Tel. No. / N° de tél.		Registration No. / Provincial ID No. N° d'immatriculation / d'id provincial	
Receiving site address / Adresse du lieu de l'expédition City / Ville Province Postal code / Code postal		Year / Année Month / Mois Day / Jour Signature <b>16/01/19 Karl Hildebrand</b>		Quantity received Quantité reçue Units L or / ou kg Unités <b>6900 kg</b>	
Shipping name Appellation réglementaire		Class / Classé Sub. class(es) / Classe(s) sub.		Comments Commentaires Please see attached or manifest weight variance explanation	
UN No. N°NU		Packing / risk gr. Gr. d'emballage / de risque		Handling Code / Code de manutention	
Quantity shipped Quantité expédiée		Units L or / ou kg Unités		Shipment / Envoi Accepted / Refusé	
Packaging / Contenant No. / N° Codes Int. - ext.		Phys. state État phys.		Decont. Pack. / Veh. Cont. / Véh.	
Notice No. N° de notification		Notice Line No. N° de ligne de la notification		If handling code "Other" (specify) Si code de manutention « autre » (spécifier)	
Shipment Envoi		Of / De		Receiver / consignee certification : I certify that the information contained in Part C is correct and complete. Attestation du réceptionnaire / destinataire : J'atteste que tous les renseignements à la partie C sont exacts et complets.	
D or R code Code E ou R		C code Code C		Name of authorized person (print) Nom de l'agent autorisé (caractère d'imprimerie)	
Basel Annex VIII or OECD Code Annexe VIII de Bâle ou Code OCDE		H code Code H		Y code Code Y	
Export Exportation		Import Importation		Signature Tel. No. / N° de tél.	
National code in country of / Code du pays		Customs code(s) Code(s) de douanes		Special handling / Manutention spéciale <input type="checkbox"/> Attached / Ci-joint : <input checked="" type="checkbox"/> As follows / Ci-contre :	
Date shipped / Date d'expédition Year / Année Month / Mois Day / Jour		Time / Heure <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.		Scheduled arrival date / Date d'arrivée prévue Year / Année Month / Mois Day / Jour	
Generator / consignor certification : I certify that the information contained in Part A is correct and complete. Attestation du producteur / expéditeur : J'atteste que tous les renseignements à la partie A sont exacts et complets.		Name of authorized person (print) Nom de l'agent autorisé (caractère d'imprimerie)		Signature Tel. No. / N° de tél.	



# Appendix F

## Site Inspection Forms

Well Inspection Form  
Penta Wood Products Superfund Site  
Siren, Wisconsin

086165

	Protective Casing	Lock & Cover	J-Plug	Well Casing	Ground Surface	Notes
MW1	/	/	/	/	/	
MW2	/	/	/	/	/	
MW3	/	/	/	/	/	
MW4	/	/	/	/	/	
MW5	/	/	/	/	/	
MW6	/	/	/	/	/	
MW6S	/	/	/	/	/	
MW7	/	/	/	/	/	
MW8	/	/	/	/	/	
MW9	/	/	/	/	/	
MW10	/	/	/	/	/	
MW10S	/	/	/	/	/	
MW11	/	/	0	/	/	needs J-plug
MW12	/	/	/	/	/	
MW13	/	/	/	/	/	
MW14	/	/	/	/	/	
MW15	/	/	/	/	/	
MW16	/	/	/	/	/	
MW17	/	/	/	/	/	
MW18	/	/	/	/	/	
MW19	/	/	/	/	/	
MW20	/	/	/	/	/	
MW21	/	/	/	/	/	
MW22	/	/	/	/	/	
MW23	/	/	/	/	/	
MW24	/	/	/	/	/	
MW25	/	/	/	/	/	
MW26	/	/	/	/	/	
MW27	/	/	/	/	/	
MW28	/	/	/	/	/	
MW29	/	/	/	/	/	
MW30	/	/	/	/	/	
MW31	/	/	/	/	/	

**Extraction Wells**

	Vault & Cover	Well Casings	Ground Surface	Notes
EW2	/	/	/	Settling
EW3	/	/	/	Settling
EW4	/	/	/	Settling
EW5	/	/	/	
EW6	/	/	/	
EW7	/	/	/	
EW10	/	/	/	
EW12	/	/	/	
EW13	/	/	/	
EW14	/	/	/	

	Protective Casing	Lock & Cover	Ground Surface	Inner Casing/Tubing	Notes
BV8	/	NA	/	/	Settling
BV9	/	NA	/	/	Settling

**Gas Probes**

	Protective Casing	Lock & Cover	Ground Surface	Inner Casing/Tubing	Notes
SG-04DIS	/	/	/	/	
SG-05DIS	/	/	/	/	
SG-06DIS	/	/	/	/	
SG-07DIS	/	/	/	/	
SG-22	/	/	/	/	
SG-23	NA	NA	/	/	
SG-24	NA	NA	/	/	
SG-25	NA	NA	/	/	
SG-26	NA	NA	/	/	

Inspected By: Peter Stulie

Date: 4-4-16

Additional Notes: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Continuing Obligations Inspection Form  
Penta Wood Products Superfund Site  
Siren, Wisconsin

086165

Verified

Notes

**Verify Site Conditions**

- CAMU area fence condition is satisfactory
- CAMU signage is present/visible at all fence gates
- CAMU surface soil condition is satisfactory and does not require erosion/settlement repairs
- Perimeter area fence is satisfactory and does not require repairs
- Perimeter signage is present/visible
- Site access is limited and all perimeter fence locks in working order
- NaOH tank condition is satisfactory with no signs of leaks
- FeSO4 tank condition is satisfactory with no signs of leaks

✓	
✓	
	There are a couple of areas where settling occurs.
✓	
✓	
✓	
✓	
✓	

**Verify situations have not and are not occurring**

- Removal of the existing barrier or cover
- Replacement with another barrier or cover
- Excavating or grading of the land surface
- Filling on covered or paved areas
- Plowing for agricultural cultivation
- Construction or placement of a building or other structure
- Change in use or occupancy of the property

✓	
✓	
✓	
✓	
✓	
✓	
✓	

Inspected By: \_\_\_\_\_

*Peter Starke*

Date: \_\_\_\_\_

*4/7/16*

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