Semiannual Report

July through December 2020
Penta Wood Products Superfund Site
WDNR BRRTS Activity #02-07-000532

Wisconsin Department of Natural Resources

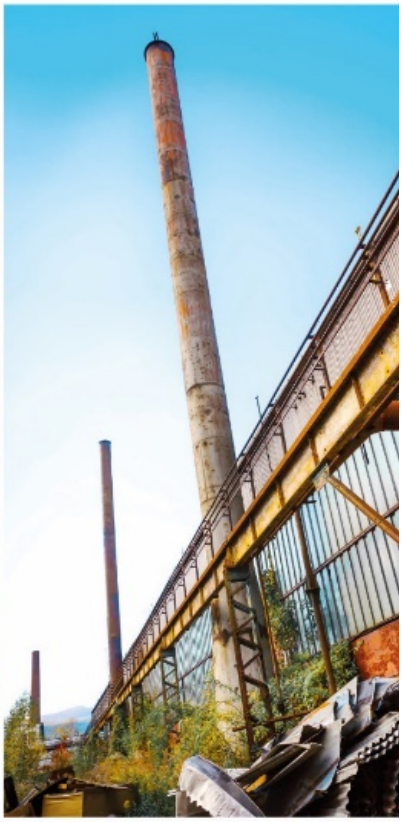

Table of Contents

Figure Index

Table Index

Appendix Index

1. Introduction

GHD Services Inc. (GHD) prepared this Semiannual Report (Report) for the Penta Wood 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 July through December 2020 including:

- Groundwater monitoring and sampling (Section 2)
- Residential well and onsite supply well sampling (Section 3)
- Waste management and disposal (Section 4)
- Continuing obligations and inspections (Section 5)
- Conclusions and recommendations (Section 6)
- Certification (Section 7)

2. Groundwater Monitoring and Sampling

Groundwater monitoring was conducted at the Site in July and October 2020 and sampling was conducted at the Site in October 2020 based on the modified scope of work provided in a GHD letter to EPA dated June 30, 2016. Wells MW4 and MW14 were subsequently added to the sampling scope to assess semi-confined aquifer (lower portion) groundwater quality southeast of the LNAPL source area. Wells MW2 and MW5 were also added to the sampling scope to assess the groundwater quality in the vicinity of well MW30. A new well (MW32) was installed in May 2019 and added to the sampling scope to assess groundwater quality along the eastern property boundary. The groundwater monitoring and sampling plan is summarized in Table 2.1. 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 objectives of the groundwater monitoring at the Site include:

- 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

2.1 Groundwater and LNAPL Level Monitoring

Groundwater and Light Non-Aqueous Phase Liquid (LNAPL) levels were measured in thirty-four (34) monitoring wells and twenty-two (22) extraction well casings at the Site on July 16, 2020 and October 5, 2020. The groundwater and LNAPL elevation data along with well survey data are summarized in Table 2.2. Historical LNAPL thickness data are included in Appendix A.

Groundwater elevation contours were inferred from the July and October 2020 measurement data. Unconfined aquifer (upper portion) contours are shown on Figures 2.1 and 2.4. Semiconfined aquifer (lower portion) groundwater contours are shown on Figure 2.2 and 2.5. The contours indicate that the groundwater gradient is relatively flat at approximately 0.0007 ft/ft (as calculated between wells MW26 and MW27) and represent non-pumping conditions following shutdown of the remediation system and groundwater extraction pumps (November 2015). The groundwater flow direction in both aquifers is primarily toward the west/northwest.

During the July 2020 event, LNAPL was present in monitoring wells MW18 and MW20 at measurable thicknesses, and LNAPL was not present in wells MW10S, MW19, or MW29. LNAPL was present in extraction wells EW06S, EW10S, EW12S, and EW14S with casings screened in the unconfined (upper) aquifer during the July 2020 monitoring event. During the October 2020 event, LNAPL was present in monitoring wells MW18, MW19, MW20 and MW29 at measurable thicknesses, and LNAPL was not present in well MW10S. LNAPL was present in extraction wells EW05S, EW06S, EW07S, EW10S, EW12S, and EW14S with casings screened in the unconfined (upper) aquifer during the October 2020 monitoring event. The general location of LNAPL is consistent with recent monitoring. LNAPL was not detected at all other wells in the semiconfined (lower) aquifer during the July and October 2020 monitoring events. LNAPL thickness measurements are shown on Figures 2.3 and 2.6.

2.1.1 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 2.1, 2.2, 2.4 and 2.5). 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 0.007 ft/ft (MW10/MW10S) to 0.045 ft/ft (MW12/MW16). These values are slightly higher (MW10/MW10S, October 2020 and MW12/MW16, July 2020) than recent monitoring events represent non-pumping conditions.

2.2 Groundwater Sampling

This semiannual groundwater sampling event was conducted from October 5 through October 8, 2020 and consisted of collecting groundwater samples from twenty-one (21) monitoring wells (MW1, MW2, MW3, MW4, MW5, MW6S, MW10, MW10S, MW12, MW13, MW14, MW16, MW17, MW21, MW22, MW23, MW25, MW28, MW30, MW31, and MW32) and three (3) extraction wells (EW11D, EW11S, and EW13S). Wells MW20 and MW29 were not sampled due to the presence of LNAPL in 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 2.3.

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 0.45 micron filter. The groundwater sample analytical data are summarized in Table 2.4.

All groundwater samples were shipped via commercial courier under standard chain of custody procedures to Eurofins TestAmerica (TestAmerica) in University Park, Illinois for analysis. Copies of laboratory reports are included in Appendix B.

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 A.

2.2.1 Naphthalene and BTEX Analytical Data

The October 2020 naphthalene and BTEX analytical data are summarized in Table 2.4. Naphthalene was detected in four (4) wells (MW5, MW10, MW10S, and EW13S) at concentrations that exceeded the PAL of 10 micrograms per liter (µg/L) (Table 2.4). Naphthalene concentrations did not exceed the ES of 100 µg/L.

BTEX was not detected at concentrations that exceeded the ESs or PALs.

2.2.2 PCP Analytical Data

The October 2020 PCP analytical data are summarized in Table 2.4. PCP was detected in eight (8) wells (MW1, MW3, MW5, MW10, MW10S, MW13, MW30, and EW13S) at concentrations exceeding the PAL of 0.1 µg/L. The PCP concentrations in five (5) wells (MW5, MW10, MW10S, MW30, and EW13S) exceeded the ES of 1.0 µg/L. Figure 2.7 shows the PCP concentrations in the unconfined (upper) aquifer wells. Figure 2.8 shows the PCP concentrations in the semiconfined (lower) aquifer wells.

Consistent with monitoring data since prior to shutdown of the remediation system in 2015, elevated PCP concentrations (i.e., greater than 1,000 µg/L) are limited to the immediate vicinity of the LNAPL area in the unconfined and semiconfined aquifers, which indicates the plume has remained stable

2.2.3 Dissolved Arsenic Analytical Data

The October 2020 dissolved arsenic analytical data are summarized in Table 2.4. Arsenic was detected in five (5) wells (MW4, MW10, MW10S, MW14, and EW13S) at concentrations exceeding the PAL (1 µg/L). The Arsenic concentration in one well (EW13S) exceeded the ES of 10 µg/L. Figure 2.9 shows the arsenic concentrations in the unconfined (upper) aquifer wells. Figure 2.10 shows the arsenic concentrations in the semiconfined (lower) aquifer wells.

Consistent with monitoring data since prior to shutdown of the remediation system in 2015, arsenic concentrations (i.e., greater than 1 µg/L) are limited to isolated areas within the Site property boundaries in the unconfined and semiconfined aquifers, which indicates the plume remained stable.

2.2.4 Other Dissolved Metals Analytical Data

The October 2020 dissolved metals analytical data are summarized in Table 2.4. Zinc and copper were not detected above the PALs or ESs in any of the twenty-one (21) monitoring wells and three (3) extraction wells.

Iron was detected in eight (8) wells at concentrations exceeding the PAL (150 µg/L) and in seven (7) wells at concentrations exceeding the ES (300 µg/L). Manganese was detected in ten (10) wells at concentrations exceeding the PAL (25 µg/L) and seven (7) 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).

2.2.5 Natural Attenuation Parameters Analytical Data

The natural attenuation results are provided in Table 2.4. 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 2.3) 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.

3. Residential Well and Onsite Supply Well Sampling

Due to the COVID-19 pandemic, sampling of the residential wells and onsite supply well was not conducted during January through June 2020. The wells include:

- 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 and RW6 Shop)
- (DW01)

WDNR subsequently requested written authorization from the property owners to resume semiannual sampling of the residential wells. Authorization was received for wells RW1, RW3, RW5, RW6, and RW6 Shop. Property owners for wells RW2 and RW4 did not respond to the written authorization requests.

The onsite water supply well (DW01) serves the remediation equipment building. The water was previously used for sanitary facilities in the building and maintaining the remediation equipment but is not ingested by workers. During January 2018, the building heater malfunctioned, and the water supply pipes were damaged due to freezing. The water supply piping was subsequently disconnected at the building. The onsite water supply well no longer provides a water supply to the building and is currently only used as a supply for sampling equipment decontamination water.

The residential well and onsite water supply well locations are shown on Figure 3.1. Samples were collected on October 1, 2020 and analyzed for PCP, BTEX, and naphthalene.

3.1 Residential Well and Onsite Supply Well Sample Analytical Data

PCP, BTEX, and naphthalene were not detected in the residential wells or onsite water supply well. Semiannual sampling will continue at all residential wells to identify and track potential PCP concentration trends. These results are similar with historical data. The residential well and onsite supply well sample analytical data are summarized in Table 3.1. Copies of the laboratory reports are included in Appendix B, and the data validation memorandum is included in Appendix C. Historical residential and onsite water supply well PCP data are included in Appendix A.

4. Waste Management and Disposal

No waste was disposed during July through December 2020. GHD continues to collect and containerize PPE and other waste produced during sampling events onsite. Historical hazardous waste disposal is summarized in Appendix A.

5. 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).

5.1 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 ROD 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 landowners or lessees, and continuing education for land owners and property users through annual updates and information.

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:
   - The selected remedy (i.e. remediation system shutdown pilot study and associated monitoring) remains in place and remains effective
   - 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:
   - 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
   - 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 July 16 and October 2, 2020 and a copy of the continuing obligations inspection form is included in Appendix D.

5.2 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 remain closed and locked when GHD and/or WDNR are not at the Site.

- The CAMU area surface soils/vegetation were in good condition during this monitoring period and did not require repairs; erosion, subsidence, and ponding water were not observed on the CAMU.

Site well inspections were completed on July 16 and October 2, 2020 and a copies of the well inspection forms are included in Appendix D.

6. Conclusions and Recommendations

Based on the July through December 2020 monitoring and sampling data, the following conclusions are made and represent lines of evidence supporting selection of an alternate remedy:

- LNAPL limits indicate that the LNAPL did not migrate following shutdown of the remediation system in 2015 and indicate overall stability of the LNAPL body
- NSZD is occurring within the LNAPL body at this Site
- PCP concentration contours indicate that the plume did not migrate following shutdown of the remediation system in 2015 and indicate overall plume stability.
- Dissolved PCP concentrations greater than 1,000 µg/L are limited to the immediate vicinity of the LNAPL area
- Dissolved PCP degrades naturally in the aerobic zone outside of the LNAPL area, which helps stabilize the plume and prevent migration
- Dissolved PCP degrades in the anaerobic zone (LNAPL source area) at a slow rate
- The rate that dissolved PCP partitions from the LNAPL is slow enough and the rate of natural degradation is fast enough that migration would not likely occur beyond the property boundaries
- The current monitoring well network is sufficient to monitor plume conditions

The above lines of evidence support selection of Monitored Natural Attenuation (MNA) as an effective groundwater remedy at this Site. As compared to the currently selected remedial alternative of active remediation, natural attenuation will achieve performance goals within a reasonable (i.e., comparable) period of time.

While USEPA reviews the Semiannual Report and Alternate Remedy Recommendation (GHD; March 17, 2020), WDNR recommends continued monitoring and sampling at the Site as summarized in Table 2.1 and as follows:

- Semiannual groundwater and LNAPL level monitoring during April and October
- Semiannual groundwater sampling during April and October
- Semiannual residential well sampling during April and October
- Semiannual report preparation and submittal in January and July

In the event that the recommended remedy fails to perform as anticipated, the recommended contingency remedy includes keeping the existing remediation system infrastructure in place for potential future groundwater and/or LNAPL extraction and treatment.

7. 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 contingency remedy discussed above is not necessary at this time.

Figures

Paper Size ANSI A

0 500 1,000 1,500 2,000

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Burnett County Feet

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

Project No. **11222418-01**
Revision No. **-**
Date **01/19/2021**

SITE LOCATION

FIGURE 1.1

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Print date: 19 Jan 2021 - 14:17

Data source: Burnett County. Created by: rjcoy

LEGEND

- EXTRACTION WELL NEST
- UNCONFINED MONITORING WELL
- SEMICONFINED MONITORING WELL
- WATER SUPPLY WELL
- BIOVENTING WELL
- SOIL GAS WELL NEST
- SOIL BORING
- RESIDENTIAL WELL
- APPROXIMATE CAMU LIMIT
- SITE PARCEL BOUNDARY

INFILTRATION BASIN
CAMU OUTLINE
TREATMENT BUILDINGS
DANIELS 70

MW1 MW2 MW3 MW4 MW5 MW6 MW6S MW7 MW8 MW9 MW10 MW10S MW11 MW12 MW13 MW14 MW15 MW16 MW17 MW18 MW19 MW20 MW21 MW22 MW23 MW24 MW25 MW26 MW27 MW28 MW29 MW30 MW31 MW32
EW02 EW03 EW04 EW05 EW06 EW10 EW11 EW12 EW13 EW14
SG04 SG05 SG06 SG07 SG22 SG23 SG24 SG25 SG26
SB1
BV08 BV09
DW01
RW1 RW2 RW4 RW5

Paper Size ANSI B
0 50 100 150 200 250
Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Burnett County Feet

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

SITE PLAN

Project No. **11222418-01**
Revision No. **-**
Date **01/19/2021**

FIGURE 1.2

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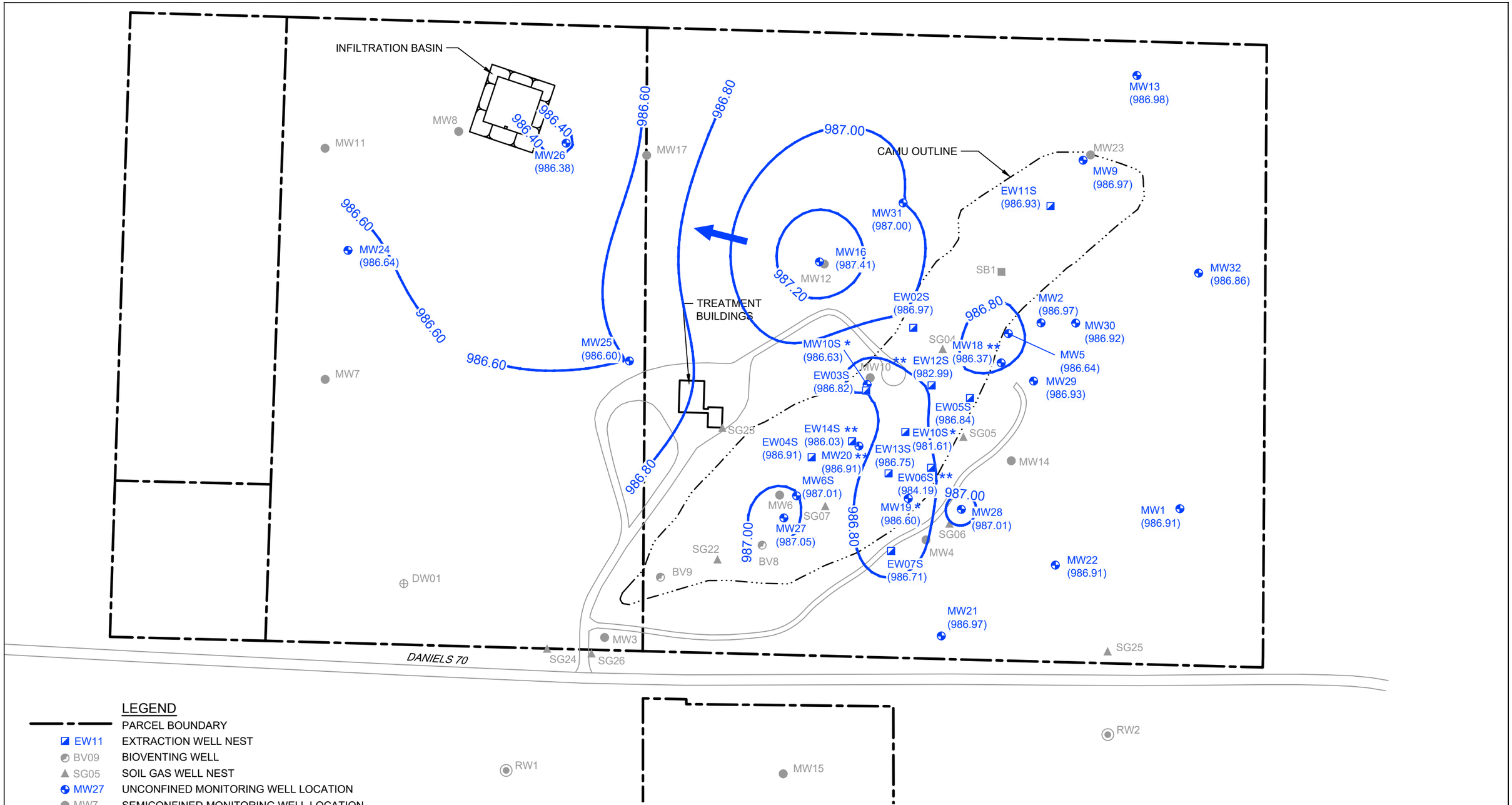

LEGEND

	PARCEL BOUNDARY
EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL
SG05	SOIL GAS WELL NEST
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(986.26)	GROUNDWATER ELEVATION
986.60	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION
*	WELL NOT UTILIZED TO INFER GROUNDWATER ELEVATION CONTOURS
**	LNAPL PRESENT IN WELL, WELL NOT UTILIZED TO INFER GROUNDWATER ELEVATION CONTOURS

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

UNCONFINED (UPPER) AQUIFER GROUNDWATER CONTOURS - JULY 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.1

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

Filename: N:\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0101_WA-001.DWG
Plot Date: 19 January 2021 2:00 PM

INFILTRATION BASIN

CAMU OUTLINE

TREATMENT BUILDINGS

MW11 (985.86)

MW8 (986.41)

MW7 (986.25)

MW17 (986.40)

MW12 (985.95)

MW23 (986.10)

EW11D (986.85)

EW02D (986.67)

MW10 (986.41)

MW10S

EW03D (986.56)

EW12D (986.66)

EW05D (986.63)

EW10D (986.63)

EW14D (986.64)

EW04D (986.74)

EW13D (986.69)

EW06D (986.72)

MW14 (985.90)

MW6 (986.45)

MW4 (985.90)

EW07D (986.86)

MW3 (986.57)

MW15 (986.74)

986.00

986.20

986.40

986.60

986.80

MW13 MW26 MW9 MW31 MW16 MW24 MW25 SB1 MW32 MW2 MW30 MW5 SG04 MW18 MW29 SG23 SG05 MW20 MW6S SG07 MW19 MW28 SG06 MW1 BV8 MW27 SG22 MW22 BV9 DW01 MW21 SG25 SG24 SG26 RW2 RW1

DANIELS 70

LEGEND

	PARCEL BOUNDARY
EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL
SG05	SOIL GAS WELL NEST
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(986.31)	GROUNDWATER ELEVATION
986.20	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION
*	WELL NOT UTILIZED TO INFER GROUNDWATER ELEVATION CONTOURS

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

SEMICONFINED (LOWER) AQUIFER
GROUNDWATER CONTOURS - JULY 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.2

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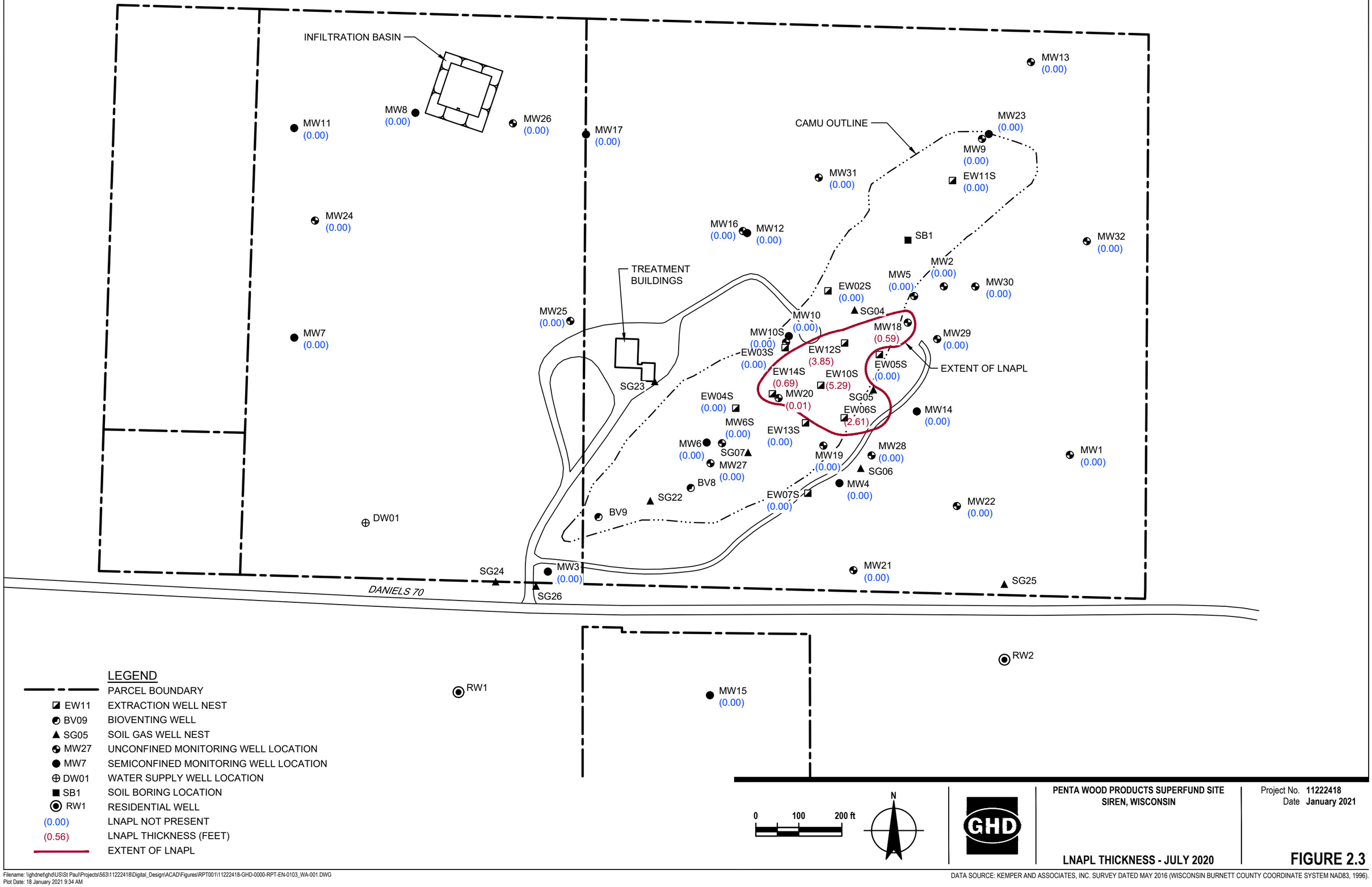

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

Project No. **11222418**
Date **January 2021**

LNAPL THICKNESS - JULY 2020

FIGURE 2.3

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

Filename: \\ghdnet\ghd\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0103_WA-001.DWG
Plot Date: 18 January 2021 9:34 AM

INFILTRATION BASIN

TREATMENT BUILDINGS

CAMU OUTLINE

MW8
MW11
MW17
MW23
MW24 (986.56)
MW25 (986.55)
MW7
MW26 (986.30)
MW13 (986.80)
MW9 (986.85)
EW11S (986.82)
MW31 (986.88)
MW16 (986.89)
MW12
SB1
MW32 (986.73)
EW02S (986.87)
MW2 (986.90)
MW30 (986.86)
MW10S * (987.32)
SG04
MW18 **
MW5 (986.53)
MW10
EW12S (986.44)
EW03S (986.75)
EW12S (982.91)
MW29 ** (986.85)
EW05S ** (986.58)
SG25
EW14S ** (985.97)
EW10S ** (981.39)
SG05
EW04S (986.84)
EW13S (986.78)
MW20 ** (986.81)
MW14
EW06S ** (983.61)
MW6S (986.97)
MW6
SG07
MW19 ** (986.55)
MW28 (986.86)
MW1 (986.85)
MW27 (987.02)
SG06
SG22
BV8
MW4
EW07S ** (986.50)
BV9
DW01
MW22 (986.86)
MW21 (986.90)
MW3
SG24
SG26
SG25
DANIELS 70
RW2
RW1
MW15

986.60
986.40
986.40
986.60
986.60
986.80
986.80

LEGEND

	PARCEL BOUNDARY
EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL
SG05	SOIL GAS WELL NEST
MW27	UNCONFINED MONITORING WELL LOCATION
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**	LNAPL PRESENT IN WELL, WELL NOT UTILIZED TO INFER GROUNDWATER ELEVATION CONTOURS

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

UNCONFINED (UPPER) AQUIFER GROUNDWATER CONTOURS - OCTOBER 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.4

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

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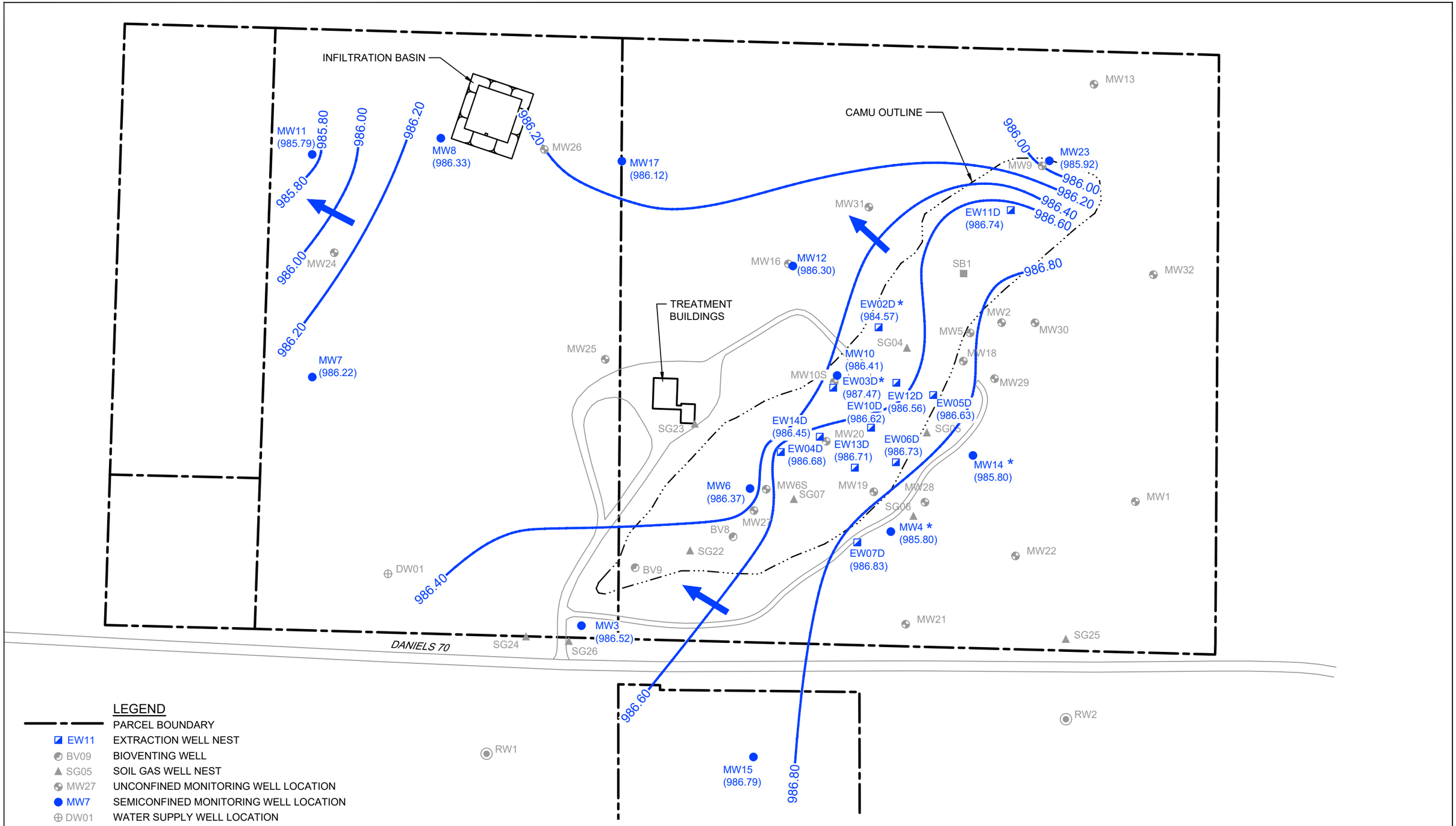


LEGEND

	PARCEL BOUNDARY
EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL
SG05	SOIL GAS WELL NEST
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(986.31)	GROUNDWATER ELEVATION
986.20	GROUNDWATER ELEVATION CONTOUR
	GROUNDWATER FLOW DIRECTION
*	WELL NOT UTILIZED TO INFER GROUNDWATER ELEVATION CONTOURS

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

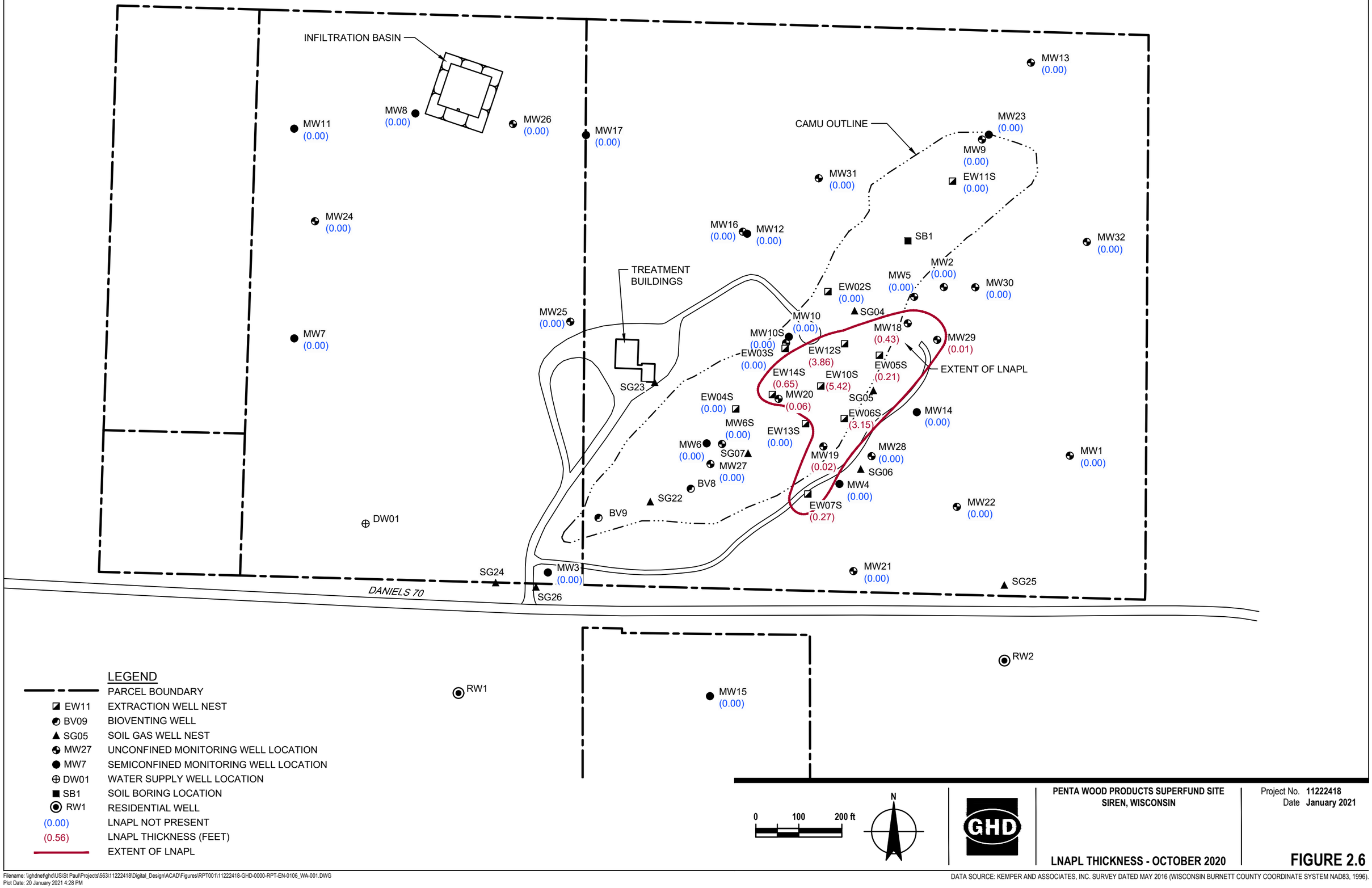
SEMICONFINED (LOWER) AQUIFER GROUNDWATER CONTOURS - OCTOBER 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.5

Filename: \\ghdnet\ghd\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0105_WA-001.DWG
Plot Date: 21 January 2021 11:00 AM

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



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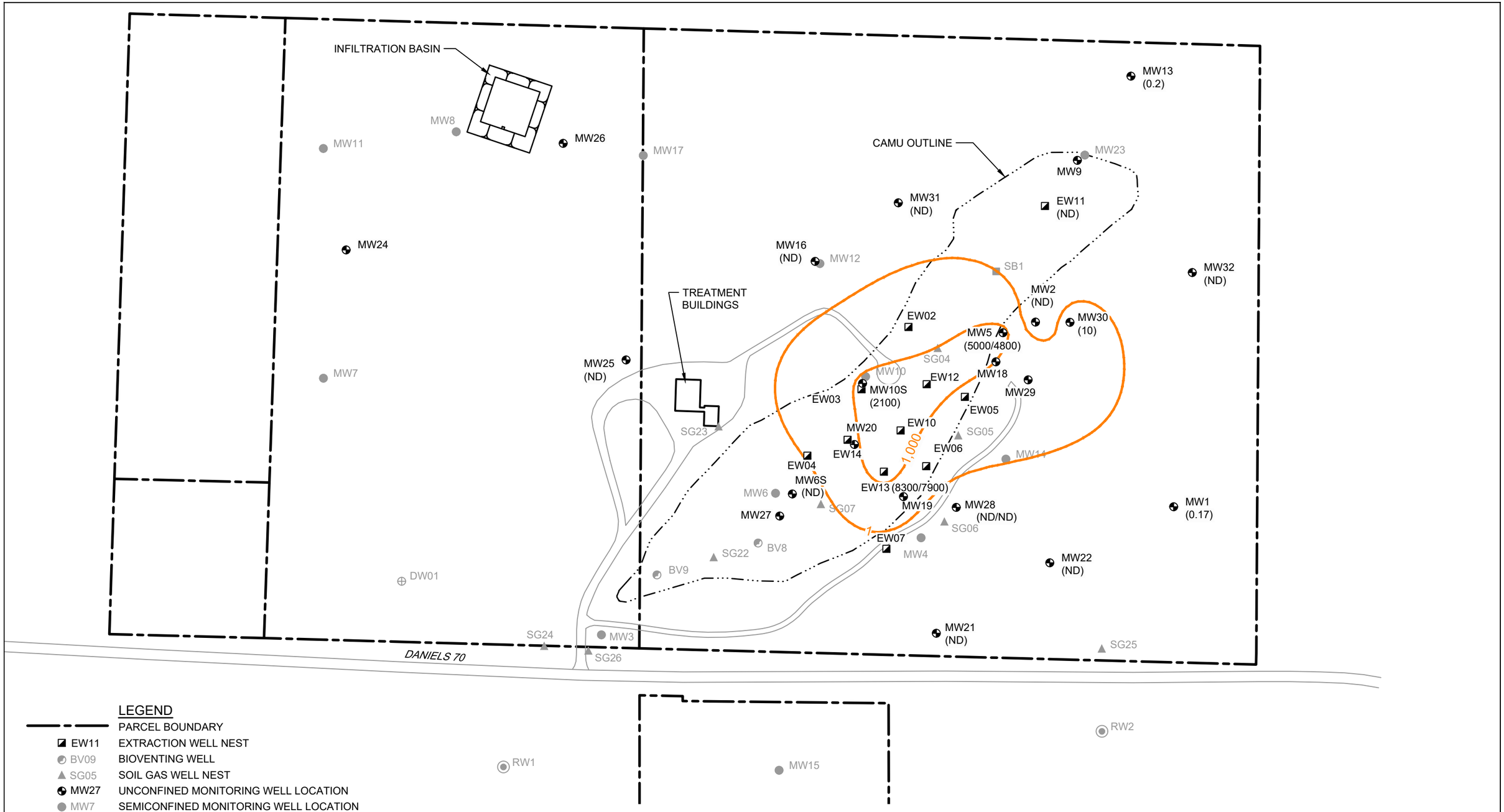
Plot Date: 20 January 2021 4:28 PM

DATA 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
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(6)	PENTACHLOROPHENOL CONCENTRATION (µg/L)
(2800/2300)	PENTACHLOROPHENOL / DUPLICATE CONCENTRATION (µg/L)
	PENTACHLOROPHENOL CONCENTRATION CONTOUR (µg/L)
(ND)	NOT DETECTED
J	CONCENTRATION WAS BETWEEN THE LIMIT OF DETECTION A(ND) LIMIT OF QUANTITATION

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

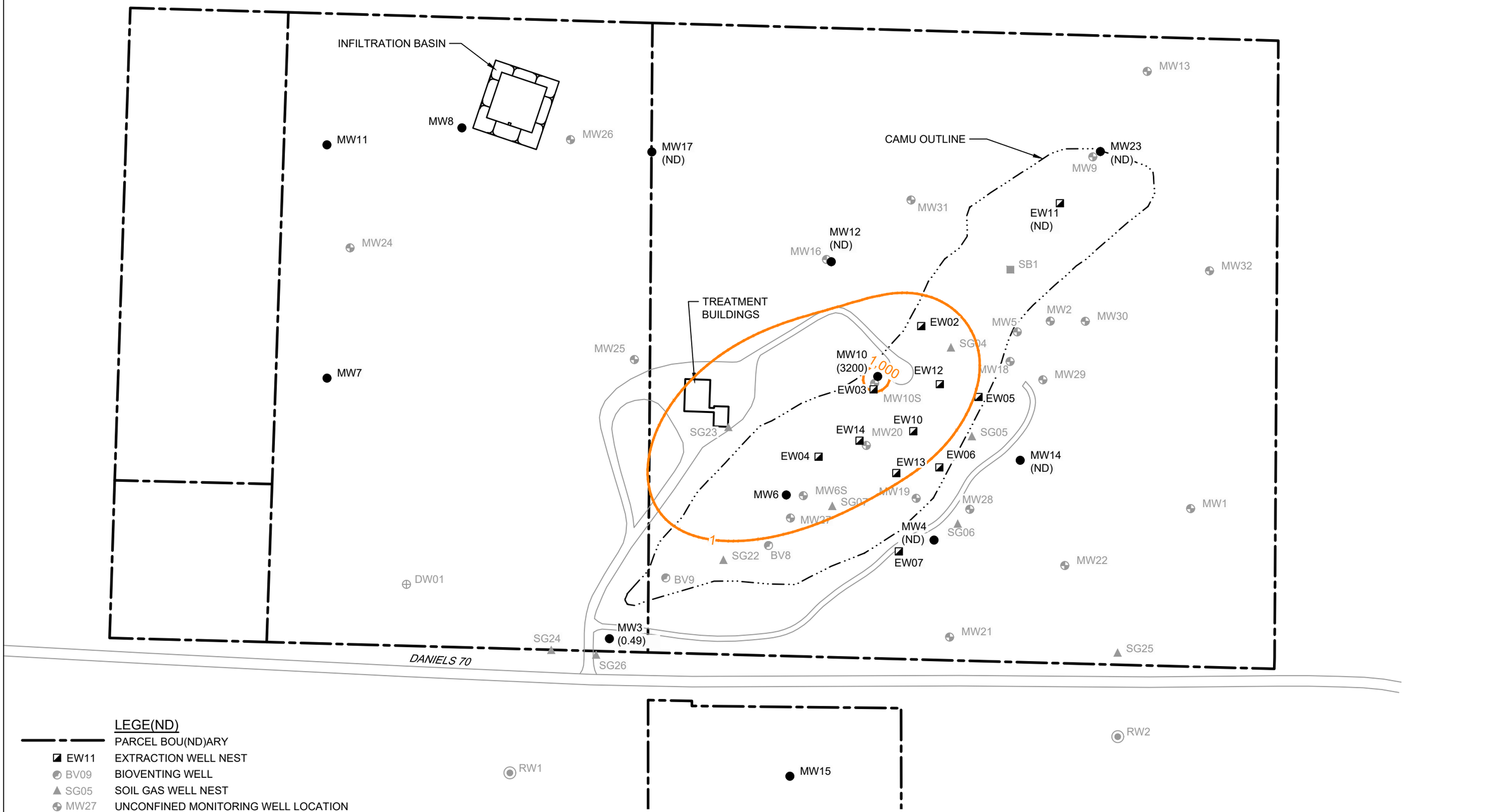
UNCONFINED (UPPER) AQUIFER
PENTACHLOROPHENOL
CONCENTRATIONS - OCTOBER 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.7

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

Filename: \\ghdnet\ghd\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0107_WA-001.DWG
Plot Date: 21 January 2021 12:30 PM



LEGE(ND)

	PARCEL BOU(ND)ARY
EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL
SG05	SOIL GAS WELL NEST
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(0.86)	PENTACHLOROPHENOL CONCENTRATION (µg/L)
(ND/ND)	PENTACHLOROPHENOL / DUPLICATE CONCENTRATION (µg/L)
1	PENTACHLOROPHENOL CONCENTRATION CONTOUR (µg/L)
(ND)	NOT DETECTED

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

SEMICONFINED (LOWER) AQUIFER PENTACHLOROPHENOL CONCENTRATIONS - OCTOBER 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.8

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

Filename: \\ghdnet\ghd\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0108_WA-001.DWG
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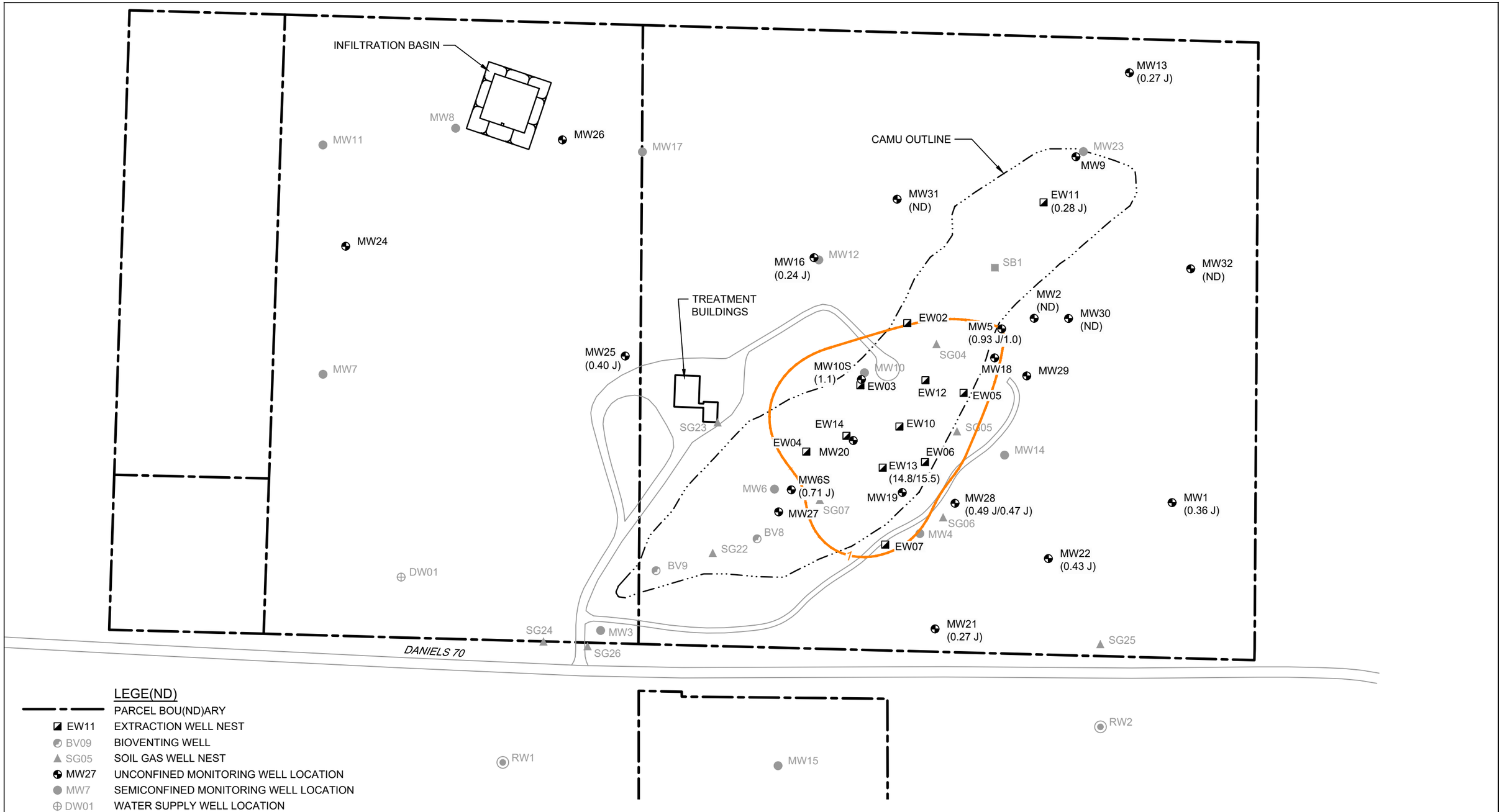


LEGE(ND)

	PARCEL BOU(ND)ARY
EW11	EXTRACTION WELL NEST
BV09	BIOVENTING WELL
SG05	SOIL GAS WELL NEST
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(0.47 J)	ARSENIC CONCENTRATION (µg/L)
(0.54 J/0.57J)	ARSENIC / DUPLICATE CONCENTRATION (µg/L)
1	ARSENIC CONCENTRATION CONTOUR (µg/L)
(ND)	NOT DETECTED
J	CONCENTRATION WAS BETWEEN THE LIMIT OF DETECTION A(ND) LIMIT OF QUANTITATION
B	COMPOUND WAS FOUND IN THE BLANK AND SAMPLE

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

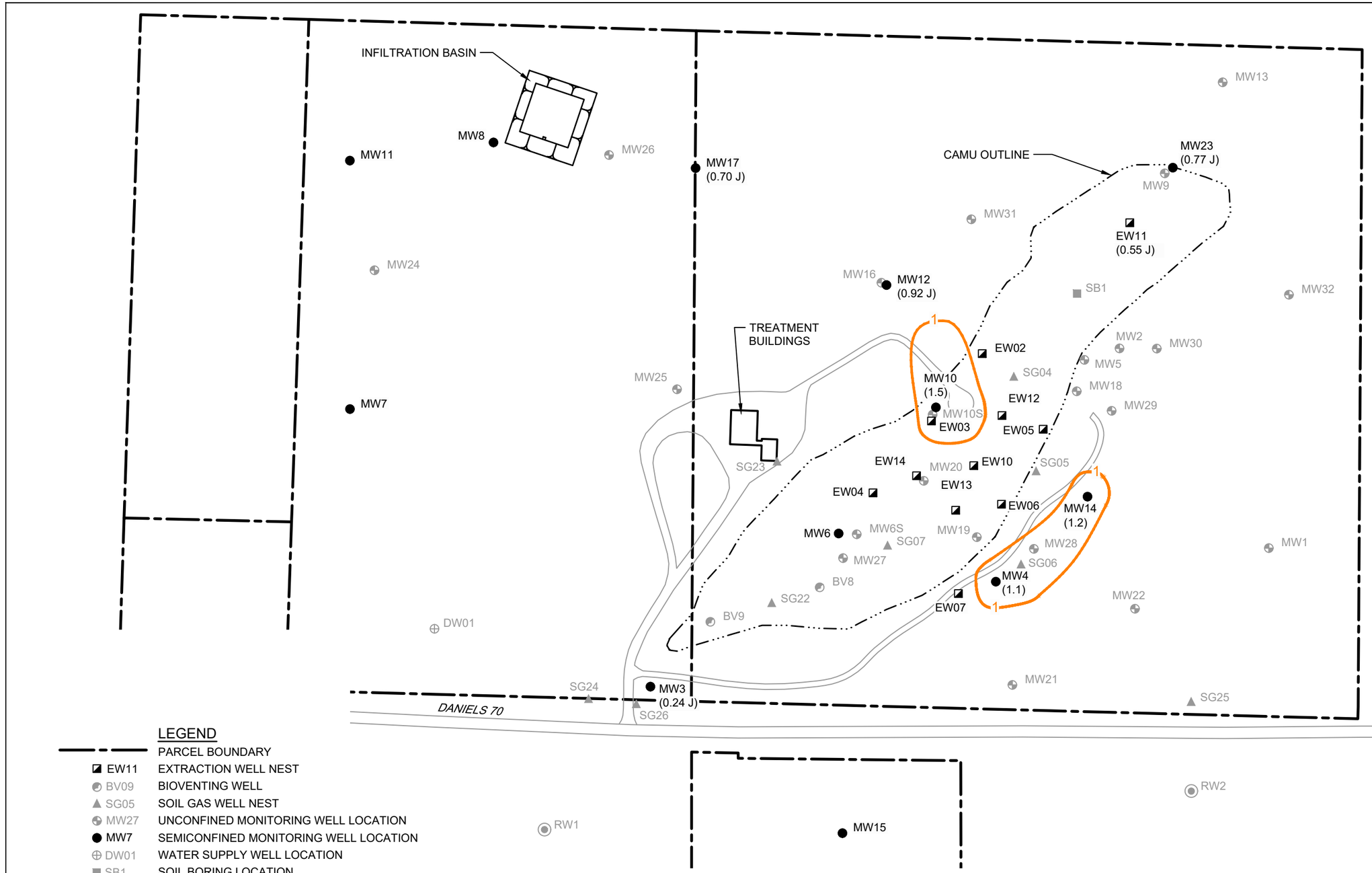
UNCONFINED (UPPER) AQUIFER ARSENIC CONCENTRATIONS - OCTOBER 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.9

Filename: \\ghdnet\ghd\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0109_WA-001.DWG
Plot Date: 21 January 2021 12:32 PM

DATA 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
MW27	UNCONFINED MONITORING WELL LOCATION
MW7	SEMICONFINED MONITORING WELL LOCATION
DW01	WATER SUPPLY WELL LOCATION
SB1	SOIL BORING LOCATION
RW1	RESIDENTIAL WELL
(1.1)	ARSENIC CONCENTRATION (µg/L)
(ND/0.25 J)	ARSENIC / DUPLICATE CONCENTRATION (µg/L)
1	ARSENIC CONCENTRATION CONTOUR (µg/L)
ND	NOT DETECTED
J	CONCENTRATION WAS BETWEEN THE LIMIT OF DETECTION AND LIMIT OF QUANTITATION
B	COMPOUND WAS FOUND IN THE BLANK AND SAMPLE

0 100 200 ft

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

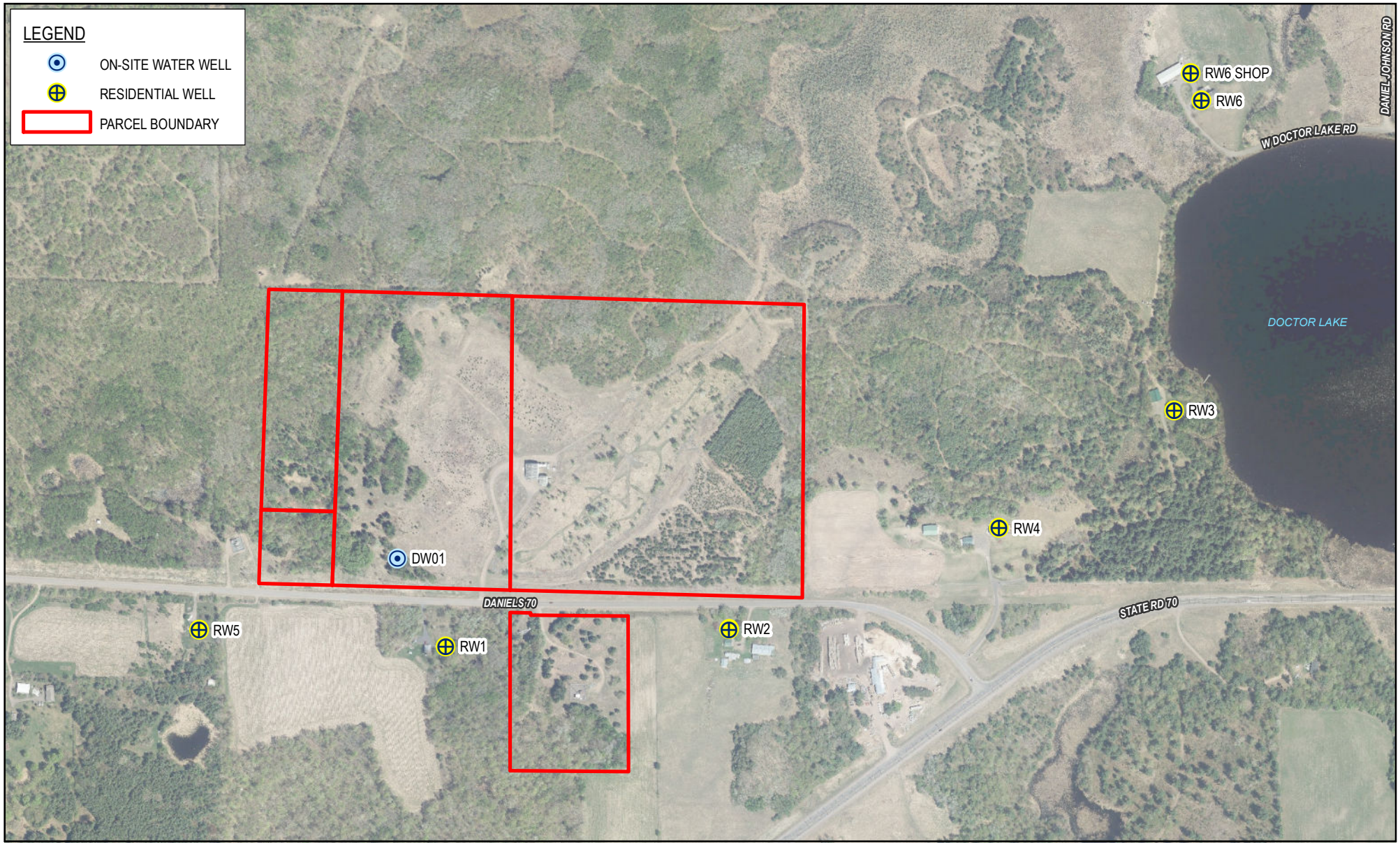
SEMICONFINED (LOWER) AQUIFER ARSENIC CONCENTRATIONS - OCTOBER 2020

Project No. **11222418**
Date **January 2021**

FIGURE 2.10

Filename: \\ghdnet\ghd\US\St Paul\Projects\563\11222418\Digital_Design\ACAD\Figures\RPT001\11222418-GHD-0000-RPT-EN-0110_WA-001.DWG
Plot Date: 21 January 2021 12:33 PM

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



Paper Size ANSI A

0 200 400 600

Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983 HARN
Grid: NAD 1983 HARN WISCRS Burnett County Feet

N

GHD

PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN

Project No. **11222418-01**
Revision No. **-**
Date **01/19/2021**

RESIDENTIAL WELL LOCATIONS

FIGURE 3.1

Q:\GIS\PROJECTS\11222000s\11222418\Maps\Deliverables\RPT\RPT001\11222418-01(001)GIS-SP003.mxd
Print date: 19 Jan 2021 - 14:37

Data source: Burnett County. Created by: rjcoy

Tables

Table 2.1

Groundwater Monitoring and Sampling Plan
Penta Wood Products Superfund Site
Siren, Wisconsin

Well ID	Semiannual Groundwater/LNAPL Level Monitoring [1]	Semiannual Groundwater Sampling [2, 3, 4]
Unconfined (Upper) Aquifer		
MW1	X	X
MW2	X	X
MW5	X	X
MW6S	X	X
MW9	X	
MW10S	X	X
MW13	X	X
MW16	X	X
MW18	X	
MW19	X	
MW20	X	X
MW21	X	X
MW22	X	X
MW24	X	
MW25	X	X
MW26	X	
MW27	X	
MW28	X	X
MW29	X	X
MW30	X	X
MW31	X	X
MW32	X	X
EW02S	X	
EW03S	X	

Table 2.1

Groundwater Monitoring and Sampling Plan
Penta Wood Products Superfund Site
Siren, Wisconsin

Well ID	Semiannual Groundwater/LNAPL Level Monitoring [1]	Semiannual Groundwater Sampling [2, 3, 4]
Unconfined (Upper) Aquifer		
EW04S	X	
EW05S	X	
EW06S	X	
EW07S	X	
EW10S	X	
EW11S	X	X
EW12S	X	
EW13S	X	X
EW14S	X	
Semiconfined (Lower) Aquifer		
MW3	X	X
MW4	X	X
MW6	X	
MW7	X	
MW8	X	
MW10	X	X
MW11	X	
MW12	X	X
MW14	X	X
MW15	X	
MW17	X	X
MW23	X	X
EW02D	X	

Table 2.1

Groundwater Monitoring and Sampling Plan
Penta Wood Products Superfund Site
Siren, Wisconsin

Well ID	Semiannual Groundwater/LNAPL Level Monitoring [1]	Semiannual Groundwater Sampling [2, 3, 4]
Semiconfined (Lower) Aquifer		
EW03D	X	
EW04D	X	
EW05D	X	
EW06D	X	
EW07D	X	
EW10D	X	
EW11D	X	X
EW12D	X	
EW13D	X	
EW14D	X	

Notes:

1 Groundwater/LNAPL level monitoring conducted on a quarterly basis in January, April, July, and October in 2020, will change to semiannual basis in April and October 2021.

2 Groundwater sampling conducted on a semiannual basis in April and October

3 Groundwater sample laboratory analyses include the following parameters: Pentachlorphenol (PCP); naphthalene; benzene, toluene, ethylbenzene, and xylenes (BTEX); natural attenuation parameters (alkalinity, chloride, hardness, nitrate, sulfate, total organic carbon, and methane); and select dissolved metals (arsenic, copper, iron, manganese, and zinc). Field parameter measurements include the following parameters: pH, temperature, specific conductance, dissolved oxygen (DO), oxidation-reduction potential (ORP), iron, and sulfide.

4 Groundwater samples will not be collected if LNAPL is present in the well casing.

Table 2.2

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)
Semiconfined Aquifer (Lower)							
MW3	7/16/2020	1129.44	142.87	ND	986.57	NA	0.00
MW3	10/5/2020	1129.44	142.92	ND	986.52	NA	0.00
MW4	7/16/2020	1087.72	101.82	ND	985.90	NA	0.00
MW4	10/5/2020	1087.72	101.92	ND	985.80	NA	0.00
MW6	7/16/2020	1109.11	122.66	ND	986.45	NA	0.00
MW6	10/5/2020	1109.11	122.74	ND	986.37	NA	0.00
MW7	7/16/2020	1096.25	110.00	ND	986.25	NA	0.00
MW7	10/5/2020	1096.25	110.03	ND	986.22	NA	0.00
MW8	7/16/2020	1091.13	104.72	ND	986.41	NA	0.00
MW8	10/5/2020	1091.13	104.80	ND	986.33	NA	0.00
MW10	7/16/2020	1089.01	102.60	ND	986.41	NA	0.00
MW10	10/5/2020	1089.01	102.60	ND	986.41	NA	0.00
MW11	7/16/2020	1085.48	99.62	ND	985.86	NA	0.00
MW11	10/5/2020	1085.48	99.69	ND	985.79	NA	0.00
MW12	7/16/2020	1080.91	94.96	ND	985.95	NA	0.00
MW12	10/5/2020	1080.91	94.61	ND	986.30	NA	0.00
MW14	7/16/2020	1078.25	92.35	ND	985.90	NA	0.00
MW14	10/5/2020	1078.25	92.45	ND	985.80	NA	0.00
MW15	7/16/2020	1127.09	140.35	ND	986.74	NA	0.00
MW15	10/5/2020	1127.09	140.30	ND	986.79	NA	0.00
MW17	7/16/2020	1084.43	98.03	ND	986.40	NA	0.00
MW17	10/5/2020	1084.43	98.31	ND	986.12	NA	0.00
MW23	7/16/2020	1017.16	31.06	ND	986.10	NA	0.00
MW23	10/5/2020	1017.16	31.24	ND	985.92	NA	0.00
EW02D	7/16/2020	1083.00	96.33	ND	986.67	NA	0.00
EW02D	10/5/2020	1083.00	98.43	ND	984.57	NA	0.00
EW03D	7/16/2020	1089.48	102.92	ND	986.56	NA	0.00
EW03D	10/5/2020	1089.48	102.01	ND	987.47	NA	0.00
EW04D	7/16/2020	1101.09	114.35	ND	986.74	NA	0.00
EW04D	10/5/2020	1101.09	114.41	ND	986.68	NA	0.00
EW05D	7/16/2020	1076.99	90.36	ND	986.63	NA	0.00
EW05D	10/5/2020	1076.99	90.36	ND	986.63	NA	0.00
EW06D	7/16/2020	1083.39	96.67	ND	986.72	NA	0.00
EW06D	10/5/2020	1083.39	96.66	ND	986.73	NA	0.00
EW07D	7/16/2020	1087.52	100.66	ND	986.86	NA	0.00
EW07D	10/5/2020	1087.52	100.69	ND	986.83	NA	0.00
EW10D	7/16/2020	1088.55	101.92	ND	986.63	NA	0.00
EW10D	10/5/2020	1088.55	101.93	ND	986.62	NA	0.00
EW11D	7/16/2020	1048.19	61.34	ND	986.85	NA	0.00
EW11D	10/5/2020	1048.19	61.45	ND	986.74	NA	0.00
EW12D	7/16/2020	1086.41	99.75	ND	986.66	NA	0.00
EW12D	10/5/2020	1086.41	99.85	ND	986.56	NA	0.00
Semiconfined Aquifer (Lower) continued							
EW13D	7/16/2020	1092.88	106.19	ND	986.69	NA	0.00
EW13D	10/5/2020	1092.88	106.17	ND	986.71	NA	0.00

Table 2.2

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)
EW14D	7/16/2020	1098.28	111.64	ND	986.64	NA	0.00
EW14D	10/5/2020	1098.28	111.83	ND	986.45	NA	0.00
Unconfined Aquifer (Upper)							
MW1	7/16/2020	1072.27	85.36	ND	986.91	NA	0.00
MW1	10/5/2020	1072.27	85.42	ND	986.85	NA	0.00
MW2	7/16/2020	1065.03	78.06	ND	986.97	NA	0.00
MW2	10/5/2020	1065.03	78.13	ND	986.90	NA	0.00
MW5	7/16/2020	1071.42	84.78	ND	986.64	NA	0.00
MW5	10/5/2020	1071.42	84.89	ND	986.53	NA	0.00
MW6S	7/16/2020	1108.35	121.34	ND	987.01	NA	0.00
MW6S	10/5/2020	1108.35	121.38	ND	986.97	NA	0.00
MW9	7/16/2020	1019.58	32.61	ND	986.97	NA	0.00
MW9	10/5/2020	1019.58	32.73	ND	986.85	NA	0.00
MW10S	7/16/2020	1090.12	103.49	ND	986.63	NA	0.00
MW10S	10/5/2020	1090.12	102.80	ND	987.32	NA	0.00
MW13	7/16/2020	1005.81	18.83	ND	986.98	NA	0.00
MW13	10/5/2020	1005.81	19.01	ND	986.80	NA	0.00
MW16	7/16/2020	1081.95	94.54	ND	987.41	NA	0.00
MW16	10/5/2020	1081.95	95.06	ND	986.89	NA	0.00
MW18	7/16/2020	1071.96	85.59	85.00	986.37	986.96	0.59
MW18	10/5/2020	1071.96	85.52	85.09	986.44	986.87	0.43
MW19	7/16/2020	1087.96	101.36	ND	986.60	NA	0.00
MW19	10/5/2020	1087.96	101.41	101.39	986.55	986.57	0.02
MW20	7/16/2020	1098.16	111.25	111.24	986.91	986.92	0.01
MW20	10/5/2020	1098.16	111.35	111.29	986.81	986.87	0.06
MW21	7/16/2020	1095.82	108.85	ND	986.97	NA	0.00
MW21	10/5/2020	1095.82	108.92	ND	986.90	NA	0.00
MW22	7/16/2020	1084.65	97.74	ND	986.91	NA	0.00
MW22	10/5/2020	1084.65	97.79	ND	986.86	NA	0.00
MW24	7/16/2020	1084.04	97.40	ND	986.64	NA	0.00
MW24	10/5/2020	1084.04	97.48	ND	986.56	NA	0.00
MW25	7/16/2020	1095.25	108.65	ND	986.60	NA	0.00
MW25	10/5/2020	1095.25	108.70	ND	986.55	NA	0.00
MW26	7/16/2020	1086.87	100.49	ND	986.38	NA	0.00
MW26	10/5/2020	1086.87	100.57	ND	986.30	NA	0.00
MW27	7/16/2020	1110.96	123.91	ND	987.05	NA	0.00
MW27	10/5/2020	1110.96	123.94	ND	987.02	NA	0.00
MW28	7/16/2020	1083.52	96.51	ND	987.01	NA	0.00
MW28	10/5/2020	1083.52	96.66	ND	986.86	NA	0.00

Table 2.2

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)
Unconfined Aquifer (Upper) continued							
MW29	7/16/2020	1070.24	83.31	ND	986.93	NA	0.00
MW29	10/5/2020	1070.24	83.39	83.38	986.85	986.86	0.01
MW30	7/16/2020	1048.98	62.06	ND	986.92	NA	0.00
MW30	10/5/2020	1048.98	62.12	ND	986.86	NA	0.00
MW31	7/16/2020	1076.34	89.34	ND	987.00	NA	0.00
MW31	10/5/2020	1076.34	89.46	ND	986.88	NA	0.00
MW32	7/16/2020	1021.02	34.16	ND	986.86	NA	0.00
MW32	10/5/2020	1021.02	34.29	ND	986.73	NA	0.00
EW02S	7/16/2020	1082.25	95.28	ND	986.97	NA	0.00
EW02S	10/5/2020	1082.25	95.38	ND	986.87	NA	0.00
EW03S	7/16/2020	1088.66	101.84	ND	986.82	NA	0.00
EW03S	10/5/2020	1088.66	101.91	ND	986.75	NA	0.00
EW04S	7/16/2020	1101.01	114.10	ND	986.91	NA	0.00
EW04S	10/5/2020	1101.01	114.17	ND	986.84	NA	0.00
EW05S	7/16/2020	1077.04	90.20	ND	986.84	NA	0.00
EW05S	10/5/2020	1077.04	90.46	90.25	986.58	986.79	0.21
EW06S	7/16/2020	1083.61	99.42	96.81	984.19	986.80	2.61
EW06S	10/5/2020	1083.61	100.00	96.85	983.61	986.76	3.15
EW07S	7/16/2020	1087.49	100.78	ND	986.71	NA	0.00
EW07S	10/5/2020	1087.49	100.99	100.72	986.50	986.77	0.27
EW10S	7/16/2020	1088.72	107.11	101.82	981.61	986.90	5.29
EW10S	10/5/2020	1088.72	107.33	101.91	981.39	986.81	5.42
EW11S	7/16/2020	1047.23	60.30	ND	986.93	NA	0.00
EW11S	10/5/2020	1047.23	60.41	ND	986.82	NA	0.00
EW12S	7/16/2020	1086.31	103.32	99.47	982.99	986.84	3.85
EW12S	10/5/2020	1086.31	103.40	99.54	982.91	986.77	3.86
EW13S	7/16/2020	1092.88	106.13	ND	986.75	NA	0.00
EW13S	10/5/2020	1092.88	106.10	ND	986.78	NA	0.00
EW14S	7/16/2020	1098.32	112.29	111.60	986.03	986.72	0.69
EW14S	10/5/2020	1098.32	112.35	111.70	985.97	986.62	0.65

Notes:

feet 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 2.3

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

Location	Date	Sample Identification	Time	Purge Volume (gallons)	Temperature (°C)	Specific Conductance (µS)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Total Iron (mg/L)	Total Sulfide (mg/L)
RW5	10/1/2020	W-201001-RA-106	12:16		13.84	432			8.15			
		Sample Time: 12:16										
RW1	10/1/2020	W-201001-RA-104	12:36		12.63	711			7.22			
		Sample Time: 12:36										
RW3	10/1/2020	W-201001-RA-103	12:50		12.09	235			7.75			
		Sample Time: 12:36										
RW6	10/1/2020	W-201001-RA-102	13:18		18.76	193			7.58			
		Sample Time: 13:18										
RW6 shop	10/1/2020	W-201001-RA-101	13:27		14.73	268			6.86			
		Sample Time: 13:27										
DW01	10/1/2020	W-201001-RA-107	14:06		12.7	43			7.32			
		Sample Time: 14:06										
MW17	10/5/2020	W-201005-RA-01	15:08	0.0	12.28	639	0	7.81	7.72	156	0	0
		Sample Time: 15:23	15:14	0.1	13.4	644	0	7.77	7.70	129		
			15:19	0.3	13.46	642	0	7.72	7.71	125		
			15:23	0.4	13.46	642	0	7.69	7.70	125		
MW12	10/5/2020	W-201005-RA-04	10:25	0.0	11.99	401	0.4	1.85	7.79	76	0.5	0
		Sample Time: 14:30	10:30	0.1	12.06	401	0.1	1.36	7.72	68		
			10:35	0.3	12.14	402	0.1	1.31	7.79	66		
MW4	10/5/2020	W-201005-RA-02	9:01	0.0	10.56	346	0.5	1.87	8.71	-8	0.5	0
		Sample Time: 9:22	9:06	0.1	10.53	340	0.3	1.02	8.66	-123		
			9:12	0.3	10.55	343	0.4	0.87	8.62	-148		
			9:17	0.4	10.55	342	0.5	0.83	8.60	-154		
			9:22	0.5	10.56	342	0.5	0.82	8.60	-155		
MW14	10/5/2020	W-201005-RA-03	9:40	0.0	10.99	313	0.3	5.60	8.05	48	0	0
		Sample Time: 10:00	9:45	0.1	11.09	316	0.1	5.69	8.00	62		
			9:50	0.3	11.19	317	0.1	5.59	7.91	73		
			9:55	0.4	11.21	318	0.1	5.51	7.89	74		
			10:00	0.5	11.21	318	0.1	5.49	7.89	74		
MW16	10/5/2020	W-201005-RA-05	11:10	0.0	15.45	127	0	7.28	7.19	148	0	0
		Sample Time: 11:20	11:15	0.1	15.57	126	0	7.31	7.15	152		
			11:20	0.3	15.64	126	0	7.14	7.14	153		

Table 2.3

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

Location	Date	Sample Identification	Time	Purge Volume (gallons)	Temperature (°C)	Specific Conductance (µS)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW25	10/6/2020	W-201006-RA-12	15:22	0.0	13.99	514	2	7.18	6.88	130	0	0
		Sample Time: 15:32	3:27	0.1	14.06	511	1.9	7.13	6.90	130		
			3:32	0.3	14.09	511	2	7.14	6.91	130		
MW23	10/6/2020	W201006-RA-10	14:30	0.0	10.27	524	0	7.45	7.80	141	0.5	0
		Sample Time: 14:40	14:35	0.1	10.26	525	0	7.31	7.60	141		
			14:40	0.3	10.25	525	0	7.22	7.61	141		
			14:45	0.4	10.26	525	0	7.22	7.61	141		
MW28	10/6/2020	W-201006-RA-13	16:01	0.0	15.06	254	8.2	5.99	7.73	140	2	0
		Sample Time: 16:16	16:06	0.1	15.27	274	0	6.88	7.77	119		
		Duplicate: W-201006-RA-14	16:11	0.3	15.31	274	0	6.89	7.79	118		
			16:16	0.4	15.36	274	0	6.92	7.79	118		
MW10	10/6/2020	W-201006-RA-15	16:40	0.0	11.95	470	0.9	2.11	7.52	-106	3.5	0
		Sample Time: 17:00	16:45	0.1	12.04	470	0.5	1.32	7.50	-114		
			16:50	0.3	13.65	458	10.5	1.33	7.47	-125		
			16:55	0.4	13.68	455	9.7	1.23	7.48	-126		
			17:00	0.5	13.71	455	9.8	1.24	7.47	-127		
MW21	10/6/2020	W-201006-RA-07	9:20	0.0	10.39	372	0.3	10.81	7.20	180	0	0
		Sample Time: 9:35	9:25	0.1	11.00	370	0.3	10.28	7.42	175		
			9:30	0.3	10.84	372	0.3	10.84	7.39	177		
			9:35	0.4	10.82	373	0.3	10.81	7.37	177		
MW1	10/6/2020	W-201006-RA-08	10:15	0.0	9.63	230	0	10.65	7.28	194	0	0.2
		Sample Time: 10:25	10:20	0.1	9.64	230	0	10.69	7.30	194		
			10:25	0.3	9.66	231	0	10.66	7.30	193		
EW13S	10/7/2020	W-201007-RA-20	16:19	0.0	16.72	574	143	1.97	6.85	-106	3	0
		Sample Time: 16:19										
		Duplicate: W-201007-RA-24										
MW3	10/7/2020	W-201007-RA-22	17:20	0.0	13.73	570	3.5	4.57	7.47	-61	1	0
		Sample Time: 17:30	17:25	0.1	13.73	571	3.1	4.62	7.47	-61		
			17:30	0.3	13.73	572	3	4.63	7.47	-61		

Table 2.3

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

Location	Date	Sample Identification	Time	Purge Volume (gallons)	Temperature (°C)	Specific Conductance (µS)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW32	10/8/2020	W-201008-RA-26	11:30	0.0	8.73	82	24.1	9.96	6.84	150	0.5	0
		Sample Time: 11:50	11:35	0.1	8.71	82	21	9.92	6.80	154		
			11:40	0.3	8.65	83	10.4	9.49	6.52	183		
			11:45	0.4	8.63	83	9.8	9.40	6.46	189		
			11:50	0.5	8.63	83	9.1	9.40	6.44	192		
MW10S	10/7/2020	W-201007-RA-16	10:25	0.0	14.95	713	10	0.64	6.21	24	0	1.3
		Sample Time: 10:45	10:30	0.1	15.04	722	9.4	0.37	6.21	22		
			10:35	0.3	15.07	727	20.1	0.52	6.20	22		
			10:40	0.4	15.09	728	20	0.51	6.21	22		
			10:45	0.5	15.09	729	20.2	0.51	6.21	21		
EW11S	10/7/2020	W-201007-RA-17	11:20	0.0	11.13	290	6.6	3.28	6.20	136	0.5	0
		Sample Time: 11:30	11:25	0.1	10.97	290	5	3.12	6.12	143		
			11:30	0.3	10.84	288	1.2	3.07	6.11	141		
EW11D	10/7/2020	W-201007-RA-18	12:15	0.0	9.43	468	197	4.84	6.65	-57	6	0
		Sample Time: 12:30	12:20	0.1	9.31	487	9.6	2.01	7.01	-78		
			12:25	0.3	9.31	491	5.8	2.08	7.04	-76		
			12:30	0.4	9.32	492	5	2.15	7.05	-75		
MW6S	10/7/2020	W-201007-RA-19	12:40	0.0	15.4	441	8.2	4.05	6.34	96	0.2	0
		Sample Time: 13:00	12:45	0.1	15.56	4.35	8.5	4.04	6.10	123		
			12:50	0.3	15.77	435	7.8	3.86	6.03	130		
			12:55	0.4	15.64	438	5.2	3.79	5.98	137		
			13:00	0.5	15.63	436	4.2	3.68	6.00	139		
MW30	10/7/2020	W-201007-RA-21	14:00	0.0	11.74	174	20.2	2.76	6.63	121	0	0
		Sample Time: 14:15	14:05	0.1	11.5	175	31.7	2.90	6.54	132		
			14:10	0.3	11.26	175	31.8	2.99	6.45	141		
			14:15	0.4	11.27	175	29.2	3.01	6.47	142		
MW22	10/8/2020	W-201008-RA-27	11:55	0.0	14.12	164	150	0	7.22	174	0	0
		Sample Time: 11:55										
MW2	10/8/2020	W-201008-RA-28	12:45	0.0	16.65	111	288	8.20	7.26	157	1	0
		Sample Time: 12:45										

Table 2.3

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

Location	Date	Sample Identification	Time	Purge Volume (gallons)	Temperature (°C)	Specific Conductance (µS)	Turbidity (NTU)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Total Iron (mg/L)	Total Sulfide (mg/L)
MW5	10/8/2020	W-201008-RA-29	13:05	0.0	12.01	629	1.4	1.45	6.55	-36	7	0
		Sample Time: 13:15	13:10	0.1	12.09	633	1.2	1.43	6.54	-36		
		Duplicate: W-201008-RA-30	13:15	0.3	12.09	635	1	1.40	6.54	-36		
MW13	10/6/2020	W-201006-RA-09	11:12	0.0	11.24	117	0	6.46	5.33	254	0	0
		Sample Time: 11:27	11:17	0.1	11.34	118	0	6.32	5.14	263		
			11:22	0.3	11.51	118	0	6.14	5.07	266		
			11:27	0.4	11.51	119	0	6.15	5.06	266		
MW31	10/6/2020	W-201006-RA-11	13:15	0.0	10.47	328	0	8.40	6.54	160	0	0
		Sample Time: 13:25	13:20	0.1	10.44	326	0	8.35	6.57	168		
			13:25	0.3	10.43	326	0	8.29	6.57	169		
			13:28	0.4	7.66	175	300	0	6.30	97		
			13:32	0.5	7.61	178	290	0	6.29	93		

Notes:

°C	- Degrees Celcius
µS	- Micro-Siemens
mg/L	- Milligrams per liter
MS/MSD	- Matrix Spike Sample & 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)

Residential wells and onsite water supply well were purged for a minimum of 15 minutes prior to collecting samples
Wells MW20 and MW29 were not sampled due to the presence of LNAPL

Table 2.4

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

Sample Location	Sample Idendification	Sample Date	Hardness, carbonate	Chloride[3]	Nitrate (as N)	Sulfate[3]	TOC averages	Alkalinity, total (as CaCO3)	Methane (dissolved)	Arsenic (dissolved)	Copper (dissolved)	Iron (dissolved)	Manganese (dissolved)	Zinc (dissolved)	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)
		ES[1]	-	250	10	250	-	-	-	10	1300	300	50	5000	1	100	5	700	800	2000
		PAL[2]	-	125	2	125	-	-	-	1	130	150	25	2500	0.1	10	0.5	140	160	400
			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
Semiconfined Aquifer (Lower)																				
EW11D	W-201007-RA-18	10/7/2020	228	5.2	6.8 H	27.6	3.4	201	12	0.55 J	15.0	**4880**	**57.3**	12.4 J	0.091 U	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U
MW3	W-201007-RA-22	10/7/2020	280	25.2	2.3 H	7.7	1.1	256	6.6	0.24 J	0.60 J	**1770**	25.7	6.9 U	0.49	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
MW4	W-201005-RA-02	10/5/2020	151	44.3	0.28	13.7	0.81 J	74.1	4.7	1.1	0.50 U	46.7 U	37.4	6.9 U	0.086 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
MW10	W-201006-RA-15	10/6/2020	203	41.6	0.068 U	21.2	40.1	150	81	1.5	8.6	**2340**	**1180**	6.9 U	**3200**	22	0.15 U	1.7	1.3	13
MW12	W-201005-RA-04	10/5/2020	172	8.6	0.35	34.2	3.1	153	0.17 U	0.92 J	1.8 J	46.7 U	**81.1**	6.9 U	0.089 U	0.45 J	0.15 U	0.19 J	0.15 U	0.82 J
MW14	W-201005-RA-03	10/5/2020	143	22.4	1.6	6.6	0.72 J	119	0.17 U	1.2	0.55 J	46.7 U	3.4	6.9 U	0.086 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
MW17	W-201005-RA-01	10/5/2020	335	13.1	1.8	151	0.68 J	191	0.17 U	0.70 J	1.9 J	46.7 U	0.79 U	6.9 U	0.095 U	0.23 U	0.15 U	0.18 U	0.15 U	0.22 U
MW23	W-201006-RA-10	10/6/2020	239	54.1	2.3	9.2	0.95 J	184	0.17 U	0.77 J	0.58 J	46.7 U	1.1 J	7.1 J	0.089 U	0.23 U	0.15 U	0.18 U	0.15 U	0.22 U
Unconfined Aquifer (Upper)																				
EW11S		W-201007-RA-17	10/7/2020	127	5.1	5.7 H	24.8	3.1	97.4	1.9	0.28 J	20.6	241	**59.3**	6.9 U	0.087 U	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U
EW13S		W-201007-RA-20	10/7/2020	270	34.3	0.11 JH	16.9	29.1	233	5.2	**14.8**	1.4 J	**14200**	**2440**	6.9 U	**8300**	33	0.15 U	1.2	0.89	17
EW13S	(duplicate)	W-201007-RA-24	10/7/2020	276	36.7	0.076 JH	18.4	29.0	234	4.6	**15.5**	1.1 J	**14800**	**2590**	6.9 U	**7900**	33	0.15 U	1.5	1.2	21
MW1		W-201006-RA-08	10/6/2020	105	9.7	3.0	7.1	1.2	82.0	0.17 U	0.36 J	3.6	46.7 U	0.79 U	6.9 U	0.17	0.23 U	0.15 U	0.18 U	0.15 U	0.22 U
MW2		W-201008-RA-28	10/8/2020	87.8	0.26	0.27 H	1.3	0.90 J	68.2	0.17 U	0.23 U	0.79 J	46.7 U	3.3	6.9 U	0.10 U	0.32 J	0.15 U	0.18 U	0.15 U	0.22 U
MW5		W-201008-RA-29	10/8/2020	296	26.7	0.084 JH	24.6	47.0	242	9.8	0.93 J	1.5 J	**14300**	**7470**	6.9 U	**5000**	25	0.15 U	0.71	0.62	7.2
MW5	(duplicate)	W-201008-RA-30	10/8/2020	283	31.6	0.076 JH	29.2	45.8	244	8.9	1.0	1.3 J	**14200**	**7310**	6.9 U	**4800**	26	0.15 U	0.57	0.57	7.7
MW6S		W-201007-RA-19	10/7/2020	207	11.9	2.7	6.7	2.8	196	0.17 U	0.71 J	2.8	46.7 U	9.9	6.9 U	0.095 U	0.26 U	0.15 U	0.18 U	0.15 U	0.22 U
MW10S		W-201007-RA-16	10/7/2020	388	20.6	0.076 J	22.0	29.7	344	0.17 U	1.1	8.2	**819**	**4880**	6.9 U	**2100**	19	0.15 U	0.80	0.22 J	11
MW13		W-201006-RA-09	10/6/2020	48.9	0.81	0.31	2.6	2.1	53.6	0.17 U	0.27 J	3.3	46.7 U	0.79 U	6.9 U	0.20	0.23 U	0.15 U	0.18 U	0.15 U	0.22 U
MW16		W-201005-RA-05	10/5/2020	49.9	2.0	0.59	3.8	0.94 J	56.3	0.17 U	0.24 J	3.5	46.7 U	0.79 U	6.9 U	0.087 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
MW21		W-201006-RA-07	10/6/2020	95.4	81.5	1.9	6.7	0.99 J	47.0	0.17 U	0.27 J	0.73 J	46.7 U	0.79 U	6.9 U	0.091 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
MW22		W-201008-RA-27	10/8/2020	91.9	4.0	0.62 H	3.6	0.70 J	79.6	0.17 U	0.43 J	2.6	**507**	32.2	6.9 U	0.095 U	0.27 U	0.15 U	0.18 U	0.15 U	0.22 U
MW25		W-201006-RA-12	10/6/2020	251	21.8	2.3	4.5	1.0	226	0.17 U	0.40 J	1.1 J	133	3.2	6.9 U	0.091 U	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U
MW28		W-201006-RA-13	10/6/2020	118	25.4	1.9	5.0	0.90 J	103	0.17 U	0.49 J	0.50 U	46.7 U	1.5 J	6.9 U	0.089 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
MW28	(duplicate)	W-201006-RA-14	10/6/2020	123	24.9	**18.0**	48.9	0.92 J	103	0.17 U	0.47 J	0.50 U	46.7 U	1.0 J	6.9 U	0.085 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U

Table 2.4

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

Sample Location	Sample Idendification	Sample Date	Hardness, carbonate	Chloride[3]	Nitrate (as N)	Sulfate[3]	TOC averages	Alkalinity, total (as CaCO3)	Methane (dissolved)	Arsenic (dissolved)	Copper (dissolved)	Iron (dissolved)	Manganese (dissolved)	Zinc (dissolved)	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)
		ES[1]	-	250	10	250	-	-	-	10	1300	300	50	5000	1	100	5	700	800	2000
		PAL[2]	-	125	2	125	-	-	-	1	130	150	25	2500	0.1	10	0.5	140	160	400
			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
Unconfined Aquifer (Upper)																				
MW30	W-201007-RA-21	10/7/2020	88.5	0.45	0.37	2.2	0.89 J	90.0	0.17 U	0.23 U	16.8	78.1 J	15.6	6.9 U	10	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U
MW31	W-201006-RA-11	10/6/2020	163	0.39	0.37	0.94	0.52 J	168	0.43 J	0.23 U	24.3	46.7 U	1.9 J	6.9 U	0.089 U	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U
MW32	W-201008-RA-26	10/8/2020	33.9	0.70	0.70 H	4.4	0.95 J	30.0	0.17 U	0.23 U	6.7	60.1 J	4.2	6.9 U	0.091 U	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U

Notes:

1 - 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)
2 - 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)
3 - 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
B - Compound was found in the blank and sample
H - Sample was prepped or analyzed beyond the specified holding time
- Concentration exceeds the ES
- Concentration exceeds the PAL
Wells MW20 and MW29 were not sampled due to the presence of LNAPL

Table 3.1

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

Sample Location	Sample Identification	Date	Pentachlorophenol	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)
		ES[1]	1	100	5	700	800	2000
		PAL[2]	0.1	10	0.5	140	160	400
			ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
RW6 (shop)	W-201001-RA-101	10/1/2020	0.099 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
RW6	W-201001-RA-102	10/1/2020	0.086 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
RW3	W-201001-RA-103	10/1/2020	0.087 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
RW1	W-201001-RA-104	10/1/2020	0.090 U	0.24 U	0.15 U	0.18 U	0.15 U	0.22 U
RW1 (Dup)	W-201001-RA-105	10/1/2020	0.087 U	0.23 U	0.15 U	0.18 U	0.15 U	0.22 U
RW5	W-201001-RA-106	10/1/2020	0.086 U	0.34 U	0.15 U	0.18 U	0.15 U	0.22 U
DW01	W-201001-RA-107	10/1/2020	0.091 U	0.25 U	0.15 U	0.18 U	0.15 U	0.22 U

Notes:

[1] - Enforcement Standard (ES) criteria adapted from Table 1 referred to and incorporated by NR 140.10

[2] - 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

U - Compound was not detected above the limit of detection

Dup - Duplicate sample

Appendices

Appendix A
Historical Site Data

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) 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								0.19 UJ											
DW01	4/21/15	N		0.023 J								0.19 U											
DW01	10/15/15	FD		0.096 U								0.19 U											
DW01	10/15/15	N		0.095 U								0.19 U											
DW01	4/5/16	FD		0.097 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
DW01	4/5/16	N		0.095 U								0.14 J	0.50 U	1.0 U	1.0 U	2.0 U							
DW01	10/10/16	FD		0.024 J								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
DW01	10/10/16	N		0.025 J								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
DW01	4/18/17	FD		0.022 J								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
DW01	4/18/17	N		0.020 J								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
DW01	10/20/17	FD		0.10 U								0.88 U	0.50 U	0.50 U	0.50 U	1.0 U							
DW01	10/20/17	N		0.10 U								0.83 U	0.50 U	0.50 U	0.50 U	1.0 U							
DW01	6/5/18	N		0.095 U								0.77 U	0.50 U	0.50 U	0.50 U	1.0 U							
DW01	10/16/18	N		0.095 U								0.82 U	0.50 U	0.50 U	0.50 U	1.0 U							
DW01	4/22/19	N		0.099 U								0.26 U	0.15 U	0.18 U	0.15 U	0.22 U							
DW01	10/1/19	N		0.087 U								0.26 U	0.15 U	0.18 U	0.15 U	0.23 J							
EW02D	8/22/14	N		52							0.28										2.1 J		
EW02D	4/23/15	N		17																			
EW02D	4/14/16	N	0.15 J	370	0.49 J	3.8	299		384	46.7		1.7	0.50 U	1.0 U	1.0 U	2.0 U	55.0	12.1	70.6	0.70		8.7	4.8
EW02S	4/14/16	N	0.094 J	690	5.0 U	1.4 J	50.2 J		39.3	20.0 U		2.5	0.50 U	1.0 U	1.0 U	2.0 U	30.0	10.5	41.2	1.0		7.0	2.7
EW03D	8/22/14	N		260							0.87										1.6 J		
EW03D	4/18/16	N	1.3	3500	2.7 J	9.8	12500		1780	398		2.4	0.50 U	0.33 J	1.0 U	3.6	184	13.4	169	0.10 U		25.6	10
EW03S	4/18/16	N	0.15 J	14000	0.53 J	10.8	1050		3530	20.0 U		12	1.0 U	2.0 U	2.0 U	5.2	88.0	73.8	220	0.29		39.1	59.1
EW04D	8/22/14	N		150							0.65										4.8 U		
EW04D	2/3/15	N		200							0.71										4.9 U		
EW04D	4/23/15	N		430																			
EW04D	4/18/16	N	0.33 J	24	5.0 U	2.2	3060		316	172		0.16 J	0.50 U	1.0 U	1.0 U	2.0 U	129	16.5	131	1.9		6.0	5.3
EW04S	4/18/16	N	0.12 J	210	5.0 U	2.4	567		385	20.0 U		0.25	0.50 U	1.0 U	1.0 U	2.0 U	81.0	9.9	98.0	0.92		8.1	7.2
EW05D	8/22/14	N		4400							6.8										6.3		

Appendix A.1

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Penta Wood Products Superfund Site
Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
EW05D	2/3/15	N		3100							11										2.0 J		
EW05D	4/20/16	N	0.44 J	7500	2.7 J	8.6	8430		1980	372		19	0.50 U	0.79 J	0.95 J	6.7	145	14.4	171	0.10 U		17.0	36.7
EW06D	8/22/14	N		910							1.8										1.9 J		
EW06D	2/3/15	N		4900							12										1.6 J		
EW06D	1/24/17	N	0.25 J	840	0.35	0.70 J	398		163	15.4 J		1.7	0.28	0.26	0.23	1.2 J	124	12.3	144	1.0		5.9	6.4
EW07D	8/22/14	N		280							0.68										1.3 J		
EW07D	2/3/15	N		170							0.28										4.9 U		
EW07D	4/23/15	N		2400																			
EW07D	4/12/16	N	0.59	0.31	5.0 U	1.1 J	122		210	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	127	23.7	174	6.6		8.4	1.2
EW10D	8/22/14	N		7000							11										11		
EW10D	2/3/15	N		2800							7.7										4.9 U		
EW10D	4/20/16	FD	1.3	4800	7.6	12.1	3720		2170	114		19	0.50 U	1.3	1.9	12	136	23.9	184	0.060 J		20.3	41.0
EW10D	4/20/16	N	1.1	5000	6.5	10.3	3350		2200	81.0		19	0.50 U	1.4	1.8	12	135	25.7	180	0.057 J		21.8	41.8
EW11D	4/14/16	FD	0.080 J	2.5	5.0 U	2.0 U	825		27.4	55.9		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	190	12.8	276	2.0		198	1.2
EW11D	4/14/16	N	0.50 U	3.4	5.0 U	1.1 J	657		22.6	46.4		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	187	12.7	282	2.0		155	1.0
EW11D	7/19/16	N	1.1	7.4	5.0 U	2.7	292		54.5	50.0		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	151	9.1	242	2.2		112	1.9
EW11D	10/10/16	N	3.2	8.4	5.0 U	0.67 J	793		23.6	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	190	13.6	272	2.7		159	1.0
EW11D	1/19/17	N	8.9	0.15	0.35	0.51 J	897		40.4	10.8 J		0.060	0.28	0.26	0.23	0.24	168	12.2	70.0	3.3		129	1.9
EW11D	4/19/17	N	35	0.13	5.0 U	0.58 J	2930		129	19.0 J		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	152	11.4	238	5.2		97.3	3.2
EW11D	10/4/17	N	14	0.18	0.31 J	1.4 J	1290		66.9	11.9 J		0.81 U	0.50 U	0.50 U	0.50 U	1.0 U	159	11.5	220	7.7		79.4	2.5
EW11D	5/31/18	FD	2.4	0.12	0.35 J	1.2 J	2690		126	10.2 J		0.78 U	0.50 U	0.50 U	0.50 U	1.0 U	137	8.9	204	13.4		51.7	3.4
EW11D	5/31/18	N	2.5	0.10 U	0.36 J	0.87 J	2600		124	10.2 J		0.82 U	0.50 U	0.50 U	0.50 U	1.0 U	137	9.0	202	13.0		49.5	3.4
EW11D	10/19/18	N	1.0 U	0.096 U	1.0 U	13.1	144		34.5	20.0 U		0.76 U	0.50 U	0.50 U	0.50 U	0.44 J	131	7.2	121	9.9		40.3	4.3
EW11D	4/24/19	N	0.17 U	0.20	1.1	7.0	23400		217	282		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	48.2	0.94	95.1	5.7		19.5 B	5.5
EW11D	10/17/19	N	0.31 J	2.7	0.24 J	2.1	1260		66.1	15.2 J		0.24 U	0.15 U	0.18 U	0.15 J	0.22 U	149 H	3.9	172	5.4		29.5	6.4
EW11D	4/13/20	N	0.22 J	0.86	0.30 JB	4.6	2180		162	27.3		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	44.9	0.46	66.1	3.7		14.2	5.6
EW11D	10/7/20	N	12	0.091 U	0.55 J	15.0	4880		57.3	12.4 J		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	201	5.2	228	6.8 H		27.6	3.4

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Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
EW11S	4/14/16	N	0.50 U	0.37	5.0 U	3.4	451		63.5	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	48.6	7.0	100	8.9		45.1	5.2
EW11S	7/19/16	N	0.50 U	1.2	5.0 U	2.3	84.2 J		37.3	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	65.7	7.9	106	6.0		36.5	2.7
EW11S	10/10/16	N	0.50 U	0.70	0.40 J	3.0	114		97.9	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	64.7	7.9	118	7.9		39.1	4.7
EW11S	1/19/17	N	0.20 J	0.96	0.40 J	2.2	211		157	6.2		0.060	0.28	0.26	0.23	0.24	50.5	9.8	108	7.7		36.3	4.3
EW11S	4/19/17	N	0.26 J	0.20	5.0 U	1.8 J	445		185	20.0 U		0.23 U	0.50 U	1.0 U	1.0 U	2.0 U	45.9	9.2	122	8.6		36.8	3.5
EW11S	10/4/17	N	0.22 J	0.25	0.31 J	2.9	164		65.0	7.9 J		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	65.2	9.4	129	8.0		39.1	3.9
EW11S	6/1/18	N	1.0 U	0.25	0.24 J	2.7	242		74.7	20.0 U		0.76 U	0.50 U	0.50 U	0.50 U	1.0 U	53.5	10.6	127	13.2		36.3	3.3
EW11S	10/19/18	N	1.0 U	0.099 U	1.0 U	9.6	213		63.5	12.8 J		0.81 U	0.50 U	0.50 U	0.50 U	0.23 J	56.4	7.4	182	11.9		29.2	2.7
EW11S	4/24/19	N	0.17 U	0.16	0.23 U	2.2	94.7 J		10.7	8.2 J		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	53.0	2.7	96.5	6.0		23.7 B	2.5
EW11S	10/17/19	N	0.21 J	2.1	0.23 U	2	46.7 U		24.6	6.9 U		0.24 U	0.15 U	0.18 U	0.15 J	0.22 U	93.6 H	3.2	128	7.3		22	3.6
EW11S	4/13/20	N	0.17 U	0.98	0.30 JB	9.1	46.7 U		2.2 J	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	72.7	2.2	96	4.5		20.7	2.2
EW11S	10/7/20	N	1.9	0.087 U	0.28 J	20.6	241		59.3	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	97.4	5.1	127	5.7 H		24.8	3.1
EW12D	8/22/14	N		4600							5.7										5.1		
EW12D	2/3/15	N		880							4.1										4.9 U		
EW12D	4/20/16	N	4.0	2500	2.2 J	1.3 J	3820		1620	20.0 U		12	0.50 U	0.58 J	0.50 J	7.2	90.0	5.4	80.4	0.10 U		6.4	15.7
EW13D	8/22/14	N		780							1.2										1.5 J		
EW13D	2/3/15	N		660							1.6										4.7 U		
EW13D	4/23/15	N		18000																			
EW13D	4/19/16	N	1100	2100	1.6 J	2.0 U	7660		956	11.7 J		13	0.50 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	770	23.2	37.7	14100		2340	13.8 J		2.0	0.50 U	0.26 J	1.0 U	4.2	370	20.7	229	0.10 U		9.6	36.6
EW13S	7/26/16	N	20	1900	58.9	133	45600		2580	52.2		4.0	0.50 U	0.31 J	0.35 J	4.4	312	21.2	292	0.10 U		7.8	32.6
EW13S	10/14/16	N	40	4200	18.5	30.6	15600		2360	8.4 J		6.8	0.50 U	0.53 J	0.54 J	7.1	296	25.1	236	0.10 U		11.8	34.7
EW13S	1/24/17	N	48	6400	11.4	3.2	8700		2220	6.2		11	0.28	0.70 J	0.62 J	9.3	297	28.0	304	4.8		12.1	35.8
EW13S	4/20/17	N	32	5100	13.7	2.2	10600		2260	20.0 U		20	0.50 U	0.96 J	0.90 J	13	240	29.1	294	0.10 U		16.1	37.2
EW13S	10/5/17	N	52	8700	12.4	0.93 J	10400		2010	20.0 U		16	0.50 U	1.0	1.0	14	276	34.5	276	0.075 J		13.6	34.9
EW13S	6/1/18	N	24	6000	14.9	3.6	13400		2540	20.0 U		19	0.50 U	0.93	1.0	13	271	34.2	253	0.085 J		13.6	33.8
EW13S	10/19/18	FD	17	9800	16.3	17.3	16300		2610	20.0 U		33	0.50 U	1.3	1.3	19	241	32.6	255	0.20 U		17.0	34.7
EW13S	10/19/18	N	16	10000	16.0	12.5	16400		2620	11.5 J		34	0.23 J	1.2	1.2	21	242	33.4	251	0.20 U		17.4	35.3

Appendix A.1

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

Location	Date[2]	Compound [1] / Units	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
EW13S	4/23/19	N	8.4	8900	5.5 B	1.8 JB	18700		3040 B	6.9 U		17	0.15 U	0.83	0.84	15	243	32.2	340	0.068 U		19.9	31.5
EW13S	10/15/19	N	6.3	11000	8.9	2.2	19800		3150	6.9 U		20	0.15 U	1.3	0.97	18	265	33.1	268	0.068 U		15.5	36.6
EW13S	4/8/20	N	5.5	3700	3.8	8.1	10200		1310	9.0 J		27	0.15 U	0.74	0.81	12	257	32.1	258	0.068 U		13.6	35.8
EW13S	10/7/20	FD	4.6	7900	15.5	1.1 J	14800		2590	6.9 U		33	0.15 U	1.5	1.2	21	234	36.7	276	0.076 JH		18.4	29.0
EW13S	10/7/20	N	5.2	8300	14.8	1.4 J	14200		2440	6.9 U		33	0.15 U	1.2	0.89	17	233	34.3	270	0.11 JH		16.9	29.1
EW14D	8/22/14	N		290							0.99										1.4 J		
EW14D	2/3/15	N		660							1.5										4.9 U		
EW14D	4/23/15	N		2100																			
EW14D	4/19/16	FD	3.5	2700	5.0 U	2.0 U	292		77.8	17.2 J		3.1	0.50 U	1.0 U	1.0 U	2.4	136	11.9	145	0.48		7.1	6.3
EW14D	4/19/16	N	4.2	2800	5.0 U	3.4	301		77.4	17.5 J		3.5	0.50 U	1.0 U	1.0 U	2.4	137	12.0	139	0.48		7.2	6.5
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	0.01 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	0.01 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													

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.50 U	0.15	5.0 U	2.0 U	19.9 J		1.4 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	79.9	5.1	102	0.53		5.2	0.73 J
MW1	7/20/16	N	0.50 U	1.1	5.0 U	2.0 U	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	82.4	5.6	30.0	0.53		5.2	0.83 J
MW1	10/12/16	N	0.16 J	0.12	0.46 J	0.67 J	100 U		0.96 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	86.2	7.5	92.0	0.45		5.2	0.59 J
MW1	1/19/17	FD	0.080	0.30	0.51 J	0.73 J	5.7 J		0.25	6.2		0.061	0.28	0.26	0.23	0.24	71.9	6.8	88.0	0.54		4.8	0.73 J
MW1	1/19/17	N	0.080	0.19	0.77 J	0.76 J	8.1 J		0.25	6.2		0.063	0.28	0.26	0.23	0.24	71.9	6.7	88.0	0.54		4.7	0.65 J
MW1	4/18/17	N	0.50 U	0.12	0.37 J	2.0 U	100 U		5.0 U	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	64.4	3.9	84.0	0.39		5.5	0.91 J
MW1	10/4/17	N	0.15 J	0.17	1.0 U	1.1 J	100 U		2.5 U	20.0 U		0.77 U	0.50 U	0.50 U	0.50 U	1.0 U	78.5	8.1	81.3	1.1		5.5	0.63 J
MW1	10/18/18	N	1.0 U	0.096 U	0.34 J	1.3 J	100 U		2.5 U	8.8 J		0.81 U	0.50 U	0.50 U	0.50 U	1.0 U	85.5	13.1	109	2.9		5.9	1.0
MW1	4/24/19	FD	0.17 U	0.14	0.45 J	1.5 JB	69.1 J		3.7	7.3 J		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	84.0	10.7	116	3.4		6.0 B	0.89 J
MW1	4/24/19	N	0.17 U	0.12	0.24 J	1.2 JB	53.2 J		3.5	8.2 J		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	85.1	11.3	116	3.4		5.9 B	0.47 U
MW1	10/14/19	N	0.17 U	0.085 U	0.37 J	1.5 J	76.5 J		4.7	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	99.1	14.7	116	3.7 H		5.7	0.55 J
MW1	4/9/20	N	0.17 U	0.086 U	0.47 J	1.6 J	46.7 U		0.79 U	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	72.9	6	83.4	1.4		5.5	0.54 J
MW1	10/6/20	N	0.17 U	0.17	0.36 J	3.6	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	82.0	9.7	105	3.0		7.1	1.2
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			

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.01 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													
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																		2.9 J			
MW2	9/24/14	N	0.50 U	0.32	5.0 U	2.0 U	100 U		1.4 J	20 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	62	0.69 J	68	0.73		2.4	1.0 U
MW2	10/14/15	N	0.50 U	0.13	5.0 U	0.75 J	56.7 J		2.9 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	50.7	0.55 J	60.3	0.63		2.1	1.3
MW2	4/14/16	N	0.50 U	0.080 J	1.3 J	20.1	6580		171	19.7 J		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	34.4	0.51 J	49.0	0.38		1.8	3.6
MW2	10/29/18	N	1.0 U	0.21	1.0 U	2.8	100 U		1.8 J	10.9 J		0.86 U	0.50 U	0.50 U	0.50 U	1.0 U	66.6	0.42	87.2	0.51		1.6	2.1
MW2	4/25/19	N	0.17 U	0.37	0.23 U	1.8 J	230		7.5	9.7 J		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	61.5	0.48	80.5	0.30		1.7 B	1.3
MW2	10/18/19	N	0.17 U	0.094 U	0.33 J	5.2	1170		40.9	12.1 J		0.26 U	0.15 U	0.18 U	0.15 U	0.22 U	67.9 H	0.34	75.6	0.3		1.4 B	5.3
MW2	4/9/20	N	0.17 U	0.093 U	1.4	28.2	6900		292	30.5		0.26 U	0.15 U	0.18 U	0.15 U	0.22 U	73.3	0.3	160	0.24		1.4	0.70 J
MW2	10/8/20	N	0.17 U	0.10 U	0.23 U	0.79 J	46.7 U		3.3	6.9 U		0.32 J	0.15 U	0.18 U	0.15 U	0.22 U	68.2	0.26	87.8	0.27 H		1.3	0.90 J
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											

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Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.01 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	5.0 U	2.0 U	160		7.6	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	290	72	360	2.1		12	0.91 J
MW3	10/15/15	FD	5.7	0.23	5.0 U	1.2 J	56.6 J		7.9	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	258	52.3	312	1.7		11.2	1.2
MW3	10/15/15	N	5.1	0.15	5.0 U	0.93 J	58.2 J		7.4	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	258	52.5	322	1.7		11.1	1.1
MW3	4/5/16	FD	4.2	0.40	5.0 U	0.99 J	514		18.6	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	221	48.6	283	1.4		10.0	0.94 J
MW3	4/5/16	N	4.4	0.46	5.0 U	1.4 J	716		20.4	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	224	48.2	299	1.4		10.1	0.98 J
MW3	7/21/16	N	2.5	0.35	5.0 U	2.0 U	317		16.2	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	215	45.5	248	1.4		9.2	1.0
MW3	10/11/16	N	1.5	0.45	5.0 U	1.7 J	171		14.8	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	233	46.8	268	1.8		12.7	1.1
MW3	1/20/17	N	1.9	0.93	0.35	2.0	812		16.4	6.2		0.060	0.28	0.26	0.23	0.24	230	47.3	284	1.9		14.5	1.6
MW3	4/20/17	N	1.3	0.47	5.0 U	1.7 J	83.6 J		23.0	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	232	45.5	358	1.8		15.0	1.4
MW3	10/13/17	N	2.1	0.55	1.0 U	2.0	59.7 J		12.5	20.0 U		0.79 U	0.50 U	0.50 U	0.50 U	1.0 U	272	50.1	298	2.0		13.9	1.4
MW3	6/1/18	N	1.0 U	0.25	0.29 J	1.7 J	50.6 J		9.4	20.0 U		0.78 U	0.50 U	0.50 U	0.50 U	1.0 U	698	31.5	246	1.9		10.8	1.2

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW3	10/18/18	N	1.0 U	0.50	1.0 U	1.7 J	77.2 J		9.2	20.0 U		0.79 U	0.50 U	0.50 U	0.50 U	1.0 U	227	23.9	231	1.7		10.2	1.3
MW3	4/25/19	N	200	0.27	0.23 U	2.0	372		21.7	9.7 J		0.24 U	0.24 J	0.18 U	0.15 U	0.22 U	200	35.4	215	1.5		7.8 B	1.0
MW3	10/14/19	N	86	0.091 U	0.23 U	0.73 J	482		52.1	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	209	30.1	235	1.3 H		8.3	0.69 J
MW3	4/6/20	FD	21	0.089 U	0.25 J	0.86 J	675		32	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	203	25.4	219	1.4 H		7	0.57 J
MW3	4/6/20	N	22	0.090 U	0.23 U	0.91 J	685		31.9	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	199	24.9	213	1.4 H		7	0.58 J
MW3	10/7/20	N	6.6	0.49	0.24 J	0.60 J	1770		25.7	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	256	25.2	280	2.3 H		7.7	1.1
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			2	3	1	3							
MW4	4/4/00	N		0.5 U								10 U											
MW4	1/20/17	N	0.92	3.0	1.5 J	0.36	124		37.9	6.2		0.063	0.28	0.26	0.23	0.24	87.9	22.7	132	0.23		11.6	0.53 J
MW4	4/21/17	N	10	0.11	1.2 J	2.0 U	85.4 J		39.0	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	82.8	32.9	170	0.15		13.2	0.60 J
MW4	10/3/17	N	7.2	0.097 U	1.2	1.2 J	501		41.8	20.0 U		0.82 U	0.50 U	0.50 U	0.50 U	1.0 U	93.7	37.0	134	0.26		30.0	1.0 U
MW4	5/31/18	N	300	0.11 U	1.1	2.0 U	149		38.6	20.0 U		0.78 U	0.50 U	0.50 U	0.50 U	1.0 U	76.8	47.9	145	0.096 J		14.1	0.85 J
MW4	10/17/18	FD	6.7	0.10 U	1.2	2.0 U	100 U		36.0	6.9 J		0.82 U	0.50 U	0.50 U	0.50 U	1.0 U	87.1	40.3	138	0.22		13.1	0.68 J
MW4	10/17/18	N	5.9	0.097 U	1.2	2.0 U	100 U		33.8	20.0 U		0.55 U	0.50 U	0.50 U	0.50 U	1.0 U	86.5	40.9	138	0.20		13.0	0.72 J
MW4	4/24/19	FD	50	0.089 U	0.97 J	0.50 U	82.6 J		35.7	6.9 U		0.24 U	0.15 U	0.18 U	0.16 J	0.22 U	75.1	49.7	142	0.086 J		12.5 B	0.84 J
MW4	4/24/19	N	45	0.085 U	0.89 J	1.3 J	118		33.6	6.9 U		0.24 U	0.15 U	0.18 U	0.16 J	0.22 U	74.7	52.1	144	0.070 J		13.0 B	0.65 J
MW4	10/16/19	N	25	5.7	1	0.50 U	214		134	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	80.3 H	50.4	147	0.090 J		13.6 B	0.47 U
MW4	4/7/20	N	18	0.87	1.1	0.68 J	67.9 J		36	10 J		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	73.8	49.5	143	0.24		14	0.47 U
MW4	10/5/20	N	4.7	0.086 U	1.1	0.50 U	46.7 U		37.4	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	74.1	44.3	151	0.28		13.7	0.81 J
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													

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	2.0 U	1200		2200	20 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	97	4.3	150	0.12		48	1.0 U
MW5	9/24/14	N	12	12	0.41 J	2.0 U	1200		2200	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	100	4.3	150	0.14		48	2.3
MW5	10/14/15	N	1.8	64	5.0 U	2.0 U	954		2230	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	98.7	12.7	159	0.053 J		48.9	3.3
MW5	4/7/16	FD	4.9	16	5.0 U	2.0 U	940		2070	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	71.3	12.5	113	0.96		37.6	4.5
MW5	4/7/16	N	4.3	17	5.0 U	2.0 U	931		1990	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	72.0	12.7	113	0.97		38.0	4.6
MW5	10/29/18	N	15	5600	0.71 J	1.5 J	7920		6730	20.0 U		23	0.50 U	0.57	0.53	6.5	249	28.5	292	0.084 J		28.5	39.6
MW5	4/25/19	N	96	5100	0.79 J	0.97 J	10200		6250	6.9 U		24	0.15 U	0.47 J	0.52	5.8	262	27.0	305	0.068 U		27.7 B	33.3 F1
MW5	10/17/19	FD	32	5500	0.69 J	0.84 J	21900		6870	6.9 U		20	0.15 U	0.62	0.43 J	6.4	265	25.7	283	0.068 U		24.4	38.4
MW5	10/17/19	N	34	6000	0.75 J	0.70 J	22300		7140	6.9 U		22	0.15 U	0.62	0.46 J	6.3	452	28.2	273	0.068 U		25.6	38.7
MW5	4/13/20	N	13	6200	0.92 JB	1.1 J	17000		7190 B	6.9 U		22	0.15 U	0.72	0.6	7	253	27	286	0.068 U		23.8	42.5
MW5	10/8/20	FD	8.9	4800	1.0	1.3 J	14200		7310	6.9 U		26	0.15 U	0.57	0.57	7.7	244	31.6	283	0.076 JH		29.2	45.8
MW5	10/8/20	N	9.8	5000	0.93 J	1.5 J	14300		7470	6.9 U		25	0.15 U	0.71	0.62	7.2	242	26.7	296	0.084 JH		24.6	47.0
MW6	4/19/16	FD		0.050 J	5.0 U	2.0 U	100 U		3.2 J	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U							
MW6	4/19/16	N	0.78	170	5.0 U	5.2	282		5.6	9.0 J		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	183	35.0	245	10.2		26.3	6.2

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Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.27	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
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		110	41		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	22	9.3	100	3.6		7.3	1.0 U
MW6S	10/14/15	N	0.50 U	0.17	5.0 U	2.5	16.8 J		1.4 J	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	12.5	10.8	76.4	3.6		6.7	3.4
MW6S	4/19/16	N	0.50 U	0.20	0.51 J	4.7	831		15.4	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	42.0	7.4	70.6	4.8		6.3	18.2
MW6S	7/25/16	N	0.50 U	0.19	5.0 U	3.4	118		6.1	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	49.4	13.8	86.0	7.0		8.0	3.7
MW6S	10/13/16	N	0.50 U	0.20	0.71 J	19.7	2290		52.7	11.7 J		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	126	14.5	152	6.9		8.1	4.2
MW6S	1/23/17	N	0.080	0.059 J	0.35	2.8	5.3		6.0	6.2		0.063	0.28	0.26	0.23	0.24	188	6.6	212	3.1		6.0	3.8
MW6S	4/24/17	N	0.089 J	0.13	5.0 U	3.3	8.3 J		7.4	20.0 U		0.23 U	0.50 U	1.0 U	1.0 U	2.0 U	198	6.5	268	3.8		8.1	2.3
MW6S	10/5/17	N	0.50 U	0.32	1.0 U	5.5	100 U		4.0	7.2 J		0.86 U	0.50 U	0.50 U	0.50 U	1.0 U	225	18.2	283	6.6		8.0	1.8
MW6S	6/1/18	N	1.0 U	0.11 U	0.37 J	3.1	58.6 J		4.7	20.0 U		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	250	14.1	320	11.6		11.9	2.3
MW6S	10/19/18	N	1.0 U	0.097 U	0.28 J	15.7	100 U		5.2	12.4 J		0.76 U	0.50 U	0.50 U	0.50 U	0.24 J	249	13.1	306	5.1		8.0	3.2
MW6S	4/25/19	N	0.17 U	0.095 U	0.27 J	2.6	121		4.8	10.3 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	275	12.1	336	10		13.2 B	2.0

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW6S	10/17/19	N	0.17 U	2.7	0.27 J	3.4	271		11	11.0 J		0.23 U	0.15 U	0.18 U	0.15 J	0.22 U	444 H	8.9	259	3.8		7.4	2.6
MW6S	4/9/20	N	0.17 U	0.089 U	0.41 J	3.7	89.8 J		5.1	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	245	11	297	7.3		11.1	2.8
MW6S	10/7/20	N	0.17 U	0.095 U	0.71 J	2.8	46.7 U		9.9	6.9 U		0.26 U	0.15 U	0.18 U	0.15 U	0.22 U	196	11.9	207	2.7		6.7	2.8
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	0.01 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

Appendix A.1

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

Location	Date[2]	Compound [1]	Methane	Pentachlorophenol	Arsenic	Copper	Iron	Magnesium	Manganese	Zinc	Total Petroleum Hydrocarbons (C10-C28) DRO	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, total (as CaCO3)	Chloride	Hardness	Nitrate (as N)	Oil and grease (HEM), polar	Sulfate	Total organic carbon (TOC)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/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
MW7	10/9/13	N2																		1.8 J			
MW7	9/23/14	N	15	0.034 J	0.28 J	2.0 U	260		33	30		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	200	9.0	240	1.9		110	0.96 J
MW7	10/12/15	N	6.5	0.094 U	0.88 J	1.6 J	100 U		423	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	228	8.3	229	1.5		46.2	0.85 J
MW7	4/6/16	N	13	0.098 U	5.0 U	1.9 J	5270		117	36.2		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	212	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	0.01 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
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	0.61 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	0.016 J	0.60 J	2.0 U	197		10.9	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	174	18.0	421	1.3		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							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.01 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	0.50 U	1.6	5.0 U	2.0 U	100 U		5.0 U	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	14	1.1	41	2.4		10	2.5
MW9	10/13/15	N	0.50 U	0.17	5.0 U	1.3 J	21.1 J		5.0 U	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	31.0	0.70 J	40.2	1.5		7.4	4.4
MW9	4/13/16	N	0.50 U	0.28	5.0 U	1.4 J	33.6 J		1.5 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 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											

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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
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	0.011	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	2.0 U	250		1300	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	180	6.1	270	0.10		77	1.0 U
MW10	10/15/15	N	8.2	150	5.0 U	1.0 J	188		861	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	178	6.5	244	0.10 U		71.8	1.8
MW10	4/7/16	N	290	1900	5.0 U	2.0 U	1350		719	20.0 U		4.8	0.50 U	0.46 J	0.53 J	2.9	162	9.8	189	0.10 U		46.1	8.6
MW10	7/25/16	N	8.6	1700	5.0 U	3.7	826		744	20.0 U		5.2	0.50 U	0.66 J	0.64 J	5.2	160	12.3	188	0.10 U		31.7	11.6
MW10	10/13/16	N	5.5	7300	0.46 J	1.7 J	434		777	20.0 U		6.2	0.50 U	0.79 J	0.79 J	5.7	156	14.6	186	0.10 U		24.3	11.1
MW10	1/24/17	N	8.5	6200	0.46 J	1.9 J	539		831	6.2		10	0.28	0.96 J	0.91 J	8.1	158	17.4	220	0.035		24.0	19.4
MW10	4/24/17	N	3.7	7600	0.76 J	5.9	756		897	20.0 U		20	0.50 U	1.6	1.8	14	142	19.1	234	0.10 U		25.0	27.9

Appendix A.1

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Penta Wood Products Superfund Site
Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW10	10/5/17	FD	15	5000	0.53 J	3.7	609		898	20.0 U		19	0.50 U	1.3	1.5	9.5	157	25.9	182	0.081 J		20.1	32.0
MW10	10/5/17	N	13	4800	0.53 J	3.0	626		903	20.0 U		20	0.50 U	1.2	1.5	9.4	157	26.2	184	0.083 J		20.2	30.8
MW10	6/1/18	N	23	2500	1.0	3.6	796		951	20.0 U		24	0.50 U	1.4	1.5	10	470	27.6	197	0.084 J		19.9	2.1
MW10	10/19/18	N	40	2500	1.1	13.6	1310		907	20.0 U		21	0.50 U	1.2	1.1	8.6	146	19.9	182	0.20 U		15.3	26.2
MW10	4/22/19	N	550	1600 H	1.1 B	2.2 B	769		740 B	6.9 U		9.3	0.15 U	0.80	0.90	6.0	130	24.8	173	0.068 U		12.9	23.3
MW10	10/16/19	FD	180	1800	1.1	2.4	1640		937	6.9 U		7	0.15 U	0.18 U	0.98	7.7	144 B	30.3	183	0.068 U		14.4 B	26.6
MW10	10/16/19	N	81	1700	1.1	2.7	1800		937	6.9 U		7.5	0.15 U	0.69	0.15 U	7.4	143 B	31.2	186	0.068 U		14.4 B	27.1
MW10	4/8/20	N	230	3600	1.3	2.9	1150		1070	6.9 U		26	0.15 U	1.8	1.6	13	136	37.5	196	0.068 U		20	42.1
MW10	10/6/20	N	81	3200	1.5	8.6	2340		1180	6.9 U		22	0.15 U	1.7	1.3	13	150	41.6	203	0.068 U		21.2	40.1
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								512 =											
MW10S	4/7/00	N2		34800 =								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							570				
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	0.01 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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Location	Date[2]	Compound [1] / Units	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW10S	4/18/16	N	0.50 U	3500	0.59 J	2.6	190		388	20.0 U		4.7	0.50 U	1.0 U	1.0 U	2.7	102	7.8	92.1	0.10 U		9.1	9.5
MW10S	7/25/16	N	0.50 U	5200	0.68 J	9.2	183		315	20.0 U		13	0.50 U	0.39 J	1.0 U	5.6	107	7.7	124	0.10 U		11.8	15.6
MW10S	10/13/16	N	0.12 J	6600	0.44 J	4.6	124		399	20.0 U		9.6	0.50 U	0.30 J	1.0 U	4.6	83.7	6.1	100	0.10 U		11.9	12.3
MW10S	1/24/17	N	0.12 J	9800	0.80 J	2.5	254		624	6.2		10	0.28	0.40 J	0.23	5.7	164	12.3	220	0.035		17.3	23.4
MW10S	4/24/17	FD	0.36 J	3300	0.65 J	3.3	406		1380	20.0 U		10	0.50 U	0.40 J	1.0 U	5.8	195	25.7	350	0.082 J		23.1	32.1
MW10S	4/24/17	N	0.35 J	4300	0.74 J	3.3	394		1340	20.0 U		11	0.50 U	0.40 J	1.0 U	5.9	195	25.6	332	0.10 U		23.1	33.0
MW10S	10/5/17	N	0.29 J	4400	0.50 J	2.9	770		1260	8.1 J		9.9	0.50 U	0.46 J	0.50 U	6.0	314	41.1	378	0.13 J		26.7	29.8
MW10S	6/1/18	N	1.0 U	1500	0.91 J	5.2	1010		2880	20.0 U		11	0.50 U	0.42 J	0.22 J	5.2	322	69.8	456	0.083 J		39.7	5.5
MW10S	10/19/18	N	1.0 U	1900	0.51 J	8.2	716		2030	20.0 U		5.9 J	0.50 U	0.84	0.34 J	10	311	32.9	388	0.76		23.5	26.1
MW10S	4/23/19	FD	0.17 U	1500	2.1 B	6.0 B	886		3470 B	6.9 U		10	0.15 U	0.36 J	0.28 J	5.9	313	63.6	464	0.073 J		42.5	56.3
MW10S	4/23/19	N	0.17 U	1400 ^	0.67 JB	8.8 B	861		3450 B	6.9 U		10	0.15 U	0.38 J	0.30 J	6.1	312	64.8	471	0.074 J		43.1	60.9
MW10S	10/16/19	N	0.31 J	2500	0.49 J	1.8 J	551		3010	6.9 U		13	0.15 U	0.18 U	0.15 U	14	345 B	20.5	379	0.19 J		18.8	27.7
MW10S	4/8/20	FD	0.17 U	2300	0.57 J	2.8	571		3670	6.9 U		16	0.15 U	0.91	0.26 J	12	301	19.4	341	0.068 U		21.1	34.5
MW10S	4/8/20	N	0.17 U	2800	0.54 J	2.3	563		3530	6.9 U		17	0.15 U	0.82	0.25 J	11	312	21.7	345	0.068 U		22.6	34
MW10S	10/7/20	N	0.17 U	2100	1.1	8.2	819		4880	6.9 U		19	0.15 U	0.80	0.22 J	11	344	20.6	388	0.076 J		22.0	29.7
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	0.01 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	0.01 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													

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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	0.50 U	0.10 U	0.75 J	2.0 U	32.1 J		1.9 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	229	18.0	470	1.6		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									520				
MW12	5/14/02	N3			1.4 U	4.9 J	11.2 U		1680	12 J													
MW12	8/8/02	N	0.01 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													

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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
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

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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 J	2.0 U	100 U		450	20 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	240	11	360	1.7		130	1.0 U
MW12	4/20/15	N	0.50 U	16	1.1 J	1.4 J	100 U		530	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	220	11	410	1.7		140	0.95 J
MW12	10/13/15	N	0.080 J	25	5.0 U	2.0 U	362		27.4	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	279	11.7	74.4	1.6		159	1.2
MW12	4/6/16	N	0.12 J	5.2	0.77 J	1.4 J	60.1 J		148	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	236	10.6	358	1.6		135	0.67 J
MW12	7/19/16	N	0.50 U	14	0.61 J	1.6 J	100 U		388	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	238	10.1	358	1.4		134	0.96 J
MW12	10/12/16	N	0.092 J	14	0.50 J	1.6 J	10 J		439	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	239	10.8	340	1.2		124	0.71 J
MW12	1/18/17	N	0.13 J	18	0.87 J	1.4 J	8.5 J		427	6.2		0.060	0.28	0.26	0.23	0.24	203	10.7	326	1.1		122	0.89 J
MW12	4/19/17	N	0.13 J	14	0.46 J	1.2 J	10.8 J		362	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	201	10.1	346	1.0		112	1.0
MW12	10/2/17	N	0.48 J	32	0.49 J	1.9 J	100 U		328	20.0 U		0.82 U	0.50 U	0.50 U	0.50 U	1.0 U	199	11.7	282	0.90		105	1.1
MW12	10/16/18	N	1.0 U	110	0.53 J	1.3 J	100 U		72.2	20.0 U		0.78 U	0.50 U	0.50 U	0.50 U	1.0 U	173	8.1	231	0.61		59.9	2.1
MW12	4/23/19	N	0.17 U	290	0.55 JB	1.5 JB	46.7 U		55.0 B	6.9 U		0.24 U	0.15 U	0.18 U	0.15 J	0.22 U	165	9.1	218	0.53		45.5	2.4
MW12	10/14/19	N	0.25 J	300	0.89 J	0.85 J	46.7 U		8.4	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	158	8.7	197	0.61 H		43.5	1.2
MW12	4/7/20	N	0.17 U	880	0.78 J	1.9 J	46.7 U		70	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.70 J	160	9.3	192	0.31		37.6	4.2
MW12	10/5/20	N	0.17 U	0.089 U	0.92 J	1.8 J	46.7 U		81.1	6.9 U		0.45 J	0.15 U	0.19 J	0.15 U	0.82 J	153	8.6	172	0.35		34.2	3.1
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													
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

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Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW13	9/10/01	N2			0.54 J	2.8 J	52 J		27	4.7 J													
MW13	8/5/02	N	0.01 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	0.50 U	0.34	5.0 U	3.2	449		13.4	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	51.0	1.4	54.9	0.70		3.4	4.2
MW13	7/20/16	N	0.50 U	1.1	5.0 U	1.5 J	19.4 J		5.0 U	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	39.5	0.91 J	86.0	1.0		2.2	2.1
MW13	10/10/16	N	0.50 U	0.37	0.87 J	2.3	23.2 J		0.94 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	49.3	0.98 J	56.0	0.58		3.1	1.9
MW13	1/19/17	N	0.080	0.33	0.35 J	3.1	17.1 J		1.1 J	6.2		0.064	0.28	0.26	0.23	0.24	50.8	0.71 J	52.0	0.49		3.6	2.2
MW13	4/19/17	N	0.50 U	0.24	5.0 U	1.1 J	100 U		0.28 J	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	53.7	0.76 J	60.0	0.50		4.4	2.2
MW13	9/29/17	N	0.25 J	0.27 J	1.0 U	1.6 J	53.5 J		1.4 J	20.0 U		0.79 U	0.50 U	0.50 U	0.50 U	1.0 U	59.0	1.4	47.6	0.56		3.3	2.0
MW13	10/16/18	N	1.0 U	0.35	1.0 U	1.8 J	100 U		3.2	20.0 U		0.79 U	0.50 U	0.50 U	0.15 J	1.0 U	54.9	0.83	47.7	0.41		2.8	2.4
MW13	4/23/19	N	0.17 U	0.30 ^	0.28 JB	2.3 B	46.7 U		1.6 JB	11.2 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	54.2	0.89	49.8	0.41		3.0	2.3
MW13	10/14/19	N	0.17 U	0.086 U	0.28 J	2.3	149		4.3	6.9 J		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	44.7	1.2	40.1	0.29 H		1.8	1.9
MW13	4/9/20	N	0.17 U	0.089 U	0.35 J	3.9	46.7 U		1.0 J	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	51.7	0.72	50.3	0.41		2.6	1.7
MW13	10/6/20	N	0.17 U	0.20	0.27 J	3.3	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	53.6	0.81	48.9	0.31		2.6	2.1
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 =			
MW14	1/23/17	N	0.080	0.12	1.1 J	0.62 J	5.3		1.6 J	6.2		0.061	0.28	0.26	0.23	0.24	129	15.8	146	1.7		6.6	0.51 J
MW14	10/3/17	FD	0.11 J	0.099 U	1.0	0.74 J	100 U		0.93 J	20.0 U		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	128	17.1	148	1.9		6.7	1.0 U

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW14	10/3/17	N	0.087 J	0.098 U	0.95 J	0.72 J	100 U		1.1 J	20.0 U		0.76 U	0.50 U	0.50 U	0.50 U	1.0 U	129	16.1	166	1.9		6.9	0.47 J
MW14	5/31/18	N	1.0 U	0.10 U	1.2	0.79 J	100 U		3.1	20.0 U		0.82 U	0.50 U	0.50 U	0.50 U	1.0 U	585	16.4	143	1.7		6.3	0.71 J
MW14	10/17/18	N	1.0 U	0.097 U	1.1	2.0 U	100 U		1.3 J	20.0 U		0.78 U	0.50 U	0.50 U	0.50 U	1.0 U	122	15.6	142	1.8		6.4	0.68 J
MW14	4/25/19	N	0.17 U	0.14	1.1	0.95 J	46.7 U		6.3	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	122	15.0	140	1.5		6.0 B	0.64 J
MW14	10/16/19	N	0.17 U	0.086 U	1.1	0.50 U	46.7 U		9.0 F2	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	123 H	17.5 F1	146	1.7		6.6 B	0.47 U
MW14	4/8/20	N	0.17 U	0.096 U	1.1	0.66 J	46.7 U		2.5	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	115	18.1	140	1.4		6	0.60 J
MW14	10/5/20	N	0.17 U	0.086 U	1.2	0.55 J	46.7 U		3.4	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	119	22.4	143	1.6		6.6	0.72 J
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				13.9			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	0.01 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

Appendix A.1

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

Location	Date[2]	Compound [1]	Methane	Pentachlorophenol	Arsenic	Copper	Iron	Magnesium	Manganese	Zinc	Total Petroleum Hydrocarbons (C10-C28) DRO	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, total (as CaCO3)	Chloride	Hardness	Nitrate (as N)	Oil and grease (HEM), polar	Sulfate	Total organic carbon (TOC)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/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
		Type[3]																					
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
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	0.50 U	0.054 J	1.1 J	2.0 U	28 J		1.9 J	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	210	11	250	5.3		5.6	0.85 J
MW15	4/20/15	N	0.50 U	0.094 U	0.78 J	2.0 U	100 U		1.1 J	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	190	11	270	5.6		5.7	0.44 J
MW15	10/12/15	N	0.50 U	0.094 U	0.54 J	1.0 J	100 U		5.0 U	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	224	12.0	302	6.7		5.8	0.55 J
MW15	4/5/16	N	0.50 U	0.078 J	0.70 J	1.7 J	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	207	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	0.01 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

Appendix A.1

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

Location	Date[2]	Compound [1]	Methane	Pentachlorophenol	Arsenic	Copper	Iron	Magnesium	Manganese	Zinc	Total Petroleum Hydrocarbons (C10-C28) DRO	Naphthalene	Benzene	Ethylbenzene	Toluene	Xylenes (total)	Alkalinity, total (as CaCO3)	Chloride	Hardness	Nitrate (as N)	Oil and grease (HEM), polar	Sulfate	Total organic carbon (TOC)
		Units	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/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
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	0.50 U	0.036 J	0.41 J	2.0 U	100 U		5.0 U	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	31	5.4	60	0.54		2.8	1.1
MW16	10/13/15	N	0.50 U	0.098 U	5.0 U	1.0 J	45.2 J		2.1 J	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	48.4	4.3	84.4	0.61		5.9	0.70 J
MW16	4/6/16	N	0.50 U	0.096 U	5.0 U	1.9 J	168		14.6	20.0 U		0.11 J	0.50 U	1.0 U	1.0 U	2.0 U	32.6	2.2	31.8	0.41		2.6	2.3
MW16	7/19/16	N	0.50 U	0.094 U	5.0 U	2.2	114		11.5	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	32.4	2.2	34.0	0.42		2.6	5.8
MW16	10/12/16	N	0.50 U	0.18	0.40 J	1.7 J	61.7 J		5.3	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	33.1	2.4	24.0	0.30		2.2	0.58 J
MW16	1/18/17	N	0.080	0.015	0.47 J	1.3 J	11.5 J		1.2 J	6.2		0.060	0.28	0.26	0.23	0.24	31.3	3.2	46.0	0.46		3.6	1.1
MW16	4/19/17	N	0.50 U	0.10 U	5.0 U	1.6 J	7.7 J		0.80 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	39.0	3.3	60.0	0.57		4.5	2.0
MW16	10/2/17	N	0.11 J	0.096 U	1.0 U	2.5	100 U		2.0 J	8.8 J		0.90 U	0.50 U	0.50 U	0.50 U	1.0 U	43.7	4.0	45.7	0.73		6.6	0.82 J
MW16	10/16/18	N	1.0 U	0.10 U	0.26 J	3.2	100 U		2.5 U	13.0 J		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	32.0	4.5	28.6	0.74		3.5	1.8
MW16	4/24/19	N	0.17 U	0.24	0.37 J	1.9 J	169		15.7	9.0 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	34.1	4.7	39.4	0.63		4.7 B	0.74 J
MW16	10/14/19	FD	0.17 U	0.087 U	0.26 J	2.4	105		4.2	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	43.2	3.8	37.9	0.55 H		4.4	0.47 U
MW16	10/14/19	N	0.17 U	0.086 U	0.27 J	1.6 J	60.3 J		4	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	42.8	3.9	37.5	0.55 H		4.4	0.47 U
MW16	4/7/20	N	0.17 U	0.52	0.34 J	5.3	46.7 U		0.79 U	8.6 J		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	44.1	2.2	35.4	0.56		3.3	0.47 U
MW16	10/5/20	N	0.17 U	0.087 U	0.24 J	3.5	46.7 U		0.79 U	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	56.3	2.0	49.9	0.59		3.8	0.94 J
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	0.01 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													

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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
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	0.50 U	0.097 U	0.83 J	2.0 U	100 U		1.3 J	20 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	150	15	250	4.8		40	0.72 J
MW17	10/13/15	N	0.50 U	0.095 U	1.1 J	2.0 U	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	184	14.8	265	4.2		45.3	0.59 J
MW17	4/5/16	N	0.50 U	0.095 U	0.81 J	1.8 J	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	173	13.6	289	3.5		85.4	0.46 J
MW17	7/19/16	N	0.50 U	0.095 U	0.84 J	1.4 J	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	195	14.7	336	2.8		142	0.52 J
MW17	10/11/16	N	0.50 U	0.094 U	0.80 J	0.76 J	100 U		0.28 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	208	17.0	348	2.7		136	0.36 J
MW17	1/23/17	FD	0.080	0.015	0.76 J	0.66 J	5.3		0.25	6.2		0.060	0.28	0.26	0.23	0.24	213	17.4	380	2.1		167	0.50 J
MW17	1/23/17	N	0.13 J	0.099	0.73 J	1.4 J	5.3		0.25	6.2		0.060	0.28	0.26	0.23	0.24	202	17.4	390	2.1		167	0.81 J
MW17	4/20/17	FD	0.50 U	0.10 U	0.68 J	0.65 J	100 U		0.58 J	20.0 U		0.24 U	0.50 U	1.0 U	1.0 U	2.0 U	223	16.1	470	2.2		165	0.43 J
MW17	4/20/17	N	0.50 U	0.10 U	0.71 J	0.77 J	100 U		0.45 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	201	16.1	460	2.2		164	0.48 J
MW17	10/3/17	N	0.096 J	0.099 U	0.74 J	1.8 J	100 U		2.5 U	20.0 U		0.85 U	0.50 U	0.50 U	0.50 U	1.0 U	212	17.2	390	3.5		125	1.0 U
MW17	5/31/18	N	1.0 U	0.096 U	0.79 J	1.7 J	100 U		2.5 U	20.0 U		0.77 U	0.50 U	0.50 U	0.50 U	1.0 U	194	14.9	311	3.3		98.2	0.77 J
MW17	10/17/18	N	1.0 U	0.11 U	0.63 J	1.1 J	100 U		2.5 U	20.0 U		0.81 U	0.50 U	0.50 U	0.15 J	1.0 U	185	13.6	317	2.9		106	0.61 J
MW17	4/22/19	N	0.17 U	0.087 U	0.80 JB	1.3 JB	46.7 U		1.2 JB	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	187	12.4	335	2.2		140	1.2
MW17	10/15/19	N	0.17 U	0.087 U	0.55 J	1.0 J	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	193	13.8	338	2		128	0.47 U
MW17	4/7/20	N	0.17 U	0.085 U	0.88 J	1.3 J	46.7 U		0.79 U	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	181	12.6	310	1.8		131	0.47 U
MW17	10/5/20	N	0.17 U	0.095 U	0.70 J	1.9 J	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	191	13.1	335	1.8		151	0.68 J

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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				5.3			0.1 U	2	16	19							
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	0.01 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

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Penta Wood Products Superfund Site
Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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
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	0.01 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

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Penta Wood Products Superfund Site
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Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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
MW20	4/20/17	FD	0.50 U	0.10 U	0.99 J	2.0 U	100 U		0.64 J	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	133	14.7	188	1.7		7.0	0.49 J
MW20	4/20/17	N	0.50 U	0.10 U	1.0 J	0.37 J	100 U		0.33 J	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	131	14.8	186	3.5		7.0	0.47 J
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	25 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													
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	0.016 J	0.70 J	1.0 J	22.8 J		1.7 J	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	25.9	101	83.6	1.8		6.8	0.63 J
MW21	7/20/16	FD	0.50 U	5.5	5.0 U	0.86 J	23.5 J		5.0 U	20.0 U		0.24 U	0.50 U	1.0 U	1.0 U	2.0 U	29.9	84.9	78.0	1.7		6.6	0.90 J
MW21	7/20/16	N	0.11 J	8.5	5.0 U	1.3 J	29.4 J		5.0 U	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	29.4	84.5	84.0	1.7		6.8	0.93 J
MW21	10/11/16	N	0.50 U	5.7	0.38 J	1.8 J	6.2 J		0.44 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	30.5	74.4	82.0	1.8		6.6	0.61 J

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW21	1/18/17	N	0.080	2.9	0.39 J	2.2	6.8 J		0.25	6.2		0.060	0.28	0.26	0.23	0.24	25.4	86.8	88.0	1.8		7.4	0.75 J
MW21	4/18/17	N	0.50 U	0.017 J	5.0 U	0.44 J	100 U		5.0 U	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	26.7	78.6	92.0	1.8		7.5	0.77 J
MW21	10/3/17	N	0.082 J	0.096 U	0.28 J	1.2 J	100 U		2.5 U	20.0 U		0.76 U	0.50 U	0.50 U	0.50 U	1.0 U	35.2	72.6	70.5	1.8		7.1	0.76 J
MW21	10/17/18	N	1.0 U	0.099 U	1.0 U	1.2 J	100 U		2.5 U	20.0 U		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	35.4	66.6	65.6	1.9		6.0	1.1
MW21	4/24/19	N	0.17 U	0.086 U	0.23 J	1.5 J	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	32.6	78.4	72.8	1.6		6.4 B	0.94 J
MW21	10/15/19	N	0.17 U	0.088 U	0.23 J	0.72 J	46.7 U		0.79 U	7.0 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	35.1	87.1	83.1	1.6		5.9	0.47 U
MW21	4/9/20	N	0.17 U	0.088 U	0.39 J	1.4 J	488		7.3	8.0 J		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	37.1	77.3	85.4	1.6		5.8	0.47 U
MW21	10/6/20	N	0.17 U	0.091 U	0.27 J	0.73 J	46.7 U		0.79 U	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	47.0	81.5	95.4	1.9		6.7	0.99 J
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	0.01 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

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.50 U	0.27	0.22 J	2.0 U	25 J		19	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	51	1.7	60	0.69		3.6	0.71 J
MW22	4/21/15	N	0.50 U	0.072 J	0.60 J	2.8	390		23	20 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	42	1.9	57	0.69		3.7	0.57 J
MW22	10/13/15	N	0.50 U	0.041 J	5.0 U	1.2 J	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	46.3	1.7	52.3	0.65		2.8	0.74 J
MW22	4/6/16	N	0.50 U	0.025 J	5.0 U	0.92 J	17.5 J		2.2 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	50.8	1.3	57.7	0.61		2.9	5.3
MW22	7/20/16	N	0.50 U	0.030 J	5.0 U	3.4	235		10	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	58.6	1.2	64.0	0.60		3.1	1.7
MW22	10/12/16	N	0.50 U	0.043 J	0.41 J	1.7 J	85.4 J		5.4	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	67.2	1.7	70.0	0.53		3.5	0.96 J
MW22	1/18/17	N	0.080 J	0.058 J	0.44 J	3.4	186		10.6	6.2		0.060	0.28	0.26	0.23	0.24	58.4	2.1	94.0	0.65		3.8	1.1
MW22	4/21/17	N	0.50 U	0.090 J	5.0 U	2.6	100 U		0.31 J	20.0 U		0.23 U	0.50 U	1.0 U	1.0 U	2.0 U	62.9	2.8	110	0.77		4.4	0.93 J
MW22	10/4/17	N	0.39 J	0.049 J	1.0 U	2.6	198		11.9	8.5 J		0.89 U	0.50 U	0.50 U	0.50 U	1.0 U	74.1	2.7	77.9	0.71		3.7	0.90 J
MW22	10/17/18	N	1.0 U	0.10 U	1.0 U	3.2	100 U		2.5 U	16.3 J		0.81 U	0.50 U	0.50 U	0.50 U	1.0 U	61.7	2.5	70.2	0.71		3.8	0.78 J
MW22	4/24/19	N	0.17 U	0.085 U	0.27 J	1.8 J	166		9.6	9.6 J		0.28 U	0.15 U	0.18 U	0.15 U	0.22 U	60.3	4.1	102	0.75		4.1 B	0.84 J
MW22	10/16/19	N	0.17 U	0.095 U	0.35 J	3.3	509		99	11.5 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	62.6 H	3.6	71.2	0.71		4.5 B	12.4
MW22	4/9/20	N	0.17 U	0.092 U	0.53 J	6.1	1160		67.8	11.3 J		0.26 U	0.15 U	0.18 U	0.15 U	0.22 U	72.9	3.9	116	0.61		5.4	1.3
MW22	10/8/20	N	0.17 U	0.095 U	0.43 J	2.6	507		32.2	6.9 U		0.27 U	0.15 U	0.18 U	0.15 U	0.22 U	79.6	4.0	91.9	0.62 H		3.6	0.70 J
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	0.50 U	0.095 U	0.58 J	2.0 U	35.1 J		5.0 U	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	197	29.5	255	1.8		7.1	0.62 J
MW23	7/20/16	N	0.50 U	0.31	0.70 J	2.0 U	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	195	30.6	230	1.8		7.2	0.66 J
MW23	10/11/16	N	0.50 U	0.094 U	0.71 J	0.90 J	100 U		0.38 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	194	32.3	230	1.9		8.1	0.54 J
MW23	1/19/17	N	0.080	0.015	0.75 J	0.64 J	5.3		0.25	6.2		0.061	0.28	0.26	0.23	0.24	177	35.1	238	1.8		8.2	0.81 J
MW23	4/19/17	N	0.50 U	0.095 U	0.59 J	2.0 U	100 U		5.0 U	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	179	34.7	304	1.9		9.1	0.76 J
MW23	10/2/17	N	0.50 U	0.098 U	0.66 J	1.5 J	100 U		2.5 U	20.0 U		0.81 U	0.50 U	0.50 U	0.50 U	1.0 U	197	40.3	240	2.0		9.1	0.68 J
MW23	6/1/18	N	1.0 U	0.10 U	0.74 J	0.90 J	100 U		2.5 U	20.0 U		0.77 U	0.50 U	0.50 U	0.50 U	1.0 U	194	42.3	256	2.0		8.8	0.81 J
MW23	10/17/18	N	1.0 U	0.099 U	0.58 J	0.82 J	100 U		2.5 U	20.0 U		0.79 U	0.50 U	0.50 U	0.18 J	1.0 U	191	39.7	239	2.1		8.7	0.90 J
MW23	4/23/19	N	0.17 U	0.087 U	0.65 JB	0.99 JB	46.7 U		0.79 U	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	187	44.6	255	2.1		9.0	0.86 J

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Penta Wood Products Superfund Site
Siren, Wisconsin

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW23	10/14/19	N	6.4	0.085 U	0.64 J	0.67 J	46.7 U		2.6	6.9 U		0.65 J	0.15 U	0.18 U	0.15 U	0.22 U	195	46.2	250	2.1 H		8.1	0.47 U
MW23	4/8/20	N	0.17 U	0.087 U	0.58 J	0.89 J	46.7 U		0.79 U	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	185	46.2	243	2		8.4	1.5
MW23	10/6/20	N	0.17 U	0.089 U	0.77 J	0.58 J	46.7 U		1.1 J	7.1 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	184	54.1	239	2.3		9.2	0.95 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			
MW24	4/7/16	N	0.11 J	0.044 J	5.0 U	3.0	420		28.4	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	168	9.1	135	1.9		17.4	0.79 J
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	0.50 U	0.024 J	1.1 J	17.6	6090		148	12.4 J		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	33.7	37.8	137	2.4		3.8	1.5
MW25	7/26/16	N	0.50 U	0.30	5.0 U	1.3 J	28.8 J		1.0 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	40.3	49.1	108	3.2		5.0	0.70 J
MW25	10/10/16	FD	0.50 U	0.17	5.0 U	0.71 J	100 U		0.27 J	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	31.1	16.9	54.0	1.6		2.7	0.44 J
MW25	10/10/16	N	0.50 U	0.23	5.0 U	0.62 J	5.4 J		0.46 J	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	31.1	17.5	52.0	1.6		2.8	0.44 J
MW25	1/18/17	N	0.080	4.9	0.35	1.2 J	28.2 J		0.70 J	6.2		0.063	0.28	0.26	0.23	0.24	46.0	45.2	112	2.8		4.9	0.78 J
MW25	4/18/17	N	0.50 U	0.094 U	5.0 U	1.4 J	100 U		5.0 U	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	81.3	29.0	108	2.9		7.3	0.82 J
MW25	10/13/17	N	1.0 U	0.051 J	1.0 U	1.3 J	100 U		2.5 U	20.0 U		0.78 U	0.50 U	0.50 U	0.50 U	1.0 U	79.5	36.1	125	3.2		7.0	0.84 J
MW25	10/13/17	N	1.0 U	0.083 J	1.0 U	1.1 J	100 U		2.5 U	20.0 U		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	78.7	35.0	122	3.2		7.0	0.81 J
MW25	5/31/18	N	1.0 U	0.096 U	0.28 J	1.3 J	100 U		2.5 U	20.0 U		0.84 U	0.50 U	0.50 U	0.50 U	1.0 U	112	12.5	123	2.4		6.0	1.1
MW25	10/19/18	N	1.0 U	0.095 U	1.0 U	4.7	100 U		1.3 J	20.0 U		0.80 U	0.50 U	0.50 U	0.50 U	0.41 J	98.2	30.1	138	2.8		5.9	0.95 J
MW25	4/24/19	N	5.0	0.091 U	0.27 J	1.3 J	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	92.3	27.2	117	2.6		5.5 B	1.7
MW25	10/15/19	N	0.17 U	0.088 U	0.24 J	1.5 J	46.7 U		0.79 U	7.6 J		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	404	20.2	205	2.1		3.9	0.47 U
MW25	4/7/20	N	0.17 U	0.090 U	0.47 J	6.2	103		3.4	6.9 U		0.26 U	0.15 U	0.18 U	0.15 U	0.22 U	268	11.7	286	2.3		5.5	0.87 J
MW25	10/6/20	N	0.17 U	0.091 U	0.40 J	1.1 J	133		3.2	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	226	21.8	251	2.3		4.5	1.0
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

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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	0.01 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	0.01 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

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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					250 J	25 J	380	2.0 J		160 J	0.68 J
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
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	0.50 U	0.095 U	0.32 J	2.0 U	100 U		5.0 U	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	150	17	280	1.2		160	1.0 U
MW26	9/24/14	N	0.50 U	0.095 U	0.43 J	2.0 U	100 U		5.0 U	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	150	17	290	1.2		160	1.0 U
MW26	4/21/15	FD		0.094 U	0.76 J	2.0 U	100 U		5.0 U	20 U		0.19 U											
MW26	4/21/15	N	0.50 U	0.094 U	0.71 J	2.0 U	100 U		4.4 J	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	160	16	240	2.4		82	1.0 U
MW26	10/13/15	N	0.50 U	0.096 U	0.76 J	2.0 U	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	198	15.3	229	1.9		74.6	0.32 J

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW26	10/13/15	N	0.50 U	0.096 U	0.50 J	2.0 U	100 U		5.0 U	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	194	15.5	235	1.9		75.7	0.33 J
MW26	4/5/16	N	0.15 J	0.095 U	0.57 J	1.5 J	21.4 J		58.7	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	154	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	FD		0.094 U	5.0 U	2.0 U	29.9 J		2.3 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
MW27	4/7/16	N	0.092 J	0.15	0.59 J	1.9 J	21.1 J		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	137	20.0	113	6.5		14.2	1.9
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	0.50 U	0.099	0.31 J	2.0 U	100 U		5.0 U	20 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	120	18	150	1.3		5.1	0.85 J
MW28	10/14/15	N	0.50 U	0.32	5.0 U	2.0 U	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	126	15.5	155	2.0		5.4	0.69 J
MW28	4/6/16	N	0.20 J	47	5.0 U	0.76 J	29.7 J		2.7 J	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	122	9.4	125	1.2		4.8	1.6
MW28	7/21/16	N	0.10 J	100	0.49 J	2.0 U	25.9 J		10.8	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	127	11.4	138	1.9		5.4	1.9
MW28	10/13/16	FD	0.36 J	1200	0.38 J	0.61 J	100 U		7.9	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	1.4 J	125	11.4	142	1.7		5.6	12.3
MW28	10/13/16	N	0.28 J	1900	0.39 J	0.76 J	9.8 J		8.5	20.0 U		0.12 J	0.50 U	1.0 U	1.0 U	1.4 J	128	11.4	148	1.7		5.8	12.3
MW28	1/20/17	N	0.20 J	290	0.47 J	1.0 J	5.3		10.3	6.2		0.063	0.28	0.26	0.23	0.24	113	13.4	138	2.0		6.1	4.9
MW28	4/20/17	N	0.50 U	22	0.55 J	1.0 J	11.9 J		4.0 J	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	123	22.5	186	3.3		7.1	1.6
MW28	10/3/17	N	0.18 J	0.16	0.38 J	1.4 J	100 U		2.5 U	20.0 U		0.76 U	0.50 U	0.50 U	0.50 U	1.0 U	116	31.8	171	2.3		6.6	0.83 J
MW28	10/17/18	N	1.0 U	0.10 U	0.38 J	1.0 J	100 U		2.5 U	7.1 J		0.81 U	0.50 U	0.50 U	0.50 U	1.0 U	106	21.2	126	2.2		5.4	0.97 J
MW28	4/23/19	N	0.17 U	0.20 ^	0.39 JB	2.0 B	62.7 J		2.1 JB	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	106	19.3 F1	128	2.1		5.4	0.67 J
MW28	10/16/19	N	0.17 U	0.086 U	0.31 J	0.50 U	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	105 H	22.9	120	2.1		5.3 B	0.51 J
MW28	4/7/20	N	0.17 U	0.085 U	0.51 J	1.0 J	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	99.3	17	107	2		4.8	0.48 J
MW28	10/6/20	FD	0.17 U	0.085 U	0.47 J	0.50 U	46.7 U		1.0 J	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	103	24.9	123	18.0		48.9	0.92 J
MW28	10/6/20	N	0.17 U	0.089 U	0.49 J	0.50 U	46.7 U		1.5 J	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	103	25.4	118	1.9		5.0	0.90 J
MW29	4/13/16	N	1.4	14000	5.0 U	6.7	1660		2270	20.0 U		34	0.50 U	0.58 J	0.90 J	7.2	87.0	4.5	120	0.10 U		6.4	70.2
MW29	7/21/16	FD	0.69	9100	5.0 U	2.1	1250		2740	20.0 U		30	0.50 U	0.83 J	1.2	9.3	83.8	9.2	110	0.10 U		10.5	51.6
MW29	7/21/16	N	0.67	11000	5.0 U	2.1	1290		2800	20.0 U		35	0.50 U	0.74 J	1.3	9.1	84.0	9.2	110	0.10 U		10.4	50.5
MW29	10/14/16	N	0.32 J	20000	0.35 J	2.6	1970		3220	20.0 U		32	0.50 U	0.98 J	1.6	11	83.0	15.9	124	0.10 U		16.3	56.9

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW29	1/24/17	FD	0.37 J	67000	0.35	3.3	1380		3170	6.2		41	0.28	0.90 J	1.3	12	112	4.3	122	0.035		6.9	49.9
MW29	1/24/17	N	0.40 J	56000	0.35	1.9 J	1400		3290	6.2		40	0.28	0.98 J	1.2	12	113	4.3	120	0.035		6.8	51.4
MW30	4/13/16	N	0.50 U	0.72	5.0 U	0.81 J	46.1 J		147	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	42.0	3.2	82.3	3.4		32.8	1.2
MW30	7/21/16	N	0.50 U	1.7	5.0 U	2.0 U	100 U		52.9	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	44.5	2.9	82.0	4.0		29.9	1.4
MW30	10/12/16	N	0.084 J	3.8	5.0 U	1.1 J	13.8 J		67.3	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	52.2	3.8	86.0	1.6		30.5	
MW30	1/20/17	N	0.080	5.5	0.35	1.0 J	9.4 J		52.8	6.2		0.060	0.28	0.26	0.23	0.24	45.9	2.4	60.0	0.80		9.9	1.4
MW30	4/21/17	N	0.50 U	3.6	5.0 U	0.95 J	8.1 J		37.7	20.0 U		0.21 U	0.50 U	1.0 U	1.0 U	2.0 U	46.2	0.57 J	250	1.1		5.4	0.93 J
MW30	10/5/17	N	0.11 J	2.1	1.0 U	1.1 J	49.4 J		31.5	20.0 U		0.80 U	0.50 U	0.50 U	0.50 U	1.0 U	48.4	0.55	52.3	2.0		4.6	1.6
MW30	5/31/18	N	1.0 U	630	1.0 U	1.1 J	100 U		23.3	20.0 U		1.7	0.50 U	0.50 U	0.50 U	0.39 J	67.3	0.66	69.1	1.6		3.7	1.7
MW30	10/18/18	N	1.0 U	640	1.0 U	0.94 J	100 U		15.4	7.9 J		1.3	0.50 U	0.50 U	0.50 U	1.0 U	77.5	1.7	82.9	2.2		3.7	2.6
MW30	4/25/19	N	0.17 U	800	0.23 U	1.1 J	46.7 U		25.1	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	66.9	1.4	69.9	0.55		3.8 B	5.3
MW30	10/17/19	N	0.17 U	41	0.23 U	1.2 J	46.7 U		22.6	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.28 J	88.8 H	0.62	92	0.53		2.4	0.85 J
MW30	4/13/20	N	0.25 J	270	0.29 JB	5.4	46.7 U		24.1	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	97.3	0.98	102	1.5		3.3	1.4
MW30	10/7/20	N	0.17 U	10	0.23 U	16.8	78.1 J		15.6	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	90.0	0.45	88.5	0.37		2.2	0.89 J
MW31	4/12/16	N	0.50 U	0.030 J	5.0 U	2.0 U	20.9 J		7.7	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	122	0.99 J	125	0.68		4.0	0.59 J
MW31	7/20/16	N	0.50 U	4.6	5.0 U	0.86 J	100 U		2.2 J	20.0 U		0.20 U	0.50 U	1.0 U	1.0 U	2.0 U	105	0.76 J	100	0.49		1.9	0.68 J
MW31	10/13/16	N	0.11 J	3.7	5.0 U	0.76 J	100 U		5.0 U	20.0 U		0.19 U	0.50 U	1.0 U	1.0 U	2.0 U	110	0.63 J	104	0.46		1.5	0.29 J
MW31	1/17/17	N	0.20 J	0.69	0.59 J	1.4 J	10.5 J		0.52 J	6.2		0.061	0.28	0.26	0.23	0.24	113	0.53 J	118	0.51		1.7	0.74 J
MW31	4/18/17	N	0.21 J	0.026 J	5.0 U	0.58 J	100 U		0.63 J	20.0 U		0.22 U	0.50 U	1.0 U	1.0 U	2.0 U	111	0.68 J	136	0.73		2.8	0.72 J
MW31	10/2/17	N	1.9	0.095 U	0.51 J	5.0	1630		34.5	9.7 J		0.82 U	0.50 U	0.50 U	0.50 U	1.0 U	104	1.4	93.9	0.54		1.3	0.50 J
MW31	10/16/18	N	1.0 U	0.097 U	1.0 U	0.63 J	100 U		1.0 J	20.0 U		0.79 U	0.50 U	0.50 U	0.50 U	0.46 J	187	0.67	181	0.55		1.5	0.70 J
MW31	4/24/19	N	3.0	0.086 U	0.23 J	1.1 J	46.7 U		1.9 J	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	178	0.61	191	0.63		1.6 B	0.67 J
MW31	10/14/19	N	0.17 U	0.086 U	0.23 U	1.3 J	46.7 U		0.79 U	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	240	0.52	231	0.33 F1		0.84	0.47 U
MW31	4/13/20	N	0.21 J	6	0.23 JB	18.7	46.7 U		2.6	6.9 U		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	210	0.33	207	0.42		1.1	1.3
MW31	10/6/20	N	0.43 J	0.089 U	0.23 U	24.3	46.7 U		1.9 J	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	168	0.39	163	0.37		0.94	0.52 J
MW32	5/17/19	N	0.17 U	0.14	0.23 U	1.6 J	46.8 J		135	17.0 J		0.23 U	0.15 U	0.18 U	0.15 U	0.22 U	35.9	1.7	40.3	1.3 H		11.3	1.1
MW32	10/14/19	N	0.17 U	0.088 U	0.23 U	0.77 J	134		14.8	6.9 U		0.24 U	0.15 U	0.18 U	0.15 U	0.22 U	33.3	0.74	35.7	0.64 H		3.8	0.69 J
MW32	4/13/20	N	0.17 U	0.092 U	0.23 JB	2.7	46.7 U		3.9	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	31.5	0.67	30.6	0.69		4.4	0.47 U

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
MW32	10/8/20	N	0.17 U	0.091 U	0.23 U	6.7	60.1 J		4.2	6.9 U		0.25 U	0.15 U	0.18 U	0.15 U	0.22 U	30.0	0.70	33.9	0.70 H		4.4	0.95 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							
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							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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							
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																			

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW01	4/21/15	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW01	10/15/15	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW01	4/5/16	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW01	10/10/16	N		0.020 J								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW01	4/19/17	N		0.015 J								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW01	10/20/17	N		0.10 U								0.87 U	0.50 U	0.50 U	0.37 J	1.0 U							
RW01	6/5/18	N		0.095 U								0.75 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW01	10/15/18	N		0.10 U								0.79 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW01	4/22/19	N		0.087 U								0.23 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW01	10/1/19	N		0.093 U								0.24 U	0.15 U	0.18 U	0.15 U	0.22 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							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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							
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							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
RW02	5/13/14	N		0.095 U																			
RW02	9/25/14	N		0.096 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW02	4/21/15	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW02	10/15/15	N		0.096 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW02	4/5/16	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW02	10/10/16	N		0.097 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW02	4/17/17	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW02	10/20/17	N		0.10 U								0.75 U	0.50 U	0.50 U	0.33 J	1.0 U							
RW02	4/17/18	N		0.024 U								0.79 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW02	10/16/18	FD		0.099 U								0.80 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW02	10/16/18	N		0.097 U								0.77 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW02	4/22/19	FD		0.085 U								0.23 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW02	4/22/19	N		0.085 U								0.23 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW02	10/1/19	N		0.089 U								0.24 U	0.15 U	0.18 U	0.15 U	0.22 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							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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																			
RW03	9/25/14	FD		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	9/25/14	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	4/21/15	N		0.097 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	10/15/15	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	4/5/16	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	10/10/16	N		0.095 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	4/17/17	N		0.095 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW03	10/20/17	N		0.096 U								0.79 U	0.50 U	0.50 U	0.29 J	1.0 U							
RW03	4/17/18	N		0.025 U								0.84 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW03	10/16/18	N		0.098 U								0.77 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW03	4/22/19	N		0.085 U								0.24 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW03	10/1/19	N		0.088 U								0.27 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW04	10/9/97	N		1 U																			

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
RW04	4/23/01	N		0.1 U								5 U	0.5 U	5 U	5 U								
RW04	9/11/01	N		0.073 J								0.25 U	0.44 U	0.5 U	0.4 U	1.2 U							
RW04	9/28/01	N		0.1 U																			
RW04	9/28/01	N2		0.05 U																			
RW04	5/14/02	N		0.13								5 U	1 U	5 U	5 U	5 U							
RW04	8/6/02	N		0.04 U								5 U	1 U	5 U	5 U	5 U							
RW04	4/29/03	N		0.11 U								7.4 U	0.5 U	5 U	5 U	5 U							
RW04	9/23/03	N		0.11 U								0.99 U	0.25 U	2.5 U	2.5 U	2.5 U							
RW04	5/4/04	N		0.100 U								5.00 U	0.500 U	5.00 U	5.00 U	5.00 U							
RW04	9/22/04	N		0.266								5.00 U	0.500 U	5.00 U	5.00 U	5.00 U							
RW04	10/1/04	N		0.0962 R																			
RW04	5/10/05	N		0.11 U								0.94 U	0.50 U	5.0 U	5.0 U	5.0 U							
RW04	9/27/05	N		0.11 U								0.91 UJ	0.50 U	5.0 U	5.0 U	5.0 U							
RW04	5/31/06	N		0.11 UJ								0.97 U	0.50 U	5.0 U	5.0 U	5.0 U							
RW04	9/25/06	N		0.11 U								0.93 U	0.50 U	5.0 U	5.0 U	5.0 U							
RW04	5/9/07	N		0.093 UJ								0.96 R	1.0 U	1.0 U	1.0 U	2.0 U							
RW04	9/18/07	N		0.093 UJ								0.93 R	1.0 U	1.0 U	1.0 U	2.0 U							
RW04	5/20/08	N		0.093 UJ								0.96 U	1.0 UJ	1.0 U	1.0 U	2.0 UJ							
RW04	10/23/08	N										1 U											
RW04	12/10/08	N		0.1 U									0.1 U	0.4 U	0.4 U	1.0 U							
RW04	6/2/09	N		0.1 UJ								1.0 UJ	0.5 U	2.0 U	2.0 U	5.0 U							
RW04	10/7/09	N		0.15 J								0.994 UJ	0.1 UJ	0.4 UJ	0.4 UJ	1 UJ							
RW04	10/20/09	N		0.1 UJ																			
RW04	5/19/10	N		0.1 U								1.0 U	0.4 UJ	5 UJ	5 UJ	5 UJ							
RW04	10/5/10	N		0.1 U								1.0 U	0.1 U	0.4 U	0.4 U	1 U							
RW04	6/30/11	N		0.1 U								0.992 U	0.1 U	0.4 U	0.4 U	1 U							
RW04	10/20/11	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	5/23/12	N		0.094 U								0.20 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	10/17/12	N		0.071 J								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	12/3/12	N		0.095 U																			
RW04	12/3/12	N2		0.094 UJ																			

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
RW04	5/21/13	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	10/8/13	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	5/13/14	N		0.023 J																			
RW04	9/25/14	N		0.096 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	4/21/15	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	10/15/15	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	4/5/16	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	10/10/16	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	4/17/17	N		0.094 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW04	10/20/17	N		0.096 U								0.81 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW04	4/17/18	N		0.024 U								0.92 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW04	10/15/18	N		0.11 U								0.90 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW04	4/22/19	N		0.11 U								0.25 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW04	10/1/19	N		0.085 U								0.24 U	0.15 U	0.18 U	0.15 U	0.29 J							
RW05	5/4/04	N		0.0935 U								5.00 U	0.500 U	5.00 U	5.00 U	5.00 U							
RW05	9/22/04	N		0.293								5.00 U	0.500 U	5.00 U	5.00 U	5.00 U							
RW05	11/1/04	N		0.0962 U																			
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							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
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		0.096 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW05	4/21/15	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW05	10/15/15	N		0.10 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW05	4/5/16	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW05	10/10/16	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW05	4/17/17	N		0.097 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW05	10/20/17	N		0.095 U								0.81 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW05	4/17/18	FD		0.024 U								0.75 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW05	4/17/18	N		0.024 U								0.75 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW05	10/15/18	N		0.16								0.87 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW05	4/22/19	N		0.085 U								0.25 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW05	10/1/19	FD		0.091 U								0.26 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW05	10/1/19	N		0.090 U								0.26 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW06	9/25/14	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW06	4/21/15	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW06	10/15/15	N		0.018 J								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW06	4/5/16	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW06	10/10/16	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW06	4/18/17	N		0.095 U								0.19 U	0.50 U	1.0 U	1.0 U	2.0 U							
RW06	10/20/17	N		0.095 U								0.75 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW06	4/17/18	N		0.024 U								0.83 U	0.50 U	0.50 U	0.50 U	1.0 U							

Appendix A.1

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

Location	Date[2]	Compound [1] / Units / Type[3]	Methane ug/L	Pentachlorophenol ug/L	Arsenic ug/L	Copper ug/L	Iron ug/L	Magnesium ug/L	Manganese ug/L	Zinc ug/L	Total Petroleum Hydrocarbons (C10-C28) DRO mg/L	Naphthalene ug/L	Benzene ug/L	Ethylbenzene ug/L	Toluene ug/L	Xylenes (total) ug/L	Alkalinity, total (as CaCO3) mg/L	Chloride mg/L	Hardness mg/L	Nitrate (as N) mg/L	Oil and grease (HEM), polar mg/L	Sulfate mg/L	Total organic carbon (TOC) mg/L
RW06	10/16/18	N		0.099 U								0.78 U	0.50 U	0.50 U	0.50 U	1.0 U							
RW06	4/22/19	N		0.086 U								0.24 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW06	10/1/19	N		0.086 U								0.24 U	0.15 U	0.18 U	0.15 U	0.22 U							
RW06 SHOP	4/17/18	N		0.024 U								0.79 U	0.50 U	0.50 U	1.5	1.0 U							
RW06 SHOP	10/16/18	N		0.095 U								0.75 U	0.50 U	0.50 U	1.7	1.0 U							
RW06 SHOP	4/22/19	N		0.095 U								0.23 U	0.15 U	0.18 U	0.50 U	0.22 U							
RW06 SHOP	10/1/19	N		0.086 U								0.25 U	0.15 U	0.18 U	0.15 U	0.22 U							

Notes:

[1]	Only compounds currently sampled are included on this table.
[2]	Samples collected before September 2014 were not collected by GHD. GHD has no ability to verify data or data qualifiers.
[3]	Sample type is listed for normal samples (N) and field duplicates (FD), numbers differentiate from multiple samples of similar sample type during the same sampling event.
mg/L	Concentrations listed with units of milligrams per liter.
ug/L	Concentrations listed with units of micrograms per liter.
*	LCS or LCSD exceeds the control limits.
B	Compound was detected in the method blank.
F1	MS and/or MSD Recovery exceeds the control limits
H	Analysis was performed after holding time.
J	Concentration was estimated below the reporting limit.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.
U	Compound was not detected above the reporting limit.
UJ	Compound was not detected above the estimated reporting limit.

Appendix A.2

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

	Monitoring Well LNAPL Thickness (feet)				
Date	**MW10S**	**MW18**	**MW19**	**MW20**	**MW29**
Sep-01	0.01	0.27	0.51	0.11	NA
May-02	0.00	0.29	0.23	0.00	NA
Aug-02	0.00	0.33	0.22	0.00	NA
May-03	0.00	0.00	0.00	0.00	NA
Sep-03	0.00	0.32	0.24	0.04	NA
May-04	0.00	0.45	0.36	0.35	NA
Sep-04	0.21	0.54	0.67	0.52	NA
May-05	0.29	0.48	0.63	0.36	NA
Sep-05	0.87	0.06	0.83	1.15	NA
May-06	0.00	0.00	0.29	0.00	NA
Sep-06	0.00	0.05	0.80	0.69	NA
Apr-07	0.58	0.04	0.74	1.22	NA
May-07	0.58	0.03	0.54	1.20	NA
Sep-07	0.04	0.16	1.07	0.00	NA
May-08	0.40	1.19	0.90	1.71	NA
Oct-08	0.14	0.04	0.00	0.00	NA
Jun-09	0.54	1.58	1.60	1.45	NA
Oct-09	0.63	1.92	1.46	1.02	NA
May-10	0.51	2.01	1.10	0.85	NA
Oct-10	0.00	0.57	0.59	0.00	NA
Jun-11	0.00	0.42	0.79	0.00	NA
Oct-11	0.00	0.53	1.07	0.00	NA
May-12	0.69	0.79	0.80	2.17	NA
Aug-12	0.04	0.43	0.89	0.30	NA
Oct-12	0.00	0.45	0.91	0.88	NA
Dec-12	0.02	0.44	1.06	0.95	NA
May-13	0.17	0.53	0.94	1.08	NA
Oct-13	0.00	0.70	1.25	0.81	NA
May-14	0.00	0.79	0.22	0.22	NA
Sep-14	0.00	0.56	0.30	0.00	NA
2/13/15	0.00	0.56	0.24	0.00	NA
2/20/15	0.00	0.53	0.23	0.00	NA
3/24/15	0.00	0.34	0.52	0.00	NA
4/16/15	0.00	0.58	NM	0.00	NA
5/14/15	0.00	0.57	NM	0.00	NA
10/12/15	0.00	0.42	0.07	0.01	NA
4/4/16	0.00	0.66	0.25	0.01	0.00

Appendix A.2

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

	Monitoring Well LNAPL Thickness (feet)				
Date	**MW10S**	**MW18**	**MW19**	**MW20**	**MW29**
7/18/16	0.00	0.52	0.00	0.00	0.00
10/7/16	0.00	0.67	0.01	0.01	0.00
1/11/17	0.00	NM	0.18	0.02	0.00
4/17/17	0.00	0.53	0.27	0.01	0.47
7/13/17	0.00	0.51	0.10	0.01	0.15
9/28/17	0.00	NM	NM	0.01	0.45
1/3/18	0.00	0.45	0.26	0.01	0.70
5/25/18*	0.00	0.53	0.62	0.01	0.88
7/11/18	0.00	0.50	0.19	0.01	0.48
10/15/18	0.00	0.48	0.41	0.01	0.63
1/2/19	0.00	0.51	0.37	0.34	0.76
4/17/19	0.00	0.50	0.20	0.01	0.33
7/22/19	0.00	0.49	0.00	0.03	0.00
10/2/19	0.00	0.51	0.03	0.07	0.00
1/9/20	0.00	0.48	0.00	0.04	0.00
4/6/20	0.00	0.45	0.01	0.30	0.01
10/5/20	0.00	0.43	0.02	0.06	0.01

Notes:

NM - Not Measured
NA - Not Applicable
* - MW10S measured on 6/1/18 and MW29 measured on 5/24/18

Appendix A.3

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

Operation Period	Volume of Groundwater Extracted (gallons)
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
Total Gallons Extracted	**255,427,611**

Appendix A.4

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

Date	Influent PCP Concentration (ug/L)
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 A.5

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

Date	Filter Cake (lb)	Misc. Debris (lb)	Carbon (lb)	LNAPL (lb)	Liquids‡ (gallons)	Yearly Total (lb)
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†	34,877	14,374	0	49,251
2017	0	0	0	0	2,759	2,759
2018	0	0	0	0	0	0
2019	0	0	0	0	0	0
2020	0	0	0	0	0	0

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.

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

‡ - Prior to 2017, all liquids disposed were water. In 2017, liquids disposed were ferric sulfate water treatment chemicals.

lb - pounds

Appendix A.6

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	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	
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	

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	
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

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	
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

Appendix A.6

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	
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	

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	
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	

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	
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	

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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	
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	

Appendix A.6

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

Well ID	Date	Depth to Water (feet) [1]	Depth to LNAPL (feet) [1]	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
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:

[1] 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 B
Groundwater Sample Laboratory Reports - Monitoring, Extraction, Residential, and Onsite Supply Wells

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-188752-1
Client Project/Site: Penta Wood 086165

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

Attn: Mr. Grant Anderson

Authorized for release by:
10/16/2020 3:35:27 PM

Richard Wright, Senior Project Manager
(708)746-0045
Richard.Wright@Eurofinset.com

Table of Contents

Case Narrative

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Job ID: 500-188752-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-188752-1

Receipt
The samples were received on 10/2/2020 9:35 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 3.2º C, 3.3º C, 3.6º C and 4.2º 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.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-106 — Lab Sample ID: 500-188752-1

No Detections.

Client Sample ID: W-201001-RA-105 — Lab Sample ID: 500-188752-2

No Detections.

Client Sample ID: W-201001-RA-104 — Lab Sample ID: 500-188752-3

No Detections.

Client Sample ID: W-201001-RA-103 — Lab Sample ID: 500-188752-4

No Detections.

Client Sample ID: W-201001-RA-102 — Lab Sample ID: 500-188752-5

No Detections.

Client Sample ID: W-201001-RA-101 — Lab Sample ID: 500-188752-6

No Detections.

Client Sample ID: W-201001-RA-100 — Lab Sample ID: 500-188752-7

No Detections.

Client Sample ID: W-201001-RA-107 — Lab Sample ID: 500-188752-8

No Detections.

Client Sample ID: Trip Blank — Lab Sample ID: 500-188752-9

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
8151A	Herbicides (GC)	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
8151A	Extraction (Herbicides)	SW846	TAL CHI

Protocol References:

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

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-188752-1	W-201001-RA-106	Water	10/01/20 12:16	10/02/20 09:35	
500-188752-2	W-201001-RA-105	Water	10/01/20 12:36	10/02/20 09:35	
500-188752-3	W-201001-RA-104	Water	10/01/20 12:36	10/02/20 09:35	
500-188752-4	W-201001-RA-103	Water	10/01/20 12:50	10/02/20 09:35	
500-188752-5	W-201001-RA-102	Water	10/01/20 13:18	10/02/20 09:35	
500-188752-6	W-201001-RA-101	Water	10/01/20 13:27	10/02/20 09:35	
500-188752-7	W-201001-RA-100	Water	10/01/20 13:27	10/02/20 09:35	
500-188752-8	W-201001-RA-107	Water	10/01/20 14:06	10/02/20 09:35	
500-188752-9	Trip Blank	Water	10/01/20 00:00	10/02/20 09:35	

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-106

Date Collected: 10/01/20 12:16
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 13:08	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 13:08	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 13:08	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 13:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*10/08/20 13:08*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*10/08/20 13:08*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*		*10/08/20 13:08*	*1*
Dibromofluoromethane	*108*		*75 - 120*		*10/08/20 13:08*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.34		1.1	0.34	ug/L		10/05/20 06:19	10/07/20 01:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*85*		*36 - 120*	*10/05/20 06:19*	*10/07/20 01:18*	*1*
2-Fluorobiphenyl (Surr)	*90*		*34 - 110*	*10/05/20 06:19*	*10/07/20 01:18*	*1*
Terphenyl-d14 (Surr)	*103*		*40 - 145*	*10/05/20 06:19*	*10/07/20 01:18*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.086		0.096	0.086	ug/L		10/05/20 08:28	10/07/20 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*85*		*25 - 130*	*10/05/20 08:28*	*10/07/20 17:03*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-105

Date Collected: 10/01/20 12:36
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 13:35	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 13:35	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 13:35	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 13:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/08/20 13:35*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*10/08/20 13:35*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*10/08/20 13:35*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*10/08/20 13:35*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.23		0.75	0.23	ug/L		10/05/20 06:19	10/06/20 05:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*36 - 120*	*10/05/20 06:19*	*10/06/20 05:27*	*1*
2-Fluorobiphenyl (Surr)	*92*		*34 - 110*	*10/05/20 06:19*	*10/06/20 05:27*	*1*
Terphenyl-d14 (Surr)	*112*		*40 - 145*	*10/05/20 06:19*	*10/06/20 05:27*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.087		0.097	0.087	ug/L		10/05/20 08:28	10/07/20 18:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*87*		*25 - 130*	*10/05/20 08:28*	*10/07/20 18:01*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-104

Date Collected: 10/01/20 12:36
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 14:02	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 14:02	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 14:02	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 14:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/08/20 14:02*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*10/08/20 14:02*	*1*
4-Bromofluorobenzene (Surr)	*98*		*72 - 124*		*10/08/20 14:02*	*1*
Dibromofluoromethane	*104*		*75 - 120*		*10/08/20 14:02*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/05/20 06:19	10/06/20 05:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*36 - 120*	*10/05/20 06:19*	*10/06/20 05:55*	*1*
2-Fluorobiphenyl (Surr)	*89*		*34 - 110*	*10/05/20 06:19*	*10/06/20 05:55*	*1*
Terphenyl-d14 (Surr)	*114*		*40 - 145*	*10/05/20 06:19*	*10/06/20 05:55*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/05/20 08:28	10/07/20 18:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*79*		*25 - 130*	*10/05/20 08:28*	*10/07/20 18:20*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-103

Lab Sample ID: 500-188752-4

Date Collected: 10/01/20 12:50

Matrix: Water

Date Received: 10/02/20 09:35

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 14:28	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 14:28	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 14:28	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*101*		*75 - 126*		*10/08/20 14:28*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*10/08/20 14:28*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*10/08/20 14:28*	*1*
Dibromofluoromethane	*106*		*75 - 120*		*10/08/20 14:28*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/05/20 06:19	10/06/20 06:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*82*		*36 - 120*	*10/05/20 06:19*	*10/06/20 06:23*	*1*
2-Fluorobiphenyl (Surr)	*87*		*34 - 110*	*10/05/20 06:19*	*10/06/20 06:23*	*1*
Terphenyl-d14 (Surr)	*109*		*40 - 145*	*10/05/20 06:19*	*10/06/20 06:23*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.087		0.097	0.087	ug/L		10/05/20 08:28	10/07/20 18:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*64*		*25 - 130*	*10/05/20 08:28*	*10/07/20 18:39*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-102

Date Collected: 10/01/20 13:18
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 14:55	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 14:55	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 14:55	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 14:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*10/08/20 14:55*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*10/08/20 14:55*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*10/08/20 14:55*	*1*
Dibromofluoromethane	*109*		*75 - 120*		*10/08/20 14:55*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.76	0.24	ug/L		10/05/20 06:19	10/06/20 06:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*36 - 120*	*10/05/20 06:19*	*10/06/20 06:51*	*1*
2-Fluorobiphenyl (Surr)	*81*		*34 - 110*	*10/05/20 06:19*	*10/06/20 06:51*	*1*
Terphenyl-d14 (Surr)	*108*		*40 - 145*	*10/05/20 06:19*	*10/06/20 06:51*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.086		0.096	0.086	ug/L		10/05/20 08:28	10/07/20 18:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*66*		*25 - 130*	*10/05/20 08:28*	*10/07/20 18:59*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-101

Date Collected: 10/01/20 13:27
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-6

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 15:22	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 15:22	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 15:22	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 15:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*10/08/20 15:22*	*1*
Toluene-d8 (Surr)	*93*		*75 - 120*		*10/08/20 15:22*	*1*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*		*10/08/20 15:22*	*1*
Dibromofluoromethane	*107*		*75 - 120*		*10/08/20 15:22*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/05/20 06:19	10/06/20 07:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*84*		*36 - 120*	*10/05/20 06:19*	*10/06/20 07:19*	*1*
2-Fluorobiphenyl (Surr)	*87*		*34 - 110*	*10/05/20 06:19*	*10/06/20 07:19*	*1*
Terphenyl-d14 (Surr)	*107*		*40 - 145*	*10/05/20 06:19*	*10/06/20 07:19*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.099		0.11	0.099	ug/L		10/05/20 08:28	10/07/20 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*74*		*25 - 130*	*10/05/20 08:28*	*10/07/20 19:18*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-100

Date Collected: 10/01/20 13:27
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-7

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 15:48	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 15:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 15:48	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 15:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*102*		*75 - 126*		*10/08/20 15:48*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*10/08/20 15:48*	*1*
4-Bromofluorobenzene (Surr)	*97*		*72 - 124*		*10/08/20 15:48*	*1*
Dibromofluoromethane	*106*		*75 - 120*		*10/08/20 15:48*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/05/20 06:19	10/06/20 07:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*82*		*36 - 120*	*10/05/20 06:19*	*10/06/20 07:47*	*1*
2-Fluorobiphenyl (Surr)	*87*		*34 - 110*	*10/05/20 06:19*	*10/06/20 07:47*	*1*
Terphenyl-d14 (Surr)	*111*		*40 - 145*	*10/05/20 06:19*	*10/06/20 07:47*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.099		0.11	0.099	ug/L		10/05/20 08:28	10/07/20 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*81*		*25 - 130*	*10/05/20 08:28*	*10/07/20 19:37*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-107

Date Collected: 10/01/20 14:06
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-8

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 16:15	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 16:15	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 16:15	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 16:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*103*		*75 - 126*		*10/08/20 16:15*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*10/08/20 16:15*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*		*10/08/20 16:15*	*1*
Dibromofluoromethane	*109*		*75 - 120*		*10/08/20 16:15*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.80	0.25	ug/L		10/05/20 06:19	10/06/20 08:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*88*		*36 - 120*	*10/05/20 06:19*	*10/06/20 08:16*	*1*
2-Fluorobiphenyl (Surr)	*97*		*34 - 110*	*10/05/20 06:19*	*10/06/20 08:16*	*1*
Terphenyl-d14 (Surr)	*121*		*40 - 145*	*10/05/20 06:19*	*10/06/20 08:16*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.091		0.10	0.091	ug/L		10/05/20 08:28	10/07/20 19:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*71*		*25 - 130*	*10/05/20 08:28*	*10/07/20 19:57*	*1*

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: Trip Blank

Date Collected: 10/01/20 00:00
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-9

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 11:48	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 11:48	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 11:48	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 11:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/08/20 11:48*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*10/08/20 11:48*	*1*
4-Bromofluorobenzene (Surr)	*93*		*72 - 124*		*10/08/20 11:48*	*1*
Dibromofluoromethane	*105*		*75 - 120*		*10/08/20 11:48*	*1*

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

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
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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)
TNTC	Too Numerous To Count

QC Association Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

GC/MS VOA

Analysis Batch: 565505

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188752-1	W-201001-RA-106	Total/NA	Water	8260B	
500-188752-2	W-201001-RA-105	Total/NA	Water	8260B	
500-188752-3	W-201001-RA-104	Total/NA	Water	8260B	
500-188752-4	W-201001-RA-103	Total/NA	Water	8260B	
500-188752-5	W-201001-RA-102	Total/NA	Water	8260B	
500-188752-6	W-201001-RA-101	Total/NA	Water	8260B	
500-188752-7	W-201001-RA-100	Total/NA	Water	8260B	
500-188752-8	W-201001-RA-107	Total/NA	Water	8260B	
500-188752-9	Trip Blank	Total/NA	Water	8260B	
MB 500-565505/6	Method Blank	Total/NA	Water	8260B	
LCS 500-565505/4	Lab Control Sample	Total/NA	Water	8260B	
500-188752-1 MS	W-201001-RA-106	Total/NA	Water	8260B	
500-188752-1 MSD	W-201001-RA-106	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 564790

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188752-1	W-201001-RA-106	Total/NA	Water	3510C	
500-188752-2	W-201001-RA-105	Total/NA	Water	3510C	
500-188752-3	W-201001-RA-104	Total/NA	Water	3510C	
500-188752-4	W-201001-RA-103	Total/NA	Water	3510C	
500-188752-5	W-201001-RA-102	Total/NA	Water	3510C	
500-188752-6	W-201001-RA-101	Total/NA	Water	3510C	
500-188752-7	W-201001-RA-100	Total/NA	Water	3510C	
500-188752-8	W-201001-RA-107	Total/NA	Water	3510C	
MB 500-564790/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-564790/2-A	Lab Control Sample	Total/NA	Water	3510C	
500-188752-1 MS	W-201001-RA-106	Total/NA	Water	3510C	
500-188752-1 MSD	W-201001-RA-106	Total/NA	Water	3510C	

Analysis Batch: 564999

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188752-2	W-201001-RA-105	Total/NA	Water	8270D	564790
500-188752-3	W-201001-RA-104	Total/NA	Water	8270D	564790
500-188752-4	W-201001-RA-103	Total/NA	Water	8270D	564790
500-188752-5	W-201001-RA-102	Total/NA	Water	8270D	564790
500-188752-6	W-201001-RA-101	Total/NA	Water	8270D	564790
500-188752-7	W-201001-RA-100	Total/NA	Water	8270D	564790
500-188752-8	W-201001-RA-107	Total/NA	Water	8270D	564790
MB 500-564790/1-A	Method Blank	Total/NA	Water	8270D	564790
LCS 500-564790/2-A	Lab Control Sample	Total/NA	Water	8270D	564790

Analysis Batch: 565230

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188752-1	W-201001-RA-106	Total/NA	Water	8270D	564790
500-188752-1 MS	W-201001-RA-106	Total/NA	Water	8270D	564790
500-188752-1 MSD	W-201001-RA-106	Total/NA	Water	8270D	564790

QC Association Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

GC Semi VOA

Prep Batch: 564839

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188752-1	W-201001-RA-106	Total/NA	Water	8151A	
500-188752-2	W-201001-RA-105	Total/NA	Water	8151A	
500-188752-3	W-201001-RA-104	Total/NA	Water	8151A	
500-188752-4	W-201001-RA-103	Total/NA	Water	8151A	
500-188752-5	W-201001-RA-102	Total/NA	Water	8151A	
500-188752-6	W-201001-RA-101	Total/NA	Water	8151A	
500-188752-7	W-201001-RA-100	Total/NA	Water	8151A	
500-188752-8	W-201001-RA-107	Total/NA	Water	8151A	
MB 500-564839/1-A	Method Blank	Total/NA	Water	8151A	
LCS 500-564839/2-A	Lab Control Sample	Total/NA	Water	8151A	
500-188752-1 MS	W-201001-RA-106	Total/NA	Water	8151A	
500-188752-1 MSD	W-201001-RA-106	Total/NA	Water	8151A	

Analysis Batch: 565250

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188752-1	W-201001-RA-106	Total/NA	Water	8151A	564839
500-188752-2	W-201001-RA-105	Total/NA	Water	8151A	564839
500-188752-3	W-201001-RA-104	Total/NA	Water	8151A	564839
500-188752-4	W-201001-RA-103	Total/NA	Water	8151A	564839
500-188752-5	W-201001-RA-102	Total/NA	Water	8151A	564839
500-188752-6	W-201001-RA-101	Total/NA	Water	8151A	564839
500-188752-7	W-201001-RA-100	Total/NA	Water	8151A	564839
500-188752-8	W-201001-RA-107	Total/NA	Water	8151A	564839
MB 500-564839/1-A	Method Blank	Total/NA	Water	8151A	564839
LCS 500-564839/2-A	Lab Control Sample	Total/NA	Water	8151A	564839
500-188752-1 MS	W-201001-RA-106	Total/NA	Water	8151A	564839
500-188752-1 MSD	W-201001-RA-106	Total/NA	Water	8151A	564839

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-188752-1	W-201001-RA-106	102	97	92	108
500-188752-1 MS	W-201001-RA-106	94	99	94	99
500-188752-1 MSD	W-201001-RA-106	95	100	91	101
500-188752-2	W-201001-RA-105	100	95	94	107
500-188752-3	W-201001-RA-104	100	94	98	104
500-188752-4	W-201001-RA-103	101	95	95	106
500-188752-5	W-201001-RA-102	102	95	93	109
500-188752-6	W-201001-RA-101	102	93	94	107
500-188752-7	W-201001-RA-100	102	95	97	106
500-188752-8	W-201001-RA-107	103	94	91	109
500-188752-9	Trip Blank	100	95	93	105
LCS 500-565505/4	Lab Control Sample	95	100	94	100
MB 500-565505/6	Method Blank	99	95	95	104

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(36-120)	(34-110)	(40-145)
500-188752-1	W-201001-RA-106	85	90	103
500-188752-1 MS	W-201001-RA-106	94	96	109
500-188752-1 MSD	W-201001-RA-106	89	91	108
500-188752-2	W-201001-RA-105	86	92	112
500-188752-3	W-201001-RA-104	86	89	114
500-188752-4	W-201001-RA-103	82	87	109
500-188752-5	W-201001-RA-102	74	81	108
500-188752-6	W-201001-RA-101	84	87	107
500-188752-7	W-201001-RA-100	82	87	111
500-188752-8	W-201001-RA-107	88	97	121
LCS 500-564790/2-A	Lab Control Sample	84	82	106
MB 500-564790/1-A	Method Blank	81	81	106

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TPHL = Terphenyl-d14 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		DCPAA2
Lab Sample ID	Client Sample ID	(25-130)
500-188752-1	W-201001-RA-106	85

Surrogate Summary

Client: GHD Services Inc.
Job ID: 500-188752-1
Project/Site: Penta Wood 086165

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

Matrix: Water
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPAA2 (25-130)								
500-188752-1 MS	W-201001-RA-106	88								
500-188752-1 MSD	W-201001-RA-106	86								
500-188752-2	W-201001-RA-105	87								
500-188752-3	W-201001-RA-104	79								
500-188752-4	W-201001-RA-103	64								
500-188752-5	W-201001-RA-102	66								
500-188752-6	W-201001-RA-101	74								
500-188752-7	W-201001-RA-100	81								
500-188752-8	W-201001-RA-107	71								
LCS 500-564839/2-A	Lab Control Sample	91								
MB 500-564839/1-A	Method Blank	84								

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 500-565505/6
Matrix: Water
Analysis Batch: 565505

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/08/20 10:51	1
Toluene	<0.15		0.50	0.15	ug/L			10/08/20 10:51	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/08/20 10:51	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/08/20 10:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/08/20 10:51*	*1*
Toluene-d8 (Surr)	*95*		*75 - 120*		*10/08/20 10:51*	*1*
4-Bromofluorobenzene (Surr)	*95*		*72 - 124*		*10/08/20 10:51*	*1*
Dibromofluoromethane	*104*		*75 - 120*		*10/08/20 10:51*	*1*

Lab Sample ID: LCS 500-565505/4
Matrix: Water
Analysis Batch: 565505

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	45.0		ug/L		90	70 - 120
Toluene	50.0	48.2		ug/L		96	70 - 125
Ethylbenzene	50.0	46.5		ug/L		93	70 - 123
Xylenes, Total	100	88.7		ug/L		89	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*
Dibromofluoromethane	*100*		*75 - 120*

Lab Sample ID: 500-188752-1 MS
Matrix: Water
Analysis Batch: 565505

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.15		50.0	43.3		ug/L		87	70 - 120
Toluene	<0.15		50.0	46.5		ug/L		93	70 - 125
Ethylbenzene	<0.18		50.0	44.5		ug/L		89	70 - 123
Xylenes, Total	<0.22		100	84.9		ug/L		85	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*
Toluene-d8 (Surr)	*99*		*75 - 120*
4-Bromofluorobenzene (Surr)	*94*		*72 - 124*
Dibromofluoromethane	*99*		*75 - 120*

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

Lab Sample ID: 500-188752-1 MSD
Matrix: Water
Analysis Batch: 565505

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.15		50.0	44.9		ug/L		90	70 - 120	4	20
Toluene	<0.15		50.0	47.9		ug/L		96	70 - 125	3	20
Ethylbenzene	<0.18		50.0	45.6		ug/L		91	70 - 123	2	20
Xylenes, Total	<0.22		100	89.0		ug/L		89	70 - 125	5	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*
Dibromofluoromethane	*101*		*75 - 120*

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

Lab Sample ID: MB 500-564790/1-A
Matrix: Water
Analysis Batch: 564999

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564790

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.80	0.25	ug/L		10/05/20 06:19	10/06/20 00:45	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*81*		*36 - 120*	*10/05/20 06:19*	*10/06/20 00:45*	*1*
2-Fluorobiphenyl (Surr)	*81*		*34 - 110*	*10/05/20 06:19*	*10/06/20 00:45*	*1*
Terphenyl-d14 (Surr)	*106*		*40 - 145*	*10/05/20 06:19*	*10/06/20 00:45*	*1*

Lab Sample ID: LCS 500-564790/2-A
Matrix: Water
Analysis Batch: 564999

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564790

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	32.0	25.2		ug/L		79	36 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*84*		*36 - 120*
2-Fluorobiphenyl (Surr)	*82*		*34 - 110*
Terphenyl-d14 (Surr)	*106*		*40 - 145*

Lab Sample ID: 500-188752-1 MS
Matrix: Water
Analysis Batch: 565230

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA
Prep Batch: 564790

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	<0.34		29.9	26.4		ug/L		88	36 - 110

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*94*		*36 - 120*
2-Fluorobiphenyl (Surr)	*96*		*34 - 110*

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

Lab Sample ID: 500-188752-1 MS
Matrix: Water
Analysis Batch: 565230

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA
Prep Batch: 564790

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*109*		*40 - 145*

Lab Sample ID: 500-188752-1 MSD
Matrix: Water
Analysis Batch: 565230

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA
Prep Batch: 564790

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	<0.34		29.9	24.7		ug/L		83	36 - 110	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*89*		*36 - 120*
2-Fluorobiphenyl (Surr)	*91*		*34 - 110*
Terphenyl-d14 (Surr)	*108*		*40 - 145*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-564839/1-A
Matrix: Water
Analysis Batch: 565250

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 564839

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/05/20 08:28	10/07/20 13:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*84*		*25 - 130*	*10/05/20 08:28*	*10/07/20 13:11*	*1*

Lab Sample ID: LCS 500-564839/2-A
Matrix: Water
Analysis Batch: 565250

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 564839

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol			2.50	2.09		ug/L		84	40 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*91*		*25 - 130*

Lab Sample ID: 500-188752-1 MS
Matrix: Water
Analysis Batch: 565250

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA
Prep Batch: 564839

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol	<0.086		2.39	1.72		ug/L		72	40 - 122		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCAA	*88*		*25 - 130*

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

Lab Sample ID: 500-188752-1 MSD
Matrix: Water
Analysis Batch: 565250

Client Sample ID: W-201001-RA-106
Prep Type: Total/NA
Prep Batch: 564839

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	<0.086		2.39	1.70		ug/L		71	40 - 122	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCAA	*86*		*25 - 130*

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-106
Date Collected: 10/01/20 12:16
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 13:08	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	565230	10/07/20 01:18	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 17:03	JBJ	TAL CHI

Client Sample ID: W-201001-RA-105
Date Collected: 10/01/20 12:36
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 13:35	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 05:27	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 18:01	JBJ	TAL CHI

Client Sample ID: W-201001-RA-104
Date Collected: 10/01/20 12:36
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 14:02	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 05:55	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 18:20	JBJ	TAL CHI

Client Sample ID: W-201001-RA-103
Date Collected: 10/01/20 12:50
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 14:28	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 06:23	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 18:39	JBJ	TAL CHI

Client Sample ID: W-201001-RA-102
Date Collected: 10/01/20 13:18
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 14:55	PMF	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Client Sample ID: W-201001-RA-102
Date Collected: 10/01/20 13:18
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 06:51	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 18:59	JBJ	TAL CHI

Client Sample ID: W-201001-RA-101
Date Collected: 10/01/20 13:27
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 15:22	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 07:19	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 19:18	JBJ	TAL CHI

Client Sample ID: W-201001-RA-100
Date Collected: 10/01/20 13:27
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-7
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 15:48	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 07:47	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 19:37	JBJ	TAL CHI

Client Sample ID: W-201001-RA-107
Date Collected: 10/01/20 14:06
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-8
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 16:15	PMF	TAL CHI
Total/NA	Prep	3510C			564790	10/05/20 06:19	CMC	TAL CHI
Total/NA	Analysis	8270D		1	564999	10/06/20 08:16	NRJ	TAL CHI
Total/NA	Prep	8151A			564839	10/05/20 08:28	CMC	TAL CHI
Total/NA	Analysis	8151A		1	565250	10/07/20 19:57	JBJ	TAL CHI

Client Sample ID: Trip Blank
Date Collected: 10/01/20 00:00
Date Received: 10/02/20 09:35

Lab Sample ID: 500-188752-9
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565505	10/08/20 11:48	PMF	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188752-1

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-21

Chain of Custody Record 491470

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other: TAL-8210

Client Contact	Project Manager: Tim Rae	Site Contact:	Date: 10/1/20	COC No:
Company Name: GAD	Tel/Email:	Lab Contact: Grant Anderson	Carrier:	1 of 1 COCs
Address: 1801 Old Highway 8 NW 114	Analysis Turnaround Time			Sampler:
City/State/Zip: St. Paul MN 55112	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 651 639 0913	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Pentawood	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.: 500-188752
PO #	☐ 1 day			

500-188752 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCP	BTEX	Naphthalene	Sample Specific Notes:
1	W-201001-RA-106	10/1/20	1216	G	WG	3,2,1	N	N	X	X	X	
2	W-201001-RA-105	10/1/20	1236	G	WG	7	N	N	X	X	X	
3	W-201001-RA-104	10/1/20	1236	G	WG	7	N	N	X	X	X	
4	W-201001-RA-103	10/1/20	1250	G	WG	7	N	N	X	X	X	
5	W-201001-RA-102	10/1/20	1318	G	WG	7	N	N	X	X	X	
6	W-201001-RA-101	10/1/20	1327	G	WG	7	N	N	X	X	X	
7	W-201001-RA-100	10/1/20	1327	G	WG	7	N	N	X	X	X	
8	W-201001-RA-107	10/1/20	1406	G	WG	7	N	N	X	X	X	
9	Trip Blank									X		

Preservation Used: 1= Ice, 2= HCl; 3= H_2SO_4; 4=HNO_3; 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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

3,3,3,2,3.6,4.2

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_____ Corr'd:_____ Therm ID No.:_____

	Company	Date/Time		Company	Date/Time
Relinquished by:	GAD	10/1/20 1530	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received in Laboratory by: John Scott	TA-CHT	10/2/20 0935

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-188752-1

Login Number: 188752
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

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	3.3,3.2,3.6,4.2
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-188876-1
Client Project/Site: Penta Wood 086165

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

Attn: Mr. Grant Anderson

Authorized for release by:
10/21/2020 1:43:02 PM

Richard Wright, Senior Project Manager
(708)746-0045
Richard.Wright@Eurofinset.com

Table of Contents

Job ID: 500-188876-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-188876-1

Receipt
The samples were received on 10/6/2020 10:05 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.8º 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 8270D: The continuing calibration verification (CCV) analyzed in 500-565475 was outside the method criteria for the following analyte(s): Nitrobenzene-d5 (Surr). As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

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 8151A: Surrogate recovery for the following samples were outside the upper control limit: W-201005-RA-05 (500-188876-3) and (MB 500-565538/1-A). These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8151A: Surrogate recovery for the following Laboratory Control Sample (LCS) was outside control limits: W-201005-RA-02 (500-188876-1), W-201005-RA-03 (500-188876-2), W-201005-RA-05 (500-188876-3) and (LCS 500-565538/2-A). The LCS recoveries were within limits; therefore, re-analysis was not performed.

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-02 — Lab Sample ID: 500-188876-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	4.7		1.0	0.17	ug/L	1		RSK-175	Total/NA
Arsenic	1.1		1.0	0.23	ug/L	1		6020A	Dissolved
Manganese	37.4		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	151		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	44.3		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	0.28		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	13.7		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	0.81	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	74.1		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201005-RA-03 — Lab Sample ID: 500-188876-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.2		1.0	0.23	ug/L	1		6020A	Dissolved
Copper	0.55	J	2.0	0.50	ug/L	1		6020A	Dissolved
Manganese	3.4		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	143		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	22.4		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	1.6		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	6.6		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.72	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	119		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201005-RA-05 — Lab Sample ID: 500-188876-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.24	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	3.5		2.0	0.50	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	49.9		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	2.0		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.59		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	3.8		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.94	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	56.3		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 500-188876-4

No Detections.

This Detection Summary does not include radiochemical test results.

Eurofins TestAmerica, Chicago

Method Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL CHI
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL CHI
300.0	Anions, Ion Chromatography	MCAWW	TAL CHI
9060A	Organic Carbon, Total (TOC)	SW846	TAL CHI
SM 2320B	Alkalinity	SM	TAL CHI
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI
3010A	Preparation, Total Metals	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
8151A	Extraction (Herbicides)	SW846	TAL CHI

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-188876-1	W-201005-RA-02	Water	10/05/20 09:22	10/06/20 10:05	
500-188876-2	W-201005-RA-03	Water	10/05/20 10:00	10/06/20 10:05	
500-188876-3	W-201005-RA-05	Water	10/05/20 11:20	10/06/20 10:05	
500-188876-4	Trip Blank	Water	10/05/20 00:00	10/06/20 10:05	

Client Sample ID: W-201005-RA-02

Date Collected: 10/05/20 09:22
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 17:18	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 17:18	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 17:18	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 17:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/09/20 17:18*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/09/20 17:18*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*		*10/09/20 17:18*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/09/20 17:18*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/07/20 06:29	10/08/20 01:27	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*79*	*^c*	*36 - 120*	*10/07/20 06:29*	*10/08/20 01:27*	*1*
2-Fluorobiphenyl (Surr)	*69*		*34 - 110*	*10/07/20 06:29*	*10/08/20 01:27*	*1*
Terphenyl-d14 (Surr)	*90*		*40 - 145*	*10/07/20 06:29*	*10/08/20 01:27*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**4.7**		1.0	0.17	ug/L			10/12/20 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*112*		*60 - 140*		*10/12/20 15:11*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.086		0.096	0.086	ug/L		10/08/20 07:51	10/09/20 19:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*127*		*25 - 130*	*10/08/20 07:51*	*10/09/20 19:18*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.1**		1.0	0.23	ug/L		10/07/20 08:17	10/07/20 14:27	1
Copper	<0.50		2.0	0.50	ug/L		10/07/20 08:17	10/07/20 14:27	1
Iron	<46.7		100	46.7	ug/L		10/07/20 08:17	10/07/20 14:27	1
Manganese	**37.4**		2.5	0.79	ug/L		10/07/20 08:17	10/07/20 14:27	1
Zinc	<6.9		20.0	6.9	ug/L		10/07/20 08:17	10/07/20 14:27	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**151**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**44.3**		2.0	1.7	mg/L			10/06/20 22:19	10
Nitrate as N	**0.28**		0.20	0.068	mg/L			10/06/20 22:06	1
Sulfate	**13.7**		2.0	0.95	mg/L			10/10/20 16:23	10
Total Organic Carbon - Duplicates	**0.81**	**J**	1.0	0.47	mg/L			10/20/20 15:28	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-02
Date Collected: 10/05/20 09:22
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-1
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	74.1		5.0	3.7	mg/L			10/15/20 16:38	1

Client Sample ID: W-201005-RA-03

Date Collected: 10/05/20 10:00
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 17:44	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 17:44	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 17:44	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 17:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/09/20 17:44*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/09/20 17:44*	*1*
4-Bromofluorobenzene (Surr)	*90*		*72 - 124*		*10/09/20 17:44*	*1*
Dibromofluoromethane	*92*		*75 - 120*		*10/09/20 17:44*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.79	0.24	ug/L		10/07/20 06:29	10/08/20 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*85*	*^c*	*36 - 120*	*10/07/20 06:29*	*10/08/20 01:51*	*1*
2-Fluorobiphenyl (Surr)	*73*		*34 - 110*	*10/07/20 06:29*	*10/08/20 01:51*	*1*
Terphenyl-d14 (Surr)	*97*		*40 - 145*	*10/07/20 06:29*	*10/08/20 01:51*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 15:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*112*		*60 - 140*		*10/12/20 15:28*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.086		0.096	0.086	ug/L		10/08/20 07:51	10/09/20 19:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*127*		*25 - 130*	*10/08/20 07:51*	*10/09/20 19:37*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.2**		1.0	0.23	ug/L		10/07/20 08:17	10/07/20 14:31	1
Copper	**0.55**	**J**	2.0	0.50	ug/L		10/07/20 08:17	10/07/20 14:31	1
Iron	<46.7		100	46.7	ug/L		10/07/20 08:17	10/07/20 14:31	1
Manganese	**3.4**		2.5	0.79	ug/L		10/07/20 08:17	10/07/20 14:31	1
Zinc	<6.9		20.0	6.9	ug/L		10/07/20 08:17	10/07/20 14:31	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**143**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**22.4**		2.0	1.7	mg/L			10/06/20 22:44	10
Nitrate as N	**1.6**		0.20	0.068	mg/L			10/06/20 22:31	1
Sulfate	**6.6**		0.20	0.095	mg/L			10/10/20 16:35	1
Total Organic Carbon - Duplicates	**0.72**	**J**	1.0	0.47	mg/L			10/20/20 15:38	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-03
Date Collected: 10/05/20 10:00
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-2
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	119		5.0	3.7	mg/L			10/15/20 16:45	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-05

Date Collected: 10/05/20 11:20
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 18:10	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 18:10	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 18:10	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 18:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*10/09/20 18:10*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/09/20 18:10*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*		*10/09/20 18:10*	*1*
Dibromofluoromethane	*92*		*75 - 120*		*10/09/20 18:10*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.78	0.24	ug/L		10/07/20 06:29	10/08/20 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*82*	*^c*	*36 - 120*	*10/07/20 06:29*	*10/08/20 02:16*	*1*
2-Fluorobiphenyl (Surr)	*73*		*34 - 110*	*10/07/20 06:29*	*10/08/20 02:16*	*1*
Terphenyl-d14 (Surr)	*120*		*40 - 145*	*10/07/20 06:29*	*10/08/20 02:16*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 15:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*113*		*60 - 140*		*10/12/20 15:46*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.087		0.097	0.087	ug/L		10/08/20 07:51	10/09/20 19:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*133*	*X*	*25 - 130*	*10/08/20 07:51*	*10/09/20 19:56*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.24**	**J**	1.0	0.23	ug/L		10/07/20 08:17	10/07/20 14:34	1
Copper	**3.5**		2.0	0.50	ug/L		10/07/20 08:17	10/07/20 14:34	1
Iron	<46.7		100	46.7	ug/L		10/07/20 08:17	10/07/20 14:34	1
Manganese	<0.79		2.5	0.79	ug/L		10/07/20 08:17	10/07/20 14:34	1
Zinc	<6.9		20.0	6.9	ug/L		10/07/20 08:17	10/07/20 14:34	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**49.9**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**2.0**		0.20	0.17	mg/L			10/06/20 22:57	1
Nitrate as N	**0.59**		0.20	0.068	mg/L			10/06/20 22:57	1
Sulfate	**3.8**		0.20	0.095	mg/L			10/10/20 16:48	1
Total Organic Carbon - Duplicates	**0.94**	**J**	1.0	0.47	mg/L			10/20/20 15:48	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-05
Date Collected: 10/05/20 11:20
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-3
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	56.3		5.0	3.7	mg/L			10/15/20 16:50	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: Trip Blank

Date Collected: 10/05/20 00:00
Date Received: 10/06/20 10:05

Lab Sample ID: 500-188876-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 12:04	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 12:04	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 12:04	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 12:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*10/09/20 12:04*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/09/20 12:04*	*1*
4-Bromofluorobenzene (Surr)	*90*		*72 - 124*		*10/09/20 12:04*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/09/20 12:04*	*1*

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
^c	CCV Recovery is outside acceptance limits.

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds 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
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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)
TNTC	Too Numerous To Count

GC/MS VOA

Analysis Batch: 565725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	8260B	
500-188876-2	W-201005-RA-03	Total/NA	Water	8260B	
500-188876-3	W-201005-RA-05	Total/NA	Water	8260B	
500-188876-4	Trip Blank	Total/NA	Water	8260B	
MB 500-565725/6	Method Blank	Total/NA	Water	8260B	
LCS 500-565725/8	Lab Control Sample	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 565268

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	3510C	
500-188876-2	W-201005-RA-03	Total/NA	Water	3510C	
500-188876-3	W-201005-RA-05	Total/NA	Water	3510C	
MB 500-565268/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-565268/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-565268/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 565447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-565268/1-A	Method Blank	Total/NA	Water	8270D	565268
LCS 500-565268/2-A	Lab Control Sample	Total/NA	Water	8270D	565268
LCSD 500-565268/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	565268

Analysis Batch: 565475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	8270D	565268
500-188876-2	W-201005-RA-03	Total/NA	Water	8270D	565268
500-188876-3	W-201005-RA-05	Total/NA	Water	8270D	565268

GC VOA

Analysis Batch: 455523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	RSK-175	
500-188876-2	W-201005-RA-03	Total/NA	Water	RSK-175	
500-188876-3	W-201005-RA-05	Total/NA	Water	RSK-175	
MB 240-455523/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455523/4	Lab Control Sample	Total/NA	Water	RSK-175	

GC Semi VOA

Prep Batch: 565538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	8151A	
500-188876-2	W-201005-RA-03	Total/NA	Water	8151A	
500-188876-3	W-201005-RA-05	Total/NA	Water	8151A	
MB 500-565538/1-A	Method Blank	Total/NA	Water	8151A	
LCS 500-565538/2-A	Lab Control Sample	Total/NA	Water	8151A	

GC Semi VOA

Analysis Batch: 565743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	8151A	565538
500-188876-2	W-201005-RA-03	Total/NA	Water	8151A	565538
500-188876-3	W-201005-RA-05	Total/NA	Water	8151A	565538
MB 500-565538/1-A	Method Blank	Total/NA	Water	8151A	565538
LCS 500-565538/2-A	Lab Control Sample	Total/NA	Water	8151A	565538

Metals

Prep Batch: 565310

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Dissolved	Water	3005A	
500-188876-2	W-201005-RA-03	Dissolved	Water	3005A	
500-188876-3	W-201005-RA-05	Dissolved	Water	3005A	
MB 500-565310/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-565310/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Prep Batch: 565514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	3010A	
500-188876-2	W-201005-RA-03	Total/NA	Water	3010A	
500-188876-3	W-201005-RA-05	Total/NA	Water	3010A	

Analysis Batch: 565540

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Dissolved	Water	6020A	565310
500-188876-2	W-201005-RA-03	Dissolved	Water	6020A	565310
500-188876-3	W-201005-RA-05	Dissolved	Water	6020A	565310
MB 500-565310/1-A	Method Blank	Total Recoverable	Water	6020A	565310
LCS 500-565310/2-A	Lab Control Sample	Total Recoverable	Water	6020A	565310

Analysis Batch: 565699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	SM 2340B	565514
500-188876-2	W-201005-RA-03	Total/NA	Water	SM 2340B	565514
500-188876-3	W-201005-RA-05	Total/NA	Water	SM 2340B	565514

General Chemistry

Analysis Batch: 565188

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	300.0	
500-188876-1	W-201005-RA-02	Total/NA	Water	300.0	
500-188876-2	W-201005-RA-03	Total/NA	Water	300.0	
500-188876-2	W-201005-RA-03	Total/NA	Water	300.0	
500-188876-3	W-201005-RA-05	Total/NA	Water	300.0	
MB 500-565188/3	Method Blank	Total/NA	Water	300.0	
LCS 500-565188/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 565915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	300.0	
500-188876-2	W-201005-RA-03	Total/NA	Water	300.0	

General Chemistry (Continued)

Analysis Batch: 565915 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-3	W-201005-RA-05	Total/NA	Water	300.0	
MB 500-565915/3	Method Blank	Total/NA	Water	300.0	
LCS 500-565915/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 566922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	SM 2320B	
500-188876-2	W-201005-RA-03	Total/NA	Water	SM 2320B	
500-188876-3	W-201005-RA-05	Total/NA	Water	SM 2320B	
MB 500-566922/28	Method Blank	Total/NA	Water	SM 2320B	
LCS 500-566922/29	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 567721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188876-1	W-201005-RA-02	Total/NA	Water	9060A	
500-188876-2	W-201005-RA-03	Total/NA	Water	9060A	
500-188876-3	W-201005-RA-05	Total/NA	Water	9060A	
MB 500-567721/4	Method Blank	Total/NA	Water	9060A	
LCS 500-567721/5	Lab Control Sample	Total/NA	Water	9060A	
LCSD 500-567721/6	Lab Control Sample Dup	Total/NA	Water	9060A	

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-188876-1	W-201005-RA-02	100	98	91	95
500-188876-2	W-201005-RA-03	100	100	90	92
500-188876-3	W-201005-RA-05	95	100	92	92
500-188876-4	Trip Blank	97	99	90	95
LCS 500-565725/8	Lab Control Sample	95	100	89	95
MB 500-565725/6	Method Blank	99	98	91	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(36-120)	(34-110)	(40-145)
500-188876-1	W-201005-RA-02	79 ^c	69	90
500-188876-2	W-201005-RA-03	85 ^c	73	97
500-188876-3	W-201005-RA-05	82 ^c	73	120
LCS 500-565268/2-A	Lab Control Sample	80	75	102
LCSD 500-565268/3-A	Lab Control Sample Dup	77	69	93
MB 500-565268/1-A	Method Blank	71	65	95

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TPHL = Terphenyl-d14 (Surr)

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFE1
Lab Sample ID	Client Sample ID	(60-140)
500-188876-1	W-201005-RA-02	112
500-188876-2	W-201005-RA-03	112
500-188876-3	W-201005-RA-05	113
LCS 240-455523/4	Lab Control Sample	114
MB 240-455523/3	Method Blank	114

Surrogate Legend

TFE = 1,1,1-Trifluoroethane

Surrogate Summary

Client: GHD Services Inc.
Job ID: 500-188876-1
Project/Site: Penta Wood 086165

Method: 8151A - Herbicides (GC)

Matrix: Water
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPAA2 (25-130)								
500-188876-1	W-201005-RA-02	127								
500-188876-2	W-201005-RA-03	127								
500-188876-3	W-201005-RA-05	133 X								
LCS 500-565538/2-A	Lab Control Sample	132 X								
MB 500-565538/1-A	Method Blank	144 X								

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 500-565725/6
Matrix: Water
Analysis Batch: 565725

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 11:11	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 11:11	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 11:11	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/09/20 11:11*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/09/20 11:11*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*		*10/09/20 11:11*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*10/09/20 11:11*	*1*

Lab Sample ID: LCS 500-565725/8
Matrix: Water
Analysis Batch: 565725

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	43.7		ug/L		87	70 - 120
Toluene	50.0	44.5		ug/L		89	70 - 125
Ethylbenzene	50.0	45.6		ug/L		91	70 - 123
Xylenes, Total	100	83.3		ug/L		83	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*
Dibromofluoromethane	*95*		*75 - 120*

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

Lab Sample ID: MB 500-565268/1-A
Matrix: Water
Analysis Batch: 565447

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565268

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.80	0.25	ug/L		10/07/20 06:29	10/07/20 22:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*71*		*36 - 120*	*10/07/20 06:29*	*10/07/20 22:29*	*1*
2-Fluorobiphenyl (Surr)	*65*		*34 - 110*	*10/07/20 06:29*	*10/07/20 22:29*	*1*
Terphenyl-d14 (Surr)	*95*		*40 - 145*	*10/07/20 06:29*	*10/07/20 22:29*	*1*

Lab Sample ID: LCS 500-565268/2-A
Matrix: Water
Analysis Batch: 565447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565268

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	32.0	19.0		ug/L		59	36 - 110

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

Lab Sample ID: LCS 500-565268/2-A
Matrix: Water
Analysis Batch: 565447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565268

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*80*		*36 - 120*
2-Fluorobiphenyl (Surr)	*75*		*34 - 110*
Terphenyl-d14 (Surr)	*102*		*40 - 145*

Lab Sample ID: LCSD 500-565268/3-A
Matrix: Water
Analysis Batch: 565447

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 565268

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			32.0	19.5		ug/L		61	36 - 110	3	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*77*		*36 - 120*
2-Fluorobiphenyl (Surr)	*69*		*34 - 110*
Terphenyl-d14 (Surr)	*93*		*40 - 145*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-455523/3
Matrix: Water
Analysis Batch: 455523

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 12:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*114*		*60 - 140*		*10/12/20 12:06*	*1*

Lab Sample ID: LCS 240-455523/4
Matrix: Water
Analysis Batch: 455523

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	289		ug/L		102	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*114*		*60 - 140*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-565538/1-A
Matrix: Water
Analysis Batch: 565743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565538

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/08/20 07:51	10/09/20 17:02	1

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

Lab Sample ID: MB 500-565538/1-A
Matrix: Water
Analysis Batch: 565743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565538

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	144	X	25 - 130	10/08/20 07:51	10/09/20 17:02	1

Lab Sample ID: LCS 500-565538/2-A
Matrix: Water
Analysis Batch: 565743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565538

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	2.50	2.12		ug/L		85	40 - 122

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCAA	132	X	25 - 130

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-565310/1-A
Matrix: Water
Analysis Batch: 565540

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 565310

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/07/20 08:17	10/07/20 14:03	1
Copper	<0.50		2.0	0.50	ug/L		10/07/20 08:17	10/07/20 14:03	1
Iron	<46.7		100	46.7	ug/L		10/07/20 08:17	10/07/20 14:03	1
Manganese	<0.79		2.5	0.79	ug/L		10/07/20 08:17	10/07/20 14:03	1
Zinc	<6.9		20.0	6.9	ug/L		10/07/20 08:17	10/07/20 14:03	1

Lab Sample ID: LCS 500-565310/2-A
Matrix: Water
Analysis Batch: 565540

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 565310

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	102.0		ug/L		102	80 - 120
Copper	250	268.6		ug/L		107	80 - 120
Iron	1000	1056		ug/L		106	80 - 120
Manganese	500	530.3		ug/L		106	80 - 120
Zinc	500	554.6		ug/L		111	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 500-565188/3
Matrix: Water
Analysis Batch: 565188

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/06/20 18:30	1
Nitrate as N	<0.068		0.20	0.068	mg/L			10/06/20 18:30	1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 500-565188/4
Matrix: Water
Analysis Batch: 565188

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.20		mg/L		107	90 - 110
Nitrate as N	2.00	2.19		mg/L		109	90 - 110

Lab Sample ID: MB 500-565915/3
Matrix: Water
Analysis Batch: 565915

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.095		0.20	0.095	mg/L			10/10/20 13:24	1

Lab Sample ID: LCS 500-565915/4
Matrix: Water
Analysis Batch: 565915

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	5.32		mg/L		106	90 - 110

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

Lab Sample ID: MB 500-567721/4
Matrix: Water
Analysis Batch: 567721

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 - Duplicates	<0.47		1.0	0.47	mg/L			10/20/20 12:40	1

Lab Sample ID: LCS 500-567721/5
Matrix: Water
Analysis Batch: 567721

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 - Duplicates	10.0	10.17		mg/L		102	80 - 120

Lab Sample ID: LCSD 500-567721/6
Matrix: Water
Analysis Batch: 567721

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

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon - Duplicates	10.0	10.55		mg/L		105	80 - 120	2	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 500-566922/28
Matrix: Water
Analysis Batch: 566922

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			10/15/20 15:11	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: LCS 500-566922/29
Matrix: Water
Analysis Batch: 566922

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	100.3		mg/L		100	90 - 110

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-02

Lab Sample ID: 500-188876-1
Matrix: Water
Date Collected: 10/05/20 09:22
Date Received: 10/06/20 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 17:18	PMF	TAL CHI
Total/NA	Prep	3510C			565268	10/07/20 06:29	CMC	TAL CHI
Total/NA	Analysis	8270D		1	565475	10/08/20 01:27	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 15:11	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 19:18	JBJ	TAL CHI
Dissolved	Prep	3005A			565310	10/07/20 08:17	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565540	10/07/20 14:27	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		1	565188	10/06/20 22:06	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565188	10/06/20 22:19	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565915	10/10/20 16:23	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 15:28	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 16:38	SMO	TAL CHI

Client Sample ID: W-201005-RA-03

Lab Sample ID: 500-188876-2
Matrix: Water
Date Collected: 10/05/20 10:00
Date Received: 10/06/20 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 17:44	PMF	TAL CHI
Total/NA	Prep	3510C			565268	10/07/20 06:29	CMC	TAL CHI
Total/NA	Analysis	8270D		1	565475	10/08/20 01:51	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 15:28	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 19:37	JBJ	TAL CHI
Dissolved	Prep	3005A			565310	10/07/20 08:17	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565540	10/07/20 14:31	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		1	565188	10/06/20 22:31	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565188	10/06/20 22:44	EAT	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 16:35	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 15:38	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 16:45	SMO	TAL CHI

Client Sample ID: W-201005-RA-05

Lab Sample ID: 500-188876-3
Matrix: Water
Date Collected: 10/05/20 11:20
Date Received: 10/06/20 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 18:10	PMF	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Client Sample ID: W-201005-RA-05

Lab Sample ID: 500-188876-3

Date Collected: 10/05/20 11:20

Matrix: Water

Date Received: 10/06/20 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			565268	10/07/20 06:29	CMC	TAL CHI
Total/NA	Analysis	8270D		1	565475	10/08/20 02:16	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 15:46	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 19:56	JBJ	TAL CHI
Dissolved	Prep	3005A			565310	10/07/20 08:17	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565540	10/07/20 14:34	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		1	565188	10/06/20 22:57	EAT	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 16:48	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 15:48	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 16:50	SMO	TAL CHI

Client Sample ID: Trip Blank

Lab Sample ID: 500-188876-4

Date Collected: 10/05/20 00:00

Matrix: Water

Date Received: 10/06/20 10:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 12:04	PMF	TAL CHI

Laboratory References:

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188876-1

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record 491469

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Tim. Ree/Grant Anderson	Site Contact:	Date: 10/05/2020	COC No:
Company Name: GHD	Tel/Email: Grant.Anderson@GHD.com	Lab Contact:	Carrier: Fedex	___ of ___ COCs
Address: 1801 Old Hwy 8	Analysis Turnaround Time			Sampler:
City/State/Zip: New Brighton, MN	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone:	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Penta Wood	☐ 1 week			
Site: Siren, WI	☐ 2 days			Job / SDG No.:
PO# 86165	☐ 1 day			500-188876

500-188876 COC

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	VOCs	PCP by 8151	BTEX	Naphthalene by 8270	Diss metals (As, Cr, Fe, Mn, Zn)	Alkalinity by mg/L	Total metals	TOC	methane by RSK	Sample Specific Notes:
1 GW-201005-RA-02	10/05/2020	0922	G	WG	15	Y	N		X	X	X	X	X	X	X	X	* Field Filtered
2 -03	↓	1000	↓	↓	15	Y	N		X	X	X	X	X	X	X	X	dissolved metals
3 -05	↓	1120	↓	↓	15	Y	N		X	X	X	X	X	X	X	X	ONLY !*
4 Trip Blank								X									

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: 0.8 Corr'd:_____ Therm ID No.:_____

	Company:	Date/Time:		Company:	Date/Time:
Relinquished by:	GHD	10/05/2020 1445	Received by:		
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TA-Cht	Date/Time: 10/6/20 1005


ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US
SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406
TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST
UNIVERSITY PARK IL 60484
(708) 534-5200
INV:
PO:
REF:
DEPT:
500-188876 Wayb
RMA:
FedEx
Express
TRK# 0221 1893 4449 5668
FedEx
TRK# 0221 1893 4449 5668
RETURNS MON-SAT
PRIORITY OVERNIGHT
TUE - 06 OCT AA
PRIORITY OVERNIGHT
GE JOTA
60484
IL-US
ORD
FID: 387267 05Oct2020 JOTA 56DG2/A27E/05A2

48qt.

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Wright, Richard	Carrier Tracking No(s):	COC No: 500-140601.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Richard.Wright@Eurofinset.com	State of Origin: Wisconsin	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-188876-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/19/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Penta Wood 086165	Project #: 50013796			
Site:	SSOW#:			

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Analysis Requested

RSK

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) Methane	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
W-201005-RA-02 (500-188876-1)	10/5/20	09:22 Central		Water			X	3	WI
W-201005-RA-03 (500-188876-2)	10/5/20	10:00 Central		Water			X	3	WI
W-201005-RA-05 (500-188876-3)	10/5/20	11:20 Central		Water			X	3	WI

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	10/6/20 1600	TA		10-8-20 930	TAC
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client EMA Chicago Site Name _____ Cooler unpacked by: _____

Cooler Received on 10-8-20 Opened on 10-9-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 774 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# IR-11 (CF **+0.9** °C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
   IR GUN #IR-12 (CF **+0.5**°C) Observed Cooler Temp._____°C Corrected Cooler Temp._____°C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 2 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
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 (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC907861**
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

19. 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)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login # : ____________

Eurofins TestAmerica Canton Sample Receipt Multiple Cooler Form				
Cooler Description (Circle)	IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)
TA Client Box Other	IR-10 IR-11	1.8	2.7	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11	1.5	2.4	Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
TA Client Box Other	IR-10 IR-11			Wet Ice Blue Ice Dry Ice Water None
				☐ See Temperature Excursion Form

WI-NC-099 Cooler Receipt Form Page 2 – Multiple Coolers

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-188876-1

Login Number: 188876
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

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	0.8
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	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-188905-1
Client Project/Site: Penta Wood 086165

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

Attn: Mr. Grant Anderson

Authorized for release by:
10/22/2020 8:27:11 AM

Richard Wright, Senior Project Manager
(708)746-0045
Richard.Wright@Eurofinset.com

Table of Contents

Case Narrative

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Job ID: 500-188905-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-188905-1

Receipt
The samples were received on 10/7/2020 9:50 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were -0.1º C, 2.3º C, 2.7º C and 5.1º 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 8151A: Surrogate recovery for the following samples were outside the upper control limit: W-201005-RA-04 (500-188905-1), W-201005-RA-06 (500-188905-2), W-201005-RA-01 (500-188905-3), W-201005-RA-01 (500-188905-3[MSD]), W-201006-RA-07 (500-188905-4) and (MB 500-565538/1-A). These samples did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8151A: Surrogate recovery for the following Laboratory Control Sample (LCS) was outside control limits: W-201005-RA-04 (500-188905-1), W-201005-RA-06 (500-188905-2), W-201005-RA-01 (500-188905-3), W-201005-RA-01 (500-188905-3[MS]), W-201005-RA-01 (500-188905-3[MSD]), W-201006-RA-07 (500-188905-4), W-201006-RA-09 (500-188905-6) and (LCS 500-565538/2-A). The LCS recoveries were within limits; therefore, re-analysis was not performed.

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.

Field Service / Mobile Lab
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.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201005-RA-04 — Lab Sample ID: 500-188905-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Ethylbenzene	0.19	J	0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	0.82	J	1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	0.45	J	0.76	0.23	ug/L	1		8270D	Total/NA
Arsenic	0.92	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.8	J	2.0	0.50	ug/L	1		6020A	Dissolved
Manganese	81.1		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	172		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	8.6		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	0.35		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	34.2		1.0	0.48	mg/L	5		300.0	Total/NA
Total Organic Carbon - Duplicates	3.1		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	153		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201005-RA-06 — Lab Sample ID: 500-188905-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Zinc	7.1	J	20.0	6.9	ug/L	1		6020A	Dissolved

Client Sample ID: W-201005-RA-01 — Lab Sample ID: 500-188905-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.70	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.9	J	2.0	0.50	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	335		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	13.1		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	1.8		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	151		4.0	1.9	mg/L	20		300.0	Total/NA
Total Organic Carbon - Duplicates	0.68	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	191		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-07 — Lab Sample ID: 500-188905-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.27	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	0.73	J	2.0	0.50	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	95.4		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	81.5		5.0	4.3	mg/L	25		300.0	Total/NA
Nitrate as N	1.9		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	6.7		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.99	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	47.0		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-08 — Lab Sample ID: 500-188905-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.17		0.098	0.088	ug/L	1		8151A	Total/NA
Arsenic	0.36	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	3.6		2.0	0.50	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	105		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	9.7		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	3.0		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	7.1		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	1.2		1.0	0.47	mg/L	1		9060A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201006-RA-08 (Continued) — Lab Sample ID: 500-188905-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Alkalinity	82.0		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-09 — Lab Sample ID: 500-188905-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.20		0.097	0.087	ug/L	1		8151A	Total/NA
Arsenic	0.27	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	3.3		2.0	0.50	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	48.9		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	0.81		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.31		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	2.6		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	2.1		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	53.6		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 500-188905-7

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL CHI
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL CHI
300.0	Anions, Ion Chromatography	MCAWW	TAL CHI
9060A	Organic Carbon, Total (TOC)	SW846	TAL CHI
SM 2320B	Alkalinity	SM	TAL CHI
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI
3010A	Preparation, Total Metals	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
8151A	Extraction (Herbicides)	SW846	TAL CHI

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-188905-1	W-201005-RA-04	Water	10/05/20 14:30	10/07/20 09:50	
500-188905-2	W-201005-RA-06	Water	10/05/20 15:20	10/07/20 09:50	
500-188905-3	W-201005-RA-01	Water	10/05/20 15:23	10/07/20 09:50	
500-188905-4	W-201006-RA-07	Water	10/06/20 09:35	10/07/20 09:50	
500-188905-5	W-201006-RA-08	Water	10/06/20 10:25	10/07/20 09:50	
500-188905-6	W-201006-RA-09	Water	10/06/20 11:27	10/07/20 09:50	
500-188905-7	Trip Blank	Water	10/05/20 00:00	10/07/20 09:50	

Client Sample ID: W-201005-RA-04

Date Collected: 10/05/20 14:30
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 14:43	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 14:43	1
Ethylbenzene	**0.19**	**J**	0.50	0.18	ug/L			10/09/20 14:43	1
Xylenes, Total	**0.82**	**J**	1.0	0.22	ug/L			10/09/20 14:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/09/20 14:43*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/09/20 14:43*	*1*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*10/09/20 14:43*	*1*
Dibromofluoromethane	*92*		*75 - 120*		*10/09/20 14:43*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.45**	**J**	0.76	0.23	ug/L		10/09/20 06:36	10/09/20 15:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*36 - 120*	*10/09/20 06:36*	*10/09/20 15:11*	*1*
2-Fluorobiphenyl (Surr)	*73*		*34 - 110*	*10/09/20 06:36*	*10/09/20 15:11*	*1*
Terphenyl-d14 (Surr)	*99*		*40 - 145*	*10/09/20 06:36*	*10/09/20 15:11*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 18:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*110*		*60 - 140*		*10/12/20 18:38*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.089		0.099	0.089	ug/L		10/08/20 07:51	10/09/20 20:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*2896*	*X*	*25 - 130*	*10/08/20 07:51*	*10/09/20 20:54*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.92**	**J**	1.0	0.23	ug/L		10/08/20 07:14	10/08/20 15:51	1
Copper	**1.8**	**J**	2.0	0.50	ug/L		10/08/20 07:14	10/08/20 15:51	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 15:51	1
Manganese	**81.1**		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 15:51	1
Zinc	<6.9		20.0	6.9	ug/L		10/08/20 07:14	10/08/20 15:51	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**172**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**8.6**		2.0	1.7	mg/L			10/07/20 11:58	10
Nitrate as N	**0.35**		0.20	0.068	mg/L			10/07/20 11:46	1
Sulfate	**34.2**		1.0	0.48	mg/L			10/16/20 18:23	5
Total Organic Carbon - Duplicates	**3.1**		1.0	0.47	mg/L			10/20/20 18:31	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201005-RA-04
Date Collected: 10/05/20 14:30
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-1
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	153		5.0	3.7	mg/L			10/15/20 17:20	1

Client Sample ID: W-201005-RA-06

Date Collected: 10/05/20 15:20
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 15:09	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 15:09	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 15:09	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 15:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/09/20 15:09*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/09/20 15:09*	*1*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*10/09/20 15:09*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*10/09/20 15:09*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/09/20 06:36	10/09/20 15:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*63*		*36 - 120*	*10/09/20 06:36*	*10/09/20 15:39*	*1*
2-Fluorobiphenyl (Surr)	*56*		*34 - 110*	*10/09/20 06:36*	*10/09/20 15:39*	*1*
Terphenyl-d14 (Surr)	*103*		*40 - 145*	*10/09/20 06:36*	*10/09/20 15:39*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.086		0.095	0.086	ug/L		10/08/20 07:51	10/09/20 21:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*139*	*X*	*25 - 130*	*10/08/20 07:51*	*10/09/20 21:14*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/08/20 07:14	10/08/20 15:55	1
Copper	<0.50		2.0	0.50	ug/L		10/08/20 07:14	10/08/20 15:55	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 15:55	1
Manganese	<0.79		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 15:55	1
Zinc	**7.1**	**J**	20.0	6.9	ug/L		10/08/20 07:14	10/08/20 15:55	1

Client Sample ID: W-201005-RA-01

Date Collected: 10/05/20 15:23
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 15:35	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 15:35	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 15:35	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 15:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*10/09/20 15:35*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/09/20 15:35*	*1*
4-Bromofluorobenzene (Surr)	*90*		*72 - 124*		*10/09/20 15:35*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/09/20 15:35*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.23		0.75	0.23	ug/L		10/09/20 06:36	10/09/20 16:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*36 - 120*	*10/09/20 06:36*	*10/09/20 16:07*	*1*
2-Fluorobiphenyl (Surr)	*76*		*34 - 110*	*10/09/20 06:36*	*10/09/20 16:07*	*1*
Terphenyl-d14 (Surr)	*101*		*40 - 145*	*10/09/20 06:36*	*10/09/20 16:07*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 21:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/12/20 21:13*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.095		0.11	0.095	ug/L		10/08/20 07:51	10/09/20 21:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*132*	*X*	*25 - 130*	*10/08/20 07:51*	*10/09/20 21:33*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.70**	**J**	1.0	0.23	ug/L		10/08/20 07:14	10/08/20 15:58	1
Copper	**1.9**	**J**	2.0	0.50	ug/L		10/08/20 07:14	10/08/20 15:58	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 15:58	1
Manganese	<0.79		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 15:58	1
Zinc	<6.9		20.0	6.9	ug/L		10/08/20 07:14	10/08/20 15:58	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**335**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**13.1**		2.0	1.7	mg/L			10/07/20 12:49	10
Nitrate as N	**1.8**		0.20	0.068	mg/L			10/07/20 12:11	1
Sulfate	**151**		4.0	1.9	mg/L			10/16/20 18:36	20
Total Organic Carbon - Duplicates	**0.68**	**J**	1.0	0.47	mg/L			10/20/20 18:41	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201005-RA-01
Date Collected: 10/05/20 15:23
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-3
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	191		5.0	3.7	mg/L			10/15/20 17:32	1

Client Sample ID: W-201006-RA-07

Date Collected: 10/06/20 09:35
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 16:01	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 16:01	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 16:01	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 16:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/09/20 16:01*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/09/20 16:01*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*		*10/09/20 16:01*	*1*
Dibromofluoromethane	*92*		*75 - 120*		*10/09/20 16:01*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.79	0.24	ug/L		10/09/20 06:36	10/09/20 16:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*80*		*36 - 120*	*10/09/20 06:36*	*10/09/20 16:35*	*1*
2-Fluorobiphenyl (Surr)	*81*		*34 - 110*	*10/09/20 06:36*	*10/09/20 16:35*	*1*
Terphenyl-d14 (Surr)	*110*		*40 - 145*	*10/09/20 06:36*	*10/09/20 16:35*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 18:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/12/20 18:55*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.091		0.10	0.091	ug/L		10/08/20 07:51	10/09/20 22:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*141*	*X*	*25 - 130*	*10/08/20 07:51*	*10/09/20 22:31*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.27**	**J**	1.0	0.23	ug/L		10/08/20 07:14	10/08/20 16:22	1
Copper	**0.73**	**J**	2.0	0.50	ug/L		10/08/20 07:14	10/08/20 16:22	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 16:22	1
Manganese	<0.79		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 16:22	1
Zinc	<6.9		20.0	6.9	ug/L		10/08/20 07:14	10/08/20 16:22	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**95.4**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**81.5**		5.0	4.3	mg/L			10/19/20 10:09	25
Nitrate as N	**1.9**		0.20	0.068	mg/L			10/07/20 13:53	1
Sulfate	**6.7**		0.20	0.095	mg/L			10/16/20 19:14	1
Total Organic Carbon - Duplicates	**0.99**	**J**	1.0	0.47	mg/L			10/20/20 19:10	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201006-RA-07
Date Collected: 10/06/20 09:35
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-4
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	47.0		5.0	3.7	mg/L			10/15/20 17:44	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201006-RA-08

Date Collected: 10/06/20 10:25
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 16:26	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 16:26	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 16:26	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/09/20 16:26*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/09/20 16:26*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*		*10/09/20 16:26*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/09/20 16:26*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.23		0.74	0.23	ug/L		10/09/20 06:36	10/09/20 17:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*36 - 120*	*10/09/20 06:36*	*10/09/20 17:03*	*1*
2-Fluorobiphenyl (Surr)	*70*		*34 - 110*	*10/09/20 06:36*	*10/09/20 17:03*	*1*
Terphenyl-d14 (Surr)	*102*		*40 - 145*	*10/09/20 06:36*	*10/09/20 17:03*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 19:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/12/20 19:13*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**0.17**		0.098	0.088	ug/L		10/08/20 07:51	10/20/20 16:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*60*		*25 - 130*	*10/08/20 07:51*	*10/20/20 16:59*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.36**	**J**	1.0	0.23	ug/L		10/08/20 07:14	10/08/20 16:26	1
Copper	**3.6**		2.0	0.50	ug/L		10/08/20 07:14	10/08/20 16:26	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 16:26	1
Manganese	<0.79		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 16:26	1
Zinc	<6.9		20.0	6.9	ug/L		10/08/20 07:14	10/08/20 16:26	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**105**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**9.7**		2.0	1.7	mg/L			10/07/20 14:31	10
Nitrate as N	**3.0**		0.20	0.068	mg/L			10/07/20 14:18	1
Sulfate	**7.1**		0.20	0.095	mg/L			10/16/20 19:39	1
Total Organic Carbon - Duplicates	**1.2**		1.0	0.47	mg/L			10/20/20 19:25	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201006-RA-08
Date Collected: 10/06/20 10:25
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-5
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	82.0		5.0	3.7	mg/L			10/15/20 17:50	1

Client Sample ID: W-201006-RA-09

Date Collected: 10/06/20 11:27
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-6

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 16:52	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 16:52	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 16:52	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 16:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/09/20 16:52*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/09/20 16:52*	*1*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*10/09/20 16:52*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/09/20 16:52*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.23		0.75	0.23	ug/L		10/09/20 06:36	10/09/20 17:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*36 - 120*	*10/09/20 06:36*	*10/09/20 17:30*	*1*
2-Fluorobiphenyl (Surr)	*73*		*34 - 110*	*10/09/20 06:36*	*10/09/20 17:30*	*1*
Terphenyl-d14 (Surr)	*103*		*40 - 145*	*10/09/20 06:36*	*10/09/20 17:30*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 19:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*112*		*60 - 140*		*10/12/20 19:30*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**0.20**		0.097	0.087	ug/L		10/08/20 07:51	10/20/20 17:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*58*		*25 - 130*	*10/08/20 07:51*	*10/20/20 17:19*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.27**	**J**	1.0	0.23	ug/L		10/08/20 07:14	10/08/20 16:29	1
Copper	**3.3**		2.0	0.50	ug/L		10/08/20 07:14	10/08/20 16:29	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 16:29	1
Manganese	<0.79		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 16:29	1
Zinc	<6.9		20.0	6.9	ug/L		10/08/20 07:14	10/08/20 16:29	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**48.9**		0.91	0.46	mg/L		10/08/20 07:16	10/09/20 00:46	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.81**		0.20	0.17	mg/L			10/07/20 14:43	1
Nitrate as N	**0.31**		0.20	0.068	mg/L			10/07/20 14:43	1
Sulfate	**2.6**		0.20	0.095	mg/L			10/16/20 19:52	1
Total Organic Carbon - Duplicates	**2.1**		1.0	0.47	mg/L			10/20/20 19:35	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201006-RA-09
Date Collected: 10/06/20 11:27
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-6
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	53.6		5.0	3.7	mg/L			10/15/20 17:56	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: Trip Blank

Date Collected: 10/05/20 00:00
Date Received: 10/07/20 09:50

Lab Sample ID: 500-188905-7

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 11:37	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 11:37	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 11:37	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 11:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*10/09/20 11:37*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/09/20 11:37*	*1*
4-Bromofluorobenzene (Surr)	*90*		*72 - 124*		*10/09/20 11:37*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/09/20 11:37*	*1*

Definitions/Glossary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

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

GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate recovery exceeds control limits

Metals

Qualifier	Qualifier Description
F5	Duplicate RPD exceeds limit, and one or both sample results are less than 5 times RL.
J	Reported value was between the limit of detection and the limit of quantitation.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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)
TNTC	Too Numerous To Count

GC/MS VOA

Analysis Batch: 565725

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	8260B	
500-188905-2	W-201005-RA-06	Total/NA	Water	8260B	
500-188905-3	W-201005-RA-01	Total/NA	Water	8260B	
500-188905-4	W-201006-RA-07	Total/NA	Water	8260B	
500-188905-5	W-201006-RA-08	Total/NA	Water	8260B	
500-188905-6	W-201006-RA-09	Total/NA	Water	8260B	
500-188905-7	Trip Blank	Total/NA	Water	8260B	
MB 500-565725/6	Method Blank	Total/NA	Water	8260B	
LCS 500-565725/8	Lab Control Sample	Total/NA	Water	8260B	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	8260B	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 565712

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	3510C	
500-188905-2	W-201005-RA-06	Total/NA	Water	3510C	
500-188905-3	W-201005-RA-01	Total/NA	Water	3510C	
500-188905-4	W-201006-RA-07	Total/NA	Water	3510C	
500-188905-5	W-201006-RA-08	Total/NA	Water	3510C	
500-188905-6	W-201006-RA-09	Total/NA	Water	3510C	
MB 500-565712/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-565712/2-A	Lab Control Sample	Total/NA	Water	3510C	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	3510C	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	3510C	

Analysis Batch: 565799

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	8270D	565712
500-188905-2	W-201005-RA-06	Total/NA	Water	8270D	565712
500-188905-3	W-201005-RA-01	Total/NA	Water	8270D	565712
500-188905-4	W-201006-RA-07	Total/NA	Water	8270D	565712
500-188905-5	W-201006-RA-08	Total/NA	Water	8270D	565712
500-188905-6	W-201006-RA-09	Total/NA	Water	8270D	565712
MB 500-565712/1-A	Method Blank	Total/NA	Water	8270D	565712
LCS 500-565712/2-A	Lab Control Sample	Total/NA	Water	8270D	565712
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	8270D	565712
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	8270D	565712

GC VOA

Analysis Batch: 455523

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	RSK-175	
500-188905-4	W-201006-RA-07	Total/NA	Water	RSK-175	
500-188905-5	W-201006-RA-08	Total/NA	Water	RSK-175	
500-188905-6	W-201006-RA-09	Total/NA	Water	RSK-175	
MB 240-455523/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455523/4	Lab Control Sample	Total/NA	Water	RSK-175	

GC VOA

Analysis Batch: 455524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-3	W-201005-RA-01	Total/NA	Water	RSK-175	
MB 240-455524/32	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455524/33	Lab Control Sample	Total/NA	Water	RSK-175	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	RSK-175	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	RSK-175	

GC Semi VOA

Prep Batch: 565538

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	8151A	
500-188905-2	W-201005-RA-06	Total/NA	Water	8151A	
500-188905-3	W-201005-RA-01	Total/NA	Water	8151A	
500-188905-4	W-201006-RA-07	Total/NA	Water	8151A	
500-188905-5	W-201006-RA-08	Total/NA	Water	8151A	
500-188905-6	W-201006-RA-09	Total/NA	Water	8151A	
MB 500-565538/1-A	Method Blank	Total/NA	Water	8151A	
LCS 500-565538/2-A	Lab Control Sample	Total/NA	Water	8151A	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	8151A	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	8151A	

Analysis Batch: 565743

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	8151A	565538
500-188905-2	W-201005-RA-06	Total/NA	Water	8151A	565538
500-188905-3	W-201005-RA-01	Total/NA	Water	8151A	565538
500-188905-4	W-201006-RA-07	Total/NA	Water	8151A	565538
MB 500-565538/1-A	Method Blank	Total/NA	Water	8151A	565538
LCS 500-565538/2-A	Lab Control Sample	Total/NA	Water	8151A	565538
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	8151A	565538
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	8151A	565538

Analysis Batch: 567550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-5	W-201006-RA-08	Total/NA	Water	8151A	565538
500-188905-6	W-201006-RA-09	Total/NA	Water	8151A	565538

Metals

Prep Batch: 565512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Dissolved	Water	3005A	
500-188905-2	W-201005-RA-06	Dissolved	Water	3005A	
500-188905-3	W-201005-RA-01	Dissolved	Water	3005A	
500-188905-4	W-201006-RA-07	Dissolved	Water	3005A	
500-188905-5	W-201006-RA-08	Dissolved	Water	3005A	
500-188905-6	W-201006-RA-09	Dissolved	Water	3005A	
MB 500-565512/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-565512/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
500-188905-3 MS	W-201005-RA-01	Dissolved	Water	3005A	
500-188905-3 MSD	W-201005-RA-01	Dissolved	Water	3005A	
500-188905-3 DU	W-201005-RA-01	Dissolved	Water	3005A	

QC Association Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Metals

Prep Batch: 565514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	3010A	
500-188905-3	W-201005-RA-01	Total/NA	Water	3010A	
500-188905-4	W-201006-RA-07	Total/NA	Water	3010A	
500-188905-5	W-201006-RA-08	Total/NA	Water	3010A	
500-188905-6	W-201006-RA-09	Total/NA	Water	3010A	

Analysis Batch: 565699

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	SM 2340B	565514
500-188905-3	W-201005-RA-01	Total/NA	Water	SM 2340B	565514
500-188905-4	W-201006-RA-07	Total/NA	Water	SM 2340B	565514
500-188905-5	W-201006-RA-08	Total/NA	Water	SM 2340B	565514
500-188905-6	W-201006-RA-09	Total/NA	Water	SM 2340B	565514

Analysis Batch: 565745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Dissolved	Water	6020A	565512
500-188905-2	W-201005-RA-06	Dissolved	Water	6020A	565512
500-188905-3	W-201005-RA-01	Dissolved	Water	6020A	565512
500-188905-4	W-201006-RA-07	Dissolved	Water	6020A	565512
500-188905-5	W-201006-RA-08	Dissolved	Water	6020A	565512
500-188905-6	W-201006-RA-09	Dissolved	Water	6020A	565512
MB 500-565512/1-A	Method Blank	Total Recoverable	Water	6020A	565512
LCS 500-565512/2-A	Lab Control Sample	Total Recoverable	Water	6020A	565512
500-188905-3 MS	W-201005-RA-01	Dissolved	Water	6020A	565512
500-188905-3 MSD	W-201005-RA-01	Dissolved	Water	6020A	565512
500-188905-3 DU	W-201005-RA-01	Dissolved	Water	6020A	565512

General Chemistry

Analysis Batch: 565346

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	300.0	
500-188905-1	W-201005-RA-04	Total/NA	Water	300.0	
500-188905-3	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-3	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-4	W-201006-RA-07	Total/NA	Water	300.0	
500-188905-5	W-201006-RA-08	Total/NA	Water	300.0	
500-188905-5	W-201006-RA-08	Total/NA	Water	300.0	
500-188905-6	W-201006-RA-09	Total/NA	Water	300.0	
MB 500-565346/3	Method Blank	Total/NA	Water	300.0	
LCS 500-565346/4	Lab Control Sample	Total/NA	Water	300.0	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	300.0	

Analysis Batch: 566922

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	SM 2320B	
500-188905-3	W-201005-RA-01	Total/NA	Water	SM 2320B	

General Chemistry (Continued)

Analysis Batch: 566922 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-4	W-201006-RA-07	Total/NA	Water	SM 2320B	
500-188905-5	W-201006-RA-08	Total/NA	Water	SM 2320B	
500-188905-6	W-201006-RA-09	Total/NA	Water	SM 2320B	
MB 500-566922/28	Method Blank	Total/NA	Water	SM 2320B	
LCS 500-566922/29	Lab Control Sample	Total/NA	Water	SM 2320B	
500-188905-3 DU	W-201005-RA-01	Total/NA	Water	SM 2320B	

Analysis Batch: 567015

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	300.0	
500-188905-3	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-4	W-201006-RA-07	Total/NA	Water	300.0	
500-188905-5	W-201006-RA-08	Total/NA	Water	300.0	
500-188905-6	W-201006-RA-09	Total/NA	Water	300.0	
MB 500-567015/3	Method Blank	Total/NA	Water	300.0	
LCS 500-567015/4	Lab Control Sample	Total/NA	Water	300.0	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	300.0	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	300.0	

Analysis Batch: 567173

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-4	W-201006-RA-07	Total/NA	Water	300.0	
MB 500-567173/3	Method Blank	Total/NA	Water	300.0	
LCS 500-567173/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 567721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188905-1	W-201005-RA-04	Total/NA	Water	9060A	
500-188905-3	W-201005-RA-01	Total/NA	Water	9060A	
500-188905-4	W-201006-RA-07	Total/NA	Water	9060A	
500-188905-5	W-201006-RA-08	Total/NA	Water	9060A	
500-188905-6	W-201006-RA-09	Total/NA	Water	9060A	
MB 500-567721/32	Method Blank	Total/NA	Water	9060A	
LCS 500-567721/33	Lab Control Sample	Total/NA	Water	9060A	
500-188905-3 MS	W-201005-RA-01	Total/NA	Water	9060A	
500-188905-3 MSD	W-201005-RA-01	Total/NA	Water	9060A	

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-188905-1	W-201005-RA-04	99	98	88	92
500-188905-2	W-201005-RA-06	100	99	89	93
500-188905-3	W-201005-RA-01	96	98	90	94
500-188905-3 MS	W-201005-RA-01	97	98	87	96
500-188905-3 MSD	W-201005-RA-01	99	99	88	98
500-188905-4	W-201006-RA-07	99	99	91	92
500-188905-5	W-201006-RA-08	100	100	92	94
500-188905-6	W-201006-RA-09	99	99	88	95
500-188905-7	Trip Blank	97	99	90	94
LCS 500-565725/8	Lab Control Sample	95	100	89	95
MB 500-565725/6	Method Blank	99	98	91	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(36-120)	(34-110)	(40-145)
500-188905-1	W-201005-RA-04	74	73	99
500-188905-2	W-201005-RA-06	63	56	103
500-188905-3	W-201005-RA-01	74	76	101
500-188905-3 MS	W-201005-RA-01	73	71	101
500-188905-3 MSD	W-201005-RA-01	71	67	99
500-188905-4	W-201006-RA-07	80	81	110
500-188905-5	W-201006-RA-08	74	70	102
500-188905-6	W-201006-RA-09	76	73	103
LCS 500-565712/2-A	Lab Control Sample	77	72	103
MB 500-565712/1-A	Method Blank	72	66	102

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TPHL = Terphenyl-d14 (Surr)

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		TFE1
Lab Sample ID	Client Sample ID	(60-140)
500-188905-1	W-201005-RA-04	110
500-188905-3	W-201005-RA-01	111
500-188905-3 MS	W-201005-RA-01	109
500-188905-3 MSD	W-201005-RA-01	110
500-188905-4	W-201006-RA-07	111

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

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)												
Lab Sample ID	Client Sample ID	TFE1 (60-140)												
500-188905-5	W-201006-RA-08	111												
500-188905-6	W-201006-RA-09	112												
LCS 240-455523/4	Lab Control Sample	114												
LCS 240-455524/33	Lab Control Sample	115												
MB 240-455523/3	Method Blank	114												
MB 240-455524/32	Method Blank	113												

Surrogate Legend

TFE = 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	DCPAA2 (25-130)												
500-188905-1	W-201005-RA-04	2896 X												
500-188905-2	W-201005-RA-06	139 X												
500-188905-3	W-201005-RA-01	132 X												
500-188905-3 MS	W-201005-RA-01	61												
500-188905-3 MSD	W-201005-RA-01	145 X												
500-188905-4	W-201006-RA-07	141 X												
LCS 500-565538/2-A	Lab Control Sample	132 X												
MB 500-565538/1-A	Method Blank	144 X												

Surrogate Legend

DCPAA = DCAA

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)												
Lab Sample ID	Client Sample ID	DCPAA1 (25-130)												
500-188905-5	W-201006-RA-08	60												
500-188905-6	W-201006-RA-09	58												

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 500-565725/6
Matrix: Water
Analysis Batch: 565725

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/09/20 11:11	1
Toluene	<0.15		0.50	0.15	ug/L			10/09/20 11:11	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/09/20 11:11	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/09/20 11:11	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/09/20 11:11*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/09/20 11:11*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*		*10/09/20 11:11*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*10/09/20 11:11*	*1*

Lab Sample ID: LCS 500-565725/8
Matrix: Water
Analysis Batch: 565725

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	43.7		ug/L		87	70 - 120
Toluene	50.0	44.5		ug/L		89	70 - 125
Ethylbenzene	50.0	45.6		ug/L		91	70 - 123
Xylenes, Total	100	83.3		ug/L		83	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*
Toluene-d8 (Surr)	*100*		*75 - 120*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*
Dibromofluoromethane	*95*		*75 - 120*

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565725

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.15		50.0	40.2		ug/L		80	70 - 120
Toluene	<0.15		50.0	39.7		ug/L		79	70 - 125
Ethylbenzene	<0.18		50.0	40.5		ug/L		81	70 - 123
Xylenes, Total	<0.22		100	75.2		ug/L		75	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*
Toluene-d8 (Surr)	*98*		*75 - 120*
4-Bromofluorobenzene (Surr)	*87*		*72 - 124*
Dibromofluoromethane	*96*		*75 - 120*

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

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 565725

Client Sample ID: W-201005-RA-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	<0.15		50.0	46.2		ug/L		92	70 - 120	14	20
Toluene	<0.15		50.0	46.1		ug/L		92	70 - 125	15	20
Ethylbenzene	<0.18		50.0	46.5		ug/L		93	70 - 123	14	20
Xylenes, Total	<0.22		100	87.2		ug/L		87	70 - 125	15	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*
Toluene-d8 (Surr)	*99*		*75 - 120*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*
Dibromofluoromethane	*98*		*75 - 120*

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

Lab Sample ID: MB 500-565712/1-A
Matrix: Water
Analysis Batch: 565799

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565712

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.80	0.25	ug/L		10/09/20 06:36	10/09/20 14:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*72*		*36 - 120*	*10/09/20 06:36*	*10/09/20 14:44*	*1*
2-Fluorobiphenyl (Surr)	*66*		*34 - 110*	*10/09/20 06:36*	*10/09/20 14:44*	*1*
Terphenyl-d14 (Surr)	*102*		*40 - 145*	*10/09/20 06:36*	*10/09/20 14:44*	*1*

Lab Sample ID: LCS 500-565712/2-A
Matrix: Water
Analysis Batch: 565799

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565712

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	32.0	18.9		ug/L		59	36 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*77*		*36 - 120*
2-Fluorobiphenyl (Surr)	*72*		*34 - 110*
Terphenyl-d14 (Surr)	*103*		*40 - 145*

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565799

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA
Prep Batch: 565712

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	<0.23		31.3	18.3		ug/L		59	36 - 110

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*73*		*36 - 120*
2-Fluorobiphenyl (Surr)	*71*		*34 - 110*

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

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565799

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA
Prep Batch: 565712

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*101*		*40 - 145*

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 565799

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA
Prep Batch: 565712

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	<0.23		30.6	19.4		ug/L		63	36 - 110	6	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*71*		*36 - 120*
2-Fluorobiphenyl (Surr)	*67*		*34 - 110*
Terphenyl-d14 (Surr)	*99*		*40 - 145*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-455523/3
Matrix: Water
Analysis Batch: 455523

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 12:06	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*114*		*60 - 140*		*10/12/20 12:06*	*1*

Lab Sample ID: LCS 240-455523/4
Matrix: Water
Analysis Batch: 455523

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	289		ug/L		102	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*114*		*60 - 140*

Lab Sample ID: MB 240-455524/32
Matrix: Water
Analysis Batch: 455524

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 20:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*113*		*60 - 140*		*10/12/20 20:38*	*1*

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

Lab Sample ID: LCS 240-455524/33
Matrix: Water
Analysis Batch: 455524

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	295		ug/L		104	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*115*		*60 - 140*

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 455524

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane	<0.17		284	283		ug/L		100	50 - 150		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*109*		*60 - 140*

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 455524

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	<0.17		284	284		ug/L		100	50 - 150	0	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*110*		*60 - 140*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-565538/1-A
Matrix: Water
Analysis Batch: 565743

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565538

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/08/20 07:51	10/09/20 17:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*144*	*X*	*25 - 130*	*10/08/20 07:51*	*10/09/20 17:02*	*1*

Lab Sample ID: LCS 500-565538/2-A
Matrix: Water
Analysis Batch: 565743

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565538

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol			2.50	2.12		ug/L		85	40 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*132*	*X*	*25 - 130*

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

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565743

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA
Prep Batch: 565538

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	<0.095		3.36	1.91		ug/L		57	40 - 122

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCAA	*61*		*25 - 130*

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 565743

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA
Prep Batch: 565538

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	<0.095		2.39	1.96		ug/L		82	40 - 122	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCAA	*145*	*X*	*25 - 130*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-565512/1-A
Matrix: Water
Analysis Batch: 565745

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 565512

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/08/20 07:14	10/08/20 15:45	1
Copper	<0.50		2.0	0.50	ug/L		10/08/20 07:14	10/08/20 15:45	1
Iron	<46.7		100	46.7	ug/L		10/08/20 07:14	10/08/20 15:45	1
Manganese	<0.79		2.5	0.79	ug/L		10/08/20 07:14	10/08/20 15:45	1
Zinc	<6.9		20.0	6.9	ug/L		10/08/20 07:14	10/08/20 15:45	1

Lab Sample ID: LCS 500-565512/2-A
Matrix: Water
Analysis Batch: 565745

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 565512

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	101.8		ug/L		102	80 - 120
Copper	250	264.1		ug/L		106	80 - 120
Iron	1000	1057		ug/L		106	80 - 120
Manganese	500	526.0		ug/L		105	80 - 120
Zinc	500	515.7		ug/L		103	80 - 120

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565745

Client Sample ID: W-201005-RA-01
Prep Type: Dissolved
Prep Batch: 565512

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.70	J	100	104.4		ug/L		104	75 - 125
Copper	1.9	J	250	265.7		ug/L		105	75 - 125
Iron	<46.7		1000	1048		ug/L		105	75 - 125
Manganese	<0.79		500	517.8		ug/L		104	75 - 125
Zinc	<6.9		500	512.7		ug/L		103	75 - 125

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 565745

Client Sample ID: W-201005-RA-01
Prep Type: Dissolved
Prep Batch: 565512

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.70	J	100	100.3		ug/L		100	75 - 125	4	20
Copper	1.9	J	250	254.4		ug/L		101	75 - 125	4	20
Iron	<46.7		1000	1042		ug/L		104	75 - 125	1	20
Manganese	<0.79		500	502.3		ug/L		100	75 - 125	3	20
Zinc	<6.9		500	493.7		ug/L		99	75 - 125	4	20

Lab Sample ID: 500-188905-3 DU
Matrix: Water
Analysis Batch: 565745

Client Sample ID: W-201005-RA-01
Prep Type: Dissolved
Prep Batch: 565512

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.70	J	0.808	J	ug/L		15	20
Copper	1.9	J	1.52	J F5	ug/L		25	20
Iron	<46.7		<46.7		ug/L		NC	20
Manganese	<0.79		<0.79		ug/L		NC	20
Zinc	<6.9		<6.9		ug/L		NC	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 500-565346/3
Matrix: Water
Analysis Batch: 565346

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/07/20 11:20	1
Nitrate as N	<0.068		0.20	0.068	mg/L			10/07/20 11:20	1

Lab Sample ID: LCS 500-565346/4
Matrix: Water
Analysis Batch: 565346

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.22		mg/L		107	90 - 110
Nitrate as N	2.00	2.19		mg/L		110	90 - 110

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565346

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	1.8		1.00	2.99		mg/L		119	80 - 120

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 565346

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	13.1		10.0	23.86		mg/L		108	80 - 120

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 565346

Client Sample ID: W-201005-RA-01
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	1.8		1.00	2.99		mg/L		118	80 - 120	0	20

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 565346

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	13.1		10.0	23.52		mg/L		104	80 - 120	1	20

Lab Sample ID: MB 500-567015/3
Matrix: Water
Analysis Batch: 567015

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.095		0.20	0.095	mg/L			10/16/20 15:25	1

Lab Sample ID: LCS 500-567015/4
Matrix: Water
Analysis Batch: 567015

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	5.12		mg/L		102	90 - 110

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 567015

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	151		50.0	208.5	E	mg/L		115	80 - 120

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 567015

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	151		50.0	207.5	E	mg/L		113	80 - 120	1	20

Lab Sample ID: MB 500-567173/3
Matrix: Water
Analysis Batch: 567173

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/19/20 07:12	1

Lab Sample ID: LCS 500-567173/4
Matrix: Water
Analysis Batch: 567173

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	2.95		mg/L		98	90 - 110

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

Lab Sample ID: MB 500-567721/32
Matrix: Water
Analysis Batch: 567721

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 - Duplicates	<0.47		1.0	0.47	mg/L			10/20/20 17:03	1

Lab Sample ID: LCS 500-567721/33
Matrix: Water
Analysis Batch: 567721

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 - Duplicates			10.0	10.32		mg/L		103	80 - 120		

Lab Sample ID: 500-188905-3 MS
Matrix: Water
Analysis Batch: 567721

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Total Organic Carbon - Duplicates	0.68	J	10.0	10.82		mg/L		101	75 - 125		

Lab Sample ID: 500-188905-3 MSD
Matrix: Water
Analysis Batch: 567721

Client Sample ID: W-201005-RA-01
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 - Duplicates	0.68	J	10.0	10.92		mg/L		102	75 - 125	1	20

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 500-566922/28
Matrix: Water
Analysis Batch: 566922

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			10/15/20 15:11	1

Lab Sample ID: LCS 500-566922/29
Matrix: Water
Analysis Batch: 566922

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	100.3		mg/L		100	90 - 110		

Lab Sample ID: 500-188905-3 DU
Matrix: Water
Analysis Batch: 566922

Client Sample ID: W-201005-RA-01
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	191		186.5		mg/L				2	20

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201005-RA-04

Lab Sample ID: 500-188905-1
Date Collected: 10/05/20 14:30
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 14:43	PMF	TAL CHI
Total/NA	Prep	3510C			565712	10/09/20 06:36	JD	TAL CHI
Total/NA	Analysis	8270D		1	565799	10/09/20 15:11	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 18:38	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 20:54	JBJ	TAL CHI
Dissolved	Prep	3005A			565512	10/08/20 07:14	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565745	10/08/20 15:51	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		1	565346	10/07/20 11:46	RES	TAL CHI
Total/NA	Analysis	300.0		10	565346	10/07/20 11:58	RES	TAL CHI
Total/NA	Analysis	300.0		5	567015	10/16/20 18:23	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 18:31	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 17:20	SMO	TAL CHI

Client Sample ID: W-201005-RA-06

Lab Sample ID: 500-188905-2
Date Collected: 10/05/20 15:20
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 15:09	PMF	TAL CHI
Total/NA	Prep	3510C			565712	10/09/20 06:36	JD	TAL CHI
Total/NA	Analysis	8270D		1	565799	10/09/20 15:39	NRJ	TAL CHI
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 21:14	JBJ	TAL CHI
Dissolved	Prep	3005A			565512	10/08/20 07:14	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565745	10/08/20 15:55	FXG	TAL CHI

Client Sample ID: W-201005-RA-01

Lab Sample ID: 500-188905-3
Date Collected: 10/05/20 15:23
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 15:35	PMF	TAL CHI
Total/NA	Prep	3510C			565712	10/09/20 06:36	JD	TAL CHI
Total/NA	Analysis	8270D		1	565799	10/09/20 16:07	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/12/20 21:13	JBN	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 21:33	JBJ	TAL CHI
Dissolved	Prep	3005A			565512	10/08/20 07:14	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565745	10/08/20 15:58	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201005-RA-01

Lab Sample ID: 500-188905-3
Date Collected: 10/05/20 15:23
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	565346	10/07/20 12:11	RES	TAL CHI
Total/NA	Analysis	300.0		10	565346	10/07/20 12:49	RES	TAL CHI
Total/NA	Analysis	300.0		20	567015	10/16/20 18:36	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 18:41	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 17:32	SMO	TAL CHI

Client Sample ID: W-201006-RA-07

Lab Sample ID: 500-188905-4
Date Collected: 10/06/20 09:35
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 16:01	PMF	TAL CHI
Total/NA	Prep	3510C			565712	10/09/20 06:36	JD	TAL CHI
Total/NA	Analysis	8270D		1	565799	10/09/20 16:35	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 18:55	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	565743	10/09/20 22:31	JBJ	TAL CHI
Dissolved	Prep	3005A			565512	10/08/20 07:14	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565745	10/08/20 16:22	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		25	567173	10/19/20 10:09	EAT	TAL CHI
Total/NA	Analysis	300.0		1	565346	10/07/20 13:53	RES	TAL CHI
Total/NA	Analysis	300.0		1	567015	10/16/20 19:14	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 19:10	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 17:44	SMO	TAL CHI

Client Sample ID: W-201006-RA-08

Lab Sample ID: 500-188905-5
Date Collected: 10/06/20 10:25
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 16:26	PMF	TAL CHI
Total/NA	Prep	3510C			565712	10/09/20 06:36	JD	TAL CHI
Total/NA	Analysis	8270D		1	565799	10/09/20 17:03	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 19:13	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	567550	10/20/20 16:59	JBJ	TAL CHI
Dissolved	Prep	3005A			565512	10/08/20 07:14	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565745	10/08/20 16:26	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		1	565346	10/07/20 14:18	RES	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Client Sample ID: W-201006-RA-08

Lab Sample ID: 500-188905-5

Date Collected: 10/06/20 10:25
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		10	565346	10/07/20 14:31	RES	TAL CHI
Total/NA	Analysis	300.0		1	567015	10/16/20 19:39	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 19:25	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 17:50	SMO	TAL CHI

Client Sample ID: W-201006-RA-09

Lab Sample ID: 500-188905-6

Date Collected: 10/06/20 11:27
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 16:52	PMF	TAL CHI
Total/NA	Prep	3510C			565712	10/09/20 06:36	JD	TAL CHI
Total/NA	Analysis	8270D		1	565799	10/09/20 17:30	NRJ	TAL CHI
Total/NA	Analysis	RSK-175		1	455523	10/12/20 19:30	BPM	TAL CAN
Total/NA	Prep	8151A			565538	10/08/20 07:51	JD	TAL CHI
Total/NA	Analysis	8151A		1	567550	10/20/20 17:19	JBJ	TAL CHI
Dissolved	Prep	3005A			565512	10/08/20 07:14	LMN	TAL CHI
Dissolved	Analysis	6020A		1	565745	10/08/20 16:29	FXG	TAL CHI
Total/NA	Prep	3010A			565514	10/08/20 07:16	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565699	10/09/20 00:46	EEN	TAL CHI
Total/NA	Analysis	300.0		1	565346	10/07/20 14:43	RES	TAL CHI
Total/NA	Analysis	300.0		1	567015	10/16/20 19:52	EAT	TAL CHI
Total/NA	Analysis	9060A		1	567721	10/20/20 19:35	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	566922	10/15/20 17:56	SMO	TAL CHI

Client Sample ID: Trip Blank

Lab Sample ID: 500-188905-7

Date Collected: 10/05/20 00:00
Matrix: Water
Date Received: 10/07/20 09:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	565725	10/09/20 11:37	PMF	TAL CHI

Laboratory References:

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188905-1

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record 491468

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other: TAL-8210

Client Contact	Project Manager: Grant Anderson/Jamie	Site Contact:	Date: 10/6/2020	COC No:
Company Name: GHD	Tel/Email: Grant.Anderson@GHD.com	Lab Contact:	Carrier:	1 of 1 COCs
Address: 1801 Old Hwy 8	**Analysis Turnaround Time**			Sampler:
City/State/Zip: New Brighton, MN	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
Phone:	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Peyton Wood	☐ 1 week			
Site: Siren, WI	☐ 2 days			Job / SDG No.: 500-188905
PO # 086165	☐ 1 day			

500-188905 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	BTEX	Prep by 8151	Naphthalene by 8270	Diss metals (As, Cr, Fe, Mn)	Alkalinity + Anions	Total metals	TOC	methane by RSK	Sample Specific Notes:
1	W-201005-RA-04	10/5/2020	1430	G	WG	15	Y	N	X	X	X	X	X	X	X	X	
2	W-201005-RA-06	10/5/2020	1520	G	WG	#8	Y	N	X	X	X	X					- ONLY 8 Bottles for this sample -
3	W-201005-RA-01	10/05/2020	1523	G	WG	44	Y	Y	X	X	X	X	X	X	X	X	* Broke (1) 1-liter Amber *
4	W-201006-RA-07	10/6/2020	0935	G	WG	15	Y	N	X	X	Y	X	X	X	X	X	
5	W-201006-RA-08	↓	1025	G	WG	15	Y	N	X	X	X	X	X	X	X	X	
6	W-201006-RA-09	↓	1127	G	WG	15	Y	N	X	X	X	X	X	X	X	X	
7	TRIP Blank								X								

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

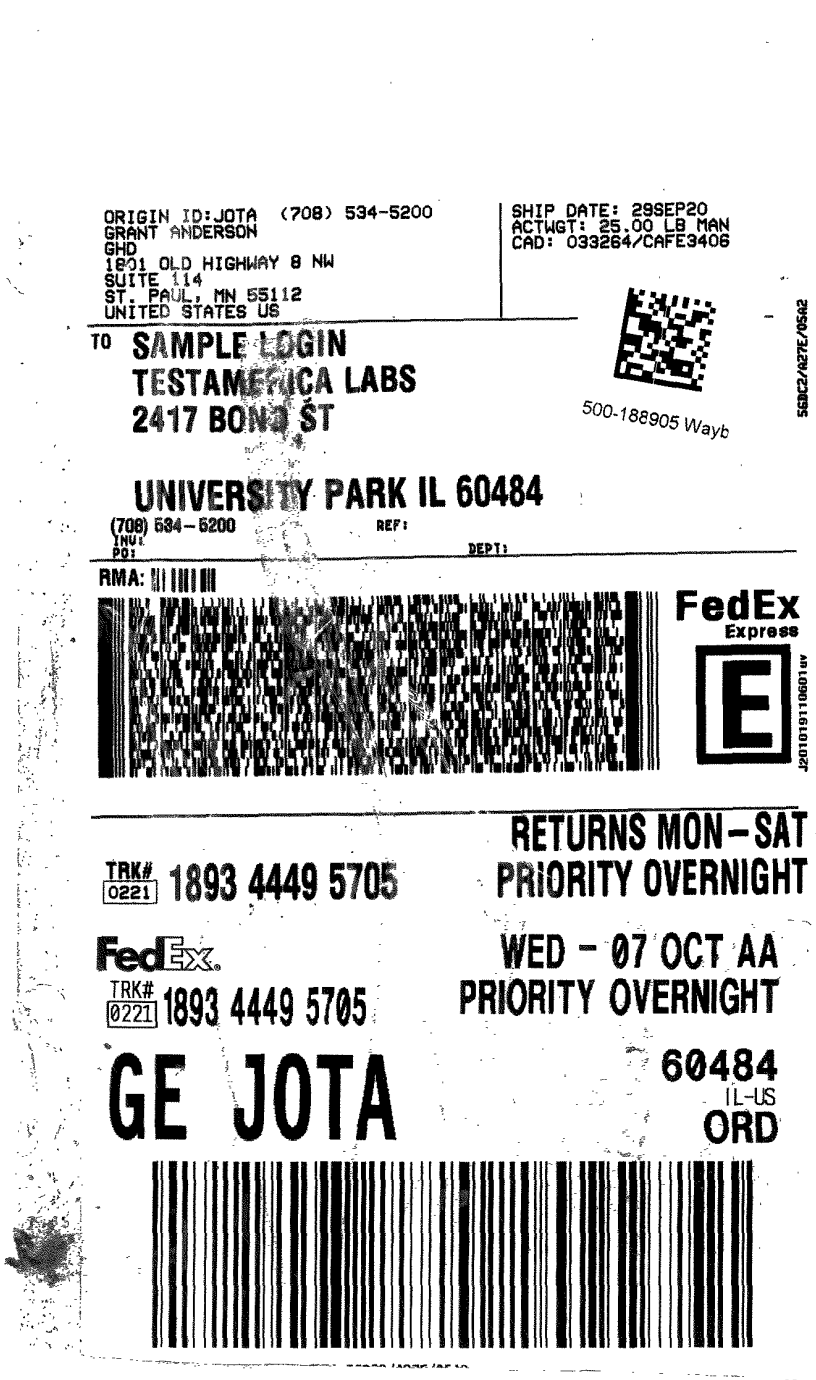
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_____ Months

Special Instructions/QC Requirements & Comments:
Samples collected on 10/6/2020 may have (6) vials labeled "BTEX" on lab sample, please run (3) of them for methane by RSK

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temp. (°C): Obs'd:	Corr'd:	Therm ID No.:

Relinquished by:	Company: GHD	Date/Time: 10/6/2020 1500	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company: TACAT	Date/Time: 10/7/20 0950



ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-6200
INV:
PO:
REF:
DEPT:

500-188905 Wayb

RMA:

FedEx Express

RETURNS MON-SAT
PRIORITY OVERNIGHT

TRK# 0221 1893 4449 5705

FedEx
TRK# 0221 1893 4449 5705

WED - 07 OCT AA
PRIORITY OVERNIGHT

GE JOTA

60484
IL-US
ORD

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:JOTA (708)
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

519
25

5
10:30

5679
10.07

MAN
3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-6200
INV:
PO:
REF:
DEPT:

RMA:

FedEx Express

WED - 07 OCT AA
PRIORITY OVERNIGHT

FedEx
TRK# 0221 1893 4449 5679

60484
IL-US
ORD

GE JOTA

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-5200
INV:
PO:
REF:
DEPT:

RMA:

56DC2/A27E/05A2

FedEx Express

J201019110601av

FedEx
TRK# 0221 1893 4449 5680

WED - 07 OCT AA
PRIORITY OVERNIGHT

GE JOTA

60484
IL-US
ORD

FID: 80701 060ct2020

48 qt.

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-5200
INV:
PO:
REF:
DEPT:

RMA:

56DC2/A27E/05A2

FedEx Express

J201019110601av

FedEx
TRK# 0221 1893 4449 5690

WED - 07 OCT AA
PRIORITY OVERNIGHT

GE JOTA

60484
IL-US
ORD

FID: 80701 060ct2020 JDTA 56DG2/A27E/05A2

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Wright, Richard	Carrier Tracking No(s):	COC No: 500-140668.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Richard.Wright@Eurofinset.com	State of Origin: Wisconsin	Page: Page 1 of 1
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-188905-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/20/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Penta Wood 086165	Project #: 50013796			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

RSK

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) Methane	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
W-201005-RA-04 (500-188905-1)	10/5/20	14:30 Central		Water			X	3	WI
W-201005-RA-01 (500-188905-3)	10/5/20	15:23 Central		Water			X	3	WI
W-201005-RA-01 (500-188905-3MS)	10/5/20	15:23 Central	MS	Water			X	3	WI
W-201005-RA-01 (500-188905-3MSD)	10/5/20	15:23 Central	MSD	Water			X	3	WI
W-201006-RA-07 (500-188905-4)	10/6/20	09:35 Central		Water			X	3	WI
W-201006-RA-08 (500-188905-5)	10/6/20	10:25 Central		Water			X	3	WI
W-201006-RA-09 (500-188905-6)	10/6/20	11:27 Central		Water			X	3	WI

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)***
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* _____ *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1		10/7/20 1600			10-8-20 930	
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Chicago Site Name _____ Cooler unpacked by: MM

Cooler Received on 10-8-20 Opened on 10-9-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # 7A 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# IR-10 (CF +0.7 °C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C
   IR GUN #IR-11 (CF +0.9°C) Observed Cooler Temp. 2.5 °C Corrected Cooler Temp. 3.4 °C
2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 Yes No
   -Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
   -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No
   -Were tamper/custody seals intact and uncompromised? Yes No NA
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 (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No
    If yes, Questions 13-17 have been checked at the originating laboratory.
13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC907861
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ← Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page

Samples processed by:

19. 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)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-188905-1

Login Number: 188905
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

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	2.7,2.3,-0.1,5.1 samples not ffozen
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.	False	
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	

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ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-188979-1
Client Project/Site: Penta Wood 086165

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

Attn: Mr. Grant Anderson

Authorized for release by:
10/23/2020 7:50:16 AM

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Table of Contents

Job ID: 500-188979-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-188979-1

Comments
No additional comments.

Receipt
The samples were received on 10/8/2020 9:30 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 2.0º C, 2.5º C, 2.7º C, 3.1º C and 3.7º 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 8270D: The continuing calibration verification (CCV) analyzed in batch 500-566134 was outside the method criteria for the following analyte(s): Nitrobenzene-d5. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Method 8270D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 500-565949 and analytical batch 500-566131 recovered outside control limits for the following analyte: Naphthalene.

Method 8270D: The following samples contained one base surrogate outside acceptance limits:W-201006-RA-15 (500-188979-6). The laboratory's SOP allows one base surrogate to be outside acceptance limits; therefore, re-extraction was not performed. 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 8151A: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 500-566238 and analytical batch 500-566628 recovered outside control limits for the following analytes: Pentachlorophenol.

Method 8151A: The laboratory control sample duplicate (LCSD) for preparation batch 500-566238 and analytical batch 500-566628 recovered outside control limits for the following analytes: DCAA. These analytes were biased high in the LCSD and were within limits in the laboratory control sample (LCS); therefore, the data have been reported.

Method 8151A: The continuing calibration verification (CCV) associated with batch 500-566628 recovered above the upper control limit for Pentachlorophenol and DCAA. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: W-201006-RA-11 (500-188979-1), W-201006-RA-12 (500-188979-2), W-201006-RA-10 (500-188979-3), W-201006-RA-13 (500-188979-4), W-201006-RA-14 (500-188979-5), W-201007-RA-17 (500-188979-8), W-201007-RA-18 (500-188979-9), W-201007-RA-19 (500-188979-10) and (CCV 500-566628/14).

Method 8151A: The following samples required a dilution due to the nature of the sample matrix: W-201006-RA-15 (500-188979-6) and W-201007-RA-16 (500-188979-7). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

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 300.0: Reanalysis of the following IC samples was performed outside of the analytical holding time due to the samples requiring

Job ID: 500-188979-1 (Continued)

Laboratory: Eurofins TestAmerica, Chicago (Continued)

a higher dilution : W-201007-RA-17 (500-188979-8) and W-201007-RA-18 (500-188979-9).

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-11 — Lab Sample ID: 500-188979-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	0.43	J	1.0	0.17	ug/L	1		RSK-175	Total/NA
Copper	24.3		2.0	0.50	ug/L	1		6020A	Dissolved
Manganese	1.9	J	2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	163		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	0.39		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.37		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	0.94		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.52	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	168		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-12 — Lab Sample ID: 500-188979-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.40	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.1	J	2.0	0.50	ug/L	1		6020A	Dissolved
Iron	133		100	46.7	ug/L	1		6020A	Dissolved
Manganese	3.2		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	251		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	21.8		1.0	0.85	mg/L	5		300.0	Total/NA
Nitrate as N	2.3		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	4.5		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	1.0		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	226		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-10 — Lab Sample ID: 500-188979-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.77	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	0.58	J	2.0	0.50	ug/L	1		6020A	Dissolved
Manganese	1.1	J	2.5	0.79	ug/L	1		6020A	Dissolved
Zinc	7.1	J	20.0	6.9	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	239		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	54.1		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	2.3		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	9.2		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.95	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	184		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-13 — Lab Sample ID: 500-188979-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.49	J	1.0	0.23	ug/L	1		6020A	Dissolved
Manganese	1.5	J	2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	118		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	25.4		1.0	0.85	mg/L	5		300.0	Total/NA
Nitrate as N	1.9		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	5.0		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.90	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	103		5.0	3.7	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-14 — Lab Sample ID: 500-188979-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.47	J	1.0	0.23	ug/L	1		6020A	Dissolved
Manganese	1.0	J	2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	123		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	24.9		1.0	0.85	mg/L	5		300.0	Total/NA
Nitrate as N	18.0		2.0	0.68	mg/L	10		300.0	Total/NA
Sulfate	48.9		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	0.92	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	103		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201006-RA-15 — Lab Sample ID: 500-188979-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	1.3		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	1.7		0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	13		1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	22	*	0.77	0.24	ug/L	1		8270D	Total/NA
Methane	81		1.0	0.17	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	3200	*	100	91	ug/L	1000		8151A	Total/NA
Arsenic	1.5		1.0	0.23	ug/L	1		6020A	Dissolved
Copper	8.6		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	2340		100	46.7	ug/L	1		6020A	Dissolved
Manganese	1180		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	203		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	41.6		2.0	1.7	mg/L	10		300.0	Total/NA
Sulfate	21.2		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	40.1		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	150		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-16 — Lab Sample ID: 500-188979-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.22	J	0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	0.80		0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	11		1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	19	*	0.79	0.24	ug/L	1		8270D	Total/NA
Pentachlorophenol	2100	*	95	86	ug/L	1000		8151A	Total/NA
Arsenic	1.1		1.0	0.23	ug/L	1		6020A	Dissolved
Copper	8.2		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	819		100	46.7	ug/L	1		6020A	Dissolved
Manganese	4880		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	388		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	20.6		1.0	0.85	mg/L	5		300.0	Total/NA
Nitrate as N	0.076	J	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	22.0		1.0	0.48	mg/L	5		300.0	Total/NA
Total Organic Carbon - Duplicates	29.7		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	344		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-17 — Lab Sample ID: 500-188979-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	1.9		1.0	0.17	ug/L	1		RSK-175	Total/NA
Arsenic	0.28	J	1.0	0.23	ug/L	1		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-201007-RA-17 (Continued) — Lab Sample ID: 500-188979-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Copper	20.6		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	241		100	46.7	ug/L	1		6020A	Dissolved
Manganese	59.3		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	127		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	5.1		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	5.7	H	1.0	0.34	mg/L	5		300.0	Total/NA
Sulfate	24.8		1.0	0.48	mg/L	5		300.0	Total/NA
Total Organic Carbon - Duplicates	3.1		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	97.4		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-18 — Lab Sample ID: 500-188979-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	12		1.0	0.17	ug/L	1		RSK-175	Total/NA
Arsenic	0.55	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	15.0		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	4880		100	46.7	ug/L	1		6020A	Dissolved
Manganese	57.3		2.5	0.79	ug/L	1		6020A	Dissolved
Zinc	12.4	J	20.0	6.9	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	228		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	5.2		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	6.8	H	1.0	0.34	mg/L	5		300.0	Total/NA
Sulfate	27.6		1.0	0.48	mg/L	5		300.0	Total/NA
Total Organic Carbon - Duplicates	3.4		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	201		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-19 — Lab Sample ID: 500-188979-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.71	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	2.8		2.0	0.50	ug/L	1		6020A	Dissolved
Manganese	9.9		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	207		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	11.9		1.0	0.85	mg/L	5		300.0	Total/NA
Nitrate as N	2.7		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	6.7		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	2.8		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	196		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-21 — Lab Sample ID: 500-188979-11

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	10	*	0.98	0.88	ug/L	10		8151A	Total/NA
Copper	16.8		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	78.1	J	100	46.7	ug/L	1		6020A	Dissolved
Manganese	15.6		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	88.5		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	0.45		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.37		0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	2.2		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.89	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	90.0		5.0	3.7	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: Trip Blank

Lab Sample ID: 500-188979-12

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL CHI
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL CHI
300.0	Anions, Ion Chromatography	MCAWW	TAL CHI
9060A	Organic Carbon, Total (TOC)	SW846	TAL CHI
SM 2320B	Alkalinity	SM	TAL CHI
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI
3010A	Preparation, Total Metals	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
8151A	Extraction (Herbicides)	SW846	TAL CHI

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-188979-1	W-201006-RA-11	Water	10/06/20 13:25	10/08/20 09:30	
500-188979-2	W-201006-RA-12	Water	10/06/20 15:32	10/08/20 09:30	
500-188979-3	W-201006-RA-10	Water	10/06/20 14:45	10/08/20 09:30	
500-188979-4	W-201006-RA-13	Water	10/06/20 16:16	10/08/20 09:30	
500-188979-5	W-201006-RA-14	Water	10/06/20 16:16	10/08/20 09:30	
500-188979-6	W-201006-RA-15	Water	10/06/20 17:00	10/08/20 09:30	
500-188979-7	W-201007-RA-16	Water	10/07/20 10:45	10/08/20 09:30	
500-188979-8	W-201007-RA-17	Water	10/07/20 11:30	10/08/20 09:30	
500-188979-9	W-201007-RA-18	Water	10/07/20 12:30	10/08/20 09:30	
500-188979-10	W-201007-RA-19	Water	10/07/20 13:00	10/08/20 09:30	
500-188979-11	W-201007-RA-21	Water	10/07/20 14:15	10/08/20 09:30	
500-188979-12	Trip Blank	Water	10/06/20 00:00	10/08/20 09:30	

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-11

Date Collected: 10/06/20 13:25
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 15:06	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 15:06	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 15:06	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 15:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*10/15/20 15:06*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*10/15/20 15:06*	*1*
4-Bromofluorobenzene (Surr)	*115*		*72 - 124*		*10/15/20 15:06*	*1*
Dibromofluoromethane	*90*		*75 - 120*		*10/15/20 15:06*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25	*	0.82	0.25	ug/L		10/12/20 06:27	10/12/20 21:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*113*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/12/20 21:58*	*1*
2-Fluorobiphenyl (Surr)	*92*		*34 - 110*	*10/12/20 06:27*	*10/12/20 21:58*	*1*
Terphenyl-d14 (Surr)	*136*		*40 - 145*	*10/12/20 06:27*	*10/12/20 21:58*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**0.43**	**J**	1.0	0.17	ug/L			10/13/20 00:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*108*		*60 - 140*		*10/13/20 00:55*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.089	* ^c	0.099	0.089	ug/L		10/13/20 09:05	10/15/20 04:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*53*	*^c*	*25 - 130*	*10/13/20 09:05*	*10/15/20 04:48*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:06	1
Copper	**24.3**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:06	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:06	1
Manganese	**1.9**	**J**	2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:06	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:06	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**163**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.39**		0.20	0.17	mg/L			10/08/20 12:31	1
Nitrate as N	**0.37**		0.20	0.068	mg/L			10/08/20 12:31	1
Sulfate	**0.94**		0.20	0.095	mg/L			10/08/20 12:31	1
Total Organic Carbon - Duplicates	**0.52**	**J**	1.0	0.47	mg/L			10/21/20 20:30	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-11
Date Collected: 10/06/20 13:25
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-1
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	168		5.0	3.7	mg/L			10/16/20 16:51	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-12

Date Collected: 10/06/20 15:32
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 15:30	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 15:30	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 15:30	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 15:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*94*		*75 - 126*		*10/15/20 15:30*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/15/20 15:30*	*1*
4-Bromofluorobenzene (Surr)	*114*		*72 - 124*		*10/15/20 15:30*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*10/15/20 15:30*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25	*	0.81	0.25	ug/L		10/12/20 06:27	10/12/20 22:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*117*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/12/20 22:25*	*1*
2-Fluorobiphenyl (Surr)	*88*		*34 - 110*	*10/12/20 06:27*	*10/12/20 22:25*	*1*
Terphenyl-d14 (Surr)	*121*		*40 - 145*	*10/12/20 06:27*	*10/12/20 22:25*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 01:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*109*		*60 - 140*		*10/13/20 01:12*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.091	* ^c	0.10	0.091	ug/L		10/13/20 09:05	10/15/20 05:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*94*	*^c*	*25 - 130*	*10/13/20 09:05*	*10/15/20 05:07*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.40**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:09	1
Copper	**1.1**	**J**	2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:09	1
Iron	**133**		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:09	1
Manganese	**3.2**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:09	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:09	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**251**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**21.8**		1.0	0.85	mg/L			10/08/20 17:48	5
Nitrate as N	**2.3**		0.20	0.068	mg/L			10/08/20 12:56	1
Sulfate	**4.5**		0.20	0.095	mg/L			10/08/20 12:56	1
Total Organic Carbon - Duplicates	**1.0**		1.0	0.47	mg/L			10/21/20 20:37	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-12
Date Collected: 10/06/20 15:32
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-2
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	226		5.0	3.7	mg/L			10/16/20 16:58	1

Client Sample ID: W-201006-RA-10

Date Collected: 10/06/20 14:45
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 15:56	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 15:56	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 15:56	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 15:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*10/15/20 15:56*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/15/20 15:56*	*1*
4-Bromofluorobenzene (Surr)	*116*		*72 - 124*		*10/15/20 15:56*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/15/20 15:56*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.23	*	0.76	0.23	ug/L		10/12/20 06:27	10/12/20 22:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*100*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/12/20 22:52*	*1*
2-Fluorobiphenyl (Surr)	*83*		*34 - 110*	*10/12/20 06:27*	*10/12/20 22:52*	*1*
Terphenyl-d14 (Surr)	*122*		*40 - 145*	*10/12/20 06:27*	*10/12/20 22:52*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*108*		*60 - 140*		*10/13/20 01:29*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.089	* ^c	0.099	0.089	ug/L		10/13/20 09:05	10/15/20 05:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*94*	*^c*	*25 - 130*	*10/13/20 09:05*	*10/15/20 05:26*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.77**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:13	1
Copper	**0.58**	**J**	2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:13	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:13	1
Manganese	**1.1**	**J**	2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:13	1
Zinc	**7.1**	**J**	20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:13	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**239**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**54.1**		2.0	1.7	mg/L			10/08/20 18:00	10
Nitrate as N	**2.3**		0.20	0.068	mg/L			10/08/20 12:44	1
Sulfate	**9.2**		0.20	0.095	mg/L			10/08/20 12:44	1
Total Organic Carbon - Duplicates	**0.95**	**J**	1.0	0.47	mg/L			10/21/20 20:49	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-10
Date Collected: 10/06/20 14:45
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-3
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	184		5.0	3.7	mg/L			10/16/20 17:09	1

Client Sample ID: W-201006-RA-13

Date Collected: 10/06/20 16:16
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 16:20	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 16:20	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 16:20	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 16:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*10/15/20 16:20*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*10/15/20 16:20*	*1*
4-Bromofluorobenzene (Surr)	*113*		*72 - 124*		*10/15/20 16:20*	*1*
Dibromofluoromethane	*96*		*75 - 120*		*10/15/20 16:20*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24	*	0.78	0.24	ug/L		10/12/20 06:27	10/12/20 23:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*100*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/12/20 23:18*	*1*
2-Fluorobiphenyl (Surr)	*78*		*34 - 110*	*10/12/20 06:27*	*10/12/20 23:18*	*1*
Terphenyl-d14 (Surr)	*119*		*40 - 145*	*10/12/20 06:27*	*10/12/20 23:18*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 01:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/13/20 01:47*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.089	* ^c	0.099	0.089	ug/L		10/13/20 09:05	10/15/20 05:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*101*	*^c*	*25 - 130*	*10/13/20 09:05*	*10/15/20 05:46*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.49**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:16	1
Copper	<0.50		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:16	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:16	1
Manganese	**1.5**	**J**	2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:16	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:16	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**118**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**25.4**		1.0	0.85	mg/L			10/08/20 18:13	5
Nitrate as N	**1.9**		0.20	0.068	mg/L			10/08/20 13:09	1
Sulfate	**5.0**		0.20	0.095	mg/L			10/08/20 13:09	1
Total Organic Carbon - Duplicates	**0.90**	**J**	1.0	0.47	mg/L			10/21/20 20:59	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-13
Date Collected: 10/06/20 16:16
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-4
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	103		5.0	3.7	mg/L			10/16/20 17:15	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-14

Date Collected: 10/06/20 16:16
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 16:45	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 16:45	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 16:45	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 16:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*10/15/20 16:45*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*10/15/20 16:45*	*1*
4-Bromofluorobenzene (Surr)	*117*		*72 - 124*		*10/15/20 16:45*	*1*
Dibromofluoromethane	*92*		*75 - 120*		*10/15/20 16:45*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24	*	0.78	0.24	ug/L		10/12/20 06:27	10/12/20 23:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*97*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/12/20 23:45*	*1*
2-Fluorobiphenyl (Surr)	*79*		*34 - 110*	*10/12/20 06:27*	*10/12/20 23:45*	*1*
Terphenyl-d14 (Surr)	*119*		*40 - 145*	*10/12/20 06:27*	*10/12/20 23:45*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 02:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*109*		*60 - 140*		*10/13/20 02:04*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.085	* ^c	0.095	0.085	ug/L		10/13/20 09:05	10/15/20 06:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*97*	*^c*	*25 - 130*	*10/13/20 09:05*	*10/15/20 06:05*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.47**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:19	1
Copper	<0.50		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:19	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:19	1
Manganese	**1.0**	**J**	2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:19	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:19	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**123**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**24.9**		1.0	0.85	mg/L			10/08/20 18:26	5
Nitrate as N	**18.0**		2.0	0.68	mg/L			10/08/20 13:22	10
Sulfate	**48.9**		2.0	0.95	mg/L			10/08/20 13:22	10
Total Organic Carbon - Duplicates	**0.92**	**J**	1.0	0.47	mg/L			10/21/20 21:24	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-14
Date Collected: 10/06/20 16:16
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-5
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	103		5.0	3.7	mg/L			10/16/20 17:22	1

Client Sample ID: W-201006-RA-15

Date Collected: 10/06/20 17:00
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-6

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 17:10	1
Toluene	**1.3**		0.50	0.15	ug/L			10/15/20 17:10	1
Ethylbenzene	**1.7**		0.50	0.18	ug/L			10/15/20 17:10	1
Xylenes, Total	**13**		1.0	0.22	ug/L			10/15/20 17:10	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/15/20 17:10*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*10/15/20 17:10*	*1*
4-Bromofluorobenzene (Surr)	*99*		*72 - 124*		*10/15/20 17:10*	*1*
Dibromofluoromethane	*103*		*75 - 120*		*10/15/20 17:10*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**22**	*	0.77	0.24	ug/L		10/12/20 06:27	10/13/20 02:00	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*98*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/13/20 02:00*	*1*
2-Fluorobiphenyl (Surr)	*153*	*X*	*34 - 110*	*10/12/20 06:27*	*10/13/20 02:00*	*1*
Terphenyl-d14 (Surr)	*117*		*40 - 145*	*10/12/20 06:27*	*10/13/20 02:00*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**81**		1.0	0.17	ug/L			10/13/20 02:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*107*		*60 - 140*		*10/13/20 02:21*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**3200**	*	100	91	ug/L		10/13/20 09:05	10/16/20 21:14	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*0*	*D*	*25 - 130*	*10/13/20 09:05*	*10/16/20 21:14*	*1000*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.5**		1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:23	1
Copper	**8.6**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:23	1
Iron	**2340**		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:23	1
Manganese	**1180**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:23	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:23	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**203**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**41.6**		2.0	1.7	mg/L			10/08/20 18:38	10
Nitrate as N	<0.068		0.20	0.068	mg/L			10/08/20 13:35	1
Sulfate	**21.2**		2.0	0.95	mg/L			10/08/20 18:38	10
Total Organic Carbon - Duplicates	**40.1**		1.0	0.47	mg/L			10/21/20 21:55	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-15
Date Collected: 10/06/20 17:00
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-6
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	150		5.0	3.7	mg/L			10/16/20 15:51	1

Client Sample ID: W-201007-RA-16

Date Collected: 10/07/20 10:45
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-7

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 17:35	1
Toluene	**0.22**	**J**	0.50	0.15	ug/L			10/15/20 17:35	1
Ethylbenzene	**0.80**		0.50	0.18	ug/L			10/15/20 17:35	1
Xylenes, Total	**11**		1.0	0.22	ug/L			10/15/20 17:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*10/15/20 17:35*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/15/20 17:35*	*1*
4-Bromofluorobenzene (Surr)	*109*		*72 - 124*		*10/15/20 17:35*	*1*
Dibromofluoromethane	*96*		*75 - 120*		*10/15/20 17:35*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**19**	*****	0.79	0.24	ug/L		10/12/20 06:27	10/13/20 02:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*83*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/13/20 02:28*	*1*
2-Fluorobiphenyl (Surr)	*65*		*34 - 110*	*10/12/20 06:27*	*10/13/20 02:28*	*1*
Terphenyl-d14 (Surr)	*98*		*40 - 145*	*10/12/20 06:27*	*10/13/20 02:28*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 02:38	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*105*		*60 - 140*		*10/13/20 02:38*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**2100**	*****	95	86	ug/L		10/13/20 09:05	10/16/20 21:34	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*0*	*D*	*25 - 130*	*10/13/20 09:05*	*10/16/20 21:34*	*1000*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.1**		1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:26	1
Copper	**8.2**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:26	1
Iron	**819**		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:26	1
Manganese	**4880**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:26	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:26	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**388**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**20.6**		1.0	0.85	mg/L			10/08/20 18:51	5
Nitrate as N	**0.076**	**J**	0.20	0.068	mg/L			10/08/20 14:26	1
Sulfate	**22.0**		1.0	0.48	mg/L			10/08/20 18:51	5
Total Organic Carbon - Duplicates	**29.7**		1.0	0.47	mg/L			10/21/20 22:06	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-16
Date Collected: 10/07/20 10:45
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-7
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	344		5.0	3.7	mg/L			10/17/20 14:41	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-17

Date Collected: 10/07/20 11:30
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-8

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 17:59	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 17:59	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 17:59	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 17:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*97*		*75 - 126*		*10/15/20 17:59*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*10/15/20 17:59*	*1*
4-Bromofluorobenzene (Surr)	*111*		*72 - 124*		*10/15/20 17:59*	*1*
Dibromofluoromethane	*97*		*75 - 120*		*10/15/20 17:59*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25	*	0.79	0.25	ug/L		10/12/20 06:27	10/13/20 00:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*101*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/13/20 00:13*	*1*
2-Fluorobiphenyl (Surr)	*80*		*34 - 110*	*10/12/20 06:27*	*10/13/20 00:13*	*1*
Terphenyl-d14 (Surr)	*112*		*40 - 145*	*10/12/20 06:27*	*10/13/20 00:13*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**1.9**		1.0	0.17	ug/L			10/13/20 02:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*108*		*60 - 140*		*10/13/20 02:55*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.087	*	0.097	0.087	ug/L		10/13/20 09:05	10/15/20 17:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*97*		*25 - 130*	*10/13/20 09:05*	*10/15/20 17:02*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.28**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:30	1
Copper	**20.6**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:30	1
Iron	**241**		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:30	1
Manganese	**59.3**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:30	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:30	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**127**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.1**		0.20	0.17	mg/L			10/09/20 07:10	1
Nitrate as N	**5.7**	**H**	1.0	0.34	mg/L			10/09/20 14:48	5
Sulfate	**24.8**		1.0	0.48	mg/L			10/09/20 14:48	5
Total Organic Carbon - Duplicates	**3.1**		1.0	0.47	mg/L			10/21/20 22:13	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-17
Date Collected: 10/07/20 11:30
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-8
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	97.4		5.0	3.7	mg/L			10/17/20 15:10	1

Client Sample ID: W-201007-RA-18

Date Collected: 10/07/20 12:30
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-9

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 18:24	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 18:24	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 18:24	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 18:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*10/15/20 18:24*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/15/20 18:24*	*1*
4-Bromofluorobenzene (Surr)	*118*		*72 - 124*		*10/15/20 18:24*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/15/20 18:24*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25	*	0.80	0.25	ug/L		10/12/20 06:27	10/13/20 00:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*102*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/13/20 00:40*	*1*
2-Fluorobiphenyl (Surr)	*83*		*34 - 110*	*10/12/20 06:27*	*10/13/20 00:40*	*1*
Terphenyl-d14 (Surr)	*120*		*40 - 145*	*10/12/20 06:27*	*10/13/20 00:40*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**12**		1.0	0.17	ug/L			10/13/20 03:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*110*		*60 - 140*		*10/13/20 03:12*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.091	*	0.10	0.091	ug/L		10/13/20 09:05	10/15/20 17:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*101*		*25 - 130*	*10/13/20 09:05*	*10/15/20 17:22*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.55**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:40	1
Copper	**15.0**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:40	1
Iron	**4880**		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:40	1
Manganese	**57.3**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:40	1
Zinc	**12.4**	**J**	20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:40	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**228**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**5.2**		0.20	0.17	mg/L			10/09/20 07:36	1
Nitrate as N	**6.8**	**H**	1.0	0.34	mg/L			10/09/20 15:13	5
Sulfate	**27.6**		1.0	0.48	mg/L			10/09/20 15:13	5
Total Organic Carbon - Duplicates	**3.4**		1.0	0.47	mg/L			10/21/20 22:21	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-18
Date Collected: 10/07/20 12:30
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-9
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	201		5.0	3.7	mg/L			10/17/20 15:04	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-19

Date Collected: 10/07/20 13:00
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-10

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 18:49	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 18:49	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 18:49	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 18:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*		*10/15/20 18:49*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/15/20 18:49*	*1*
4-Bromofluorobenzene (Surr)	*117*		*72 - 124*		*10/15/20 18:49*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/15/20 18:49*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.26	*	0.83	0.26	ug/L		10/12/20 06:27	10/13/20 01:07	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*116*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/13/20 01:07*	*1*
2-Fluorobiphenyl (Surr)	*92*		*34 - 110*	*10/12/20 06:27*	*10/13/20 01:07*	*1*
Terphenyl-d14 (Surr)	*126*		*40 - 145*	*10/12/20 06:27*	*10/13/20 01:07*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 03:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*107*		*60 - 140*		*10/13/20 03:29*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.095	*	0.11	0.095	ug/L		10/13/20 09:05	10/15/20 17:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*93*		*25 - 130*	*10/13/20 09:05*	*10/15/20 17:41*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.71**	**J**	1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:44	1
Copper	**2.8**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:44	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:40	10/13/20 20:44	1
Manganese	**9.9**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:44	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:44	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**207**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11.9**		1.0	0.85	mg/L			10/09/20 15:26	5
Nitrate as N	**2.7**		0.20	0.068	mg/L			10/09/20 07:48	1
Sulfate	**6.7**		0.20	0.095	mg/L			10/09/20 07:48	1
Total Organic Carbon - Duplicates	**2.8**		1.0	0.47	mg/L			10/21/20 22:33	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-19
Date Collected: 10/07/20 13:00
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-10
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	196		5.0	3.7	mg/L			10/17/20 15:23	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-21

Date Collected: 10/07/20 14:15
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-11

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 19:14	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 19:14	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 19:14	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 19:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*10/15/20 19:14*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*10/15/20 19:14*	*1*
4-Bromofluorobenzene (Surr)	*116*		*72 - 124*		*10/15/20 19:14*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/15/20 19:14*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25	*	0.81	0.25	ug/L		10/12/20 06:27	10/13/20 01:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*100*	*^c*	*36 - 120*	*10/12/20 06:27*	*10/13/20 01:34*	*1*
2-Fluorobiphenyl (Surr)	*88*		*34 - 110*	*10/12/20 06:27*	*10/13/20 01:34*	*1*
Terphenyl-d14 (Surr)	*118*		*40 - 145*	*10/12/20 06:27*	*10/13/20 01:34*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*110*		*60 - 140*		*10/13/20 13:01*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**10**	*	0.98	0.88	ug/L		10/13/20 09:05	10/16/20 20:55	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*112*		*25 - 130*	*10/13/20 09:05*	*10/16/20 20:55*	*10*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:40	10/13/20 20:47	1
Copper	**16.8**		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 20:47	1
Iron	**78.1**	J	100	46.7	ug/L		10/13/20 08:40	10/13/20 20:47	1
Manganese	**15.6**		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 20:47	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 20:47	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**88.5**		0.91	0.46	mg/L		10/09/20 08:40	10/12/20 06:43	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.45**		0.20	0.17	mg/L			10/09/20 08:14	1
Nitrate as N	**0.37**		0.20	0.068	mg/L			10/09/20 08:14	1
Sulfate	**2.2**		0.20	0.095	mg/L			10/09/20 08:14	1
Total Organic Carbon - Duplicates	**0.89**	J	1.0	0.47	mg/L			10/21/20 22:49	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-21
Date Collected: 10/07/20 14:15
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-11
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	90.0		5.0	3.7	mg/L			10/17/20 15:32	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: Trip Blank

Date Collected: 10/06/20 00:00
Date Received: 10/08/20 09:30

Lab Sample ID: 500-188979-12

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 13:01	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 13:01	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 13:01	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 13:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*		*10/15/20 13:01*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*10/15/20 13:01*	*1*
4-Bromofluorobenzene (Surr)	*114*		*72 - 124*		*10/15/20 13:01*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/15/20 13:01*	*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
*	RPD of the LCS and LCSD exceeds the control limits
^c	CCV Recovery is outside acceptance limits.
X	Surrogate recovery exceeds 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
^c	CCV Recovery is outside acceptance limits.
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 recovery exceeds 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
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
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)
TNTC	Too Numerous To Count

GC/MS VOA

Analysis Batch: 566668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	8260B	
500-188979-2	W-201006-RA-12	Total/NA	Water	8260B	
500-188979-3	W-201006-RA-10	Total/NA	Water	8260B	
500-188979-4	W-201006-RA-13	Total/NA	Water	8260B	
500-188979-5	W-201006-RA-14	Total/NA	Water	8260B	
500-188979-6	W-201006-RA-15	Total/NA	Water	8260B	
500-188979-7	W-201007-RA-16	Total/NA	Water	8260B	
500-188979-8	W-201007-RA-17	Total/NA	Water	8260B	
500-188979-9	W-201007-RA-18	Total/NA	Water	8260B	
500-188979-10	W-201007-RA-19	Total/NA	Water	8260B	
500-188979-11	W-201007-RA-21	Total/NA	Water	8260B	
500-188979-12	Trip Blank	Total/NA	Water	8260B	
MB 500-566668/7	Method Blank	Total/NA	Water	8260B	
LCS 500-566668/5	Lab Control Sample	Total/NA	Water	8260B	
500-188979-1 MS	W-201006-RA-11	Total/NA	Water	8260B	
500-188979-1 MSD	W-201006-RA-11	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 565949

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	3510C	
500-188979-2	W-201006-RA-12	Total/NA	Water	3510C	
500-188979-3	W-201006-RA-10	Total/NA	Water	3510C	
500-188979-4	W-201006-RA-13	Total/NA	Water	3510C	
500-188979-5	W-201006-RA-14	Total/NA	Water	3510C	
500-188979-6	W-201006-RA-15	Total/NA	Water	3510C	
500-188979-7	W-201007-RA-16	Total/NA	Water	3510C	
500-188979-8	W-201007-RA-17	Total/NA	Water	3510C	
500-188979-9	W-201007-RA-18	Total/NA	Water	3510C	
500-188979-10	W-201007-RA-19	Total/NA	Water	3510C	
500-188979-11	W-201007-RA-21	Total/NA	Water	3510C	
MB 500-565949/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-565949/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 500-565949/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 566131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-565949/1-A	Method Blank	Total/NA	Water	8270D	565949
LCS 500-565949/2-A	Lab Control Sample	Total/NA	Water	8270D	565949
LCSD 500-565949/3-A	Lab Control Sample Dup	Total/NA	Water	8270D	565949

Analysis Batch: 566134

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	8270D	565949
500-188979-2	W-201006-RA-12	Total/NA	Water	8270D	565949
500-188979-3	W-201006-RA-10	Total/NA	Water	8270D	565949
500-188979-4	W-201006-RA-13	Total/NA	Water	8270D	565949
500-188979-5	W-201006-RA-14	Total/NA	Water	8270D	565949
500-188979-6	W-201006-RA-15	Total/NA	Water	8270D	565949
500-188979-7	W-201007-RA-16	Total/NA	Water	8270D	565949

GC/MS Semi VOA (Continued)

Analysis Batch: 566134 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-8	W-201007-RA-17	Total/NA	Water	8270D	565949
500-188979-9	W-201007-RA-18	Total/NA	Water	8270D	565949
500-188979-10	W-201007-RA-19	Total/NA	Water	8270D	565949
500-188979-11	W-201007-RA-21	Total/NA	Water	8270D	565949

GC VOA

Analysis Batch: 455524

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	RSK-175	
500-188979-2	W-201006-RA-12	Total/NA	Water	RSK-175	
500-188979-3	W-201006-RA-10	Total/NA	Water	RSK-175	
500-188979-4	W-201006-RA-13	Total/NA	Water	RSK-175	
500-188979-5	W-201006-RA-14	Total/NA	Water	RSK-175	
500-188979-6	W-201006-RA-15	Total/NA	Water	RSK-175	
500-188979-7	W-201007-RA-16	Total/NA	Water	RSK-175	
500-188979-8	W-201007-RA-17	Total/NA	Water	RSK-175	
500-188979-9	W-201007-RA-18	Total/NA	Water	RSK-175	
500-188979-10	W-201007-RA-19	Total/NA	Water	RSK-175	
MB 240-455524/32	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455524/33	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 455673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-11	W-201007-RA-21	Total/NA	Water	RSK-175	
MB 240-455673/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455673/4	Lab Control Sample	Total/NA	Water	RSK-175	

GC Semi VOA

Prep Batch: 566238

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	8151A	
500-188979-2	W-201006-RA-12	Total/NA	Water	8151A	
500-188979-3	W-201006-RA-10	Total/NA	Water	8151A	
500-188979-4	W-201006-RA-13	Total/NA	Water	8151A	
500-188979-5	W-201006-RA-14	Total/NA	Water	8151A	
500-188979-6	W-201006-RA-15	Total/NA	Water	8151A	
500-188979-7	W-201007-RA-16	Total/NA	Water	8151A	
500-188979-8	W-201007-RA-17	Total/NA	Water	8151A	
500-188979-9	W-201007-RA-18	Total/NA	Water	8151A	
500-188979-10	W-201007-RA-19	Total/NA	Water	8151A	
500-188979-11	W-201007-RA-21	Total/NA	Water	8151A	
MB 500-566238/1-A	Method Blank	Total/NA	Water	8151A	
LCS 500-566238/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 500-566238/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	

Analysis Batch: 566628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	8151A	566238
500-188979-2	W-201006-RA-12	Total/NA	Water	8151A	566238
500-188979-3	W-201006-RA-10	Total/NA	Water	8151A	566238

GC Semi VOA (Continued)

Analysis Batch: 566628 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-4	W-201006-RA-13	Total/NA	Water	8151A	566238
500-188979-5	W-201006-RA-14	Total/NA	Water	8151A	566238
500-188979-8	W-201007-RA-17	Total/NA	Water	8151A	566238
500-188979-9	W-201007-RA-18	Total/NA	Water	8151A	566238
500-188979-10	W-201007-RA-19	Total/NA	Water	8151A	566238
MB 500-566238/1-A	Method Blank	Total/NA	Water	8151A	566238
LCS 500-566238/2-A	Lab Control Sample	Total/NA	Water	8151A	566238
LCSD 500-566238/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	566238

Analysis Batch: 567033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-6	W-201006-RA-15	Total/NA	Water	8151A	566238
500-188979-7	W-201007-RA-16	Total/NA	Water	8151A	566238
500-188979-11	W-201007-RA-21	Total/NA	Water	8151A	566238

Metals

Prep Batch: 565754

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	3010A	
500-188979-2	W-201006-RA-12	Total/NA	Water	3010A	
500-188979-3	W-201006-RA-10	Total/NA	Water	3010A	
500-188979-4	W-201006-RA-13	Total/NA	Water	3010A	
500-188979-5	W-201006-RA-14	Total/NA	Water	3010A	
500-188979-6	W-201006-RA-15	Total/NA	Water	3010A	
500-188979-7	W-201007-RA-16	Total/NA	Water	3010A	
500-188979-8	W-201007-RA-17	Total/NA	Water	3010A	
500-188979-9	W-201007-RA-18	Total/NA	Water	3010A	
500-188979-10	W-201007-RA-19	Total/NA	Water	3010A	
500-188979-11	W-201007-RA-21	Total/NA	Water	3010A	

Analysis Batch: 565950

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	SM 2340B	565754
500-188979-2	W-201006-RA-12	Total/NA	Water	SM 2340B	565754
500-188979-3	W-201006-RA-10	Total/NA	Water	SM 2340B	565754
500-188979-4	W-201006-RA-13	Total/NA	Water	SM 2340B	565754
500-188979-5	W-201006-RA-14	Total/NA	Water	SM 2340B	565754
500-188979-6	W-201006-RA-15	Total/NA	Water	SM 2340B	565754
500-188979-7	W-201007-RA-16	Total/NA	Water	SM 2340B	565754
500-188979-8	W-201007-RA-17	Total/NA	Water	SM 2340B	565754
500-188979-9	W-201007-RA-18	Total/NA	Water	SM 2340B	565754
500-188979-10	W-201007-RA-19	Total/NA	Water	SM 2340B	565754
500-188979-11	W-201007-RA-21	Total/NA	Water	SM 2340B	565754

Prep Batch: 566229

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Dissolved	Water	3005A	
500-188979-2	W-201006-RA-12	Dissolved	Water	3005A	
500-188979-3	W-201006-RA-10	Dissolved	Water	3005A	
500-188979-4	W-201006-RA-13	Dissolved	Water	3005A	

Metals (Continued)

Prep Batch: 566229 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-5	W-201006-RA-14	Dissolved	Water	3005A	
500-188979-6	W-201006-RA-15	Dissolved	Water	3005A	
500-188979-7	W-201007-RA-16	Dissolved	Water	3005A	
500-188979-8	W-201007-RA-17	Dissolved	Water	3005A	
500-188979-9	W-201007-RA-18	Dissolved	Water	3005A	
500-188979-10	W-201007-RA-19	Dissolved	Water	3005A	
500-188979-11	W-201007-RA-21	Dissolved	Water	3005A	
MB 500-566229/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-566229/2-A	Lab Control Sample	Total Recoverable	Water	3005A	

Analysis Batch: 566471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Dissolved	Water	6020A	566229
500-188979-2	W-201006-RA-12	Dissolved	Water	6020A	566229
500-188979-3	W-201006-RA-10	Dissolved	Water	6020A	566229
500-188979-4	W-201006-RA-13	Dissolved	Water	6020A	566229
500-188979-5	W-201006-RA-14	Dissolved	Water	6020A	566229
500-188979-6	W-201006-RA-15	Dissolved	Water	6020A	566229
500-188979-7	W-201007-RA-16	Dissolved	Water	6020A	566229
500-188979-8	W-201007-RA-17	Dissolved	Water	6020A	566229
500-188979-9	W-201007-RA-18	Dissolved	Water	6020A	566229
500-188979-10	W-201007-RA-19	Dissolved	Water	6020A	566229
500-188979-11	W-201007-RA-21	Dissolved	Water	6020A	566229
MB 500-566229/1-A	Method Blank	Total Recoverable	Water	6020A	566229
LCS 500-566229/2-A	Lab Control Sample	Total Recoverable	Water	6020A	566229

General Chemistry

Analysis Batch: 565549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	300.0	
500-188979-2	W-201006-RA-12	Total/NA	Water	300.0	
500-188979-2	W-201006-RA-12	Total/NA	Water	300.0	
500-188979-3	W-201006-RA-10	Total/NA	Water	300.0	
500-188979-3	W-201006-RA-10	Total/NA	Water	300.0	
500-188979-4	W-201006-RA-13	Total/NA	Water	300.0	
500-188979-4	W-201006-RA-13	Total/NA	Water	300.0	
500-188979-5	W-201006-RA-14	Total/NA	Water	300.0	
500-188979-5	W-201006-RA-14	Total/NA	Water	300.0	
500-188979-6	W-201006-RA-15	Total/NA	Water	300.0	
500-188979-6	W-201006-RA-15	Total/NA	Water	300.0	
500-188979-7	W-201007-RA-16	Total/NA	Water	300.0	
500-188979-7	W-201007-RA-16	Total/NA	Water	300.0	
MB 500-565549/3	Method Blank	Total/NA	Water	300.0	
LCS 500-565549/4	Lab Control Sample	Total/NA	Water	300.0	
500-188979-1 MS	W-201006-RA-11	Total/NA	Water	300.0	
500-188979-1 MSD	W-201006-RA-11	Total/NA	Water	300.0	

Analysis Batch: 565714

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-8	W-201007-RA-17	Total/NA	Water	300.0	

General Chemistry (Continued)

Analysis Batch: 565714 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-8	W-201007-RA-17	Total/NA	Water	300.0	
500-188979-9	W-201007-RA-18	Total/NA	Water	300.0	
500-188979-9	W-201007-RA-18	Total/NA	Water	300.0	
500-188979-10	W-201007-RA-19	Total/NA	Water	300.0	
500-188979-10	W-201007-RA-19	Total/NA	Water	300.0	
500-188979-11	W-201007-RA-21	Total/NA	Water	300.0	
MB 500-565714/3	Method Blank	Total/NA	Water	300.0	
LCS 500-565714/4	Lab Control Sample	Total/NA	Water	300.0	
500-188979-11 MS	W-201007-RA-21	Total/NA	Water	300.0	
500-188979-11 MSD	W-201007-RA-21	Total/NA	Water	300.0	

Analysis Batch: 567090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	SM 2320B	
500-188979-2	W-201006-RA-12	Total/NA	Water	SM 2320B	
500-188979-3	W-201006-RA-10	Total/NA	Water	SM 2320B	
500-188979-4	W-201006-RA-13	Total/NA	Water	SM 2320B	
500-188979-5	W-201006-RA-14	Total/NA	Water	SM 2320B	
500-188979-6	W-201006-RA-15	Total/NA	Water	SM 2320B	
MB 500-567090/3	Method Blank	Total/NA	Water	SM 2320B	
LCS 500-567090/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 567233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-7	W-201007-RA-16	Total/NA	Water	SM 2320B	
500-188979-8	W-201007-RA-17	Total/NA	Water	SM 2320B	
500-188979-9	W-201007-RA-18	Total/NA	Water	SM 2320B	
500-188979-10	W-201007-RA-19	Total/NA	Water	SM 2320B	
500-188979-11	W-201007-RA-21	Total/NA	Water	SM 2320B	
MB 500-567233/3	Method Blank	Total/NA	Water	SM 2320B	
LCS 500-567233/4	Lab Control Sample	Total/NA	Water	SM 2320B	
500-188979-8 DU	W-201007-RA-17	Total/NA	Water	SM 2320B	

Analysis Batch: 568051

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-188979-1	W-201006-RA-11	Total/NA	Water	9060A	
500-188979-2	W-201006-RA-12	Total/NA	Water	9060A	
500-188979-3	W-201006-RA-10	Total/NA	Water	9060A	
500-188979-4	W-201006-RA-13	Total/NA	Water	9060A	
500-188979-5	W-201006-RA-14	Total/NA	Water	9060A	
500-188979-6	W-201006-RA-15	Total/NA	Water	9060A	
500-188979-7	W-201007-RA-16	Total/NA	Water	9060A	
500-188979-8	W-201007-RA-17	Total/NA	Water	9060A	
500-188979-9	W-201007-RA-18	Total/NA	Water	9060A	
500-188979-10	W-201007-RA-19	Total/NA	Water	9060A	
500-188979-11	W-201007-RA-21	Total/NA	Water	9060A	
MB 500-568051/32	Method Blank	Total/NA	Water	9060A	
LCS 500-568051/33	Lab Control Sample	Total/NA	Water	9060A	
500-188979-5 MS	W-201006-RA-14	Total/NA	Water	9060A	
500-188979-5 MSD	W-201006-RA-14	Total/NA	Water	9060A	

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-188979-1	W-201006-RA-11	93	102	115	90
500-188979-1 MS	W-201006-RA-11	93	99	104	99
500-188979-1 MSD	W-201006-RA-11	93	97	103	101
500-188979-2	W-201006-RA-12	94	100	114	93
500-188979-3	W-201006-RA-10	97	99	116	94
500-188979-4	W-201006-RA-13	97	96	113	96
500-188979-5	W-201006-RA-14	95	101	117	92
500-188979-6	W-201006-RA-15	100	94	99	103
500-188979-7	W-201007-RA-16	96	98	109	96
500-188979-8	W-201007-RA-17	97	97	111	97
500-188979-9	W-201007-RA-18	93	99	118	94
500-188979-10	W-201007-RA-19	96	100	117	94
500-188979-11	W-201007-RA-21	93	101	116	95
500-188979-12	Trip Blank	92	101	114	94
LCS 500-566668/5	Lab Control Sample	85	89	109	94
MB 500-566668/7	Method Blank	95	99	115	94

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(36-120)	(34-110)	(40-145)
500-188979-1	W-201006-RA-11	113 ^c	92	136
500-188979-2	W-201006-RA-12	117 ^c	88	121
500-188979-3	W-201006-RA-10	100 ^c	83	122
500-188979-4	W-201006-RA-13	100 ^c	78	119
500-188979-5	W-201006-RA-14	97 ^c	79	119
500-188979-6	W-201006-RA-15	98 ^c	153 X	117
500-188979-7	W-201007-RA-16	83 ^c	65	98
500-188979-8	W-201007-RA-17	101 ^c	80	112
500-188979-9	W-201007-RA-18	102 ^c	83	120
500-188979-10	W-201007-RA-19	116 ^c	92	126
500-188979-11	W-201007-RA-21	100 ^c	88	118
LCS 500-565949/2-A	Lab Control Sample	72	74	90
LCSD 500-565949/3-A	Lab Control Sample Dup	85	89	110
MB 500-565949/1-A	Method Blank	68	70	96

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TPHL = Terphenyl-d14 (Surr)

Surrogate Summary

Client: GHD Services Inc.
Job ID: 500-188979-1
Project/Site: Penta Wood 086165

Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water
Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	TFE1 (60-140)
500-188979-1	W-201006-RA-11	108
500-188979-2	W-201006-RA-12	109
500-188979-3	W-201006-RA-10	108
500-188979-4	W-201006-RA-13	111
500-188979-5	W-201006-RA-14	109
500-188979-6	W-201006-RA-15	107
500-188979-7	W-201007-RA-16	105
500-188979-8	W-201007-RA-17	108
500-188979-9	W-201007-RA-18	110
500-188979-10	W-201007-RA-19	107
500-188979-11	W-201007-RA-21	110
LCS 240-455524/33	Lab Control Sample	115
LCS 240-455673/4	Lab Control Sample	113
MB 240-455524/32	Method Blank	113
MB 240-455673/3	Method Blank	115

Surrogate Legend

TFE = 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	DCPAA2 (25-130)
500-188979-1	W-201006-RA-11	53 ^c
500-188979-2	W-201006-RA-12	94 ^c
500-188979-3	W-201006-RA-10	94 ^c
500-188979-4	W-201006-RA-13	101 ^c
500-188979-5	W-201006-RA-14	97 ^c
500-188979-6	W-201006-RA-15	0 D
500-188979-7	W-201007-RA-16	0 D
500-188979-8	W-201007-RA-17	97
500-188979-9	W-201007-RA-18	101
500-188979-10	W-201007-RA-19	93
500-188979-11	W-201007-RA-21	112
LCS 500-566238/2-A	Lab Control Sample	99
LCSD 500-566238/3-A	Lab Control Sample Dup	165 X
MB 500-566238/1-A	Method Blank	92

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 500-566668/7
Matrix: Water
Analysis Batch: 566668

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 11:44	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 11:44	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 11:44	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 11:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*10/15/20 11:44*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/15/20 11:44*	*1*
4-Bromofluorobenzene (Surr)	*115*		*72 - 124*		*10/15/20 11:44*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/15/20 11:44*	*1*

Lab Sample ID: LCS 500-566668/5
Matrix: Water
Analysis Batch: 566668

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	48.9		ug/L		98	70 - 120
Toluene	50.0	44.7		ug/L		89	70 - 125
Ethylbenzene	50.0	55.6		ug/L		111	70 - 123
Xylenes, Total	100	107		ug/L		107	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 126*
Toluene-d8 (Surr)	*89*		*75 - 120*
4-Bromofluorobenzene (Surr)	*109*		*72 - 124*
Dibromofluoromethane	*94*		*75 - 120*

Lab Sample ID: 500-188979-1 MS
Matrix: Water
Analysis Batch: 566668

Client Sample ID: W-201006-RA-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.15		50.0	53.7		ug/L		107	70 - 120
Toluene	<0.15		50.0	53.9		ug/L		108	70 - 125
Ethylbenzene	<0.18		50.0	57.5		ug/L		115	70 - 123
Xylenes, Total	<0.22		100	110		ug/L		110	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*
Toluene-d8 (Surr)	*99*		*75 - 120*
4-Bromofluorobenzene (Surr)	*104*		*72 - 124*
Dibromofluoromethane	*99*		*75 - 120*

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

Lab Sample ID: 500-188979-1 MSD
Matrix: Water
Analysis Batch: 566668

Client Sample ID: W-201006-RA-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.15		50.0	54.0		ug/L		108	70 - 120	1	20
Toluene	<0.15		50.0	52.9		ug/L		106	70 - 125	2	20
Ethylbenzene	<0.18		50.0	57.2		ug/L		114	70 - 123	1	20
Xylenes, Total	<0.22		100	109		ug/L		109	70 - 125	0	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*
Toluene-d8 (Surr)	*97*		*75 - 120*
4-Bromofluorobenzene (Surr)	*103*		*72 - 124*
Dibromofluoromethane	*101*		*75 - 120*

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

Lab Sample ID: MB 500-565949/1-A
Matrix: Water
Analysis Batch: 566131

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 565949

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.80	0.25	ug/L		10/12/20 06:27	10/13/20 02:02	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*68*		*36 - 120*	*10/12/20 06:27*	*10/13/20 02:02*	*1*
2-Fluorobiphenyl (Surr)	*70*		*34 - 110*	*10/12/20 06:27*	*10/13/20 02:02*	*1*
Terphenyl-d14 (Surr)	*96*		*40 - 145*	*10/12/20 06:27*	*10/13/20 02:02*	*1*

Lab Sample ID: LCS 500-565949/2-A
Matrix: Water
Analysis Batch: 566131

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 565949

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Naphthalene			32.0	19.8		ug/L		62	36 - 110		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*72*		*36 - 120*
2-Fluorobiphenyl (Surr)	*74*		*34 - 110*
Terphenyl-d14 (Surr)	*90*		*40 - 145*

Lab Sample ID: LCSD 500-565949/3-A
Matrix: Water
Analysis Batch: 566131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 565949

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene			32.0	26.2	*	ug/L		82	36 - 110	28	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*85*		*36 - 120*
2-Fluorobiphenyl (Surr)	*89*		*34 - 110*

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

Lab Sample ID: LCSD 500-565949/3-A
Matrix: Water
Analysis Batch: 566131

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 565949

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Terphenyl-d14 (Surr)	110		40 - 145

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-455524/32
Matrix: Water
Analysis Batch: 455524

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/12/20 20:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	113		60 - 140		10/12/20 20:38	1

Lab Sample ID: LCS 240-455524/33
Matrix: Water
Analysis Batch: 455524

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	295		ug/L		104	80 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	115		60 - 140

Lab Sample ID: MB 240-455673/3
Matrix: Water
Analysis Batch: 455673

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 10:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,1,1-Trifluoroethane	115		60 - 140		10/13/20 10:10	1

Lab Sample ID: LCS 240-455673/4
Matrix: Water
Analysis Batch: 455673

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	304		ug/L		107	80 - 120		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,1,1-Trifluoroethane	113		60 - 140

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-566238/1-A
Matrix: Water
Analysis Batch: 566628

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566238

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/13/20 09:05	10/15/20 03:50	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*92*		*25 - 130*	*10/13/20 09:05*	*10/15/20 03:50*	*1*

Lab Sample ID: LCS 500-566238/2-A
Matrix: Water
Analysis Batch: 566628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566238

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	2.50	1.66		ug/L		67	40 - 122

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*99*		*25 - 130*

Lab Sample ID: LCSD 500-566238/3-A
Matrix: Water
Analysis Batch: 566628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 566238

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	2.50	2.94	*	ug/L		118	40 - 122	56	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
DCAA	*165*	*X*	*25 - 130*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-566229/1-A
Matrix: Water
Analysis Batch: 566471

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 566229

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:40	10/13/20 19:59	1
Copper	<0.50		2.0	0.50	ug/L		10/13/20 08:40	10/13/20 19:59	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:40	10/13/20 19:59	1
Manganese	<0.79		2.5	0.79	ug/L		10/13/20 08:40	10/13/20 19:59	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:40	10/13/20 19:59	1

Lab Sample ID: LCS 500-566229/2-A
Matrix: Water
Analysis Batch: 566471

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 566229

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	106.2		ug/L		106	80 - 120
Copper	250	269.6		ug/L		108	80 - 120
Iron	1000	1063		ug/L		106	80 - 120
Manganese	500	539.5		ug/L		108	80 - 120
Zinc	500	506.5		ug/L		101	80 - 120

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 500-565549/3
Matrix: Water
Analysis Batch: 565549

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/08/20 09:08	1
Nitrate as N	<0.068		0.20	0.068	mg/L			10/08/20 09:08	1
Sulfate	<0.095		0.20	0.095	mg/L			10/08/20 09:08	1

Lab Sample ID: LCS 500-565549/4
Matrix: Water
Analysis Batch: 565549

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.07		mg/L		102	90 - 110
Nitrate as N	2.00	2.08		mg/L		104	90 - 110
Sulfate	5.00	5.33		mg/L		107	90 - 110

Lab Sample ID: 500-188979-1 MS
Matrix: Water
Analysis Batch: 565549

Client Sample ID: W-201006-RA-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	0.39		2.00	2.01		mg/L		81	80 - 120
Nitrate as N	0.37		2.00	2.25		mg/L		94	80 - 120
Sulfate	0.94		5.00	5.70		mg/L		95	80 - 120

Lab Sample ID: 500-188979-1 MSD
Matrix: Water
Analysis Batch: 565549

Client Sample ID: W-201006-RA-11
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	0.39		2.00	2.02		mg/L		81	80 - 120	0	20
Nitrate as N	0.37		2.00	2.29		mg/L		96	80 - 120	2	20
Sulfate	0.94		5.00	5.75		mg/L		96	80 - 120	1	20

Lab Sample ID: MB 500-565714/3
Matrix: Water
Analysis Batch: 565714

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/09/20 06:45	1
Nitrate as N	<0.068		0.20	0.068	mg/L			10/09/20 06:45	1
Sulfate	<0.095		0.20	0.095	mg/L			10/09/20 06:45	1

Lab Sample ID: LCS 500-565714/4
Matrix: Water
Analysis Batch: 565714

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.08		mg/L		103	90 - 110
Nitrate as N	2.00	2.09		mg/L		105	90 - 110
Sulfate	5.00	5.33		mg/L		107	90 - 110

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 500-188979-11 MS
Matrix: Water
Analysis Batch: 565714

Client Sample ID: W-201007-RA-21
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	0.45		1.00	1.44		mg/L		99	80 - 120
Nitrate as N	0.37		1.00	1.41		mg/L		104	80 - 120
Sulfate	2.2		2.50	4.91		mg/L		110	80 - 120

Lab Sample ID: 500-188979-11 MSD
Matrix: Water
Analysis Batch: 565714

Client Sample ID: W-201007-RA-21
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	0.45		1.00	1.45		mg/L		99	80 - 120	0	20
Nitrate as N	0.37		1.00	1.41		mg/L		104	80 - 120	0	20
Sulfate	2.2		2.50	4.91		mg/L		110	80 - 120	0	20

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

Lab Sample ID: MB 500-568051/32
Matrix: Water
Analysis Batch: 568051

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 - Duplicates	<0.47		1.0	0.47	mg/L			10/21/20 20:16	1

Lab Sample ID: LCS 500-568051/33
Matrix: Water
Analysis Batch: 568051

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 - Duplicates	10.0	10.10		mg/L		101	80 - 120

Lab Sample ID: 500-188979-5 MS
Matrix: Water
Analysis Batch: 568051

Client Sample ID: W-201006-RA-14
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	0.92	J	10.0	11.52		mg/L		106	75 - 125

Lab Sample ID: 500-188979-5 MSD
Matrix: Water
Analysis Batch: 568051

Client Sample ID: W-201006-RA-14
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 - Duplicates	0.92	J	10.0	11.46		mg/L		105	75 - 125	1	20

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 500-567090/3
Matrix: Water
Analysis Batch: 567090

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			10/16/20 14:30	1

Lab Sample ID: LCS 500-567090/4
Matrix: Water
Analysis Batch: 567090

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	98.10		mg/L		98	90 - 110		

Lab Sample ID: MB 500-567233/3
Matrix: Water
Analysis Batch: 567233

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			10/17/20 12:45	1

Lab Sample ID: LCS 500-567233/4
Matrix: Water
Analysis Batch: 567233

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Alkalinity			100	97.71		mg/L		98	90 - 110		

Lab Sample ID: 500-188979-8 DU
Matrix: Water
Analysis Batch: 567233

Client Sample ID: W-201007-RA-17
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Alkalinity	97.4			96.20		mg/L				1	20

Client Sample ID: W-201006-RA-11

Lab Sample ID: 500-188979-1

Date Collected: 10/06/20 13:25

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 15:06	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/12/20 21:58	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 00:55	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 04:48	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:06	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565549	10/08/20 12:31	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 20:30	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567090	10/16/20 16:51	SMO	TAL CHI

Client Sample ID: W-201006-RA-12

Lab Sample ID: 500-188979-2

Date Collected: 10/06/20 15:32

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 15:30	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/12/20 22:25	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 01:12	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 05:07	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:09	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565549	10/08/20 12:56	EAT	TAL CHI
Total/NA	Analysis	300.0		5	565549	10/08/20 17:48	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 20:37	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567090	10/16/20 16:58	SMO	TAL CHI

Client Sample ID: W-201006-RA-10

Lab Sample ID: 500-188979-3

Date Collected: 10/06/20 14:45

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 15:56	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/12/20 22:52	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 01:29	JBN	TAL CAN

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201006-RA-10

Lab Sample ID: 500-188979-3

Date Collected: 10/06/20 14:45

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 05:26	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:13	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565549	10/08/20 12:44	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565549	10/08/20 18:00	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 20:49	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567090	10/16/20 17:09	SMO	TAL CHI

Client Sample ID: W-201006-RA-13

Lab Sample ID: 500-188979-4

Date Collected: 10/06/20 16:16

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 16:20	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/12/20 23:18	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 01:47	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 05:46	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:16	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565549	10/08/20 13:09	EAT	TAL CHI
Total/NA	Analysis	300.0		5	565549	10/08/20 18:13	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 20:59	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567090	10/16/20 17:15	SMO	TAL CHI

Client Sample ID: W-201006-RA-14

Lab Sample ID: 500-188979-5

Date Collected: 10/06/20 16:16

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 16:45	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/12/20 23:45	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 02:04	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 06:05	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:19	FXG	TAL CHI

Client Sample ID: W-201006-RA-14

Lab Sample ID: 500-188979-5

Date Collected: 10/06/20 16:16

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		10	565549	10/08/20 13:22	EAT	TAL CHI
Total/NA	Analysis	300.0		5	565549	10/08/20 18:26	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 21:24	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567090	10/16/20 17:22	SMO	TAL CHI

Client Sample ID: W-201006-RA-15

Lab Sample ID: 500-188979-6

Date Collected: 10/06/20 17:00

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 17:10	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/13/20 02:00	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 02:21	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1000	567033	10/16/20 21:14	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:23	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565549	10/08/20 13:35	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565549	10/08/20 18:38	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 21:55	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567090	10/16/20 15:51	SMO	TAL CHI

Client Sample ID: W-201007-RA-16

Lab Sample ID: 500-188979-7

Date Collected: 10/07/20 10:45

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 17:35	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/13/20 02:28	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 02:38	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1000	567033	10/16/20 21:34	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:26	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565549	10/08/20 14:26	EAT	TAL CHI

Client Sample ID: W-201007-RA-16

Lab Sample ID: 500-188979-7

Date Collected: 10/07/20 10:45

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		5	565549	10/08/20 18:51	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 22:06	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 14:41	SMO	TAL CHI

Client Sample ID: W-201007-RA-17

Lab Sample ID: 500-188979-8

Date Collected: 10/07/20 11:30

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 17:59	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/13/20 00:13	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 02:55	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 17:02	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:30	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565714	10/09/20 07:10	EAT	TAL CHI
Total/NA	Analysis	300.0		5	565714	10/09/20 14:48	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 22:13	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 15:10	SMO	TAL CHI

Client Sample ID: W-201007-RA-18

Lab Sample ID: 500-188979-9

Date Collected: 10/07/20 12:30

Matrix: Water

Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 18:24	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/13/20 00:40	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 03:12	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 17:22	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:40	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565714	10/09/20 07:36	EAT	TAL CHI
Total/NA	Analysis	300.0		5	565714	10/09/20 15:13	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 22:21	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 15:04	SMO	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Client Sample ID: W-201007-RA-19

Lab Sample ID: 500-188979-10
Matrix: Water
Date Collected: 10/07/20 13:00
Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 18:49	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/13/20 01:07	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455524	10/13/20 03:29	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		1	566628	10/15/20 17:41	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:44	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565714	10/09/20 07:48	EAT	TAL CHI
Total/NA	Analysis	300.0		5	565714	10/09/20 15:26	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 22:33	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 15:23	SMO	TAL CHI

Client Sample ID: W-201007-RA-21

Lab Sample ID: 500-188979-11
Matrix: Water
Date Collected: 10/07/20 14:15
Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 19:14	PMF	TAL CHI
Total/NA	Prep	3510C			565949	10/12/20 06:27	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566134	10/13/20 01:34	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455673	10/13/20 13:01	JBN	TAL CAN
Total/NA	Prep	8151A			566238	10/13/20 09:05	JD	TAL CHI
Total/NA	Analysis	8151A		10	567033	10/16/20 20:55	JBJ	TAL CHI
Dissolved	Prep	3005A			566229	10/13/20 08:40	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 20:47	FXG	TAL CHI
Total/NA	Prep	3010A			565754	10/09/20 08:40	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	565950	10/12/20 06:43	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565714	10/09/20 08:14	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568051	10/21/20 22:49	PFK	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 15:32	SMO	TAL CHI

Client Sample ID: Trip Blank

Lab Sample ID: 500-188979-12
Matrix: Water
Date Collected: 10/06/20 00:00
Date Received: 10/08/20 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 13:01	PMF	TAL CHI

Laboratory References:

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-188979-1

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record 491467

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other: TAL-8210

Client Contact	Project Manager: Tim Ree	Site Contact:	Date:	COC No:
Company Name: GHD	Tel/Email: Grant.Anderson@GHD.com	Lab Contact:	Carrier:	___ of 1 COCs
Address: 1801 Old Highway 8 NW 114	Analysis Turnaround Time			Sampler:
City/State/Zip: St. Paul MN 55112	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 651 639 0913	TAT if different from Below _____			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Waterloo 2	☐ 1 week			
Site: 086165	☐ 2 days			Job / SDG No.: 500-188979
PO #	☐ 1 day			

500-188979 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	BTEX	PCP	Naphthalene	Dissolved Metals	Alk; Anions	Tot Metals (Hardness)	TOC	Methane	Sample Specific Notes:
1	W-201006-RA-11	10/6/20	1325	G	WG	15	Y	N	✓	✓	✓	✓	✓	✓	✓	✓	dissolved metals were field filtered
2	W-201006-RA-12	10/6/20	1532				Y		✓	✓	✓	✓	✓	✓	✓	✓	
3	W-201006-RA-10	10/6/20	14:45				Y		✓	✓	✓	✓	✓	✓	✓	✓	
4	W-201006-RA-13	10/6/20	16:16				Y		✓	✓	✓	✓	✓	✓	✓	✓	
5	W-201006-RA-14	10/6/20	16:16				Y		✓	✓	✓	✓	✓	✓	✓	✓	
6	W-201006-RA-15	10/6/20	17:00				Y		✓	✓	✓	✓	✓	✓	✓	✓	
7	W-201007-RA-16	10/7/20	1045				Y		✓	✓	✓	✓	✓	✓	✓	✓	
8	W-201007-RA-17	10/7/20	1130				Y		✓	✓	✓	✓	✓	✓	✓	✓	
9	W-201007-RA-18	10/7/20	1230				Y		✓	✓	✓	✓	✓	✓	✓	✓	
10	W-201007-RA-19	10/7/20	1300				Y		✓	✓	✓	✓	✓	✓	✓	✓	
11	W-201007-RA-21	10/7/20	1415	↓	↓	↓	Y	↓	✓	✓	✓	✓	✓	✓	✓	✓	
12	trip blank								✓								

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

3,7,12,0,25,1,7 → 2,7,3,1

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ Therm ID No.: _____

	Company	Date/Time		Company	Date/Time
Relinquished by:	GHD	10/7/20 1700	Received by:		
Relinquished by:			Received by:		
Relinquished by:			Received in Laboratory by:	TAL CHI	10/8/20 0930


500-188979 Wayb
ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US
SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406
TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST
UNIVERSITY PARK IL 60484
) 534-5200
REF:
DEPT:
RMA:
RT 519
ST 28
5
10:30
A
5749
10.08
FedEx
Express
FedEx
TRK#
0221 1893 4449 5749
RETURNS MON-SAT
THU - 08 OCT AA
PRIORITY OVERNIGHT
GE JOTA
60484
IL-US
ORD
FID: 80701 070ct2020 JDTA 56DG2/A27E/05A2

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

RT 519 5 10:30 A 5750 10.08

ST 28

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-5200 REF:
INV:
PO: DEPT:

RMA:

FedEx Express

E

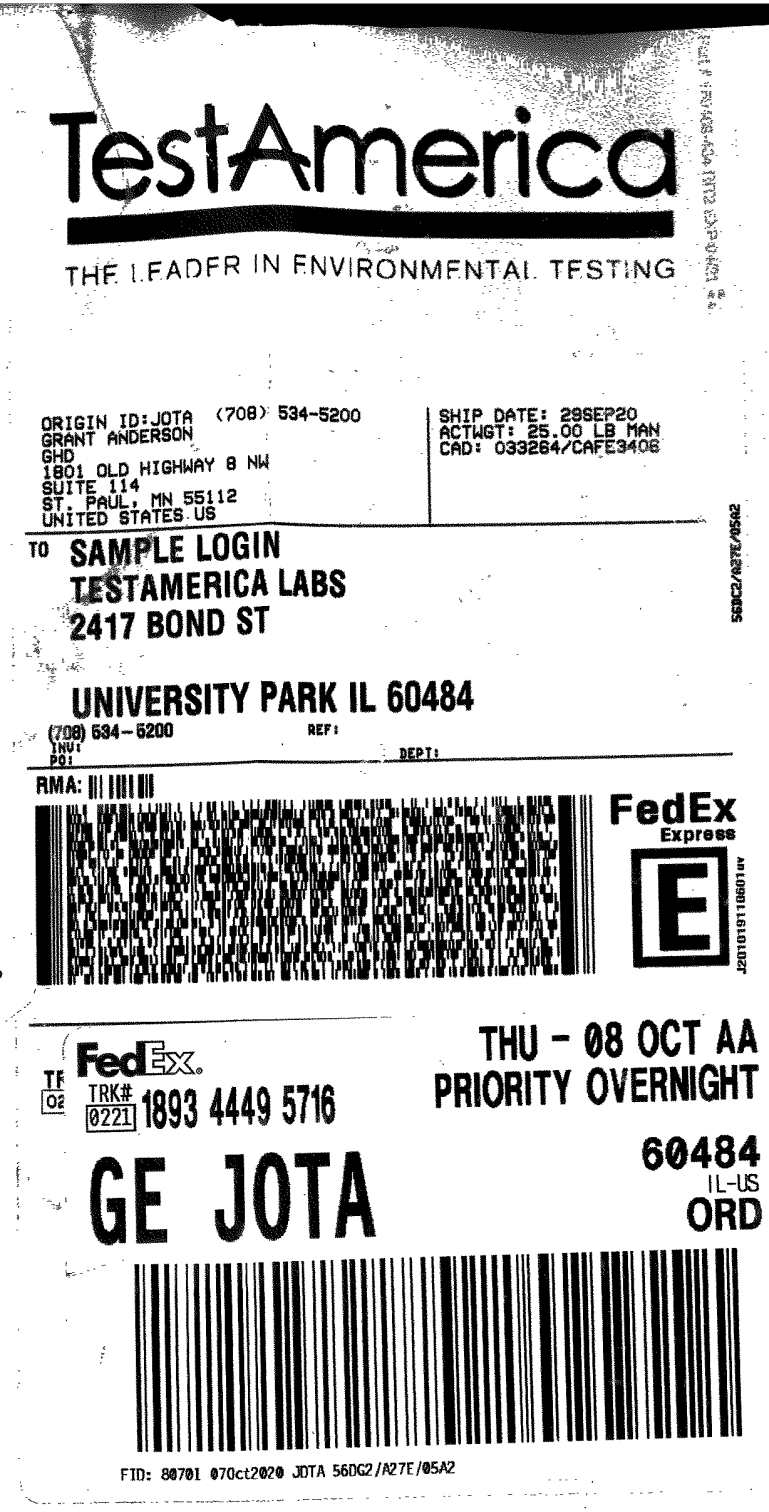
FedEx

TRK# 0221 1893 4449 5750

RETURNS MON-SAT
THU - 08 OCT AA
PRIORITY OVERNIGHT

60484
IL-US
ORD

GE JOTA



RT 519 ST 28 5 10:30 A 5716 10.08


TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US
SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 0332847/CAFE3406
TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST
UNIVERSITY PARK IL 60484
(708) 534-5200
INV:
PO:
REF:
DEPT:
RMA:
FedEx Express
TO FedEx
TRK# 0221 1893 4449 5738
RETURNS MON-SAT
THU - 08 OCT AA
PRIORITY OVERNIGHT
GE JOTA
60484
IL-US
ORD
FID: 80701 07Oct2020 JDTA 56DG2/A27E/05A2
5738 10.08
5 10:30
RT 519
ST 28

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

56DC2/A27E/05A2

TO **SAMPLE LOGIN**
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484

(708) 534-5200 REF:
INV:
PO: DEPT:

RMA:

FedEx Express

J2010191106010uv

THU - 08 OCT AA
PRIORITY OVERNIGHT

1893 4449 5727

60484
IL-US
ORD

JOTA

FID 3856500 07

RT 519
ST 28

5
10:30
A
5727
10.08

Page 61 of 65

56DG2/A27E/05A2

10/23/2020

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Wright, Richard	Carrier Tracking No(s):	COC No: 500-140722.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Richard.Wright@Eurofinset.com	State of Origin: Wisconsin	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-188979-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/21/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Penta Wood 086165	Project #: 50013796			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) Methane	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
W-201006-RA-11 (500-188979-1)	10/6/20	13:25 Central		Water			X	3	WI
W-201006-RA-12 (500-188979-2)	10/6/20	15:32 Central		Water			X	3	WI
W-201006-RA-10 (500-188979-3)	10/6/20	14:45 Central		Water			X	3	WI
W-201006-RA-13 (500-188979-4)	10/6/20	16:16 Central		Water			X	3	WI
W-201006-RA-14 (500-188979-5)	10/6/20	16:16 Central		Water			X	3	WI
W-201006-RA-15 (500-188979-6)	10/6/20	17:00 Central		Water			X	3	WI
W-201007-RA-16 (500-188979-7)	10/7/20	10:45 Central		Water			X	3	WI
W-201007-RA-17 (500-188979-8)	10/7/20	11:30 Central		Water			X	3	WI
W-201007-RA-18 (500-188979-9)	10/7/20	12:30 Central		Water			X	3	WI

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Stephanie Hernandez	10/8/20 1630	TA-CHI		10-9-20 1000	ETA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Wright, Richard	Carrier Tracking No(s):	COC No: 500-140722.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Richard.Wright@Eurofinset.com	State of Origin: Wisconsin	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-188979-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/21/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Penta Wood 086165	Project #: 50013796			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) Methane	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
W-201007-RA-19 (500-188979-10)	10/7/20	13:00 Central		Water			X	3	WI
W-201007-RA-21 (500-188979-11)	10/7/20	14:15 Central		Water			X	3	WI

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	Stephanie Hernandez	10/8/20 1630	TA-CHI		10-9-20 1000	E TA
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Chicago Site Name _____ Cooler unpacked by: Matt Snyder

Cooler Received on 10-9-20 Opened on 10-9-20

FedEx: 1st Grd (Exp) UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA 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# IR-11 (CF **+0.9** °C) Observed Cooler Temp 5.0 °C Corrected Cooler Temp. 5.9 °C

IR GUN #IR-12 (CF **+0.5**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1 (Yes) No
   - -Were the seals on the outside of the cooler(s) signed & dated? (Yes) No NA
   - -Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes (No)
   - -Were tamper/custody seals intact and uncompromised? (Yes) No NA
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 (ID/Date/Time) be reconciled with the COC? (Yes) No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)? (Y) (N)
10. Were correct bottle(s) used for the test(s) indicated? (Yes) No
11. Sufficient quantity received to perform indicated analyses? (Yes) No
12. Are these work share samples and all listed on the COC? (Yes) No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# **HC907861**
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this. Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #_____ Yes No
17. Was a LL Hg or Me Hg trip blank present? _____ Yes No

Tests that are not checked for pH by Receiving:

VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

_____

_____

_____

_____

19. 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)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.

Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-188979-1

Login Number: 188979
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

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	3.7,2.0,2.5,2.7,3.1
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	

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-189067-1
Client Project/Site: Penta Wood 086165

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

Attn: Mr. Grant Anderson

Authorized for release by:
10/27/2020 10:55:49 AM

Richard Wright, Senior Project Manager
(708)746-0045
Richard.Wright@Eurofinset.com

Table of Contents

Job ID: 500-189067-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-189067-1

Receipt
The samples were received on 10/9/2020 9:40 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 1.4º C, 1.5º C, 2.7º C and 19.1º C.
Due to a Federal Express problem, not all of the sample coolers were delivered on 10/9. The balance of coolers were delivered on 10/10 and 10/12. The 10/10 receipt included plastic nitrate bottles and the hold time was exceeded on receipt. The 10/12 receipt included all of the amber glass 250ml bottles for naphthalene and were received at 19C.

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 8151A: The continuing calibration verification (CCV) associated with batch 500-567033 recovered above the upper control limit for Pentachlorophenol and DCAA. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated samples are impacted: W-201007-RA-23 (500-189067-4), W-201008-RA-25 (500-189067-5), W-201008-RA-26 (500-189067-6), W-201008-RA-27 (500-189067-7), W-201008-RA-28 (500-189067-8), (CCV 500-567033/24) and (CCV 500-567033/36).

Method 8151A: The following sample required a dilution due to the nature of the sample matrix: W-201008-RA-30 (500-189067-10). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

Method 8151A: The matrix spike / matrix spike duplicate (MS/MSD) precision for preparation batch 500-566448 and analytical batch 500-567306 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) precision was within acceptance limits.

Method 8151A: Surrogate recovery for the following samples were outside control limits: W-201007-RA-22 (500-189067-3), W-201007-RA-22 (500-189067-3[MS]) and W-201007-RA-22 (500-189067-3[MSD]). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8151A: The following samples required a dilution due to the nature of the sample matrix: W-201007-RA-20 (500-189067-1), W-201007-RA-24 (500-189067-2) and W-201008-RA-29 (500-189067-9). Because of this dilution, the surrogate spike concentration in the sample was reduced to a level where the recovery calculation does not provide useful information.

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

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

General Chemistry
Method 300.0: The following IC samples were received outside of holding time for analyte Nitrate as N: W-201007-RA-20 (500-189067-1) and W-201007-RA-24 (500-189067-2).

Method 300.0: The following IC samples were 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 for analyte Nitrate as N. As such, the laboratory had insufficient time remaining to perform the analysis within holding time: W-201007-RA-22 (500-189067-3), W-201007-RA-22 (500-189067-3[MS]), W-201007-RA-22 (500-189067-3[MSD]), W-201008-RA-26 (500-189067-6), W-201008-RA-27 (500-189067-7), W-201008-RA-28

Job ID: 500-189067-1 (Continued)

Laboratory: Eurofins TestAmerica, Chicago (Continued)

(500-189067-8), W-201008-RA-29 (500-189067-9) and W-201008-RA-30 (500-189067-10).

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.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-20 — Lab Sample ID: 500-189067-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.89		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	1.2		0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	17		1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	33		0.79	0.25	ug/L	1		8270D	Total/NA
Methane	5.2		1.0	0.17	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	8300		200	180	ug/L	2000		8151A	Total/NA
Arsenic	14.8		1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.4	J	2.0	0.50	ug/L	1		6020A	Dissolved
Iron	14200		100	46.7	ug/L	1		6020A	Dissolved
Manganese	2440		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	270		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	34.3		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	0.11	J H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	16.9		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	29.1		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	233		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-24 — Lab Sample ID: 500-189067-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	1.2		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	1.5		0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	21		1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	33		0.77	0.24	ug/L	1		8270D	Total/NA
Methane	4.6		1.0	0.17	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	7900		190	170	ug/L	2000		8151A	Total/NA
Arsenic	15.5		1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.1	J	2.0	0.50	ug/L	1		6020A	Dissolved
Iron	14800		100	46.7	ug/L	1		6020A	Dissolved
Manganese	2590		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	276		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	36.7		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	0.076	J H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	18.4		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	29.0		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	234		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201007-RA-22 — Lab Sample ID: 500-189067-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Methane	6.6		1.0	0.17	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	0.49		0.095	0.086	ug/L	1		8151A	Total/NA
Arsenic	0.24	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	0.60	J	2.0	0.50	ug/L	1		6020A	Dissolved
Iron	1770	F1	100	46.7	ug/L	1		6020A	Dissolved
Manganese	25.7		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	280		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	25.2	F1	2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	2.3	H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	7.7		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	1.1		1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	256		5.0	3.7	mg/L	1		SM 2320B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-23 — Lab Sample ID: 500-189067-4

No Detections.

Client Sample ID: W-201008-RA-25 — Lab Sample ID: 500-189067-5

No Detections.

Client Sample ID: W-201008-RA-26 — Lab Sample ID: 500-189067-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Copper	6.7		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	60.1	J	100	46.7	ug/L	1		6020A	Dissolved
Manganese	4.2		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	33.9		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	0.70		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.70	H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	4.4		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.95	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	30.0		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201008-RA-27 — Lab Sample ID: 500-189067-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.43	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	2.6		2.0	0.50	ug/L	1		6020A	Dissolved
Iron	507		100	46.7	ug/L	1		6020A	Dissolved
Manganese	32.2		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	91.9		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	4.0		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.62	H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	3.6		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.70	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	79.6		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201008-RA-28 — Lab Sample ID: 500-189067-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Naphthalene	0.32	J	0.82	0.25	ug/L	1		8270D	Total/NA
Copper	0.79	J	2.0	0.50	ug/L	1		6020A	Dissolved
Manganese	3.3		2.5	0.79	ug/L	1		6020A	Dissolved
Hardness as calcium carbonate	87.8		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	0.26		0.20	0.17	mg/L	1		300.0	Total/NA
Nitrate as N	0.27	H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	1.3		0.20	0.095	mg/L	1		300.0	Total/NA
Total Organic Carbon - Duplicates	0.90	J	1.0	0.47	mg/L	1		9060A	Total/NA
Alkalinity	68.2		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201008-RA-29 — Lab Sample ID: 500-189067-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.62		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	0.71		0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	7.2		1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	25		0.78	0.24	ug/L	1		8270D	Total/NA
Methane	9.8		1.0	0.17	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	5000		200	180	ug/L	2000		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample ID: W-201008-RA-29 (Continued) — Lab Sample ID: 500-189067-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.93	J	1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.5	J	2.0	0.50	ug/L	1		6020A	Dissolved
Iron	14300		100	46.7	ug/L	1		6020A	Dissolved
Manganese	7470		12.5	4.0	ug/L	5		6020A	Dissolved
Hardness as calcium carbonate	296		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	26.7		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	0.084	J H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	24.6		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	47.0		2.0	0.94	mg/L	2		9060A	Total/NA
Alkalinity	242		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: W-201008-RA-30 — Lab Sample ID: 500-189067-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Toluene	0.57		0.50	0.15	ug/L	1		8260B	Total/NA
Ethylbenzene	0.57		0.50	0.18	ug/L	1		8260B	Total/NA
Xylenes, Total	7.7		1.0	0.22	ug/L	1		8260B	Total/NA
Naphthalene	26		0.83	0.26	ug/L	1		8270D	Total/NA
Methane	8.9		1.0	0.17	ug/L	1		RSK-175	Total/NA
Pentachlorophenol	4800		110	98	ug/L	1000		8151A	Total/NA
Arsenic	1.0		1.0	0.23	ug/L	1		6020A	Dissolved
Copper	1.3	J	2.0	0.50	ug/L	1		6020A	Dissolved
Iron	14200		100	46.7	ug/L	1		6020A	Dissolved
Manganese	7310		12.5	4.0	ug/L	5		6020A	Dissolved
Hardness as calcium carbonate	283		0.91	0.46	mg/L	1		SM 2340B	Total/NA
Chloride	31.6		2.0	1.7	mg/L	10		300.0	Total/NA
Nitrate as N	0.076	J H	0.20	0.068	mg/L	1		300.0	Total/NA
Sulfate	29.2		2.0	0.95	mg/L	10		300.0	Total/NA
Total Organic Carbon - Duplicates	45.8		2.0	0.94	mg/L	2		9060A	Total/NA
Alkalinity	244		5.0	3.7	mg/L	1		SM 2320B	Total/NA

Client Sample ID: Trip Blank — Lab Sample ID: 500-189067-11

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CHI
8270D	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CHI
RSK-175	Dissolved Gases (GC)	RSK	TAL CAN
8151A	Herbicides (GC)	SW846	TAL CHI
6020A	Metals (ICP/MS)	SW846	TAL CHI
SM 2340B	Total Hardness (as CaCO3) by calculation	SM	TAL CHI
300.0	Anions, Ion Chromatography	MCAWW	TAL CHI
9060A	Organic Carbon, Total (TOC)	SW846	TAL CHI
SM 2320B	Alkalinity	SM	TAL CHI
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	TAL CHI
3010A	Preparation, Total Metals	SW846	TAL CHI
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
8151A	Extraction (Herbicides)	SW846	TAL CHI

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-189067-1	W-201007-RA-20	Water	10/07/20 16:19	10/09/20 09:40	
500-189067-2	W-201007-RA-24	Water	10/07/20 16:19	10/09/20 09:40	
500-189067-3	W-201007-RA-22	Water	10/07/20 17:30	10/09/20 09:40	
500-189067-4	W-201007-RA-23	Water	10/07/20 17:30	10/09/20 09:40	
500-189067-5	W-201008-RA-25	Water	10/08/20 11:55	10/09/20 09:40	
500-189067-6	W-201008-RA-26	Water	10/08/20 11:50	10/09/20 09:40	
500-189067-7	W-201008-RA-27	Water	10/08/20 11:55	10/09/20 09:40	
500-189067-8	W-201008-RA-28	Water	10/08/20 12:45	10/09/20 09:40	
500-189067-9	W-201008-RA-29	Water	10/08/20 13:15	10/09/20 09:40	
500-189067-10	W-201008-RA-30	Water	10/08/20 13:15	10/09/20 09:40	
500-189067-11	Trip Blank	Water	10/07/20 00:00	10/09/20 09:40	

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-20

Date Collected: 10/07/20 16:19
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-1

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/14/20 03:58	1
Toluene	**0.89**		0.50	0.15	ug/L			10/14/20 03:58	1
Ethylbenzene	**1.2**		0.50	0.18	ug/L			10/14/20 03:58	1
Xylenes, Total	**17**		1.0	0.22	ug/L			10/14/20 03:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*		*10/14/20 03:58*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*10/14/20 03:58*	*1*
4-Bromofluorobenzene (Surr)	*85*		*72 - 124*		*10/14/20 03:58*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/14/20 03:58*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**33**		0.79	0.25	ug/L		10/13/20 06:33	10/14/20 04:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*36 - 120*	*10/13/20 06:33*	*10/14/20 04:37*	*1*
2-Fluorobiphenyl (Surr)	*69*		*34 - 110*	*10/13/20 06:33*	*10/14/20 04:37*	*1*
Terphenyl-d14 (Surr)	*107*		*40 - 145*	*10/13/20 06:33*	*10/14/20 04:37*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**5.2**		1.0	0.17	ug/L			10/13/20 16:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*110*		*60 - 140*		*10/13/20 16:26*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**8300**		200	180	ug/L		10/14/20 08:13	10/20/20 16:02	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*0*	*D*	*25 - 130*	*10/14/20 08:13*	*10/20/20 16:02*	*2000*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**14.8**		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 18:53	1
Copper	**1.4**	**J**	2.0	0.50	ug/L		10/13/20 08:43	10/13/20 18:53	1
Iron	**14200**		100	46.7	ug/L		10/13/20 08:43	10/13/20 18:53	1
Manganese	**2440**		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 18:53	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 18:53	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**270**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**34.3**		2.0	1.7	mg/L			10/10/20 17:39	10
Nitrate as N	**0.11**	**J H**	0.20	0.068	mg/L			10/10/20 13:50	1
Sulfate	**16.9**		2.0	0.95	mg/L			10/10/20 17:39	10
Total Organic Carbon - Duplicates	**29.1**		1.0	0.47	mg/L			10/25/20 16:53	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-20
Date Collected: 10/07/20 16:19
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-1
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	233		5.0	3.7	mg/L			10/17/20 14:17	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-24

Date Collected: 10/07/20 16:19
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-2

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/14/20 04:25	1
Toluene	**1.2**		0.50	0.15	ug/L			10/14/20 04:25	1
Ethylbenzene	**1.5**		0.50	0.18	ug/L			10/14/20 04:25	1
Xylenes, Total	**21**		1.0	0.22	ug/L			10/14/20 04:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/14/20 04:25*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*10/14/20 04:25*	*1*
4-Bromofluorobenzene (Surr)	*84*		*72 - 124*		*10/14/20 04:25*	*1*
Dibromofluoromethane	*96*		*75 - 120*		*10/14/20 04:25*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**33**		0.77	0.24	ug/L		10/13/20 06:33	10/14/20 05:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*86*		*36 - 120*	*10/13/20 06:33*	*10/14/20 05:04*	*1*
2-Fluorobiphenyl (Surr)	*71*		*34 - 110*	*10/13/20 06:33*	*10/14/20 05:04*	*1*
Terphenyl-d14 (Surr)	*98*		*40 - 145*	*10/13/20 06:33*	*10/14/20 05:04*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**4.6**		1.0	0.17	ug/L			10/13/20 16:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*109*		*60 - 140*		*10/13/20 16:43*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**7900**		190	170	ug/L		10/14/20 08:13	10/20/20 16:21	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*0*	*D*	*25 - 130*	*10/14/20 08:13*	*10/20/20 16:21*	*2000*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**15.5**		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 18:57	1
Copper	**1.1**	**J**	2.0	0.50	ug/L		10/13/20 08:43	10/13/20 18:57	1
Iron	**14800**		100	46.7	ug/L		10/13/20 08:43	10/13/20 18:57	1
Manganese	**2590**		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 18:57	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 18:57	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**276**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**36.7**		2.0	1.7	mg/L			10/10/20 17:51	10
Nitrate as N	**0.076**	**J H**	0.20	0.068	mg/L			10/10/20 14:03	1
Sulfate	**18.4**		2.0	0.95	mg/L			10/10/20 17:51	10
Total Organic Carbon - Duplicates	**29.0**		1.0	0.47	mg/L			10/25/20 17:01	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-24
Date Collected: 10/07/20 16:19
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-2
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	234		5.0	3.7	mg/L			10/17/20 14:07	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-22

Date Collected: 10/07/20 17:30
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-3

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/14/20 04:50	1
Toluene	<0.15		0.50	0.15	ug/L			10/14/20 04:50	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/14/20 04:50	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/14/20 04:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/14/20 04:50*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*10/14/20 04:50*	*1*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*10/14/20 04:50*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/14/20 04:50*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.24		0.77	0.24	ug/L		10/13/20 06:33	10/14/20 00:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*82*		*36 - 120*	*10/13/20 06:33*	*10/14/20 00:56*	*1*
2-Fluorobiphenyl (Surr)	*84*		*34 - 110*	*10/13/20 06:33*	*10/14/20 00:56*	*1*
Terphenyl-d14 (Surr)	*105*		*40 - 145*	*10/13/20 06:33*	*10/14/20 00:56*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**6.6**		1.0	0.17	ug/L			10/13/20 18:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/13/20 18:25*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**0.49**		0.095	0.086	ug/L		10/14/20 08:13	10/20/20 04:43	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*74*		*25 - 130*	*10/14/20 08:13*	*10/20/20 04:43*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.24**	**J**	1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:00	1
Copper	**0.60**	**J**	2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:00	1
Iron	**1770**	**F1**	100	46.7	ug/L		10/13/20 08:43	10/13/20 19:00	1
Manganese	**25.7**		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 19:00	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:00	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**280**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**25.2**	**F1**	2.0	1.7	mg/L			10/20/20 12:35	10
Nitrate as N	**2.3**	**H**	0.20	0.068	mg/L			10/10/20 14:15	1
Sulfate	**7.7**		0.20	0.095	mg/L			10/10/20 14:15	1
Total Organic Carbon - Duplicates	**1.1**		1.0	0.47	mg/L			10/25/20 17:08	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-22
Date Collected: 10/07/20 17:30
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-3
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	256		5.0	3.7	mg/L			10/17/20 18:30	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-23

Date Collected: 10/07/20 17:30
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-4

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/14/20 05:16	1
Toluene	<0.15		0.50	0.15	ug/L			10/14/20 05:16	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/14/20 05:16	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/14/20 05:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/14/20 05:16*	*1*
Toluene-d8 (Surr)	*94*		*75 - 120*		*10/14/20 05:16*	*1*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*		*10/14/20 05:16*	*1*
Dibromofluoromethane	*98*		*75 - 120*		*10/14/20 05:16*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.79	0.25	ug/L		10/13/20 06:33	10/14/20 01:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*87*		*36 - 120*	*10/13/20 06:33*	*10/14/20 01:23*	*1*
2-Fluorobiphenyl (Surr)	*88*		*34 - 110*	*10/13/20 06:33*	*10/14/20 01:23*	*1*
Terphenyl-d14 (Surr)	*107*		*40 - 145*	*10/13/20 06:33*	*10/14/20 01:23*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.085	^c	0.095	0.085	ug/L		10/14/20 08:13	10/17/20 03:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*130*		*25 - 130*	*10/14/20 08:13*	*10/17/20 03:01*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:24	1
Copper	<0.50		2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:24	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:43	10/13/20 19:24	1
Manganese	<0.79		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 19:24	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:24	1

Client Sample ID: W-201008-RA-25

Date Collected: 10/08/20 11:55
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-5

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/14/20 05:41	1
Toluene	<0.15		0.50	0.15	ug/L			10/14/20 05:41	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/14/20 05:41	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/14/20 05:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*98*		*75 - 126*		*10/14/20 05:41*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*10/14/20 05:41*	*1*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*10/14/20 05:41*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/14/20 05:41*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.23		0.74	0.23	ug/L		10/13/20 06:33	10/14/20 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*85*		*36 - 120*	*10/13/20 06:33*	*10/14/20 01:51*	*1*
2-Fluorobiphenyl (Surr)	*88*		*34 - 110*	*10/13/20 06:33*	*10/14/20 01:51*	*1*
Terphenyl-d14 (Surr)	*111*		*40 - 145*	*10/13/20 06:33*	*10/14/20 01:51*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.089	^c	0.099	0.089	ug/L		10/14/20 08:13	10/17/20 03:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*122*		*25 - 130*	*10/14/20 08:13*	*10/17/20 03:21*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:28	1
Copper	<0.50		2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:28	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:43	10/13/20 19:28	1
Manganese	<0.79		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 19:28	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:28	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-26

Date Collected: 10/08/20 11:50
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-6

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/16/20 13:11	1
Toluene	<0.15		0.50	0.15	ug/L			10/16/20 13:11	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/16/20 13:11	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/16/20 13:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*		*10/16/20 13:11*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*10/16/20 13:11*	*1*
4-Bromofluorobenzene (Surr)	*113*		*72 - 124*		*10/16/20 13:11*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/16/20 13:11*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.82	0.25	ug/L		10/13/20 06:33	10/14/20 02:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*74*		*36 - 120*	*10/13/20 06:33*	*10/14/20 02:18*	*1*
2-Fluorobiphenyl (Surr)	*76*		*34 - 110*	*10/13/20 06:33*	*10/14/20 02:18*	*1*
Terphenyl-d14 (Surr)	*97*		*40 - 145*	*10/13/20 06:33*	*10/14/20 02:18*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 19:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*109*		*60 - 140*		*10/13/20 19:16*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.091	^c	0.10	0.091	ug/L		10/14/20 08:13	10/17/20 03:40	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*123*		*25 - 130*	*10/14/20 08:13*	*10/17/20 03:40*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:31	1
Copper	**6.7**		2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:31	1
Iron	**60.1**	**J**	100	46.7	ug/L		10/13/20 08:43	10/13/20 19:31	1
Manganese	**4.2**		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 19:31	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:31	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**33.9**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.70**		0.20	0.17	mg/L			10/10/20 14:53	1
Nitrate as N	**0.70**	**H**	0.20	0.068	mg/L			10/10/20 14:53	1
Sulfate	**4.4**		0.20	0.095	mg/L			10/10/20 14:53	1
Total Organic Carbon - Duplicates	**0.95**	**J**	1.0	0.47	mg/L			10/25/20 17:37	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-26
Date Collected: 10/08/20 11:50
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-6
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	30.0		5.0	3.7	mg/L			10/17/20 18:35	1

Client Sample ID: W-201008-RA-27

Date Collected: 10/08/20 11:55
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-7

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/16/20 13:36	1
Toluene	<0.15		0.50	0.15	ug/L			10/16/20 13:36	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/16/20 13:36	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/16/20 13:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*91*		*75 - 126*		*10/16/20 13:36*	*1*
Toluene-d8 (Surr)	*102*		*75 - 120*		*10/16/20 13:36*	*1*
4-Bromofluorobenzene (Surr)	*116*		*72 - 124*		*10/16/20 13:36*	*1*
Dibromofluoromethane	*91*		*75 - 120*		*10/16/20 13:36*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.27		0.86	0.27	ug/L		10/13/20 06:33	10/14/20 02:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*80*		*36 - 120*	*10/13/20 06:33*	*10/14/20 02:46*	*1*
2-Fluorobiphenyl (Surr)	*85*		*34 - 110*	*10/13/20 06:33*	*10/14/20 02:46*	*1*
Terphenyl-d14 (Surr)	*96*		*40 - 145*	*10/13/20 06:33*	*10/14/20 02:46*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/13/20 19:33*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.095	^c	0.11	0.095	ug/L		10/14/20 08:13	10/17/20 03:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*108*		*25 - 130*	*10/14/20 08:13*	*10/17/20 03:59*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.43**	**J**	1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:35	1
Copper	**2.6**		2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:35	1
Iron	**507**		100	46.7	ug/L		10/13/20 08:43	10/13/20 19:35	1
Manganese	**32.2**		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 19:35	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:35	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**91.9**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**4.0**		0.20	0.17	mg/L			10/10/20 15:06	1
Nitrate as N	**0.62**	**H**	0.20	0.068	mg/L			10/10/20 15:06	1
Sulfate	**3.6**		0.20	0.095	mg/L			10/10/20 15:06	1
Total Organic Carbon - Duplicates	**0.70**	**J**	1.0	0.47	mg/L			10/25/20 17:44	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-27
Date Collected: 10/08/20 11:55
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-7
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	79.6		5.0	3.7	mg/L			10/17/20 18:41	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-28

Date Collected: 10/08/20 12:45
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-8

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/16/20 14:01	1
Toluene	<0.15		0.50	0.15	ug/L			10/16/20 14:01	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/16/20 14:01	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/16/20 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*10/16/20 14:01*	*1*
Toluene-d8 (Surr)	*101*		*75 - 120*		*10/16/20 14:01*	*1*
4-Bromofluorobenzene (Surr)	*115*		*72 - 124*		*10/16/20 14:01*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/16/20 14:01*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**0.32**	**J**	0.82	0.25	ug/L		10/13/20 06:33	10/14/20 03:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*68*		*36 - 120*	*10/13/20 06:33*	*10/14/20 03:14*	*1*
2-Fluorobiphenyl (Surr)	*74*		*34 - 110*	*10/13/20 06:33*	*10/14/20 03:14*	*1*
Terphenyl-d14 (Surr)	*95*		*40 - 145*	*10/13/20 06:33*	*10/14/20 03:14*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 19:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*112*		*60 - 140*		*10/13/20 19:51*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.10	^c	0.11	0.10	ug/L		10/14/20 08:13	10/17/20 04:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*124*		*25 - 130*	*10/14/20 08:13*	*10/17/20 04:18*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:38	1
Copper	**0.79**	**J**	2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:38	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:43	10/13/20 19:38	1
Manganese	**3.3**		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 19:38	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:38	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**87.8**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**0.26**		0.20	0.17	mg/L			10/10/20 15:19	1
Nitrate as N	**0.27**	**H**	0.20	0.068	mg/L			10/10/20 15:19	1
Sulfate	**1.3**		0.20	0.095	mg/L			10/10/20 15:19	1
Total Organic Carbon - Duplicates	**0.90**	**J**	1.0	0.47	mg/L			10/25/20 17:51	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-28
Date Collected: 10/08/20 12:45
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-8
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	68.2		5.0	3.7	mg/L			10/17/20 18:47	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-29

Date Collected: 10/08/20 13:15
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-9

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/16/20 14:26	1
Toluene	**0.62**		0.50	0.15	ug/L			10/16/20 14:26	1
Ethylbenzene	**0.71**		0.50	0.18	ug/L			10/16/20 14:26	1
Xylenes, Total	**7.2**		1.0	0.22	ug/L			10/16/20 14:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*92*		*75 - 126*		*10/16/20 14:26*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/16/20 14:26*	*1*
4-Bromofluorobenzene (Surr)	*105*		*72 - 124*		*10/16/20 14:26*	*1*
Dibromofluoromethane	*95*		*75 - 120*		*10/16/20 14:26*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**25**		0.78	0.24	ug/L		10/13/20 06:33	10/14/20 03:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*79*		*36 - 120*	*10/13/20 06:33*	*10/14/20 03:41*	*1*
2-Fluorobiphenyl (Surr)	*68*		*34 - 110*	*10/13/20 06:33*	*10/14/20 03:41*	*1*
Terphenyl-d14 (Surr)	*100*		*40 - 145*	*10/13/20 06:33*	*10/14/20 03:41*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**9.8**		1.0	0.17	ug/L			10/13/20 20:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*111*		*60 - 140*		*10/13/20 20:08*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**5000**		200	180	ug/L		10/14/20 08:13	10/20/20 16:40	2000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*0*	*D*	*25 - 130*	*10/14/20 08:13*	*10/20/20 16:40*	*2000*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.93**	**J**	1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:42	1
Copper	**1.5**	**J**	2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:42	1
Iron	**14300**		100	46.7	ug/L		10/13/20 08:43	10/13/20 19:42	1
Manganese	**7470**		12.5	4.0	ug/L		10/13/20 08:43	10/14/20 11:23	5
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:42	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**296**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**26.7**		2.0	1.7	mg/L			10/20/20 13:13	10
Nitrate as N	**0.084**	**J H**	0.20	0.068	mg/L			10/10/20 15:57	1
Sulfate	**24.6**		2.0	0.95	mg/L			10/20/20 13:13	10
Total Organic Carbon - Duplicates	**47.0**		2.0	0.94	mg/L			10/26/20 16:40	2

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-29
Date Collected: 10/08/20 13:15
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-9
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	242		5.0	3.7	mg/L			10/17/20 13:19	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-30

Date Collected: 10/08/20 13:15
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-10

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/18/20 15:05	1
Toluene	**0.57**		0.50	0.15	ug/L			10/18/20 15:05	1
Ethylbenzene	**0.57**		0.50	0.18	ug/L			10/18/20 15:05	1
Xylenes, Total	**7.7**		1.0	0.22	ug/L			10/18/20 15:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*87*		*75 - 126*		*10/18/20 15:05*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*10/18/20 15:05*	*1*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*		*10/18/20 15:05*	*1*
Dibromofluoromethane	*87*		*75 - 120*		*10/18/20 15:05*	*1*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	**26**		0.83	0.26	ug/L		10/13/20 06:33	10/14/20 04:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*76*		*36 - 120*	*10/13/20 06:33*	*10/14/20 04:09*	*1*
2-Fluorobiphenyl (Surr)	*62*		*34 - 110*	*10/13/20 06:33*	*10/14/20 04:09*	*1*
Terphenyl-d14 (Surr)	*100*		*40 - 145*	*10/13/20 06:33*	*10/14/20 04:09*	*1*

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	**8.9**		1.0	0.17	ug/L			10/15/20 09:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*106*		*60 - 140*		*10/15/20 09:55*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**4800**		110	98	ug/L		10/14/20 08:13	10/19/20 21:39	1000

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*0*	*D*	*25 - 130*	*10/14/20 08:13*	*10/19/20 21:39*	*1000*

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.0**		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 19:45	1
Copper	**1.3**	**J**	2.0	0.50	ug/L		10/13/20 08:43	10/13/20 19:45	1
Iron	**14200**		100	46.7	ug/L		10/13/20 08:43	10/13/20 19:45	1
Manganese	**7310**		12.5	4.0	ug/L		10/13/20 08:43	10/14/20 11:26	5
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 19:45	1

Method: SM 2340B - Total Hardness (as CaCO3) by calculation

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Hardness as calcium carbonate	**283**		0.91	0.46	mg/L		10/12/20 08:41	10/13/20 06:31	1

General Chemistry

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**31.6**		2.0	1.7	mg/L			10/22/20 15:08	10
Nitrate as N	**0.076**	**J H**	0.20	0.068	mg/L			10/10/20 16:10	1
Sulfate	**29.2**		2.0	0.95	mg/L			10/20/20 13:16	10
Total Organic Carbon - Duplicates	**45.8**		2.0	0.94	mg/L			10/26/20 16:47	2

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-30
Date Collected: 10/08/20 13:15
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-10
Matrix: Water

General Chemistry (Continued)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	244		5.0	3.7	mg/L			10/17/20 12:58	1

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: Trip Blank

Date Collected: 10/07/20 00:00
Date Received: 10/09/20 09:40

Lab Sample ID: 500-189067-11

Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 12:37	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 12:37	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 12:37	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 12:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*10/15/20 12:37*	*1*
Toluene-d8 (Surr)	*98*		*75 - 120*		*10/15/20 12:37*	*1*
4-Bromofluorobenzene (Surr)	*113*		*72 - 124*		*10/15/20 12:37*	*1*
Dibromofluoromethane	*97*		*75 - 120*		*10/15/20 12:37*	*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
^c	CCV Recovery is outside acceptance limits.
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.
F2	MS/MSD RPD exceeds control limits
X	Surrogate recovery exceeds control limits

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
J	Reported value was between the limit of detection and the limit of quantitation.

General Chemistry

Qualifier	Qualifier Description
E	Result exceeded calibration range.
F1	MS and/or MSD recovery exceeds control limits.
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.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

Glossary (Continued)

Abbreviation	These commonly used abbreviations may or may not be present in this report.
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

GC/MS VOA

Analysis Batch: 566345

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	8260B	
500-189067-2	W-201007-RA-24	Total/NA	Water	8260B	
500-189067-3	W-201007-RA-22	Total/NA	Water	8260B	
500-189067-4	W-201007-RA-23	Total/NA	Water	8260B	
500-189067-5	W-201008-RA-25	Total/NA	Water	8260B	
MB 500-566345/8	Method Blank	Total/NA	Water	8260B	
LCS 500-566345/6	Lab Control Sample	Total/NA	Water	8260B	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	8260B	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	8260B	

Analysis Batch: 566668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-11	Trip Blank	Total/NA	Water	8260B	
MB 500-566668/7	Method Blank	Total/NA	Water	8260B	
LCS 500-566668/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 566885

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-6	W-201008-RA-26	Total/NA	Water	8260B	
500-189067-7	W-201008-RA-27	Total/NA	Water	8260B	
500-189067-8	W-201008-RA-28	Total/NA	Water	8260B	
500-189067-9	W-201008-RA-29	Total/NA	Water	8260B	
MB 500-566885/6	Method Blank	Total/NA	Water	8260B	
LCS 500-566885/4	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 567128

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-10	W-201008-RA-30	Total/NA	Water	8260B	
MB 500-567128/6	Method Blank	Total/NA	Water	8260B	
LCS 500-567128/4	Lab Control Sample	Total/NA	Water	8260B	

GC/MS Semi VOA

Prep Batch: 566172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	3510C	
500-189067-2	W-201007-RA-24	Total/NA	Water	3510C	
500-189067-3	W-201007-RA-22	Total/NA	Water	3510C	
500-189067-4	W-201007-RA-23	Total/NA	Water	3510C	
500-189067-5	W-201008-RA-25	Total/NA	Water	3510C	
500-189067-6	W-201008-RA-26	Total/NA	Water	3510C	
500-189067-7	W-201008-RA-27	Total/NA	Water	3510C	
500-189067-8	W-201008-RA-28	Total/NA	Water	3510C	
500-189067-9	W-201008-RA-29	Total/NA	Water	3510C	
500-189067-10	W-201008-RA-30	Total/NA	Water	3510C	
MB 500-566172/1-A	Method Blank	Total/NA	Water	3510C	
LCS 500-566172/2-A	Lab Control Sample	Total/NA	Water	3510C	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	3510C	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	3510C	

GC/MS Semi VOA

Analysis Batch: 566388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	8270D	566172
500-189067-2	W-201007-RA-24	Total/NA	Water	8270D	566172
500-189067-3	W-201007-RA-22	Total/NA	Water	8270D	566172
500-189067-4	W-201007-RA-23	Total/NA	Water	8270D	566172
500-189067-5	W-201008-RA-25	Total/NA	Water	8270D	566172
500-189067-6	W-201008-RA-26	Total/NA	Water	8270D	566172
500-189067-7	W-201008-RA-27	Total/NA	Water	8270D	566172
500-189067-8	W-201008-RA-28	Total/NA	Water	8270D	566172
500-189067-9	W-201008-RA-29	Total/NA	Water	8270D	566172
500-189067-10	W-201008-RA-30	Total/NA	Water	8270D	566172
MB 500-566172/1-A	Method Blank	Total/NA	Water	8270D	566172
LCS 500-566172/2-A	Lab Control Sample	Total/NA	Water	8270D	566172
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	8270D	566172
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	8270D	566172

GC VOA

Analysis Batch: 455673

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	RSK-175	
500-189067-2	W-201007-RA-24	Total/NA	Water	RSK-175	
MB 240-455673/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455673/4	Lab Control Sample	Total/NA	Water	RSK-175	

Analysis Batch: 455674

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-3	W-201007-RA-22	Total/NA	Water	RSK-175	
500-189067-6	W-201008-RA-26	Total/NA	Water	RSK-175	
500-189067-7	W-201008-RA-27	Total/NA	Water	RSK-175	
500-189067-8	W-201008-RA-28	Total/NA	Water	RSK-175	
500-189067-9	W-201008-RA-29	Total/NA	Water	RSK-175	
MB 240-455674/30	Method Blank	Total/NA	Water	RSK-175	
LCS 240-455674/31	Lab Control Sample	Total/NA	Water	RSK-175	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	RSK-175	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	RSK-175	

Analysis Batch: 456122

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-10	W-201008-RA-30	Total/NA	Water	RSK-175	
MB 240-456122/3	Method Blank	Total/NA	Water	RSK-175	
LCS 240-456122/4	Lab Control Sample	Total/NA	Water	RSK-175	

GC Semi VOA

Prep Batch: 566448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	8151A	
500-189067-2	W-201007-RA-24	Total/NA	Water	8151A	
500-189067-3	W-201007-RA-22	Total/NA	Water	8151A	
500-189067-4	W-201007-RA-23	Total/NA	Water	8151A	
500-189067-5	W-201008-RA-25	Total/NA	Water	8151A	
500-189067-6	W-201008-RA-26	Total/NA	Water	8151A	

GC Semi VOA (Continued)

Prep Batch: 566448 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-7	W-201008-RA-27	Total/NA	Water	8151A	
500-189067-8	W-201008-RA-28	Total/NA	Water	8151A	
500-189067-9	W-201008-RA-29	Total/NA	Water	8151A	
500-189067-10	W-201008-RA-30	Total/NA	Water	8151A	
MB 500-566448/1-A	Method Blank	Total/NA	Water	8151A	
LCS 500-566448/2-A	Lab Control Sample	Total/NA	Water	8151A	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	8151A	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	8151A	

Analysis Batch: 567033

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-4	W-201007-RA-23	Total/NA	Water	8151A	566448
500-189067-5	W-201008-RA-25	Total/NA	Water	8151A	566448
500-189067-6	W-201008-RA-26	Total/NA	Water	8151A	566448
500-189067-7	W-201008-RA-27	Total/NA	Water	8151A	566448
500-189067-8	W-201008-RA-28	Total/NA	Water	8151A	566448
MB 500-566448/1-A	Method Blank	Total/NA	Water	8151A	566448
LCS 500-566448/2-A	Lab Control Sample	Total/NA	Water	8151A	566448

Analysis Batch: 567306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-3	W-201007-RA-22	Total/NA	Water	8151A	566448
500-189067-10	W-201008-RA-30	Total/NA	Water	8151A	566448
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	8151A	566448
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	8151A	566448

Analysis Batch: 567550

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	8151A	566448
500-189067-2	W-201007-RA-24	Total/NA	Water	8151A	566448
500-189067-9	W-201008-RA-29	Total/NA	Water	8151A	566448
MB 500-566448/1-A	Method Blank	Total/NA	Water	8151A	566448
LCS 500-566448/2-A	Lab Control Sample	Total/NA	Water	8151A	566448

Metals

Prep Batch: 566025

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	3010A	
500-189067-2	W-201007-RA-24	Total/NA	Water	3010A	
500-189067-3	W-201007-RA-22	Total/NA	Water	3010A	
500-189067-6	W-201008-RA-26	Total/NA	Water	3010A	
500-189067-7	W-201008-RA-27	Total/NA	Water	3010A	
500-189067-8	W-201008-RA-28	Total/NA	Water	3010A	
500-189067-9	W-201008-RA-29	Total/NA	Water	3010A	
500-189067-10	W-201008-RA-30	Total/NA	Water	3010A	

Analysis Batch: 566170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	SM 2340B	566025
500-189067-2	W-201007-RA-24	Total/NA	Water	SM 2340B	566025

Metals (Continued)

Analysis Batch: 566170 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-3	W-201007-RA-22	Total/NA	Water	SM 2340B	566025
500-189067-6	W-201008-RA-26	Total/NA	Water	SM 2340B	566025
500-189067-7	W-201008-RA-27	Total/NA	Water	SM 2340B	566025
500-189067-8	W-201008-RA-28	Total/NA	Water	SM 2340B	566025
500-189067-9	W-201008-RA-29	Total/NA	Water	SM 2340B	566025
500-189067-10	W-201008-RA-30	Total/NA	Water	SM 2340B	566025

Prep Batch: 566231

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Dissolved	Water	3005A	
500-189067-2	W-201007-RA-24	Dissolved	Water	3005A	
500-189067-3	W-201007-RA-22	Dissolved	Water	3005A	
500-189067-4	W-201007-RA-23	Dissolved	Water	3005A	
500-189067-5	W-201008-RA-25	Dissolved	Water	3005A	
500-189067-6	W-201008-RA-26	Dissolved	Water	3005A	
500-189067-7	W-201008-RA-27	Dissolved	Water	3005A	
500-189067-8	W-201008-RA-28	Dissolved	Water	3005A	
500-189067-9	W-201008-RA-29	Dissolved	Water	3005A	
500-189067-10	W-201008-RA-30	Dissolved	Water	3005A	
MB 500-566231/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 500-566231/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
500-189067-3 MS	W-201007-RA-22	Dissolved	Water	3005A	
500-189067-3 MSD	W-201007-RA-22	Dissolved	Water	3005A	
500-189067-3 DU	W-201007-RA-22	Dissolved	Water	3005A	

Analysis Batch: 566471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Dissolved	Water	6020A	566231
500-189067-2	W-201007-RA-24	Dissolved	Water	6020A	566231
500-189067-3	W-201007-RA-22	Dissolved	Water	6020A	566231
500-189067-4	W-201007-RA-23	Dissolved	Water	6020A	566231
500-189067-5	W-201008-RA-25	Dissolved	Water	6020A	566231
500-189067-6	W-201008-RA-26	Dissolved	Water	6020A	566231
500-189067-7	W-201008-RA-27	Dissolved	Water	6020A	566231
500-189067-8	W-201008-RA-28	Dissolved	Water	6020A	566231
500-189067-9	W-201008-RA-29	Dissolved	Water	6020A	566231
500-189067-10	W-201008-RA-30	Dissolved	Water	6020A	566231
MB 500-566231/1-A	Method Blank	Total Recoverable	Water	6020A	566231
LCS 500-566231/2-A	Lab Control Sample	Total Recoverable	Water	6020A	566231
500-189067-3 MS	W-201007-RA-22	Dissolved	Water	6020A	566231
500-189067-3 MSD	W-201007-RA-22	Dissolved	Water	6020A	566231
500-189067-3 DU	W-201007-RA-22	Dissolved	Water	6020A	566231

Analysis Batch: 566556

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-9	W-201008-RA-29	Dissolved	Water	6020A	566231
500-189067-10	W-201008-RA-30	Dissolved	Water	6020A	566231

General Chemistry

Analysis Batch: 565915

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	300.0	
500-189067-1	W-201007-RA-20	Total/NA	Water	300.0	
500-189067-2	W-201007-RA-24	Total/NA	Water	300.0	
500-189067-2	W-201007-RA-24	Total/NA	Water	300.0	
500-189067-3	W-201007-RA-22	Total/NA	Water	300.0	
500-189067-6	W-201008-RA-26	Total/NA	Water	300.0	
500-189067-7	W-201008-RA-27	Total/NA	Water	300.0	
500-189067-8	W-201008-RA-28	Total/NA	Water	300.0	
500-189067-9	W-201008-RA-29	Total/NA	Water	300.0	
500-189067-10	W-201008-RA-30	Total/NA	Water	300.0	
MB 500-565915/3	Method Blank	Total/NA	Water	300.0	
LCS 500-565915/4	Lab Control Sample	Total/NA	Water	300.0	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	300.0	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	300.0	

Analysis Batch: 567233

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	SM 2320B	
500-189067-2	W-201007-RA-24	Total/NA	Water	SM 2320B	
500-189067-3	W-201007-RA-22	Total/NA	Water	SM 2320B	
500-189067-6	W-201008-RA-26	Total/NA	Water	SM 2320B	
500-189067-7	W-201008-RA-27	Total/NA	Water	SM 2320B	
500-189067-8	W-201008-RA-28	Total/NA	Water	SM 2320B	
500-189067-9	W-201008-RA-29	Total/NA	Water	SM 2320B	
500-189067-10	W-201008-RA-30	Total/NA	Water	SM 2320B	
MB 500-567233/28	Method Blank	Total/NA	Water	SM 2320B	
MB 500-567233/3	Method Blank	Total/NA	Water	SM 2320B	
LCS 500-567233/29	Lab Control Sample	Total/NA	Water	SM 2320B	
LCS 500-567233/4	Lab Control Sample	Total/NA	Water	SM 2320B	

Analysis Batch: 567486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-3	W-201007-RA-22	Total/NA	Water	300.0	
500-189067-9	W-201008-RA-29	Total/NA	Water	300.0	
MB 500-567486/3	Method Blank	Total/NA	Water	300.0	
LCS 500-567486/4	Lab Control Sample	Total/NA	Water	300.0	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	300.0	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	300.0	

Analysis Batch: 567516

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-10	W-201008-RA-30	Total/NA	Water	300.0	
MB 500-567516/3	Method Blank	Total/NA	Water	300.0	
LCS 500-567516/4	Lab Control Sample	Total/NA	Water	300.0	

Analysis Batch: 567933

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-10	W-201008-RA-30	Total/NA	Water	300.0	
MB 500-567933/9	Method Blank	Total/NA	Water	300.0	
LCS 500-567933/10	Lab Control Sample	Total/NA	Water	300.0	

QC Association Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

General Chemistry

Analysis Batch: 568598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-1	W-201007-RA-20	Total/NA	Water	9060A	
500-189067-2	W-201007-RA-24	Total/NA	Water	9060A	
500-189067-3	W-201007-RA-22	Total/NA	Water	9060A	
500-189067-6	W-201008-RA-26	Total/NA	Water	9060A	
500-189067-7	W-201008-RA-27	Total/NA	Water	9060A	
500-189067-8	W-201008-RA-28	Total/NA	Water	9060A	
MB 500-568598/4	Method Blank	Total/NA	Water	9060A	
LCS 500-568598/5	Lab Control Sample	Total/NA	Water	9060A	
500-189067-3 MS	W-201007-RA-22	Total/NA	Water	9060A	
500-189067-3 MSD	W-201007-RA-22	Total/NA	Water	9060A	

Analysis Batch: 568789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-189067-9	W-201008-RA-29	Total/NA	Water	9060A	
500-189067-10	W-201008-RA-30	Total/NA	Water	9060A	
MB 500-568789/4	Method Blank	Total/NA	Water	9060A	
LCS 500-568789/5	Lab Control Sample	Total/NA	Water	9060A	

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)			
		DCA	TOL	BFB	DBFM
Lab Sample ID	Client Sample ID	(75-126)	(75-120)	(72-124)	(75-120)
500-189067-1	W-201007-RA-20	100	96	85	95
500-189067-2	W-201007-RA-24	99	97	84	96
500-189067-3	W-201007-RA-22	99	96	89	94
500-189067-3 MS	W-201007-RA-22	96	95	88	99
500-189067-3 MSD	W-201007-RA-22	99	95	88	100
500-189067-4	W-201007-RA-23	99	94	88	98
500-189067-5	W-201008-RA-25	98	96	89	95
500-189067-6	W-201008-RA-26	92	102	113	95
500-189067-7	W-201008-RA-27	91	102	116	91
500-189067-8	W-201008-RA-28	93	101	115	94
500-189067-9	W-201008-RA-29	92	98	105	95
500-189067-10	W-201008-RA-30	87	96	89	87
500-189067-11	Trip Blank	95	98	113	97
LCS 500-566345/6	Lab Control Sample	100	94	88	98
LCS 500-566668/5	Lab Control Sample	85	89	109	94
LCS 500-566885/4	Lab Control Sample	90	99	101	96
LCS 500-567128/4	Lab Control Sample	86	97	89	87
MB 500-566345/8	Method Blank	99	97	92	94
MB 500-566668/7	Method Blank	95	99	115	94
MB 500-566885/6	Method Blank	93	100	116	93
MB 500-567128/6	Method Blank	88	96	91	86

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane

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

Matrix: Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		NBZ	FBP	TPHL
Lab Sample ID	Client Sample ID	(36-120)	(34-110)	(40-145)
500-189067-1	W-201007-RA-20	86	69	107
500-189067-2	W-201007-RA-24	86	71	98
500-189067-3	W-201007-RA-22	82	84	105
500-189067-3 MS	W-201007-RA-22	83	81	106
500-189067-3 MSD	W-201007-RA-22	89	88	114
500-189067-4	W-201007-RA-23	87	88	107
500-189067-5	W-201008-RA-25	85	88	111
500-189067-6	W-201008-RA-26	74	76	97
500-189067-7	W-201008-RA-27	80	85	96
500-189067-8	W-201008-RA-28	68	74	95
500-189067-9	W-201008-RA-29	79	68	100
500-189067-10	W-201008-RA-30	76	62	100
LCS 500-566172/2-A	Lab Control Sample	75	73	93
MB 500-566172/1-A	Method Blank	73	73	98

Surrogate Legend

NBZ = Nitrobenzene-d5 (Surr)

FBP = 2-Fluorobiphenyl (Surr)
TPHL = 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	TFE1 (60-140)
500-189067-1	W-201007-RA-20	110
500-189067-2	W-201007-RA-24	109
500-189067-3	W-201007-RA-22	111
500-189067-3 MS	W-201007-RA-22	106
500-189067-3 MSD	W-201007-RA-22	109
500-189067-6	W-201008-RA-26	109
500-189067-7	W-201008-RA-27	111
500-189067-8	W-201008-RA-28	112
500-189067-9	W-201008-RA-29	111
500-189067-10	W-201008-RA-30	106
LCS 240-455673/4	Lab Control Sample	113
LCS 240-455674/31	Lab Control Sample	114
LCS 240-456122/4	Lab Control Sample	109
MB 240-455673/3	Method Blank	115
MB 240-455674/30	Method Blank	113
MB 240-456122/3	Method Blank	116

Surrogate Legend
TFE = 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	DCPAA1 (25-130)
500-189067-1	W-201007-RA-20	0 D
500-189067-2	W-201007-RA-24	0 D
500-189067-9	W-201008-RA-29	0 D
LCS 500-566448/2-A	Lab Control Sample	61
MB 500-566448/1-A	Method Blank	62

Surrogate Legend
DCPAA = DCAA

Method: 8151A - Herbicides (GC)

Matrix: Water **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	DCPAA2 (25-130)
500-189067-3	W-201007-RA-22	74
500-189067-3 MS	W-201007-RA-22	159 X
500-189067-3 MSD	W-201007-RA-22	152 X
500-189067-4	W-201007-RA-23	130
500-189067-5	W-201008-RA-25	122
500-189067-6	W-201008-RA-26	123
500-189067-7	W-201008-RA-27	108
500-189067-8	W-201008-RA-28	124

Surrogate Summary

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

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

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)								
Lab Sample ID	Client Sample ID	DCPAA2 (25-130)								
500-189067-10	W-201008-RA-30	0 D								
LCS 500-566448/2-A	Lab Control Sample	128								
MB 500-566448/1-A	Method Blank	120								

Surrogate Legend

DCPAA = DCAA

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

Lab Sample ID: MB 500-566345/8
Matrix: Water
Analysis Batch: 566345

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/13/20 23:37	1
Toluene	<0.15		0.50	0.15	ug/L			10/13/20 23:37	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/13/20 23:37	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/13/20 23:37	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*		*10/13/20 23:37*	*1*
Toluene-d8 (Surr)	*97*		*75 - 120*		*10/13/20 23:37*	*1*
4-Bromofluorobenzene (Surr)	*92*		*72 - 124*		*10/13/20 23:37*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/13/20 23:37*	*1*

Lab Sample ID: LCS 500-566345/6
Matrix: Water
Analysis Batch: 566345

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	48.4		ug/L		97	70 - 120
Toluene	50.0	45.5		ug/L		91	70 - 125
Ethylbenzene	50.0	46.6		ug/L		93	70 - 123
Xylenes, Total	100	87.4		ug/L		87	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*100*		*75 - 126*
Toluene-d8 (Surr)	*94*		*75 - 120*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*
Dibromofluoromethane	*98*		*75 - 120*

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 566345

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.15		50.0	48.0		ug/L		96	70 - 120
Toluene	<0.15		50.0	46.1		ug/L		92	70 - 125
Ethylbenzene	<0.18		50.0	47.6		ug/L		95	70 - 123
Xylenes, Total	<0.22		100	89.0		ug/L		89	70 - 125

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*96*		*75 - 126*
Toluene-d8 (Surr)	*95*		*75 - 120*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*
Dibromofluoromethane	*99*		*75 - 120*

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

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 566345

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.15		50.0	46.5		ug/L		93	70 - 120	3	20
Toluene	<0.15		50.0	43.2		ug/L		86	70 - 125	7	20
Ethylbenzene	<0.18		50.0	44.2		ug/L		88	70 - 123	7	20
Xylenes, Total	<0.22		100	83.2		ug/L		83	70 - 125	7	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*99*		*75 - 126*
Toluene-d8 (Surr)	*95*		*75 - 120*
4-Bromofluorobenzene (Surr)	*88*		*72 - 124*
Dibromofluoromethane	*100*		*75 - 120*

Lab Sample ID: MB 500-566668/7
Matrix: Water
Analysis Batch: 566668

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/15/20 11:44	1
Toluene	<0.15		0.50	0.15	ug/L			10/15/20 11:44	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/15/20 11:44	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/15/20 11:44	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*95*		*75 - 126*		*10/15/20 11:44*	*1*
Toluene-d8 (Surr)	*99*		*75 - 120*		*10/15/20 11:44*	*1*
4-Bromofluorobenzene (Surr)	*115*		*72 - 124*		*10/15/20 11:44*	*1*
Dibromofluoromethane	*94*		*75 - 120*		*10/15/20 11:44*	*1*

Lab Sample ID: LCS 500-566668/5
Matrix: Water
Analysis Batch: 566668

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			50.0	48.9		ug/L		98	70 - 120		
Toluene			50.0	44.7		ug/L		89	70 - 125		
Ethylbenzene			50.0	55.6		ug/L		111	70 - 123		
Xylenes, Total			100	107		ug/L		107	70 - 125		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*85*		*75 - 126*
Toluene-d8 (Surr)	*89*		*75 - 120*
4-Bromofluorobenzene (Surr)	*109*		*72 - 124*
Dibromofluoromethane	*94*		*75 - 120*

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

Lab Sample ID: MB 500-566885/6
Matrix: Water
Analysis Batch: 566885

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/16/20 12:21	1
Toluene	<0.15		0.50	0.15	ug/L			10/16/20 12:21	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/16/20 12:21	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/16/20 12:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*93*		*75 - 126*		*10/16/20 12:21*	*1*
Toluene-d8 (Surr)	*100*		*75 - 120*		*10/16/20 12:21*	*1*
4-Bromofluorobenzene (Surr)	*116*		*72 - 124*		*10/16/20 12:21*	*1*
Dibromofluoromethane	*93*		*75 - 120*		*10/16/20 12:21*	*1*

Lab Sample ID: LCS 500-566885/4
Matrix: Water
Analysis Batch: 566885

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	41.3		ug/L		83	70 - 120
Toluene	50.0	43.2		ug/L		86	70 - 125
Ethylbenzene	50.0	46.0		ug/L		92	70 - 123
Xylenes, Total	100	88.8		ug/L		89	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*90*		*75 - 126*
Toluene-d8 (Surr)	*99*		*75 - 120*
4-Bromofluorobenzene (Surr)	*101*		*72 - 124*
Dibromofluoromethane	*96*		*75 - 120*

Lab Sample ID: MB 500-567128/6
Matrix: Water
Analysis Batch: 567128

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.15		0.50	0.15	ug/L			10/18/20 11:31	1
Toluene	<0.15		0.50	0.15	ug/L			10/18/20 11:31	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			10/18/20 11:31	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			10/18/20 11:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dichloroethane-d4 (Surr)	*88*		*75 - 126*		*10/18/20 11:31*	*1*
Toluene-d8 (Surr)	*96*		*75 - 120*		*10/18/20 11:31*	*1*
4-Bromofluorobenzene (Surr)	*91*		*72 - 124*		*10/18/20 11:31*	*1*
Dibromofluoromethane	*86*		*75 - 120*		*10/18/20 11:31*	*1*

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

Lab Sample ID: LCS 500-567128/4
Matrix: Water
Analysis Batch: 567128

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	50.0	43.1		ug/L		86	70 - 120
Toluene	50.0	44.2		ug/L		88	70 - 125
Ethylbenzene	50.0	45.3		ug/L		91	70 - 123
Xylenes, Total	100	93.0		ug/L		93	70 - 125

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,2-Dichloroethane-d4 (Surr)	*86*		*75 - 126*
Toluene-d8 (Surr)	*97*		*75 - 120*
4-Bromofluorobenzene (Surr)	*89*		*72 - 124*
Dibromofluoromethane	*87*		*75 - 120*

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

Lab Sample ID: MB 500-566172/1-A
Matrix: Water
Analysis Batch: 566388

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566172

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.25		0.80	0.25	ug/L		10/13/20 06:33	10/14/20 00:01	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Nitrobenzene-d5 (Surr)	*73*		*36 - 120*	*10/13/20 06:33*	*10/14/20 00:01*	*1*
2-Fluorobiphenyl (Surr)	*73*		*34 - 110*	*10/13/20 06:33*	*10/14/20 00:01*	*1*
Terphenyl-d14 (Surr)	*98*		*40 - 145*	*10/13/20 06:33*	*10/14/20 00:01*	*1*

Lab Sample ID: LCS 500-566172/2-A
Matrix: Water
Analysis Batch: 566388

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566172

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	32.0	25.0		ug/L		78	36 - 110

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*75*		*36 - 120*
2-Fluorobiphenyl (Surr)	*73*		*34 - 110*
Terphenyl-d14 (Surr)	*93*		*40 - 145*

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 566388

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA
Prep Batch: 566172

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	<0.24		30.7	25.0		ug/L		81	36 - 110

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*83*		*36 - 120*
2-Fluorobiphenyl (Surr)	*81*		*34 - 110*

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

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 566388

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA
Prep Batch: 566172

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Terphenyl-d14 (Surr)	*106*		*40 - 145*

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 566388

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA
Prep Batch: 566172

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Naphthalene	<0.24		30.9	25.2		ug/L		82	36 - 110	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Nitrobenzene-d5 (Surr)	*89*		*36 - 120*
2-Fluorobiphenyl (Surr)	*88*		*34 - 110*
Terphenyl-d14 (Surr)	*114*		*40 - 145*

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 240-455673/3
Matrix: Water
Analysis Batch: 455673

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 10:10	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*115*		*60 - 140*		*10/13/20 10:10*	*1*

Lab Sample ID: LCS 240-455673/4
Matrix: Water
Analysis Batch: 455673

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	304		ug/L		107	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*113*		*60 - 140*

Lab Sample ID: MB 240-455674/30
Matrix: Water
Analysis Batch: 455674

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/13/20 17:51	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*113*		*60 - 140*		*10/13/20 17:51*	*1*

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

Lab Sample ID: LCS 240-455674/31
Matrix: Water
Analysis Batch: 455674

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	304		ug/L		107	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*114*		*60 - 140*

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 455674

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane	6.6		284	288		ug/L		99	50 - 150		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*106*		*60 - 140*

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 455674

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Methane	6.6		284	295		ug/L		101	50 - 150	2	30

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1,1,1-Trifluoroethane	*109*		*60 - 140*

Lab Sample ID: MB 240-456122/3
Matrix: Water
Analysis Batch: 456122

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Methane	<0.17		1.0	0.17	ug/L			10/15/20 09:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,1,1-Trifluoroethane	*116*		*60 - 140*		*10/15/20 09:21*	*1*

Lab Sample ID: LCS 240-456122/4
Matrix: Water
Analysis Batch: 456122

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Methane			284	293		ug/L		103	80 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1,1,1-Trifluoroethane	*109*		*60 - 140*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-566448/1-A
Matrix: Water
Analysis Batch: 567033

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566448

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/14/20 08:13	10/16/20 22:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*120*		*25 - 130*	*10/14/20 08:13*	*10/16/20 22:31*	*1*

Lab Sample ID: MB 500-566448/1-A
Matrix: Water
Analysis Batch: 567550

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 566448

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.090		0.10	0.090	ug/L		10/14/20 08:13	10/20/20 15:23	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
DCAA	*62*		*25 - 130*	*10/14/20 08:13*	*10/20/20 15:23*	*1*

Lab Sample ID: LCS 500-566448/2-A
Matrix: Water
Analysis Batch: 567033

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566448

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol			2.50	2.05		ug/L		82	40 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*128*		*25 - 130*

Lab Sample ID: LCS 500-566448/2-A
Matrix: Water
Analysis Batch: 567550

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 566448

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol			2.50	1.78		ug/L		71	40 - 122		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
DCAA	*61*		*25 - 130*

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 567306

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA
Prep Batch: 566448

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Pentachlorophenol	0.49		2.40	2.02		ug/L		64	40 - 122		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
DCAA	*159*	*X*	*25 - 130*

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

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 567306

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA
Prep Batch: 566448

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol	0.49		2.46	1.59	F2	ug/L		45	40 - 122	24	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
DCAA	*152*	*X*	*25 - 130*

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 500-566231/1-A
Matrix: Water
Analysis Batch: 566471

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 566231

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.23		1.0	0.23	ug/L		10/13/20 08:43	10/13/20 18:05	1
Copper	<0.50		2.0	0.50	ug/L		10/13/20 08:43	10/13/20 18:05	1
Iron	<46.7		100	46.7	ug/L		10/13/20 08:43	10/13/20 18:05	1
Manganese	<0.79		2.5	0.79	ug/L		10/13/20 08:43	10/13/20 18:05	1
Zinc	<6.9		20.0	6.9	ug/L		10/13/20 08:43	10/13/20 18:05	1

Lab Sample ID: LCS 500-566231/2-A
Matrix: Water
Analysis Batch: 566471

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 566231

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	100	106.0		ug/L		106	80 - 120
Copper	250	263.4		ug/L		105	80 - 120
Iron	1000	1032		ug/L		103	80 - 120
Manganese	500	530.4		ug/L		106	80 - 120
Zinc	500	513.3		ug/L		103	80 - 120

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 566471

Client Sample ID: W-201007-RA-22
Prep Type: Dissolved
Prep Batch: 566231

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.24	J	100	111.6		ug/L		111	75 - 125
Copper	0.60	J	250	265.4		ug/L		106	75 - 125
Iron	1770	F1	1000	1759	F1	ug/L		-0.9	75 - 125
Manganese	25.7		500	564.2		ug/L		108	75 - 125
Zinc	<6.9		500	521.7		ug/L		104	75 - 125

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 566471

Client Sample ID: W-201007-RA-22
Prep Type: Dissolved
Prep Batch: 566231

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	0.24	J	100	110.6		ug/L		110	75 - 125	1	20
Copper	0.60	J	250	264.3		ug/L		105	75 - 125	0	20
Iron	1770	F1	1000	1709	F1	ug/L		-6	75 - 125	3	20
Manganese	25.7		500	557.1		ug/L		106	75 - 125	1	20

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

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 566471

Client Sample ID: W-201007-RA-22
Prep Type: Dissolved
Prep Batch: 566231

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Zinc	<6.9		500	516.3		ug/L		103	75 - 125	1	20

Lab Sample ID: 500-189067-3 DU
Matrix: Water
Analysis Batch: 566471

Client Sample ID: W-201007-RA-22
Prep Type: Dissolved
Prep Batch: 566231

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.24	J	0.276	J	ug/L		13	20
Copper	0.60	J	0.580	J	ug/L		4	20
Iron	1770	F1	1784		ug/L		0.9	20
Manganese	25.7		25.40		ug/L		1	20
Zinc	<6.9		<6.9		ug/L		NC	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 500-565915/3
Matrix: Water
Analysis Batch: 565915

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/10/20 13:24	1
Nitrate as N	<0.068		0.20	0.068	mg/L			10/10/20 13:24	1
Sulfate	<0.095		0.20	0.095	mg/L			10/10/20 13:24	1

Lab Sample ID: LCS 500-565915/4
Matrix: Water
Analysis Batch: 565915

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.06		mg/L		102	90 - 110
Nitrate as N	2.00	2.07		mg/L		104	90 - 110
Sulfate	5.00	5.32		mg/L		106	90 - 110

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 565915

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.3	H	1.00	3.45	H	mg/L		114	80 - 120
Sulfate	7.7		2.50	10.64	E	mg/L		117	80 - 120

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 565915

Client Sample ID: W-201007-RA-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	2.3	H	1.00	3.49	H	mg/L		118	80 - 120	1	20
Sulfate	7.7		2.50	10.70	E	mg/L		120	80 - 120	1	20

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: MB 500-567486/3
Matrix: Water
Analysis Batch: 567486

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/20/20 07:08	1

Lab Sample ID: LCS 500-567486/4
Matrix: Water
Analysis Batch: 567486

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.10		mg/L		103	90 - 110

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 567486

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	25.2	F1	10.0	38.97	F1	mg/L		138	80 - 120

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 567486

Client Sample ID: W-201007-RA-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	25.2	F1	10.0	39.13	F1	mg/L		140	80 - 120	0	20

Lab Sample ID: MB 500-567516/3
Matrix: Water
Analysis Batch: 567516

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.095		0.20	0.095	mg/L			10/20/20 07:14	1

Lab Sample ID: LCS 500-567516/4
Matrix: Water
Analysis Batch: 567516

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	5.51		mg/L		110	90 - 110

Lab Sample ID: MB 500-567933/9
Matrix: Water
Analysis Batch: 567933

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.17		0.20	0.17	mg/L			10/22/20 13:05	1

Lab Sample ID: LCS 500-567933/10
Matrix: Water
Analysis Batch: 567933

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3.00	3.07		mg/L		102	90 - 110

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

Lab Sample ID: MB 500-568598/4
Matrix: Water
Analysis Batch: 568598

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 - Duplicates	<0.47		1.0	0.47	mg/L			10/25/20 15:25	1

Lab Sample ID: LCS 500-568598/5
Matrix: Water
Analysis Batch: 568598

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 - Duplicates	10.0	10.08		mg/L		101	80 - 120

Lab Sample ID: 500-189067-3 MS
Matrix: Water
Analysis Batch: 568598

Client Sample ID: W-201007-RA-22
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon - Duplicates	1.1		10.0	11.36		mg/L		103	75 - 125

Lab Sample ID: 500-189067-3 MSD
Matrix: Water
Analysis Batch: 568598

Client Sample ID: W-201007-RA-22
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 - Duplicates	1.1		10.0	11.40		mg/L		103	75 - 125	0	20

Lab Sample ID: MB 500-568789/4
Matrix: Water
Analysis Batch: 568789

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 - Duplicates	<0.47		1.0	0.47	mg/L			10/26/20 16:07	1

Lab Sample ID: LCS 500-568789/5
Matrix: Water
Analysis Batch: 568789

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 - Duplicates	10.0	10.07		mg/L		101	80 - 120

Method: SM 2320B - Alkalinity

Lab Sample ID: MB 500-567233/28
Matrix: Water
Analysis Batch: 567233

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			10/17/20 15:54	1

Method: SM 2320B - Alkalinity (Continued)

Lab Sample ID: MB 500-567233/3
Matrix: Water
Analysis Batch: 567233

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

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Alkalinity	<3.7		5.0	3.7	mg/L			10/17/20 12:45	1

Lab Sample ID: LCS 500-567233/29
Matrix: Water
Analysis Batch: 567233

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	99.57		mg/L		100	90 - 110

Lab Sample ID: LCS 500-567233/4
Matrix: Water
Analysis Batch: 567233

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Alkalinity	100	97.71		mg/L		98	90 - 110

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201007-RA-20

Lab Sample ID: 500-189067-1
Matrix: Water
Date Collected: 10/07/20 16:19
Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566345	10/14/20 03:58	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 04:37	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455673	10/13/20 16:26	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		2000	567550	10/20/20 16:02	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 18:53	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 13:50	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565915	10/10/20 17:39	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568598	10/25/20 16:53	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 14:17	SMO	TAL CHI

Client Sample ID: W-201007-RA-24

Lab Sample ID: 500-189067-2
Matrix: Water
Date Collected: 10/07/20 16:19
Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566345	10/14/20 04:25	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 05:04	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455673	10/13/20 16:43	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		2000	567550	10/20/20 16:21	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 18:57	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 14:03	EAT	TAL CHI
Total/NA	Analysis	300.0		10	565915	10/10/20 17:51	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568598	10/25/20 17:01	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 14:07	SMO	TAL CHI

Client Sample ID: W-201007-RA-22

Lab Sample ID: 500-189067-3
Matrix: Water
Date Collected: 10/07/20 17:30
Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566345	10/14/20 04:50	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 00:56	SS	TAL CHI

Client Sample ID: W-201007-RA-22

Lab Sample ID: 500-189067-3

Date Collected: 10/07/20 17:30

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	455674	10/13/20 18:25	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1	567306	10/20/20 04:43	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:00	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 14:15	EAT	TAL CHI
Total/NA	Analysis	300.0		10	567486	10/20/20 12:35	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568598	10/25/20 17:08	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 18:30	SMO	TAL CHI

Client Sample ID: W-201007-RA-23

Lab Sample ID: 500-189067-4

Date Collected: 10/07/20 17:30

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566345	10/14/20 05:16	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 01:23	SS	TAL CHI
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1	567033	10/17/20 03:01	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:24	FXG	TAL CHI

Client Sample ID: W-201008-RA-25

Lab Sample ID: 500-189067-5

Date Collected: 10/08/20 11:55

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566345	10/14/20 05:41	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 01:51	SS	TAL CHI
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1	567033	10/17/20 03:21	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:28	FXG	TAL CHI

Client Sample ID: W-201008-RA-26

Lab Sample ID: 500-189067-6

Date Collected: 10/08/20 11:50

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566885	10/16/20 13:11	PMF	TAL CHI

Client Sample ID: W-201008-RA-26

Lab Sample ID: 500-189067-6

Date Collected: 10/08/20 11:50

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 02:18	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455674	10/13/20 19:16	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1	567033	10/17/20 03:40	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:31	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 14:53	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568598	10/25/20 17:37	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 18:35	SMO	TAL CHI

Client Sample ID: W-201008-RA-27

Lab Sample ID: 500-189067-7

Date Collected: 10/08/20 11:55

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566885	10/16/20 13:36	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 02:46	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455674	10/13/20 19:33	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1	567033	10/17/20 03:59	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:35	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 15:06	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568598	10/25/20 17:44	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 18:41	SMO	TAL CHI

Client Sample ID: W-201008-RA-28

Lab Sample ID: 500-189067-8

Date Collected: 10/08/20 12:45

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566885	10/16/20 14:01	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 03:14	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455674	10/13/20 19:51	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1	567033	10/17/20 04:18	JBJ	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-28

Lab Sample ID: 500-189067-8

Date Collected: 10/08/20 12:45
Matrix: Water
Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:38	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 15:19	EAT	TAL CHI
Total/NA	Analysis	9060A		1	568598	10/25/20 17:51	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 18:47	SMO	TAL CHI

Client Sample ID: W-201008-RA-29

Lab Sample ID: 500-189067-9

Date Collected: 10/08/20 13:15
Matrix: Water
Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566885	10/16/20 14:26	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 03:41	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	455674	10/13/20 20:08	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		2000	567550	10/20/20 16:40	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:42	FXG	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		5	566556	10/14/20 11:23	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 15:57	EAT	TAL CHI
Total/NA	Analysis	300.0		10	567486	10/20/20 13:13	EAT	TAL CHI
Total/NA	Analysis	9060A		2	568789	10/26/20 16:40	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 13:19	SMO	TAL CHI

Client Sample ID: W-201008-RA-30

Lab Sample ID: 500-189067-10

Date Collected: 10/08/20 13:15
Matrix: Water
Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	567128	10/18/20 15:05	PMF	TAL CHI
Total/NA	Prep	3510C			566172	10/13/20 06:33	CMC	TAL CHI
Total/NA	Analysis	8270D		1	566388	10/14/20 04:09	SS	TAL CHI
Total/NA	Analysis	RSK-175		1	456122	10/15/20 09:55	JBN	TAL CAN
Total/NA	Prep	8151A			566448	10/14/20 08:13	JD	TAL CHI
Total/NA	Analysis	8151A		1000	567306	10/19/20 21:39	JBJ	TAL CHI
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		1	566471	10/13/20 19:45	FXG	TAL CHI

Lab Chronicle

Client: GHD Services Inc.
Project/Site: Penta Wood 086165

Job ID: 500-189067-1

Client Sample ID: W-201008-RA-30

Lab Sample ID: 500-189067-10

Date Collected: 10/08/20 13:15

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3005A			566231	10/13/20 08:43	LMN	TAL CHI
Dissolved	Analysis	6020A		5	566556	10/14/20 11:26	FXG	TAL CHI
Total/NA	Prep	3010A			566025	10/12/20 08:41	LMN	TAL CHI
Total/NA	Analysis	SM 2340B		1	566170	10/13/20 06:31	JEF	TAL CHI
Total/NA	Analysis	300.0		10	567516	10/20/20 13:16	EAT	TAL CHI
Total/NA	Analysis	300.0		10	567933	10/22/20 15:08	EAT	TAL CHI
Total/NA	Analysis	300.0		1	565915	10/10/20 16:10	EAT	TAL CHI
Total/NA	Analysis	9060A		2	568789	10/26/20 16:47	JJB	TAL CHI
Total/NA	Analysis	SM 2320B		1	567233	10/17/20 12:58	SMO	TAL CHI

Client Sample ID: Trip Blank

Lab Sample ID: 500-189067-11

Date Collected: 10/07/20 00:00

Matrix: Water

Date Received: 10/09/20 09:40

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	566668	10/15/20 12:37	PMF	TAL CHI

Laboratory References:

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

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: GHD Services Inc.
Job ID: 500-189067-1
Project/Site: Penta Wood 086165

Laboratory: Eurofins TestAmerica, Chicago

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Wisconsin	State	999580010	08-31-21

Laboratory: Eurofins TestAmerica, Canton

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-23-21
Connecticut	State	PH-0590	12-31-21
Florida	NELAP	E87225	06-30-21
Georgia	State	4062	02-23-21
Illinois	NELAP	004498	07-31-21
Iowa	State	421	06-01-21
Kansas	NELAP	E-10336	04-30-21
Kentucky (UST)	State	112225	02-23-21
Kentucky (WW)	State	KY98016	12-31-20
Minnesota	NELAP	OH00048	12-31-20
Minnesota (Petrofund)	State	3506	08-01-21
New Jersey	NELAP	OH001	06-30-21
New York	NELAP	10975	03-31-21
Ohio VAP	State	CL0024	06-05-21
Oregon	NELAP	4062	02-24-21
Pennsylvania	NELAP	68-00340	08-31-21
Texas	NELAP	T104704517-18-10	08-31-21
USDA	US Federal Programs	P330-18-00281	09-17-21
Virginia	NELAP	010101	09-14-21
Washington	State	C971	01-12-21
West Virginia DEP	State	210	12-31-20

Chain of Custody Record 491465

eurofins | Environment Testing TestAmerica

Address: ____________________

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other: TAL-8210

Client Contact	Project Manager: Ree[illegible]	Site Contact:	Date:	COC No:
Company Name: GAD	Tel/Email: Grant-Anderson@GAD.com	Lab Contact:	Carrier:	___ of ___ COCs
Address: 1801 Old Hwy 8 NW 119	**Analysis Turnaround Time**			Sampler:
City/State/Zip: St. Paul MN 55112	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
Phone: 651-639-0913	TAT if different from Below ______			Walk-in Client:
Fax:	☐ 2 weeks			Lab Sampling:
Project Name: Pentawood	☐ 1 week			
Site: 086165	☐ 2 days			Job / SDG No.: 500-189067
P O #	☐ 1 day			

500-189067 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)	BTEX	PCP	Naphthalene	Dissolved Metals	Alk / Anions	Total Metals/Hardness	TOC	Methane	Sample Specific Notes
1	W-201007-RA-20	10/7/20	1619	G	GW	15	Y		X	X	X	X	X	X	X	X	
2	W-201007-RA-24	10/7/20	1619	↓	↓	15	Y		X	X	X	X	X	X	X	X	
3	W-201007-RA-22	10/7/20	1730	↓	↓	45	Y	X	X	X	X	X	X	X	X	X	
4	W-201007-RA-23	10/7/20	1730	↓	↓	8	Y	X	X	X	X	X					
5	W-201007-RA-25	10/8/20	1155	↓	↓	8	Y		X	X	X	X					
6	W-201008-RA-26	10/8/20	11:50	↓	↓	15	Y		X	X	X	X	X	X	X	X	
7	W-201008-RA-27	10/8/20	1155	↓	↓	15	Y		X	X	X	X	X	X	X	X	
8	W-201008-RA-28	10/8/20	1245	↓	↓	15	Y		X	X	X	X	X	X	X	X	
9	W-201008-RA-29	10/8/20	1315	↓	↓	15	Y		X	X	X	X	X	X	X	X	
10	W-201008-RA-30	10/8/20	1315	↓	↓	15	Y		X	X	X	X	X	X	X	X	
11	trip blank								X	[illegible]							

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for ________ Months

Special Instructions/QC Requirements & Comments:

2.7, 1.4, 1.5

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: ______ Corr'd: ______ Therm ID No.: ______

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
[signature]	GAD	10/8/20 1500			
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by: [signature]	Company: TA-CHI	Date/Time: 10/9/20 0940

Chain of Custody Record 491465

eurofins | Environment Testing TestAmerica

Address: _____

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TAL-8210

Client Contact	Project Manager: Rec	Site Contact:	Date:	COC No: 1 of 1 COCs
Company Name: GHD	Tel/Email: Grant.Anderson@GHD.com	Lab Contact:	Carrier:	Sampler:
Address: 16101 Old Highway 8 NW 114	Analysis Turnaround Time			For Lab Use Only:
City/State/Zip: St. Paul MN 55112	☐ CALENDAR DAYS ☐ WORKING DAYS			Walk-in Client:
Phone: 651-639-0913	TAT if different from Below _____			Lab Sampling:
Fax:	☐ 2 weeks			
Project Name: Pentenwood	☐ 1 week			Job / SDG No.: 500-189067
Site: 086165	☐ 2 days			
P O #	☐ 1 day			

500-189067 COC

	Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	RTEX	PCP	Naphthalene	Dissolved metals	Alk / Anions	Total Metals/Hardness	TOC	Methane	Sample Specific Notes:
1	W-201007-RA-20	10/7/20	1619	G	GW	15	Y		X	X	X	X	X	X	X	X	
2	W-201007-RA-24	10/7/20	1619			15	Y		X	X	X	X	X	X	X	X	
3	W-201007-RA-22	10/7/20	1730			45	Y	X	X	X	X	X	X	X	X	X	
4	W-201007-RA-23	10/7/20	1730			18	Y	X	X	X	X	X					
5	W-201007-RA-25	10/8/20	1155			38	Y		X	X	X	X					
6	W-201008-RA-26	10/8/20	11:50			15	Y		X	X	X	X	X	X	X	X	
7	W-201008-RA-27	10/8/20	1155			15	Y		X	X	X	X	X	X	X	X	
8	W-201008-RA-28	10/8/20	1245			15	Y		X	X	X	X	X	X	X	X	
9	W-201008-RA-29	10/8/20	1315			15	Y		X	X	X	X	X	X	X	X	
10	W-201008-RA-30	10/8/20	1315			15	Y		X	X	X	X	X	X	X	X	
11	triplank								X								

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

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

2,7,1,4,1,5

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd: _____ Corr'd: _____ | Therm ID No.: _____

	Company	Date/Time	Received by	Company	Date/Time
Relinquished by:	GHD	10/8/20 1500			
Relinquished by:					
Relinquished by:			Received in Laboratory by:	TA-CHE	10/9/20 0940
			TA-CHE		10/10/20 1000

10/27/2020

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-5200 REF:
INV:
PO: DEPT:

56DC2/A27E/05A2

500-189067 COC

RMA:

FedEx Express

E

J201019110601uv

FedEx

TRK# 0221 1893 4449 5576

SATURDAY 12:00P
PRIORITY OVERNIGHT

X0 JOTA

60484
IL-US
ORD

FID: 3748271 09Oct2020 JOTA 56DG2/A27E/05A2

FID: 80701 08Oct2020 JDTA 56DG2/A27E/05A2

Align Open End of FedEx Pouch Here

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-5200 REF:
INV:
PO: DEPT:

500-189067 Wayb

56DC2/A27E/05A2

RMA:

FedEx Express

E

J201019110601uv

RETURNS MON-SAT
PRIORITY OVERNIGHT

TRK# 0221 1893 4449 5565

FRI - 09 OCT AA
PRIORITY OVERNIGHT

FedEx
TRK# 0221 1893 4449 5565

GE JOTA

48qt

60484
IL-US
ORD

FID: 80701 08Oct2020 JDTA 56DG2/A27E/05A2

ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US

SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406

TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST

UNIVERSITY PARK IL 60484
(708) 534-5200 REF:
INV:
PO: DEPT:

56DC2/A27E/05A2

RMA:

FedEx Express

E

J201019110601uv

SAT
HT

TRK#

FRI - 09 OCT AA
PRIORITY OVERNIGHT

FedEx
TRK# 0221 1893 4449 5598

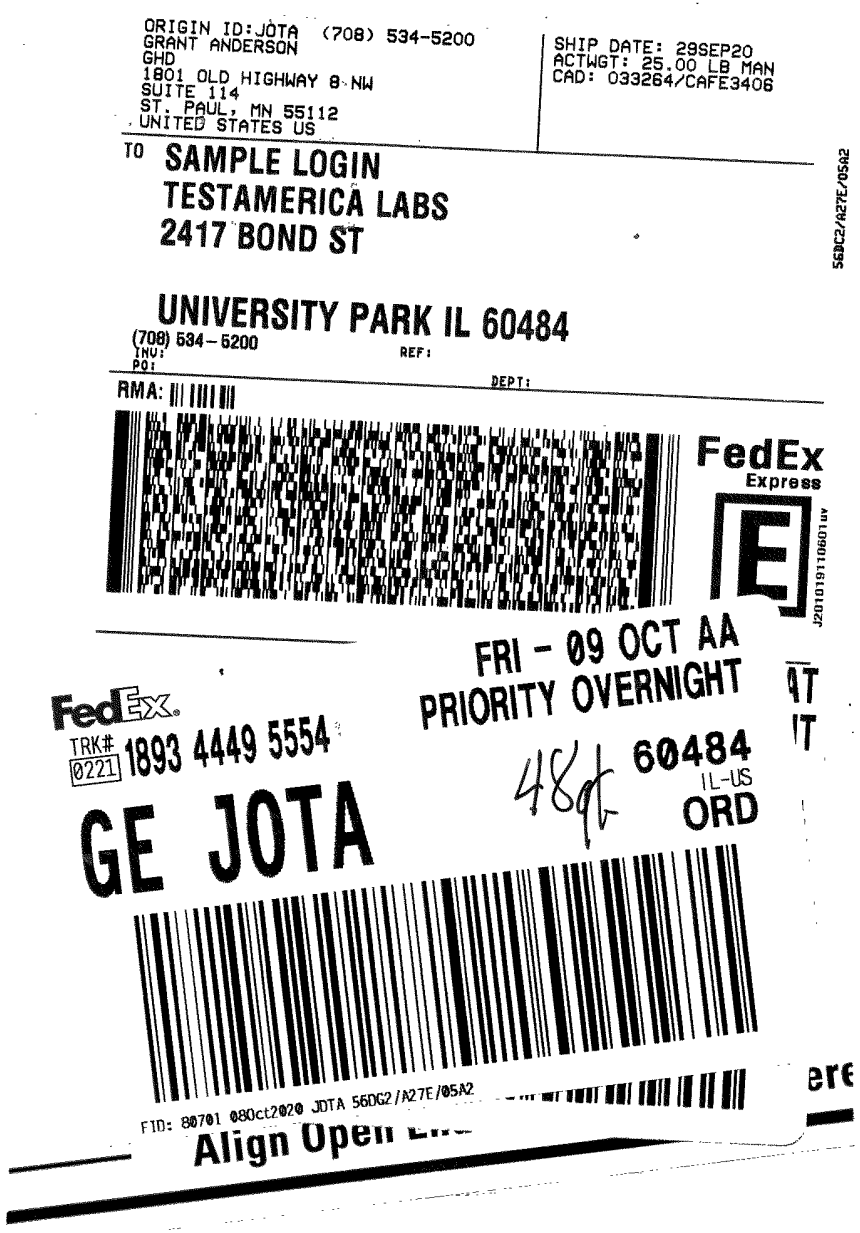
GE JOTA

48qt

60484
IL-US
ORD

34

FID: 80701 08Oct2020 JDTA 56DG2/A27E/05A2


ORIGIN ID:JOTA (708) 534-5200
GRANT ANDERSON
GHD
1801 OLD HIGHWAY 8 NW
SUITE 114
ST. PAUL, MN 55112
UNITED STATES US
SHIP DATE: 29SEP20
ACTWGT: 25.00 LB MAN
CAD: 033264/CAFE3406
TO SAMPLE LOGIN
TESTAMERICA LABS
2417 BOND ST
UNIVERSITY PARK IL 60484
(708) 534-5200
INV:
PO:
REF:
DEPT:
RMA:
FedEx
Express
FRI - 09 OCT AA
PRIORITY OVERNIGHT
TRK# 0221 1893 4449 5554
60484
IL-US
ORD
GE JOTA
FID: 80701 080ct2020 JDTA 56DG2/A27E/05A2

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

4.0/4.9

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Wright, Richard	Carrier Tracking No(s):	COC No: 500-140762.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: Richard.Wright@Eurofinset.com	State of Origin: Wisconsin	Page: Page 1 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-189067-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/22/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Penta Wood 086165	Project #: 50013796			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

RSK

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) Methane	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
W-201007-RA-20 (500-189067-1)	10/7/20	16:19 Central		Water			X	3	WI
W-201007-RA-24 (500-189067-2)	10/7/20	16:19 Central		Water			X	3	WI
W-201007-RA-22 (500-189067-3)	10/7/20	17:30 Central		Water			X	3	WI
W-201007-RA-22 (500-189067-3MS)	10/7/20	17:30 Central	MS	Water			X	3	WI
W-201007-RA-22 (500-189067-3MSD)	10/7/20	17:30 Central	MSD	Water			X	3	WI
W-201008-RA-26 (500-189067-6)	10/8/20	11:50 Central		Water			X	3	WI
W-201008-RA-27 (500-189067-7)	10/8/20	11:55 Central		Water			X	3	WI
W-201008-RA-28 (500-189067-8)	10/8/20	12:45 Central		Water			X	3	WI
W-201008-RA-29 (500-189067-9)	10/8/20	13:15 Central		Water			X	3	WI

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	10/9/20 1700	TA	[signature]	10-10-20 750	ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone: 708-534-5200 Fax: 708-534-5211

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Wright, Richard	Carrier Tracking No(s):	COC No: 500-140762.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: Richard.Wright@Eurofinset.com	State of Origin: Wisconsin	Page: Page 2 of 2
Company: TestAmerica Laboratories, Inc.		Accreditations Required (See note): State Program - Wisconsin		Job #: 500-189067-1
Address: 4101 Shuffel Street NW, ,	Due Date Requested: 10/22/2020			
City: North Canton	TAT Requested (days):			
State, Zip: OH, 44720				
Phone: 330-497-9396(Tel) 330-497-0772(Fax)	PO #:			
Email:	WO #:			
Project Name: Penta Wood 086165	Project #: 50013796			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	RSK_175/ (MOD) Methane	Total Number of containers	Special Instructions/Note:
			Preservation Code:						RSK
W-201008-RA-30 (500-189067-10)	10/8/20	13:15 Central		Water			X	3	WI

Note: Since laboratory accreditations are subject to change, Eurofins TestAmerica places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins TestAmerica attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins TestAmerica.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time: 10/9/20 1400	Company: TA	Received by:	Date/Time: 10-10-20 950	Company: ETA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Ver: 01/16/2019

Eurofins TestAmerica Canton Sample Receipt Form/Narrative **Login # :** _____
Canton Facility

Client ETA Chicago Site Name _____ Cooler unpacked by: Mathan

Cooler Received on 10-10-20 Opened on 10-10-20

FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off TestAmerica Courier Other _____

Receipt After-hours: Drop-off Date/Time _____ Storage Location _____

TestAmerica Cooler # TA 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# IR-11 (CF **+0.9** °C) Observed Cooler Temp. 4.0 °C Corrected Cooler Temp. 4.9 °C
   IR GUN #IR-12 (CF **+0.5**°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were the seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
-Were tamper/custody seals intact and uncompromised?	Yes	No NA
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 (ID/Date/Time) be reconciled with the COC?	Yes	No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp(Y/N)?		
10. Were correct bottle(s) used for the test(s) indicated?	Yes	No
11. Sufficient quantity received to perform indicated analyses?	Yes	No
12. Are these work share samples and all listed on the COC?	Yes	No
If yes, Questions 13-17 have been checked at the originating laboratory.		
13. Were all preserved sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# **HC907861**
14. Were VOAs on the COC?	Yes	No
15. Were air bubbles >6 mm in any VOA vials? ● ⬅ Larger than this.	Yes	No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____	Yes	No
17. Was a LL Hg or Me Hg trip blank present? _____	Yes	No

Tests that are not checked for pH by Receiving:
VOAs
Oil and Grease
TOC

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other

Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page | Samples processed by:

19. 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)

20. SAMPLE PRESERVATION

Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____

VOA Sample Preservation - Date/Time VOAs Frozen: _____

WI-NC-099

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-189067-1

Login Number: 189067
List Number: 1
Creator: Scott, Sherri L

List Source: Eurofins TestAmerica, Chicago

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.	False	
Cooler Temperature is recorded.	True	2.7,1.4,1.5,19.1
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.	False	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	False	
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 C
Residential Well and Onsite Supply Well Water Sample Data Validation

Memorandum

October 23, 2020

To:	Tim Ree, GHD	Ref. No.:	086165-07-07
From:	Grant Anderson/lg/11	Tel:	612-524-6836
cc:	Ryan Aamot, GHD		

Subject: **Analytical Results and Reduced Validation**
Residential Water Sampling Event
Penta Wood Products Superfund Site
Siren, Wisconsin
October 2020

1. Introduction

This document details a reduced validation of analytical results for residential water samples collected at the Penta Wood Products Superfund Site during October 2020. Samples were submitted to Eurofins TestAmerica (TA) located in University Park, Illinois. 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 form, finished report forms, method blank data, recovery data from surrogate spikes, laboratory control samples (LCS), matrix spikes (MS), and field QA/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 document 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 benzene, toluene, ethylbenzene, and xylenes (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 with the exception of semi-volatile organic compound (SVOC) analyses. According to the "Guidelines" for SVOC analyses, up to one outlying surrogate in the base/neutral or acid fractions is acceptable as long as the recovery is at least 10 percent.

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 relative percent difference (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, demonstrating acceptable analytical accuracy and precision.

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, one 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. All results were non-detect for the compounds of interest.

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 (all results were non-detect), 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 (no positive analyte detections less than the RL but greater than the MDL were reported). Non-detect results were presented as non-detect at the RL in Table 2.

9. Conclusion

Based on the assessment detailed in the foregoing, the data summarized in Table 2 are acceptable without qualification.

Table 1

Sample Collection and Analysis Summary
Residential Water Sampling Event
Penta Wood Site
Siren, Wisconsin
October 2020

Sample Identification	Location	Matrix	Collection Date (mm/dd/yyyy)	Collection Time (hr:min)	Analysis/Parameters: BTEX	Naphthalene	Pentachlorophenol	Comments
W-201001-RA-106	RW05	water	10/1/2020	12:16	X	X	X	MS/MSD
W-201001-RA-105	RW01	water	10/1/2020	12:36	X	X	X	
W-201001-RA-104	RW01	water	10/1/2020	12:36	X	X	X	Duplicate (RA-02)
W-201001-RA-103	RW03	water	10/1/2020	12:50	X	X	X	
W-201001-RA-102	RW06	water	10/1/2020	13:18	X	X	X	
W-201001-RA-101	RW06 SHOP	water	10/1/2020	13:27	X	X	X	
W-201001-RA-100	RW06 SHOP	water	10/1/2020	13:27	X	X	X	Field Blank
W-201001-RA-107	DW01	water	10/1/2020	14:06	X	X	X	
Trip Blank	Lab	water	10/1/2020	00:00	X			Trip Blank

Notes:

MS/MSD - Matrix spike/matrix spike duplicate
BTEX - Benzene, toluene, ethylbenzene, and xylenes (total)

Table 2

Validated Analytical Results Summary
Residential Water Sampling Event
Penta Wood Site
Siren, Wisconsin
October 2020

Location ID:		DW01	RW01	RW01	RW03	RW05	RW06	RW06 SHOP
Sample Name:		W-201001-RA-107	W-201001-RA-104	W-201001-RA-105	W-201001-RA-103	W-201001-RA-106	W-201001-RA-102	W-201001-RA-101
Sample Date:		10/01/2020	10/01/2020	10/01/2020 Duplicate	10/01/2020	10/01/2020	10/01/2020	10/01/2020
Parameters	**Unit**							
Volatile Organic Compounds								
Benzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Ethylbenzene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Toluene	µg/L	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Xylenes (total)	µg/L	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Semivolatile Organic Compounds								
Naphthalene	µg/L	0.80 U	0.77 U	0.75 U	0.77 U	1.1 U	0.76 U	0.77 U
Herbicides								
Pentachlorophenol	µg/L	0.10 U	0.10 U	0.097 U	0.097 U	0.096 U	0.096 U	0.11 U

Notes:

U – Not detected at the associated reporting limit

Table 3

Analytical Methods and Holding Time Criteria
Residential Water Sampling Event
Penta Wood Site
Siren, Wisconsin
October 2020

			Holding Time	
			Collection to Extraction	Collection or Extraction to Analysis
Parameter	**Method**	**Matrix**	**(Days)**	**(Days)**
BTEX	SW 8260B	Water	-	14
Naphthalene	SW 8270D	Water	7	40
Pentachlorophenol	SW 8151A	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
BTEX - Benzene, toluene, ethylbenzene, and xylenes (total)

Appendix D
Site Inspection Forms

Well Inspection Form
Penta Wood Products Superfund Site
Siren, Wisconsin

086165

Monitoring Wells

	Protective Casing	Lock & Cover	J-Plug	Well Casing	Ground Surface	Notes
MW1						
MW2						
MW3						
MW4						
MW5						
MW6						
MW6S						
MW7						
MW8						
MW9						
MW10						
MW10S						
MW11	X	✓				missing plug
MW12						
MW13						
MW14						
MW15						
MW16						
MW17						
MW18						
MW19						
MW20						
MW21						
MW22						
MW23						
MW24						
MW25						
MW26						
MW27						
MW28						
MW29						
MW30						
MW31						
MW32						

Extraction Wells

	Vault & Cover	Well Casings	Ground Surface	Notes
EW2				
EW3				
EW4				
EW5				
EW6				
EW7				
EW10				
EW12				
EW13				
EW14				

Gas Probes

	Protective Casing	Lock & Cover	Ground Surface	Inner Casing/Tubing	Notes
SG-04DIS					
SG-05DIS					
SG-06DIS					
SG-07DIS					
SG-22					
SG-23					
SG-24					
SG-25					
SG-26					

Inspected By: Ryan Agnot
Date: 7/16/2021
Additonal Notes: A few trees have fallen over the paths to the wells

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	✓	a few signs are broke
CAMU surface soil condition is satifactory and does not require erosion/settlement repairs	✓	
Perimeter area fence is satisfactory and does not require repairs	✓	~~a few signs are broke~~
Perimeter signage is present/visible	✓	a few signs are broke
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	✓	
Verify situations have not and are not occuring		
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: _____

Date: 7/16/2020

Well Inspection Form
Penta Wood Products Superfund Site
Siren, Wisconsin

086165

Monitoring Wells

	Protective Casing	Lock & Cover	J-Plug	Well Casing	Ground Surface	Notes
MW1	✓	✓	✓	✓	✓	
MW2	✓	✓	✓	✓	✓	
MW3	✓	✓	✓	✓	✓	
MW4	✓	✓	✓	✓	✓	
MW5	✓	✓	✓	✓	✓	
MW6	✓	✓	✓	✓	✓	
MW6S	✓	✓	✓	✓	✓	
MW7	✓	✓	✓	✓	✓	
MW8	✓	✓	✓	✓	✓	
MW9	✓	✓	✓	✓	✓	
MW10	✓	✓	✓	✓	✓	
MW10S	✓	✓	✓	✓	✓	
MW11	✓	✓	✓	✓	✓	
MW12	✓	✓	✓	✓	✓	
MW13	✓	✓	✓	✓	✓	
MW14	✓	✓	✓	✓	✓	
MW15	✓	✓	✓	✓	✓	
MW16	✓	✓	✓	✓	✓	
MW17	✓	✓	✓	✓	✓	
MW18	✓	✓	✓	✓	✓	
MW19	✓	✓	✓	✓	✓	
MW20	✓	✓	✓	✓	✓	
MW21	✓	✓	✓	✓	✓	
MW22	✓	✓	✓	✓	✓	
MW23	✓	✓	✓	✓	✓	
MW24	✓	✓	✓	✓	✓	
MW25	✓	✓	✓	✓	✓	
MW26	✓	✓	✓	✓	✓	
MW27	✓	✓	✓	✓	✓	
MW28	✓	✓	✓	✓	✓	
MW29	✓	✓	✓	✓	✓	
MW30	✓	✓	✓	✓	✓	
MW31	✓	✓	✓	✓	✓	
MW32	✓	✓	✓	✓	✓	

Extraction Wells

	Vault & Cover	Well Casings	Ground Surface	Notes
EW2	✓	✓	✓	
EW3	✓	✓	✓	
EW4	✓	✓	✓	
EW5	✓	✓	✓	
EW6	✓	✓	✓	
EW7	✓	✓	✓	
EW10	✓	✓	✓	
EW12	✓	✓	✓	
EW13	✓	✓	✓	
EW14	✓	✓	✓	

Gas Probes

	Protective Casing	Lock & Cover	Ground Surface	Inner Casing/Tubing	Notes
SG-04DIS	✓	✓	✓		
SG-05DIS	✓	✓	✓		
SG-06DIS	✓	✓	✓		
SG-07DIS	✓	✓	✓		
SG-22	✓	✓	✓		
SG-23	✓	✓	✓		
SG-24	✓	✓	✓		
SG-25	✓	✓	✓		
SG-26	✓	✓	✓		

Inspected By: Ryan Aamot
Date: 10/2/2020
Additonal 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		a few signs are damaged
CAMU surface soil condition is satifactory and does not require erosion/settlement repairs	✓	
Perimeter area fence is satisfactory and does not require repairs	✓	~~need new signs~~
Perimeter signage is present/visible		need new signs
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	✓	
Verify situations have not and are not occuring		
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: Ryan Aamot

Date: 10/21/2021

about GHD

GHD is one of the world's leading professional services companies operating in the global markets of water, energy and resources, environment, property and buildings, and transportation. We provide engineering, environmental, and construction services to private and public sector clients.

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