



April 9, 2020

Reference No. 086165-07-13

Mr. Phil Richard
Wisconsin Department of Natural Resources
875 S 4th Avenue
Park Falls, Wisconsin 54552

Dear Phil:

Re: **USEPA/WDNR Cooperative Agreement Remedial Design Work Plan
Wetland Excavation and Surface Debris Mitigation
Penta Wood Products Superfund Site
Siren, Wisconsin**

1. Introduction

GHD Services Inc. (GHD) has prepared this letter presenting a remedial design plan intended to be included with a cooperative agreement between the Wisconsin Department of Natural Resources (WDNR) and United States Environmental Protection Agency (USEPA) for wetland excavation and surface debris mitigation at the Penta Wood Products Superfund Site (Site) located in Siren, Wisconsin. The Site location is shown on Figure 1.1, and the Site plan is shown on Figure 1.2.

1.1 Remedial Design Work Plan Outcomes and Objectives

The objectives of this remedial design work plan are to identify the design components necessary to conduct the following remedial actions:

- Excavating and removing impacted soil and sediment from the wetland at properties located adjacent to the Site and placing this impacted material within an expanded corrective action management unit (CAMU) on the Site property
- Mitigating and covering impacted surface debris in place with clean borrow soil at the Site.

This remedial design work plan includes the following:

- Project background
- Remedial design investigation
- Remedial design
- Cost estimate
- Schedule



2. Project Background

2.1 Background

The Site is an inactive wood-treating facility located on Daniels 70 (former State Route 70) in Burnett County, Wisconsin. It is located approximately 78 miles northeast of Minneapolis, Minnesota, and 60 miles south of Duluth, Minnesota (Figure 1.1). The Village of Siren, Wisconsin, is approximately 2 miles east of the Site. The Site plan is shown on Figure 1.2.

The Site property currently consists of approximately 82 acres that were actively used for wood-treating activities. Forty undeveloped, forested acres were sold after the facility closed. The property is located in a rural agricultural and residential setting and is bordered to the east, west, and north by forested areas. Some of these areas are classified by the State of Wisconsin as wetlands. With the exception of an 8-acre parcel, Daniels 70 forms the southern property boundary.

The Site is situated on a hill with an 110-foot drop in elevation from the southern boundary to the northern boundary. The Site stratigraphy consists of three layers: an upper sand layer, a silt and clay layer that is not continuous throughout the Site, and a lower sand layer. The depth to groundwater is typically 100 feet or more from the ground surface. Groundwater occurs both in a thin, unconfined aquifer, and within the semi-confined aquifer. The regional groundwater flow direction is to the north, although local groundwater flows radially away from the Site.

A number of surface water bodies are present north and east of the Site. Doctor Lake and an unnamed lake are located 2,000 feet east and northeast of the Site, respectively. Approximately 2,140 acres of lakes, 94 acres of bogs, and 7,500 acres of wetland are located within a 4-mile radius of the Site. A wetland is located within 130 feet of the northern property boundary.

2.2 Previous Remedial Actions

In September 1998, the ROD was finalized specifying remedies to address contamination associated with soil and sediment, surface water, LNAPL and groundwater. The following are the specific remedial action objectives:

- Reduce or eliminate the potential risk to human health and ecological receptors associated with exposure to pentachlorophenol (PCP) and fuel oil components in surface water and groundwater, and PCP/fuel oil components and metals in the soil and sediment.
- Reduce or control the source of contaminants.
- Meet the ARARs, including reducing contaminant concentrations in the groundwater beneath the Site to below WDNR's Preventive Action Limits.
- The remedial action for the contaminated soil was completed in 2000 and included the construction and consolidation of material into an onsite CAMU. The remedial action to address LNAPL and contaminated groundwater is ongoing and includes the following:
 - Groundwater extraction and treatment
 - LNAPL recovery



- Bioventing
- Monitored natural attenuation

A remediation system operated continuously from March 2004 through November 2015.

The performance goals for the extraction and treatment system were as follows:

- Remove LNAPL, to the extent practicable, to reduce a source of PCP to the groundwater.
- Extract and treat the most concentrated portions (exceeding 1,000 µg/L) of PCP in the groundwater, and reduce concentrations to a level that allows natural attenuation to achieve the NR 140 standards in a reasonable period of time.
- Lower the water table, to the extent practicable, to allow bioventing to promote natural degradation of the residual diesel fuel petroleum hydrocarbons and PCP in the LNAPL smear zone.
- Comply with discharge standards.

As of November 2015, the groundwater extraction and biovent systems ceased operations and were decommissioned to initiate the remediation system shutdown pilot study as conditionally approved by the USEPA in a letter dated November 17, 2015.

During 1999 and 2000, soil excavation work and associated sampling was conducted by CH2M HILL on behalf of the USEPA. As documented in the Remedial Action Report (December 2000, CH2M HILL), the Area 29 wetland excavation was completed and confirmation soil samples were collected. However, following sample collection, a storm washed impacted material back into the wetland. The material was re-excavated, but confirmation samples were not collected. The impacted portion of the wetland is located on two separate parcels located adjacent to the Penta Wood Site as shown on Figures 2.1, 2.2, and 2.3. Parcels are identified on Figure 1.2. The former wetland excavation location is shown on Figure 2.3.

As of September 1, 2014, the WDNR assumed responsibility from the USEPA for continuing the remedial action at the Penta Wood Products Superfund Site. WDNR retained GHD to conduct the remedial action. WDNR directed GHD to collect soil/sediment samples from the Area 29 wetland to confirm the results of the previous USEPA sampling and delineate the extent of the impacted area.

A total of 39 soil samples were collected in 2017 from 15 soil boring locations. Samples were collected from the borings at depths ranging from the ground surface to 6 feet below the ground surface. The samples were submitted for laboratory analysis of PCP. The soil sample locations are shown on Figures 2.2 and 2.3. Soil sample results are summarized in Table 2.1.

PCP was detected above the USEPA criteria of 900 micrograms per kilogram (µg/kg) in eight of the soil samples. These soil sample results were generally consistent with the results previously reported by USEPA. However, a statistical evaluation of these results indicates that the soil/sediment within the sampling area requires additional measures to meet the cleanup objectives for the Site and surrounding properties.

During Site walks by GHD, surface debris was observed in three areas. One of the areas is located west-southwest of well MW7. In this area, a sawdust like material was observed. A second area of surface



debris consisting primarily of treated wood is located north of wells MW17 and MW16. A third area included a small amount of drum debris west of well MW8. The surface debris locations are shown on Figures 2.1 and 2.4. Samples were collected from the surface debris and submitted for laboratory analysis of volatile organic compounds (VOC), semivolatile organic compounds (SVOC), metals, PAHs, and PCP. Surface debris sample results are summarized in Table 2.2.

Analysis of the debris samples show detections above Residual Contaminant Levels (RCLs) for Arsenic, PCP, and other SVOCs for direct contact and groundwater protection. Subsequent soil sampling under the surface debris confirmed that contamination levels meet the groundwater protection RCLs.

A Cooperative Agreement Work Plan for Wetland Excavation and Surface Debris Mitigation was submitted in July 2019.

3. Remedial Design Investigation

Remedial design investigations were performed to identify an onsite soil borrow source area to cover soil/sediment to be excavated from the wetland and placed adjacent to the CAMU and to cover impacted surface debris.

A total of 10 soil samples were collected on October 29, 2018 to determine the suitability of the potential soil borrow area for use cover soil. The samples were submitted to an independent laboratory, TestAmerica Laboratories, Inc. of University Park, Illinois for analysis. The results show that the soil borrow area is suitable for use as fill for work to be conducted at the site. The proposed soil borrow area location and sample locations are shown on Figures 2.2 and 2.4 and associated sample results are summarized in Table 3.1. The laboratory report is included in Attachment A. Additional remedial design investigation work is not necessary.

4. Remedial Design

WDNR expects to retain GHD to complete the remedial design. Remedial design activities involve preparing construction drawings, specifications, bid documents and supporting calculations for the various components of the remedial action. The plan is to submit preliminary (30-percent), pre-final (95-percent), and final (100-percent) design documents for USEPA review. USEPA's comments would be incorporated into each subsequent design document. WDNR would only seek formal USEPA approval on the final design document before requesting bids to construct the remedial action.

4.1 Preliminary Design Report

The WDNR will submit a Preliminary Design Report (30-percent completion) that will include the following:

- Preliminary draft construction drawings and specifications to outline key portions of the project, including quantity calculations
- Design assumptions, parameters, and restrictions



- Proposed wetland excavation confirmation sampling plan to confirm remaining soil/sediment in the excavation meets applicable criteria
- Outline of required supporting drawings and specifications
- Proposed siting/locations of processes/construction activity
- Expected long-term monitoring and maintenance requirements
- Adjacent property access agreements and requirements
- List of required permits
- Preliminary remedial action cost estimate
- Preliminary remedial action schedule

4.2 Pre-Final Design Report

The Wisconsin DNR will submit a Pre-Final Design Report (95-percent completion) representing a design effort that is 100-percent complete. The Pre-Final Design Report will address all USEPA comments made on the Preliminary Design Report and will include the following:

- Draft construction design plans and drawings
- Draft construction specifications
- Permitting requirements
- Draft confirmation wetland excavation sampling plan
- Adjacent property access agreements and requirements
- Draft remedial action Health and Safety Plan (HASP)
- Draft remedial action cost estimate
- Draft remedial action schedule

4.3 Final Design Report

The WDNR will submit a Final Design Report (100-percent completion) that will address all comments made to the preceding design submittals and include reproducible drawings and specifications suitable for bidding. The Final Design Report will include the final Remedial Design elements including:

- Final construction design plans, drawings, specifications, and permitting requirements
- Final confirmation wetland excavation sampling plan
- Adjacent property access agreements and requirements
- Final HASP
- Final remedial action cost estimate
- Final remedial action schedule



5. Cost Estimate

Currently, WDNR lacks funding necessary to complete the scope of work discussed above. The estimated cost to complete the wetland excavation is \$776,462, and the estimated cost to complete the surface debris mitigation is \$337,815. The total estimated cost is \$1,114,277, which includes remedial design costs of approximately \$50,000.

The work has not been formally bid. Should contractor bids or differing Site conditions indicate that total project costs would exceed the estimated costs, WDNR would notify USEPA before proceeding with the work.

6. Schedule

6.1 Wetland Excavation

The soonest that the wetland excavation could be performed is during the winter of 2021. This would require that erosion control measures be installed during the fall of 2020. Grading and covering the excavated wetland soil and sediments would then occur in spring of 2021 followed by vegetation establishment during the summer of 2021. To achieve this schedule the remedial design would require completion and approval during the summer of 2020.

6.2 Surface Debris Mitigation

The soonest that the surface debris mitigation could be performed is the fall of 2020 with subsequent vegetation establishment during the spring/summer of 2021. To achieve this schedule the remedial design would require completion and approval during the summer of 2020.

Please contact us if you have any questions.

Sincerely,

GHD

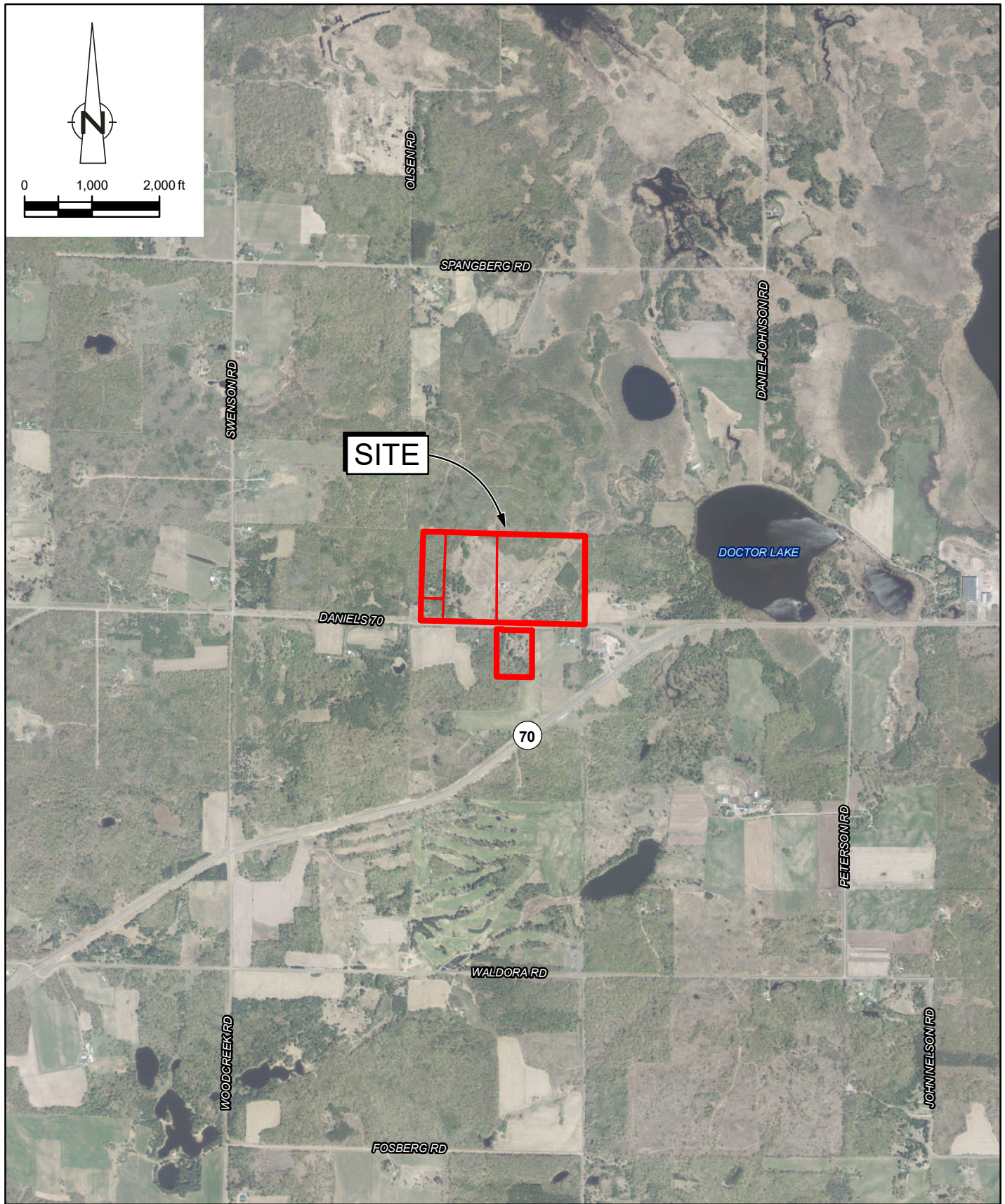
A handwritten signature in blue ink that reads 'Tim Ree'.

Tim Ree

TB/lg/82

Encl.

Figures



Source: Burnett County



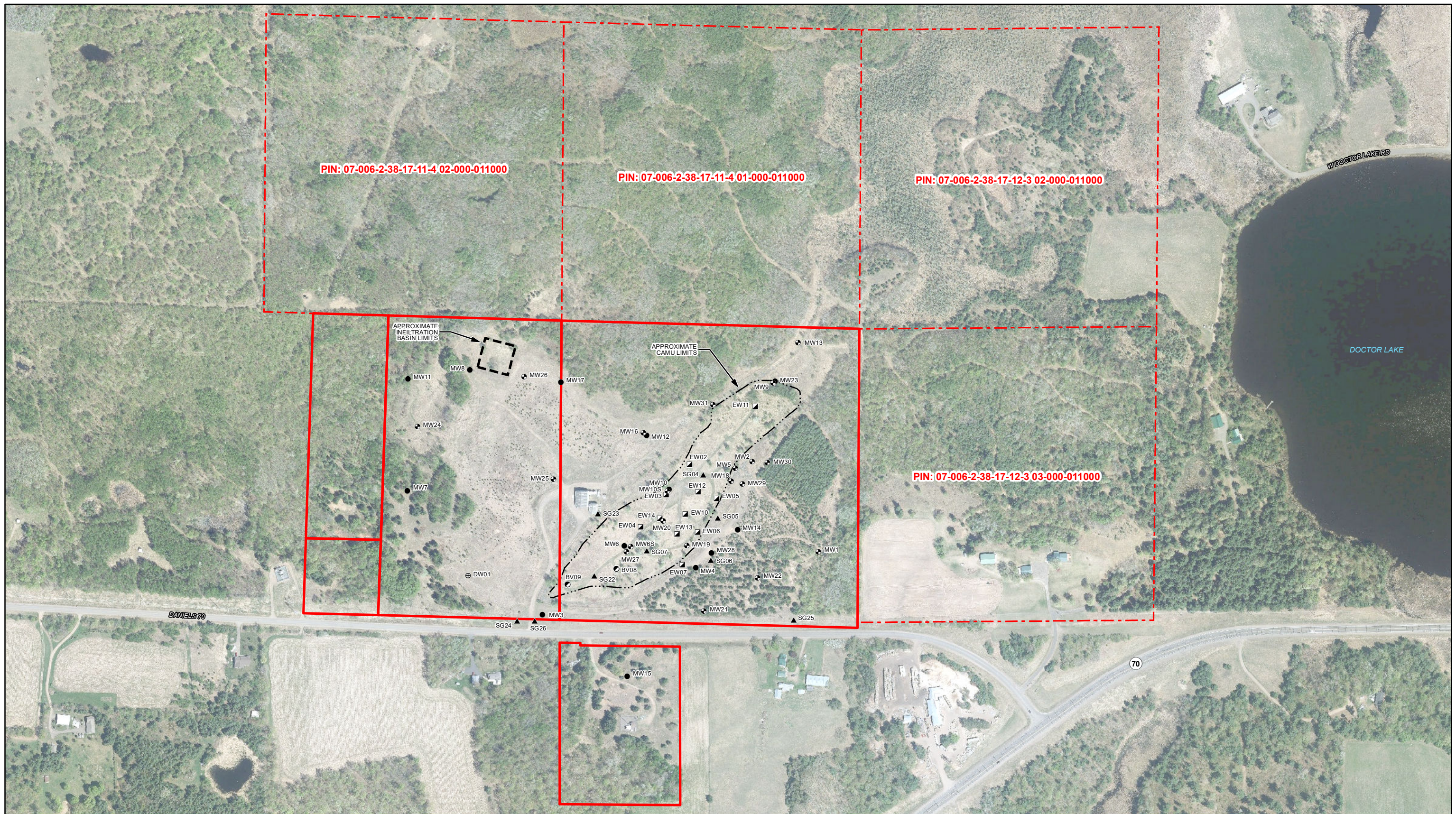
PENTA WOOD PRODUCTS SUPERFUND SITE
 SIREN, WISCONSIN
 REMEDIAL DESIGN WORK PLAN

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SITE LOCATION

FIGURE 1.1



Source: Burnett County



LEGEND

- ▲ EXTRACTION WELL NEST
- UNCONFINED MONITORING WELL
- SEMICONFINED MONITORING WELL
- ⊕ WATER SUPPLY WELL
- BIOVENTING WELL
- ▲ SOIL GAS WELL NEST
- APPROXIMATE CAMU LIMIT
- SITE PARCEL BOUNDARY
- - - ADJACENT PARCEL BOUNDARY



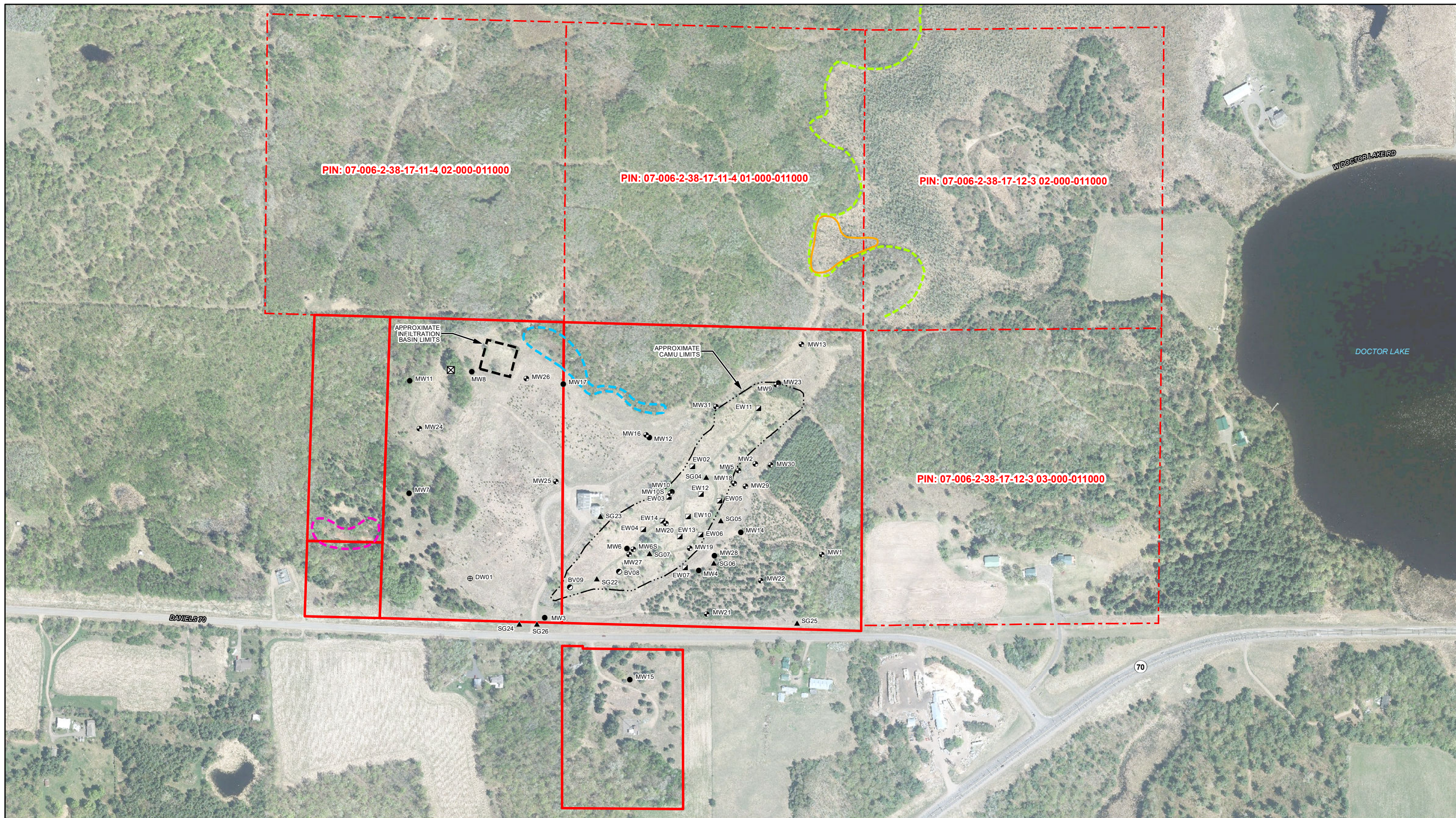
PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN
REMEDIAL DESIGN WORK PLAN

SITE PLAN

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FIGURE 1.2



Source: Burnett County



LEGEND

- | | | | |
|---|------------------------------|-----|-----------------------------------|
| ▲ | EXTRACTION WELL NEST | ☒ | DRUM REMNANT LOCATION |
| ● | UNCONFINED MONITORING WELL | --- | APPROXIMATE WETLAND LIMIT |
| ● | SEMICONFINED MONITORING WELL | --- | APPROXIMATE EXCAVATION EXTENT |
| ⊕ | WATER SUPPLY WELL | --- | APPROXIMATE EXTENT OF SAWDUST |
| ● | BIOVENTING WELL | --- | APPROXIMATE EXTENT OF WOOD DEBRIS |
| ▲ | SOIL GAS WELL NEST | --- | SITE PARCEL BOUNDARY |



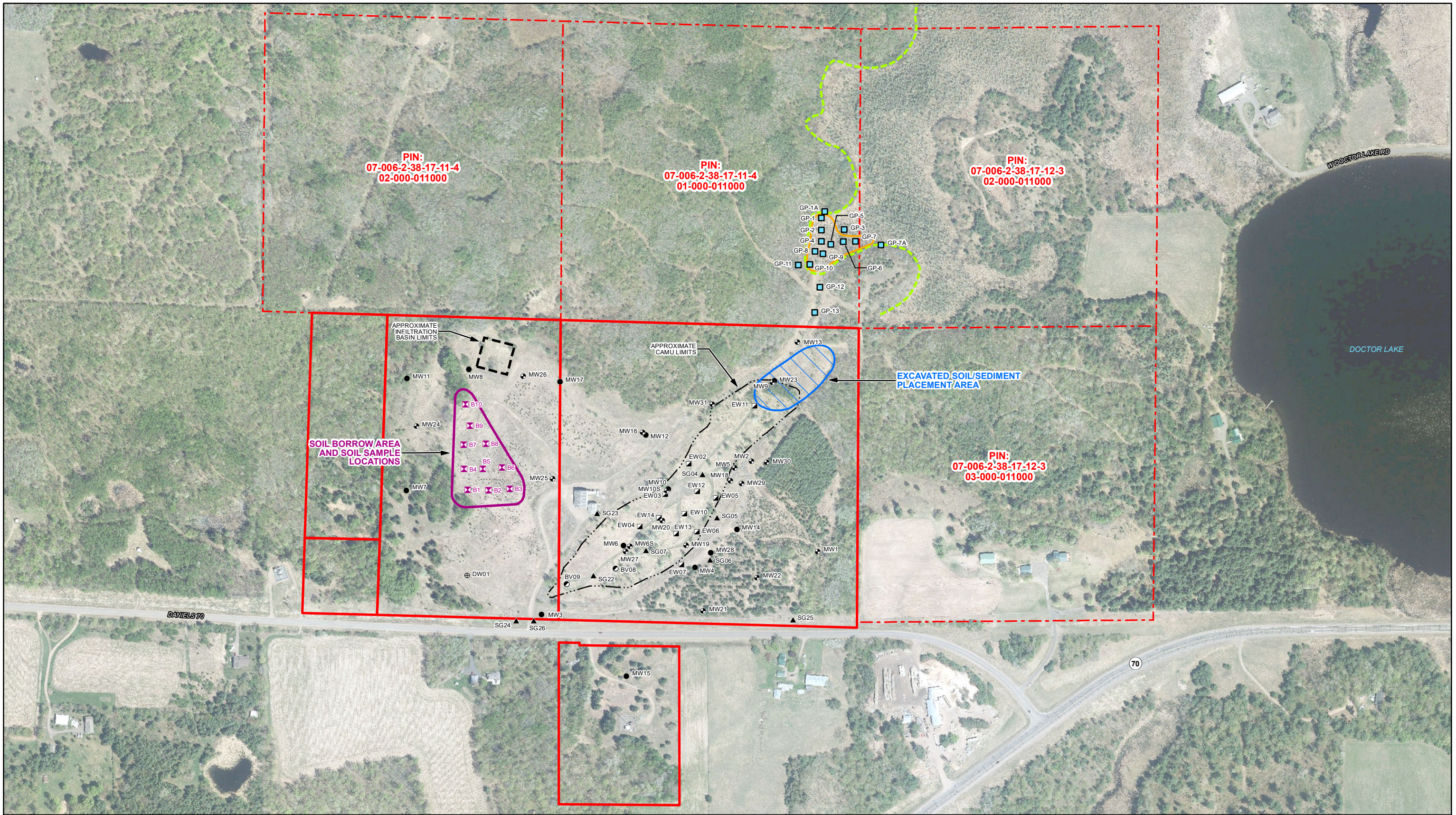
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REMEDIAL DESIGN WORK PLAN

WETLAND EXCAVATION AND SURFACE DEBRIS AREAS

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FIGURE 2.1



Source: Burnett County

LEGEND

- ▲ EXTRACTION WELL NEST
- UNCONFINED MONITORING WELL
- SEMICONFINED MONITORING WELL
- ⊕ WATER SUPPLY WELL
- ⊙ BIOVENTING WELL
- ▲ SOIL GAS WELL NEST
- SOIL SAMPLE LOCATION
- - - - - APPROXIMATE WETLAND LIMIT
- - - - - APPROXIMATE EXCAVATION EXTENT
- SITE PARCEL BOUNDARY
- - - - - ADJACENT PARCEL BOUNDARY



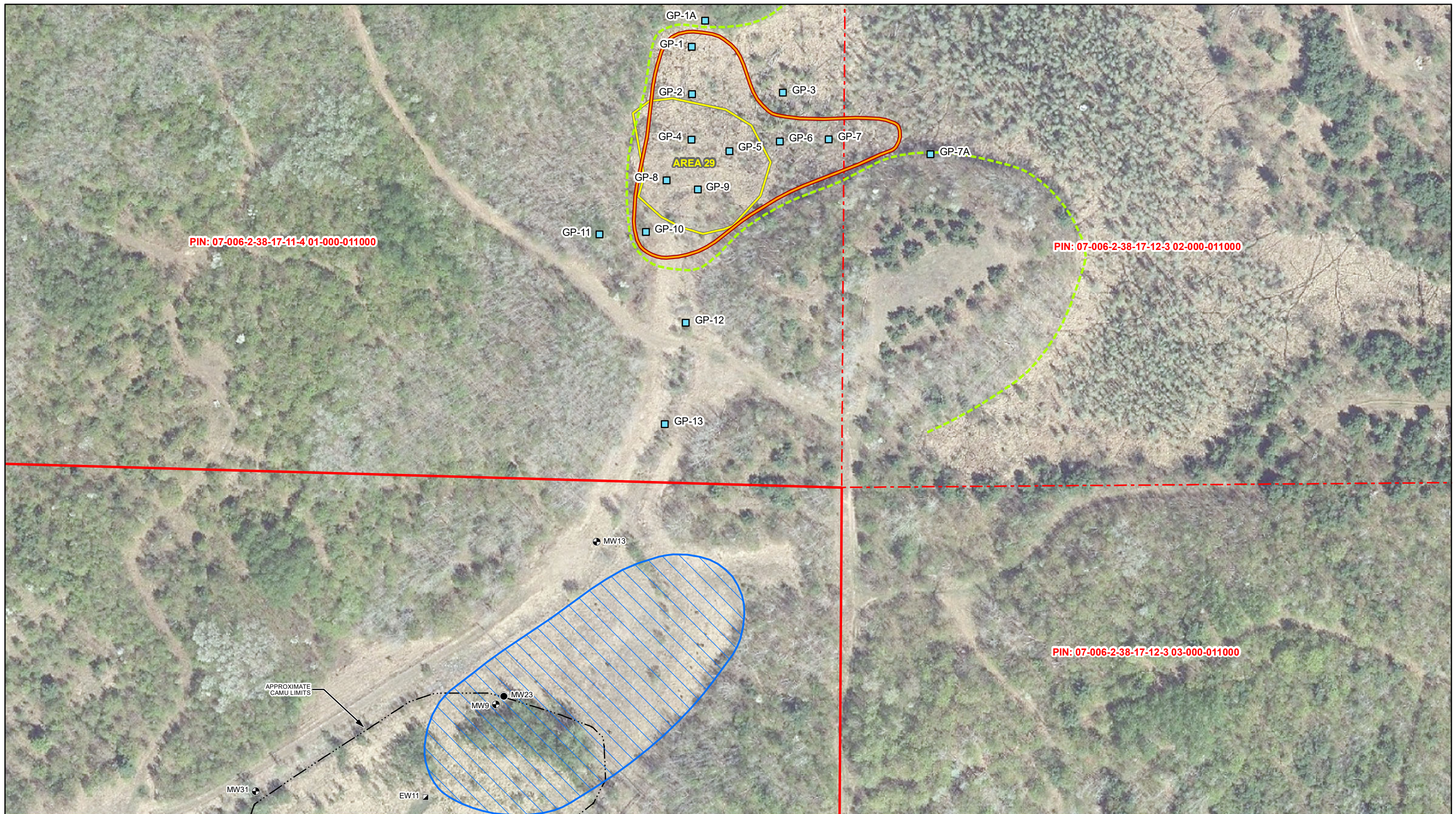
PENTA WOOD PRODUCTS SUPERFUND SITE
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REMEDIAL DESIGN WORK PLAN

WETLAND EXCAVATION AREA

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FIGURE 2.2

GIS File: I:\GIS\Projects\6-chars\08----\0861--\086165\086165-CORR\086165-07(RICH082)\086165-07(RICH082)\GIS-SP004.mxd



Source: Burnett County



LEGEND

- SOIL SAMPLE LOCATION
- UNCONFINED MONITORING WELL
- SEMICONFINED MONITORING WELL
- APPROXIMATE WETLAND LIMIT
- APPROXIMATE EXCAVATION EXTENT
- PRIOR EXCAVATION AREA
- EXCAVATED SOIL/SEDIMENT PLACEMENT AREA
- APPROXIMATE CAMU LIMIT
- SITE PARCEL BOUNDARY
- ADJACENT PARCEL BOUNDARY

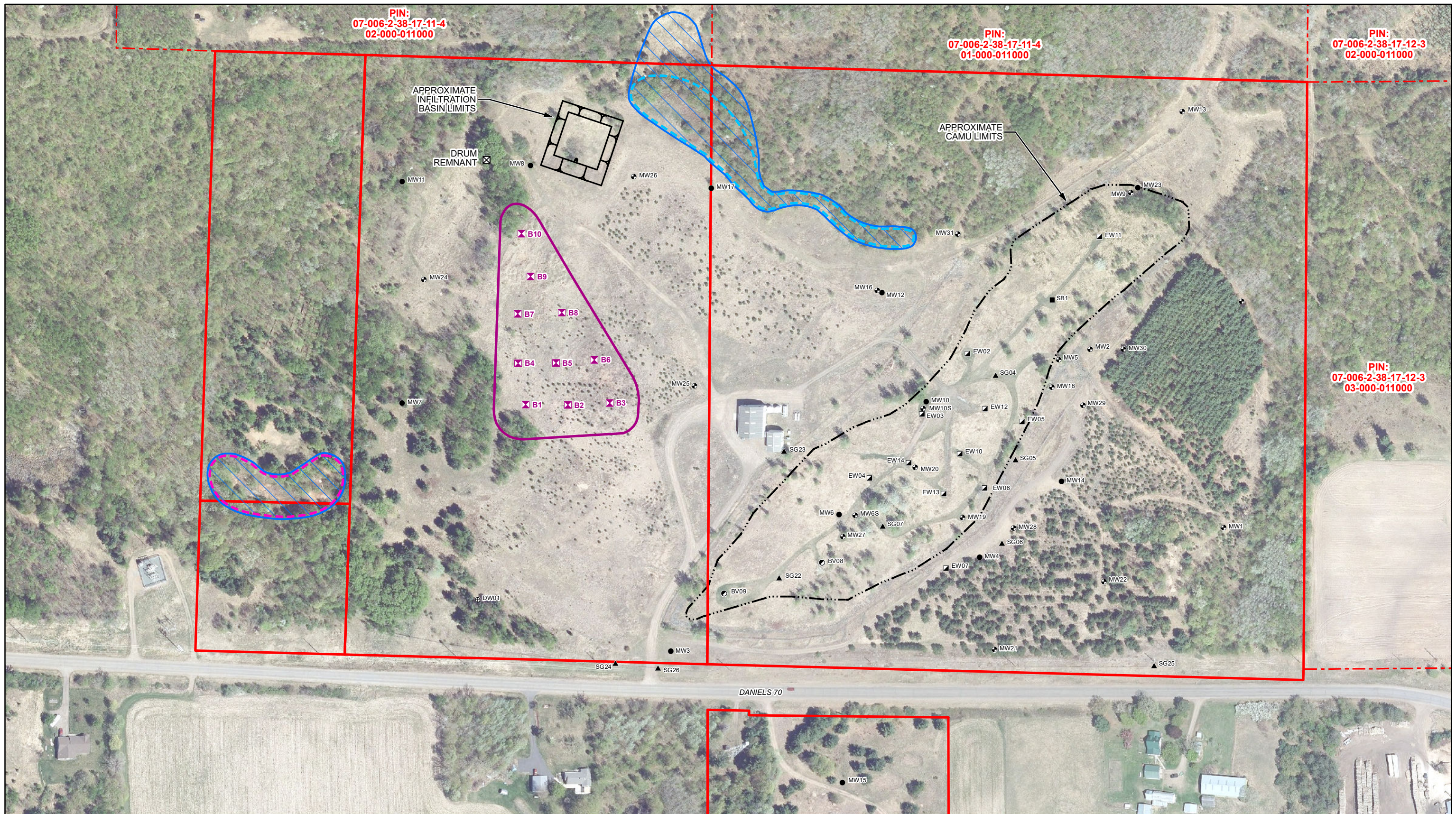


PENTA WOOD PRODUCTS SUPERFUND SITE
 SIREN, WISCONSIN
 REMEDIAL DESIGN WORK PLAN
 WETLAND EXCAVATION AND
 SOIL/SEDIMENT PLACEMENT AREAS

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FIGURE 2.3



Source: Burnett County



LEGEND

- ▣ EXTRACTION WELL NEST
- UNCONFINED MONITORING WELL
- SEMICONFINED MONITORING WELL
- ⊕ WATER SUPPLY WELL
- ⊙ BIOVENTING WELL
- ▲ SOIL GAS WELL NEST
- APPROXIMATE EXTENT OF SAWDUST
- APPROXIMATE EXTENT OF WOOD DEBRIS
- ▨ COVER SOIL PLACEMENT AREA
- ✕ SOIL SAMPLE LOCATION
- SOIL BORROW AREA
- - - - APPROXIMATE CAMU LIMIT
- SITE PARCEL BOUNDARY



PENTA WOOD PRODUCTS SUPERFUND SITE
SIREN, WISCONSIN
REMEDIAL DESIGN WORK PLAN

SURFACE DEBRIS AREAS

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FIGURE 2.4

Tables

**Pentachlorophenol Soil Sample Results
Penta Wood Products Superfund Site
Siren, Wisconsin**

Sample Location	Sample Identification	Sample Depth (fbgs)	Concentration (µg/kg)
GP 1	S 170116 PS 01	0	1200
GP 1	S 170116 PS 02	3	ND
GP 1A	S 170501 PS 22A	0	220J
GP 1A	S 170501 PS 22B	3	ND
GP 2	S 170116 PS 03	0	1700
GP 2	S 170116 PS 04	3	ND
GP 2	S 170116 PS 05	5	ND
GP 3	S 170117 PS 23	0	730J
GP 3	S 170117 PS 24	3	ND
GP 4	S 170116 PS 06	0	1400
GP 4	S 170116 PS 07	3	ND
GP 4	S 170116 PS 08	6	ND
GP 5	S 170116 PS 09	0	3200
GP 5	S 170116 PS 10	3	ND
GP 5	S 170116 PS 11	6	ND
GP 6	S 170116 PS 12	0	1500
GP 6	S 170116 PS 13	3	ND
GP 6	S 170116 PS 14	5	ND
GP 7	S 170116 PS 15	0	1100
GP 7	S 170116 PS 16	3	890
GP 7A	S 170501 PS 23A	0	350J
GP 7A	S 170501 PS 23B	3	ND
GP 8	S 170116 PS 17	0	360
GP 8	S 170116 PS 18	3	2700
GP 8	S 170116 PS 19	6	ND
GP 9	S 170116 PS 20	0	210J
GP 9	S 170116 PS 21	3	ND
GP 9	S 170116 PS 22	6	ND
GP 10	S 170428 PS 16A	0	4800
GP 10	S 170428 PS 16B	3	ND
GP 10	S 170428 PS 16C	6	72J
GP 11	S 170428 PS 17A	0	ND
GP 11	S 170428 PS 17B	3	ND

**Pentachlorophenol Soil Sample Results
Penta Wood Products Superfund Site
Siren, Wisconsin**

Sample Location	Sample Identification	Sample Depth (fbgs)	Concentration (µg/kg)
GP 12	S 170428 PS 18A	0	110J
GP 12	S 170428 PS 18B	3	ND
GP 12	S 170428 PS 18C	6	ND
GP 13	S 170428 PS 19A	0	110J
GP 13	S 170428 PS 19B	3	ND
GP 13	S 170428 PS 19C	6	ND

Note:

fbgs - Feet Below Ground Surface
ND - Not Detected
µg/kg - Micorgrams per kilogram

Table 2.2

Surface Debris Sample Analytical Data - Total
Penta Wood Products Superfund Site
Siren, Wisconsin

		Location ID: Wood Debris-1	Wood Debris-2	Wood Debris-3	Saw Dust-East	Saw Dust-Middle	Saw Dust-West	Drum Remnants			
		Sample Name: S-161208-PS-01	S-161208-PS-02	S-161208-PS-03	S-161208-PS-05	S-161208-PS-06	S-161208-PS-07	S-161208-PS-04			
		Sample Date: 12/08/2016	12/08/2016	12/08/2016	12/08/2016	12/08/2016	12/08/2016	12/08/2016			
Parameters	Unit	Residual Contaminant Levels (RCLs)									
		Industrial Direct Contact	Groundwater Protection	Background Threshold Value							
Volatile Organic Compounds											
Benzene	µg/kg	7,070	2.6	--	< 29,000	< 280	< 480	< 330	< 440	< 260	< 0.37
Ethylbenzene	µg/kg	35,400	785	--	< 42,000	< 410	< 710	< 480	< 640	< 380	< 0.31
Toluene	µg/kg	818,000	554	--	< 29,000	< 280	< 480	< 350	< 440	< 260	< 0.39
Xylenes (total)	µg/kg	260,000	1,980	--	< 34,000	< 330	< 570	< 380	< 510	< 300	< 0.46
Semivolatile Organic Compounds											
Acenaphthene	µg/kg	45,200,000	--	--	1,600,000	2,000,000	< 1,000	< 22	< 29	< 18	< 4,100
Acenaphthylene	µg/kg	--	--	--	47,000	240,000	< 470	< 10	< 13	< 8.4	< 1,900
Anthracene	µg/kg	100,000,000	98,475	--	1,900,000	5,200,000	6,900 J	< 23	< 30	< 19	< 4,200
Benzo(a)anthracene	µg/kg	20,800	--	--	770,000	2,100,000	< 850	< 19	< 24	< 15	< 3,400
Benzo(a)pyrene	µg/kg	2,110	235	--	230,000	920,000	< 860	< 19	< 24	< 15	< 3,500
Benzo(b)fluoranthene	µg/kg	21,100	240	--	390,000	1,600,000	< 800	< 17	< 23	< 14	< 3,200
Benzo(g,h,i)perylene	µg/kg	--	--	--	46,000	250,000	< 470	< 10	< 13	< 8.4	< 1,900
Benzo(k)fluoranthene	µg/kg	211,000	--	--	170,000	570,000	< 920	< 20	< 26	< 16	< 3,700
Chrysene	µg/kg	2,110,000	72.3	--	790,000	2,200,000	< 1,500	< 32	< 42	< 26	< 6,000
Dibenz(a,h)anthracene	µg/kg	2,110	--	--	15,000	110,000	< 890	< 19	< 25	< 16	< 3,600
Fluoranthene	µg/kg	30,100,000	44,439	--	4,000,000	11,000,000	14,000	< 16	< 21	< 13	21,000 J
Fluorene	µg/kg	30,100,000	7,415	--	1,400,000	2,700,000	< 720	< 16	< 20	< 13	22,000 J
Indeno(1,2,3-cd)pyrene	µg/kg	21,100	--	--	51,000	280,000	< 470	< 10	< 13	< 8.4	< 1,900
Naphthalene	µg/kg	24,100	329	--	930,000	42000 J	< 1,100	< 24	< 31	< 20	< 4,400
Pentachlorophenol	µg/kg	3,970	1.40	--	33,000 J	< 62,000	1,900,000	530 J	1,700 J	< 220	11,000,000
Phenanthrene	µg/kg	--	--	--	6,100,000	14,000,000	14,000	130 J	< 28	< 18	30,000 J
Pyrene	µg/kg	22,600,000	27,273	--	2,900,000	7,000,000	16,000	< 13	< 17	< 11	100,000
Metals											
Arsenic	mg/kg	3	0.292	8	3.5	3.3	0.67 J	< 1.8	4.7	< 1.4	3.8
Copper	mg/kg	46,700	45.8	35	38.5	6.8	2.1 J	9.7 J	14.6	5.1 J	25.4
Iron	mg/kg	100,000	--	34,314	1,420	228	105	2,950	651	1,580	12,800
Manganese	mg/kg	25,900	19.6	2,937	42.1 B	23.6 B	36.2 B	84.6 B	233 B	72.1 B	83.7 BF1
Zinc	mg/kg	100,000	--	150	12	15.2	16.6	32.1	35.0	21.2	49.8 F1

Table 2.2

Surface Debris Sample Analytical Data - Total
Penta Wood Products Superfund Site
Siren, Wisconsin

Location ID:	Wood Debris-1	Wood Debris-2	Wood Debris-3	Saw Dust-East	Saw Dust-Middle	Saw Dust-West	Drum Remnants
Sample Name:	S-161208-PS-01	S-161208-PS-02	S-161208-PS-03	S-161208-PS-05	S-161208-PS-06	S-161208-PS-07	S-161208-PS-04
Sample Date:	12/08/2016	12/08/2016	12/08/2016	12/08/2016	12/08/2016	12/08/2016	12/08/2016

Parameters	Unit	Residual Contaminant Levels (RCLs)		Background Threshold Value							
		Industrial Direct Contact	Groundwater Protection								
Total Petroleum Hydrocarbons											
Oil and grease	mg/kg	--	--	--	51,800	31,200	242 J	377 J	224 U	262 J	17,700
General Chemistry											
Flash point (closed cup)	Deg F	--	--	--	> 200	> 200	> 200	> 200	> 200	> 200	> 200
pH, lab	s.u.	--	--	--	5.8	5.6	5.7	3.9	4.4	4.2	5.3

- Notes:
- J - Reported value was estimated between the limit of detection and limit of quantification
 - B - Parameter was found in the blank and sample
 - F1 - MS and/or MSD recovery outside of acceptance limits
 - µg/kg - micrograms per kilogram
 - mg/kg - Milligrams per kilogram
 - s.u. - Standard units
 - Deg F - Degrees Fahrenheit
 - - Not applicable
 - < - Not detected above the limit of detection
 - Concentration or limit of detections exceed the direct contact RCL
 - Concentration or limit of detection exceed the groundwater protection RCL

Table 3.1

**Soil Borrow Area Soil Sample Analytical Data
Penta Wood Products Superfund Site
Siren, Wisconsin**

Sample Date: 10/29/18

Compound	ROD Table 1 PRGs		WDNR RCLs (Non-Industrial)		Concentration in Sample (mg/kg)									
	Onsite PRG (mg/kg)	Offsite PRG (mg/kg)	Direct Contact (mg/kg)	Groundwater Protection (mg/kg)	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Arsenic ¹	5.2	5.2	0.677	0.584	1.4	1.2	0.97	1.5	1.1	1.1	1.9	1.1	1.1	0.89
Benzene	0.0055	0.0055	1.6	0.0026	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Copper	100	100	3130	91.6	16.5	12.4	10.6	23.7	15.1	22.2	22.2	12.1	13.3	9.8
Ethylbenzene	2.9	2.9	8.02	1.57	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorene	100	100	2390	14.8299	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Isophorone	628	264	571	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
1-Methylnaphthalene	--	--	17.6	--	ND	0.010 J	ND	ND	ND	ND	ND	ND	ND	ND
2-Methylnaphthalene	--	--	239	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0.4	0.4	5.52	0.6582	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Pentachlorophenol	2.1	0.9	1.02	0.0028	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Phenanthrene	--	--	--	--	ND	0.017 J	0.0092 J	ND	ND	ND	ND	ND	ND	ND
Toluene	1.5	1.5	818	1.1072	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Xylenes	4.1	4.1	260	3.96	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	320	320	23500	--	19.1	11.1	11.4	26.5	14.8	20.1	17.1	18.6	12.2	15.5

Note:

¹. Arsenic criteria is site specific background concentration of 2.05 mg/kg

Attachment A

Borrow Area Soil Sample Laboratory Report

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 500-153999-1
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:
11/15/2018 2:20:26 PM

Richard Wright, Senior Project Manager
(708)534-5200
richard.wright@testamericainc.com

LINKS

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results through
TotalAccess

Have a Question?



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www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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

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

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Case Narrative

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

TestAmerica Job ID: 500-153999-1

Job ID: 500-153999-1

Laboratory: TestAmerica Chicago

Narrative

Job Narrative 500-153999-1

Receipt

The samples were received on 10/30/2018 9:25 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 2.1° C.

GC/MS VOA

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

GC/MS Semi VOA

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

GC Semi VOA

Method(s) 8151A: Surrogate and spike recoveries for the following LCS was below the control limits: (LCS 500-458929/2-A). Re-extraction was performed outside of holding time with acceptable results. The re-extracted analyses were non detect. The original results have been reported due to the holding time constraints.

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.

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-01

Lab Sample ID: 500-153999-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.4		1.1	0.38	mg/Kg	1	☼	6010C	Total/NA
Copper	16.5		1.1	0.31	mg/Kg	1	☼	6010C	Total/NA
Zinc	19.1		1.9	0.82	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-02

Lab Sample ID: 500-153999-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Phenanthrene	17	J	35	5.0	ug/Kg	1	☼	8270D	Total/NA
1-Methylnaphthalene	10	J	72	8.7	ug/Kg	1	☼	8270D	Total/NA
Arsenic	1.2		1.0	0.35	mg/Kg	1	☼	6010C	Total/NA
Copper	12.4		1.0	0.29	mg/Kg	1	☼	6010C	Total/NA
Zinc	11.1		2.1	0.91	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-03

Lab Sample ID: 500-153999-3

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Phenanthrene	9.2	J	34	4.8	ug/Kg	1	☼	8270D	Total/NA
Arsenic	0.97		0.88	0.30	mg/Kg	1	☼	6010C	Total/NA
Copper	10.6		0.88	0.25	mg/Kg	1	☼	6010C	Total/NA
Zinc	11.4		2.0	0.89	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-04

Lab Sample ID: 500-153999-4

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.5		0.94	0.32	mg/Kg	1	☼	6010C	Total/NA
Copper	23.7		0.94	0.26	mg/Kg	1	☼	6010C	Total/NA
Zinc	26.5		2.0	0.90	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-05

Lab Sample ID: 500-153999-5

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.1		0.97	0.33	mg/Kg	1	☼	6010C	Total/NA
Copper	15.1		0.97	0.27	mg/Kg	1	☼	6010C	Total/NA
Zinc	14.8		1.8	0.81	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-06

Lab Sample ID: 500-153999-6

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.1		0.92	0.32	mg/Kg	1	☼	6010C	Total/NA
Copper	22.2		0.92	0.26	mg/Kg	1	☼	6010C	Total/NA
Zinc	20.1		2.1	0.92	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-07

Lab Sample ID: 500-153999-7

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.9		1.1	0.37	mg/Kg	1	☼	6010C	Total/NA
Copper	22.2		1.1	0.30	mg/Kg	1	☼	6010C	Total/NA
Zinc	17.1		1.9	0.85	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-08

Lab Sample ID: 500-153999-8

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Detection Summary

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-08 (Continued)

Lab Sample ID: 500-153999-8

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.1		0.94	0.32	mg/Kg	1	☼	6010C	Total/NA
Copper	12.1		0.94	0.26	mg/Kg	1	☼	6010C	Total/NA
Zinc	18.6		2.2	0.97	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-09

Lab Sample ID: 500-153999-9

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	1.1		1.1	0.36	mg/Kg	1	☼	6010C	Total/NA
Copper	13.3		1.1	0.30	mg/Kg	1	☼	6010C	Total/NA
Zinc	12.2		1.9	0.82	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: S-180129-PS-10

Lab Sample ID: 500-153999-10

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.89	J	0.99	0.34	mg/Kg	1	☼	6010C	Total/NA
Copper	9.8		0.99	0.28	mg/Kg	1	☼	6010C	Total/NA
Zinc	15.5		2.1	0.92	mg/Kg	1	☼	6010C	Total/NA

Client Sample ID: Trip Blank 004

Lab Sample ID: 500-153999-11

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Chicago

Method Summary

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

TestAmerica Job ID: 500-153999-1

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
6010C	Metals (ICP)	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
3050B	Preparation, Metals	SW846	TAL CHI
3541	Automated Soxhlet Extraction	SW846	TAL CHI
5030B	Purge and Trap	SW846	TAL CHI
5035	Closed System Purge and Trap	SW846	TAL CHI
8151A	Extraction (Herbicides)	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

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

Laboratory References:

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

Sample Summary

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

TestAmerica Job ID: 500-153999-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
500-153999-1	S-180129-PS-01	Solid	10/29/18 09:55	10/30/18 09:25
500-153999-2	S-180129-PS-02	Solid	10/29/18 10:00	10/30/18 09:25
500-153999-3	S-180129-PS-03	Solid	10/29/18 10:10	10/30/18 09:25
500-153999-4	S-180129-PS-04	Solid	10/29/18 10:35	10/30/18 09:25
500-153999-5	S-180129-PS-05	Solid	10/29/18 10:30	10/30/18 09:25
500-153999-6	S-180129-PS-06	Solid	10/29/18 10:50	10/30/18 09:25
500-153999-7	S-180129-PS-07	Solid	10/29/18 11:05	10/30/18 09:25
500-153999-8	S-180129-PS-08	Solid	10/29/18 11:30	10/30/18 09:25
500-153999-9	S-180129-PS-09	Solid	10/29/18 11:25	10/30/18 09:25
500-153999-10	S-180129-PS-10	Solid	10/29/18 11:40	10/30/18 09:25
500-153999-11	Trip Blank 004	Water	10/29/18 12:00	10/30/18 09:25



Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-01

Lab Sample ID: 500-153999-1

Date Collected: 10/29/18 09:55

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 90.4

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<8.8		15	8.8	ug/Kg	☼	10/29/18 09:55	11/09/18 18:43	50
Toluene	<8.8		15	8.8	ug/Kg	☼	10/29/18 09:55	11/09/18 18:43	50
Ethylbenzene	<11		15	11	ug/Kg	☼	10/29/18 09:55	11/09/18 18:43	50
Xylenes, Total	<13		30	13	ug/Kg	☼	10/29/18 09:55	11/09/18 18:43	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 126	10/29/18 09:55	11/09/18 18:43	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 09:55	11/09/18 18:43	50
4-Bromofluorobenzene (Surr)	99		72 - 124	10/29/18 09:55	11/09/18 18:43	50
Dibromofluoromethane	99		75 - 120	10/29/18 09:55	11/09/18 18:43	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.7		73	6.7	ug/Kg	☼	11/07/18 07:33	11/08/18 11:52	1
Fluorene	<5.1		36	5.1	ug/Kg	☼	11/07/18 07:33	11/08/18 11:52	1
Isophorone	<41		180	41	ug/Kg	☼	11/07/18 07:33	11/08/18 11:52	1
Naphthalene	<5.6		36	5.6	ug/Kg	☼	11/07/18 07:33	11/08/18 11:52	1
Phenanthrene	<5.1		36	5.1	ug/Kg	☼	11/07/18 07:33	11/08/18 11:52	1
1-Methylnaphthalene	<8.9		73	8.9	ug/Kg	☼	11/07/18 07:33	11/08/18 11:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	86		31 - 166	11/07/18 07:33	11/08/18 11:52	1
Phenol-d5 (Surr)	31		30 - 153	11/07/18 07:33	11/08/18 11:52	1
Nitrobenzene-d5 (Surr)	66		37 - 147	11/07/18 07:33	11/08/18 11:52	1
2-Fluorobiphenyl (Surr)	71		43 - 145	11/07/18 07:33	11/08/18 11:52	1
2,4,6-Tribromophenol (Surr)	70		31 - 143	11/07/18 07:33	11/08/18 11:52	1
Terphenyl-d14 (Surr)	104		42 - 157	11/07/18 07:33	11/08/18 11:52	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<66	*	180	66	ug/Kg	☼	11/07/18 13:04	11/09/18 11:03	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	45		25 - 120	11/07/18 13:04	11/09/18 11:03	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.4		1.1	0.38	mg/Kg	☼	11/06/18 07:49	11/06/18 14:43	1
Copper	16.5		1.1	0.31	mg/Kg	☼	11/06/18 07:49	11/06/18 14:43	1
Zinc	19.1		1.9	0.82	mg/Kg	☼	11/07/18 16:12	11/08/18 12:27	1

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-02

Lab Sample ID: 500-153999-2

Date Collected: 10/29/18 10:00

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 90.8

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<8.9		15	8.9	ug/Kg	☼	10/29/18 10:00	11/09/18 19:08	50
Toluene	<9.0		15	9.0	ug/Kg	☼	10/29/18 10:00	11/09/18 19:08	50
Ethylbenzene	<11		15	11	ug/Kg	☼	10/29/18 10:00	11/09/18 19:08	50
Xylenes, Total	<13		30	13	ug/Kg	☼	10/29/18 10:00	11/09/18 19:08	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	110		75 - 126	10/29/18 10:00	11/09/18 19:08	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 10:00	11/09/18 19:08	50
4-Bromofluorobenzene (Surr)	98		72 - 124	10/29/18 10:00	11/09/18 19:08	50
Dibromofluoromethane	98		75 - 120	10/29/18 10:00	11/09/18 19:08	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.5		72	6.5	ug/Kg	☼	11/07/18 07:33	11/08/18 12:18	1
Fluorene	<5.0		35	5.0	ug/Kg	☼	11/07/18 07:33	11/08/18 12:18	1
Isophorone	<40		180	40	ug/Kg	☼	11/07/18 07:33	11/08/18 12:18	1
Naphthalene	<5.5		35	5.5	ug/Kg	☼	11/07/18 07:33	11/08/18 12:18	1
Phenanthrene	17	J	35	5.0	ug/Kg	☼	11/07/18 07:33	11/08/18 12:18	1
1-Methylnaphthalene	10	J	72	8.7	ug/Kg	☼	11/07/18 07:33	11/08/18 12:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	82		31 - 166	11/07/18 07:33	11/08/18 12:18	1
Phenol-d5 (Surr)	59		30 - 153	11/07/18 07:33	11/08/18 12:18	1
Nitrobenzene-d5 (Surr)	62		37 - 147	11/07/18 07:33	11/08/18 12:18	1
2-Fluorobiphenyl (Surr)	65		43 - 145	11/07/18 07:33	11/08/18 12:18	1
2,4,6-Tribromophenol (Surr)	64		31 - 143	11/07/18 07:33	11/08/18 12:18	1
Terphenyl-d14 (Surr)	99		42 - 157	11/07/18 07:33	11/08/18 12:18	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<66	*	180	66	ug/Kg	☼	11/07/18 13:04	11/09/18 13:05	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	45		25 - 120	11/07/18 13:04	11/09/18 13:05	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.2		1.0	0.35	mg/Kg	☼	11/06/18 07:49	11/06/18 14:47	1
Copper	12.4		1.0	0.29	mg/Kg	☼	11/06/18 07:49	11/06/18 14:47	1
Zinc	11.1		2.1	0.91	mg/Kg	☼	11/07/18 16:12	11/08/18 12:31	1

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-03

Lab Sample ID: 500-153999-3

Date Collected: 10/29/18 10:10

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 94.7

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<8.1		14	8.1	ug/Kg	☼	10/29/18 10:10	11/09/18 19:33	50
Toluene	<8.1		14	8.1	ug/Kg	☼	10/29/18 10:10	11/09/18 19:33	50
Ethylbenzene	<10		14	10	ug/Kg	☼	10/29/18 10:10	11/09/18 19:33	50
Xylenes, Total	<12		28	12	ug/Kg	☼	10/29/18 10:10	11/09/18 19:33	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	107		75 - 126	10/29/18 10:10	11/09/18 19:33	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 10:10	11/09/18 19:33	50
4-Bromofluorobenzene (Surr)	99		72 - 124	10/29/18 10:10	11/09/18 19:33	50
Dibromofluoromethane	97		75 - 120	10/29/18 10:10	11/09/18 19:33	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.3		69	6.3	ug/Kg	☼	11/07/18 07:33	11/08/18 12:45	1
Fluorene	<4.8		34	4.8	ug/Kg	☼	11/07/18 07:33	11/08/18 12:45	1
Isophorone	<39		170	39	ug/Kg	☼	11/07/18 07:33	11/08/18 12:45	1
Naphthalene	<5.3		34	5.3	ug/Kg	☼	11/07/18 07:33	11/08/18 12:45	1
Phenanthrene	9.2	J	34	4.8	ug/Kg	☼	11/07/18 07:33	11/08/18 12:45	1
1-Methylnaphthalene	<8.4		69	8.4	ug/Kg	☼	11/07/18 07:33	11/08/18 12:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	106		31 - 166	11/07/18 07:33	11/08/18 12:45	1
Phenol-d5 (Surr)	75		30 - 153	11/07/18 07:33	11/08/18 12:45	1
Nitrobenzene-d5 (Surr)	73		37 - 147	11/07/18 07:33	11/08/18 12:45	1
2-Fluorobiphenyl (Surr)	78		43 - 145	11/07/18 07:33	11/08/18 12:45	1
2,4,6-Tribromophenol (Surr)	70		31 - 143	11/07/18 07:33	11/08/18 12:45	1
Terphenyl-d14 (Surr)	105		42 - 157	11/07/18 07:33	11/08/18 12:45	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<63	*	170	63	ug/Kg	☼	11/07/18 13:04	11/09/18 13:30	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	54		25 - 120	11/07/18 13:04	11/09/18 13:30	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.97		0.88	0.30	mg/Kg	☼	11/06/18 07:49	11/06/18 14:59	1
Copper	10.6		0.88	0.25	mg/Kg	☼	11/06/18 07:49	11/06/18 14:59	1
Zinc	11.4		2.0	0.89	mg/Kg	☼	11/07/18 16:12	11/08/18 12:35	1

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-04

Lab Sample ID: 500-153999-4

Date Collected: 10/29/18 10:35

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 90.0

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<9.0		15	9.0	ug/Kg	☼	10/29/18 10:35	11/09/18 19:58	50
Toluene	<9.0		15	9.0	ug/Kg	☼	10/29/18 10:35	11/09/18 19:58	50
Ethylbenzene	<11		15	11	ug/Kg	☼	10/29/18 10:35	11/09/18 19:58	50
Xylenes, Total	<14		31	14	ug/Kg	☼	10/29/18 10:35	11/09/18 19:58	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 126	10/29/18 10:35	11/09/18 19:58	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 10:35	11/09/18 19:58	50
4-Bromofluorobenzene (Surr)	97		72 - 124	10/29/18 10:35	11/09/18 19:58	50
Dibromofluoromethane	100		75 - 120	10/29/18 10:35	11/09/18 19:58	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.6		73	6.6	ug/Kg	☼	11/05/18 17:54	11/07/18 11:23	1
Fluorene	<5.1		36	5.1	ug/Kg	☼	11/05/18 17:54	11/07/18 11:23	1
Isophorone	<41		180	41	ug/Kg	☼	11/05/18 17:54	11/07/18 11:23	1
Naphthalene	<5.6		36	5.6	ug/Kg	☼	11/05/18 17:54	11/07/18 11:23	1
Phenanthrene	<5.0		36	5.0	ug/Kg	☼	11/05/18 17:54	11/07/18 11:23	1
1-Methylnaphthalene	<8.8		73	8.8	ug/Kg	☼	11/05/18 17:54	11/07/18 11:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	108		31 - 166	11/05/18 17:54	11/07/18 11:23	1
Phenol-d5 (Surr)	74		30 - 153	11/05/18 17:54	11/07/18 11:23	1
Nitrobenzene-d5 (Surr)	81		37 - 147	11/05/18 17:54	11/07/18 11:23	1
2-Fluorobiphenyl (Surr)	96		43 - 145	11/05/18 17:54	11/07/18 11:23	1
2,4,6-Tribromophenol (Surr)	48		31 - 143	11/05/18 17:54	11/07/18 11:23	1
Terphenyl-d14 (Surr)	110		42 - 157	11/05/18 17:54	11/07/18 11:23	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<67	*	180	67	ug/Kg	☼	11/07/18 13:04	11/09/18 13:54	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	49		25 - 120	11/07/18 13:04	11/09/18 13:54	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.5		0.94	0.32	mg/Kg	☼	11/06/18 07:49	11/06/18 15:19	1
Copper	23.7		0.94	0.26	mg/Kg	☼	11/06/18 07:49	11/06/18 15:19	1
Zinc	26.5		2.0	0.90	mg/Kg	☼	11/07/18 16:12	11/08/18 13:03	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-05

Lab Sample ID: 500-153999-5

Date Collected: 10/29/18 10:30

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 93.8

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<7.6		13	7.6	ug/Kg	☼	10/29/18 10:30	11/09/18 20:24	50
Toluene	<7.6		13	7.6	ug/Kg	☼	10/29/18 10:30	11/09/18 20:24	50
Ethylbenzene	<9.5		13	9.5	ug/Kg	☼	10/29/18 10:30	11/09/18 20:24	50
Xylenes, Total	<11		26	11	ug/Kg	☼	10/29/18 10:30	11/09/18 20:24	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 126	10/29/18 10:30	11/09/18 20:24	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 10:30	11/09/18 20:24	50
4-Bromofluorobenzene (Surr)	98		72 - 124	10/29/18 10:30	11/09/18 20:24	50
Dibromofluoromethane	101		75 - 120	10/29/18 10:30	11/09/18 20:24	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.3		69	6.3	ug/Kg	☼	11/05/18 17:54	11/07/18 11:49	1
Fluorene	<4.8		34	4.8	ug/Kg	☼	11/05/18 17:54	11/07/18 11:49	1
Isophorone	<39		170	39	ug/Kg	☼	11/05/18 17:54	11/07/18 11:49	1
Naphthalene	<5.3		34	5.3	ug/Kg	☼	11/05/18 17:54	11/07/18 11:49	1
Phenanthrene	<4.8		34	4.8	ug/Kg	☼	11/05/18 17:54	11/07/18 11:49	1
1-Methylnaphthalene	<8.4		69	8.4	ug/Kg	☼	11/05/18 17:54	11/07/18 11:49	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	114		31 - 166	11/05/18 17:54	11/07/18 11:49	1
Phenol-d5 (Surr)	101		30 - 153	11/05/18 17:54	11/07/18 11:49	1
Nitrobenzene-d5 (Surr)	104		37 - 147	11/05/18 17:54	11/07/18 11:49	1
2-Fluorobiphenyl (Surr)	93		43 - 145	11/05/18 17:54	11/07/18 11:49	1
2,4,6-Tribromophenol (Surr)	50		31 - 143	11/05/18 17:54	11/07/18 11:49	1
Terphenyl-d14 (Surr)	110		42 - 157	11/05/18 17:54	11/07/18 11:49	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<64	*	180	64	ug/Kg	☼	11/07/18 13:04	11/09/18 14:19	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	49		25 - 120	11/07/18 13:04	11/09/18 14:19	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1		0.97	0.33	mg/Kg	☼	11/06/18 07:49	11/06/18 15:23	1
Copper	15.1		0.97	0.27	mg/Kg	☼	11/06/18 07:49	11/06/18 15:23	1
Zinc	14.8		1.8	0.81	mg/Kg	☼	11/07/18 16:12	11/08/18 13:07	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-06

Lab Sample ID: 500-153999-6

Date Collected: 10/29/18 10:50

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 94.2

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<7.9		14	7.9	ug/Kg	☼	10/29/18 10:50	11/09/18 20:49	50
Toluene	<8.0		14	8.0	ug/Kg	☼	10/29/18 10:50	11/09/18 20:49	50
Ethylbenzene	<9.9		14	9.9	ug/Kg	☼	10/29/18 10:50	11/09/18 20:49	50
Xylenes, Total	<12		27	12	ug/Kg	☼	10/29/18 10:50	11/09/18 20:49	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	109		75 - 126	10/29/18 10:50	11/09/18 20:49	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 10:50	11/09/18 20:49	50
4-Bromofluorobenzene (Surr)	99		72 - 124	10/29/18 10:50	11/09/18 20:49	50
Dibromofluoromethane	97		75 - 120	10/29/18 10:50	11/09/18 20:49	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.3		69	6.3	ug/Kg	☼	11/05/18 17:54	11/07/18 12:16	1
Fluorene	<4.8		34	4.8	ug/Kg	☼	11/05/18 17:54	11/07/18 12:16	1
Isophorone	<38		170	38	ug/Kg	☼	11/05/18 17:54	11/07/18 12:16	1
Naphthalene	<5.2		34	5.2	ug/Kg	☼	11/05/18 17:54	11/07/18 12:16	1
Phenanthrene	<4.7		34	4.7	ug/Kg	☼	11/05/18 17:54	11/07/18 12:16	1
1-Methylnaphthalene	<8.3		69	8.3	ug/Kg	☼	11/05/18 17:54	11/07/18 12:16	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	129		31 - 166	11/05/18 17:54	11/07/18 12:16	1
Phenol-d5 (Surr)	116		30 - 153	11/05/18 17:54	11/07/18 12:16	1
Nitrobenzene-d5 (Surr)	107		37 - 147	11/05/18 17:54	11/07/18 12:16	1
2-Fluorobiphenyl (Surr)	94		43 - 145	11/05/18 17:54	11/07/18 12:16	1
2,4,6-Tribromophenol (Surr)	46		31 - 143	11/05/18 17:54	11/07/18 12:16	1
Terphenyl-d14 (Surr)	114		42 - 157	11/05/18 17:54	11/07/18 12:16	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<63	*	170	63	ug/Kg	☼	11/07/18 13:04	11/09/18 14:43	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	52		25 - 120	11/07/18 13:04	11/09/18 14:43	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1		0.92	0.32	mg/Kg	☼	11/06/18 07:49	11/06/18 15:27	1
Copper	22.2		0.92	0.26	mg/Kg	☼	11/06/18 07:49	11/06/18 15:27	1
Zinc	20.1		2.1	0.92	mg/Kg	☼	11/07/18 16:12	11/08/18 13:11	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-07

Lab Sample ID: 500-153999-7

Date Collected: 10/29/18 11:05

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 90.9

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<10		17	10	ug/Kg	☼	10/29/18 11:05	11/09/18 21:14	50
Toluene	<10		17	10	ug/Kg	☼	10/29/18 11:05	11/09/18 21:14	50
Ethylbenzene	<13		17	13	ug/Kg	☼	10/29/18 11:05	11/09/18 21:14	50
Xylenes, Total	<15		34	15	ug/Kg	☼	10/29/18 11:05	11/09/18 21:14	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 126	10/29/18 11:05	11/09/18 21:14	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 11:05	11/09/18 21:14	50
4-Bromofluorobenzene (Surr)	98		72 - 124	10/29/18 11:05	11/09/18 21:14	50
Dibromofluoromethane	98		75 - 120	10/29/18 11:05	11/09/18 21:14	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.5		72	6.5	ug/Kg	☼	11/05/18 17:54	11/07/18 12:43	1
Fluorene	<5.0		35	5.0	ug/Kg	☼	11/05/18 17:54	11/07/18 12:43	1
Isophorone	<40		180	40	ug/Kg	☼	11/05/18 17:54	11/07/18 12:43	1
Naphthalene	<5.5		35	5.5	ug/Kg	☼	11/05/18 17:54	11/07/18 12:43	1
Phenanthrene	<4.9		35	4.9	ug/Kg	☼	11/05/18 17:54	11/07/18 12:43	1
1-Methylnaphthalene	<8.7		72	8.7	ug/Kg	☼	11/05/18 17:54	11/07/18 12:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	107		31 - 166	11/05/18 17:54	11/07/18 12:43	1
Phenol-d5 (Surr)	76		30 - 153	11/05/18 17:54	11/07/18 12:43	1
Nitrobenzene-d5 (Surr)	77		37 - 147	11/05/18 17:54	11/07/18 12:43	1
2-Fluorobiphenyl (Surr)	84		43 - 145	11/05/18 17:54	11/07/18 12:43	1
2,4,6-Tribromophenol (Surr)	81		31 - 143	11/05/18 17:54	11/07/18 12:43	1
Terphenyl-d14 (Surr)	101		42 - 157	11/05/18 17:54	11/07/18 12:43	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<65	*	180	65	ug/Kg	☼	11/07/18 13:04	11/09/18 15:08	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	53		25 - 120	11/07/18 13:04	11/09/18 15:08	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.9		1.1	0.37	mg/Kg	☼	11/06/18 07:49	11/06/18 15:31	1
Copper	22.2		1.1	0.30	mg/Kg	☼	11/06/18 07:49	11/06/18 15:31	1
Zinc	17.1		1.9	0.85	mg/Kg	☼	11/07/18 16:12	11/08/18 13:15	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-08

Lab Sample ID: 500-153999-8

Date Collected: 10/29/18 11:30

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 89.9

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<8.9		15	8.9	ug/Kg	☼	11/04/18 08:22	11/12/18 18:41	50
Ethylbenzene	<11		15	11	ug/Kg	☼	11/04/18 08:22	11/12/18 18:41	50
Toluene	<9.0		15	9.0	ug/Kg	☼	11/04/18 08:22	11/12/18 18:41	50
Xylenes, Total	<13		31	13	ug/Kg	☼	11/04/18 08:22	11/12/18 18:41	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		75 - 126	11/04/18 08:22	11/12/18 18:41	50
4-Bromofluorobenzene (Surr)	90		72 - 124	11/04/18 08:22	11/12/18 18:41	50
Dibromofluoromethane	94		75 - 120	11/04/18 08:22	11/12/18 18:41	50
Toluene-d8 (Surr)	94		75 - 120	11/04/18 08:22	11/12/18 18:41	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.5		71	6.5	ug/Kg	☼	11/05/18 17:54	11/07/18 13:10	1
Fluorene	<5.0		35	5.0	ug/Kg	☼	11/05/18 17:54	11/07/18 13:10	1
Isophorone	<40		180	40	ug/Kg	☼	11/05/18 17:54	11/07/18 13:10	1
Naphthalene	<5.4		35	5.4	ug/Kg	☼	11/05/18 17:54	11/07/18 13:10	1
Phenanthrene	<4.9		35	4.9	ug/Kg	☼	11/05/18 17:54	11/07/18 13:10	1
1-Methylnaphthalene	<8.6		71	8.6	ug/Kg	☼	11/05/18 17:54	11/07/18 13:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	120		31 - 166	11/05/18 17:54	11/07/18 13:10	1
Phenol-d5 (Surr)	68		30 - 153	11/05/18 17:54	11/07/18 13:10	1
Nitrobenzene-d5 (Surr)	85		37 - 147	11/05/18 17:54	11/07/18 13:10	1
2-Fluorobiphenyl (Surr)	95		43 - 145	11/05/18 17:54	11/07/18 13:10	1
2,4,6-Tribromophenol (Surr)	93		31 - 143	11/05/18 17:54	11/07/18 13:10	1
Terphenyl-d14 (Surr)	111		42 - 157	11/05/18 17:54	11/07/18 13:10	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<67	*	180	67	ug/Kg	☼	11/07/18 13:04	11/09/18 15:32	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	52		25 - 120	11/07/18 13:04	11/09/18 15:32	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1		0.94	0.32	mg/Kg	☼	11/06/18 07:49	11/06/18 15:35	1
Copper	12.1		0.94	0.26	mg/Kg	☼	11/06/18 07:49	11/06/18 15:35	1
Zinc	18.6		2.2	0.97	mg/Kg	☼	11/07/18 16:12	11/08/18 13:19	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-09

Lab Sample ID: 500-153999-9

Date Collected: 10/29/18 11:25

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 89.2

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<9.0		15	9.0	ug/Kg	☼	10/29/18 11:25	11/09/18 21:39	50
Toluene	<9.1		15	9.1	ug/Kg	☼	10/29/18 11:25	11/09/18 21:39	50
Ethylbenzene	<11		15	11	ug/Kg	☼	10/29/18 11:25	11/09/18 21:39	50
Xylenes, Total	<14		31	14	ug/Kg	☼	10/29/18 11:25	11/09/18 21:39	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 126	10/29/18 11:25	11/09/18 21:39	50
Toluene-d8 (Surr)	97		75 - 120	10/29/18 11:25	11/09/18 21:39	50
4-Bromofluorobenzene (Surr)	98		72 - 124	10/29/18 11:25	11/09/18 21:39	50
Dibromofluoromethane	100		75 - 120	10/29/18 11:25	11/09/18 21:39	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.8		74	6.8	ug/Kg	☼	11/05/18 17:54	11/07/18 13:36	1
Fluorene	<5.2		37	5.2	ug/Kg	☼	11/05/18 17:54	11/07/18 13:36	1
Isophorone	<41		190	41	ug/Kg	☼	11/05/18 17:54	11/07/18 13:36	1
Naphthalene	<5.7		37	5.7	ug/Kg	☼	11/05/18 17:54	11/07/18 13:36	1
Phenanthrene	<5.1		37	5.1	ug/Kg	☼	11/05/18 17:54	11/07/18 13:36	1
1-Methylnaphthalene	<9.0		74	9.0	ug/Kg	☼	11/05/18 17:54	11/07/18 13:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	102		31 - 166	11/05/18 17:54	11/07/18 13:36	1
Phenol-d5 (Surr)	46		30 - 153	11/05/18 17:54	11/07/18 13:36	1
Nitrobenzene-d5 (Surr)	77		37 - 147	11/05/18 17:54	11/07/18 13:36	1
2-Fluorobiphenyl (Surr)	89		43 - 145	11/05/18 17:54	11/07/18 13:36	1
2,4,6-Tribromophenol (Surr)	83		31 - 143	11/05/18 17:54	11/07/18 13:36	1
Terphenyl-d14 (Surr)	102		42 - 157	11/05/18 17:54	11/07/18 13:36	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<66	*	180	66	ug/Kg	☼	11/07/18 13:04	11/09/18 15:57	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	42		25 - 120	11/07/18 13:04	11/09/18 15:57	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	1.1		1.1	0.36	mg/Kg	☼	11/06/18 07:49	11/06/18 15:46	1
Copper	13.3		1.1	0.30	mg/Kg	☼	11/06/18 07:49	11/06/18 15:46	1
Zinc	12.2		1.9	0.82	mg/Kg	☼	11/07/18 16:12	11/08/18 13:22	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-10

Lab Sample ID: 500-153999-10

Date Collected: 10/29/18 11:40

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 93.5

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<8.3		14	8.3	ug/Kg	☼	10/29/18 11:40	11/09/18 22:05	50
Toluene	<8.3		14	8.3	ug/Kg	☼	10/29/18 11:40	11/09/18 22:05	50
Ethylbenzene	<10		14	10	ug/Kg	☼	10/29/18 11:40	11/09/18 22:05	50
Xylenes, Total	<12		28	12	ug/Kg	☼	10/29/18 11:40	11/09/18 22:05	50

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	113		75 - 126	10/29/18 11:40	11/09/18 22:05	50
Toluene-d8 (Surr)	95		75 - 120	10/29/18 11:40	11/09/18 22:05	50
4-Bromofluorobenzene (Surr)	100		72 - 124	10/29/18 11:40	11/09/18 22:05	50
Dibromofluoromethane	98		75 - 120	10/29/18 11:40	11/09/18 22:05	50

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.4		70	6.4	ug/Kg	☼	11/05/18 17:54	11/07/18 14:03	1
Fluorene	<4.9		35	4.9	ug/Kg	☼	11/05/18 17:54	11/07/18 14:03	1
Isophorone	<39		180	39	ug/Kg	☼	11/05/18 17:54	11/07/18 14:03	1
Naphthalene	<5.4		35	5.4	ug/Kg	☼	11/05/18 17:54	11/07/18 14:03	1
Phenanthrene	<4.9		35	4.9	ug/Kg	☼	11/05/18 17:54	11/07/18 14:03	1
1-Methylnaphthalene	<8.5		70	8.5	ug/Kg	☼	11/05/18 17:54	11/07/18 14:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	126		31 - 166	11/05/18 17:54	11/07/18 14:03	1
Phenol-d5 (Surr)	113		30 - 153	11/05/18 17:54	11/07/18 14:03	1
Nitrobenzene-d5 (Surr)	81		37 - 147	11/05/18 17:54	11/07/18 14:03	1
2-Fluorobiphenyl (Surr)	98		43 - 145	11/05/18 17:54	11/07/18 14:03	1
2,4,6-Tribromophenol (Surr)	87		31 - 143	11/05/18 17:54	11/07/18 14:03	1
Terphenyl-d14 (Surr)	107		42 - 157	11/05/18 17:54	11/07/18 14:03	1

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<63	*	170	63	ug/Kg	☼	11/07/18 13:04	11/09/18 16:21	10

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	49		25 - 120	11/07/18 13:04	11/09/18 16:21	10

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	0.89	J	0.99	0.34	mg/Kg	☼	11/06/18 07:49	11/06/18 15:50	1
Copper	9.8		0.99	0.28	mg/Kg	☼	11/06/18 07:49	11/06/18 15:50	1
Zinc	15.5		2.1	0.92	mg/Kg	☼	11/07/18 16:12	11/08/18 13:26	1

TestAmerica Chicago

Client Sample Results

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: Trip Blank 004

Lab Sample ID: 500-153999-11

Date Collected: 10/29/18 12:00

Matrix: Water

Date Received: 10/30/18 09:25

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			11/10/18 09:38	1
Toluene	<0.15		0.50	0.15	ug/L			11/10/18 09:38	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/10/18 09:38	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/10/18 09:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	100		75 - 126		11/10/18 09:38	1
Toluene-d8 (Surr)	99		75 - 120		11/10/18 09:38	1
4-Bromofluorobenzene (Surr)	97		72 - 124		11/10/18 09:38	1
Dibromofluoromethane	92		75 - 120		11/10/18 09:38	1

Definitions/Glossary

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

TestAmerica Job ID: 500-153999-1

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
*	LCS or LCSD is outside acceptance limits.
X	Surrogate is outside control limits
J	Reported value was between the limit of detection and the limit of quantitation.

Metals

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

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
▫	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (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)

QC Association Summary

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

TestAmerica Job ID: 500-153999-1

GC/MS VOA

Prep Batch: 457676

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	5035	
500-153999-2	S-180129-PS-02	Total/NA	Solid	5035	
500-153999-3	S-180129-PS-03	Total/NA	Solid	5035	
500-153999-4	S-180129-PS-04	Total/NA	Solid	5035	
500-153999-5	S-180129-PS-05	Total/NA	Solid	5035	
500-153999-6	S-180129-PS-06	Total/NA	Solid	5035	
500-153999-7	S-180129-PS-07	Total/NA	Solid	5035	
500-153999-9	S-180129-PS-09	Total/NA	Solid	5035	
500-153999-10	S-180129-PS-10	Total/NA	Solid	5035	
LB3 500-457676/11-A	Method Blank	Total/NA	Solid	5035	
LCS 500-457676/12-A	Lab Control Sample	Total/NA	Solid	5035	

Prep Batch: 458368

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-8	S-180129-PS-08	Total/NA	Solid	5030B	
500-153999-8 MS	S-180129-PS-08	Total/NA	Solid	5030B	
500-153999-8 MSD	S-180129-PS-08	Total/NA	Solid	5030B	

Analysis Batch: 459259

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	8260B	457676
500-153999-2	S-180129-PS-02	Total/NA	Solid	8260B	457676
500-153999-3	S-180129-PS-03	Total/NA	Solid	8260B	457676
500-153999-4	S-180129-PS-04	Total/NA	Solid	8260B	457676
500-153999-5	S-180129-PS-05	Total/NA	Solid	8260B	457676
500-153999-6	S-180129-PS-06	Total/NA	Solid	8260B	457676
500-153999-7	S-180129-PS-07	Total/NA	Solid	8260B	457676
500-153999-9	S-180129-PS-09	Total/NA	Solid	8260B	457676
500-153999-10	S-180129-PS-10	Total/NA	Solid	8260B	457676
LB3 500-457676/11-A	Method Blank	Total/NA	Solid	8260B	457676
MB 500-459259/6	Method Blank	Total/NA	Solid	8260B	
LCS 500-459259/8	Lab Control Sample	Total/NA	Solid	8260B	

Analysis Batch: 459486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-11	Trip Blank 004	Total/NA	Water	8260B	
MB 500-459486/7	Method Blank	Total/NA	Water	8260B	
LCS 500-459486/5	Lab Control Sample	Total/NA	Water	8260B	

Analysis Batch: 459487

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-459487/7	Method Blank	Total/NA	Solid	8260B	
LCS 500-457676/12-A	Lab Control Sample	Total/NA	Solid	8260B	457676

Analysis Batch: 459630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-8	S-180129-PS-08	Total/NA	Solid	8260B	458368
MB 500-459630/7	Method Blank	Total/NA	Solid	8260B	
LCS 500-459630/5	Lab Control Sample	Total/NA	Solid	8260B	
500-153999-8 MS	S-180129-PS-08	Total/NA	Solid	8260B	458368
500-153999-8 MSD	S-180129-PS-08	Total/NA	Solid	8260B	458368

TestAmerica Chicago

QC Association Summary

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

TestAmerica Job ID: 500-153999-1

GC/MS Semi VOA

Prep Batch: 458567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-4	S-180129-PS-04	Total/NA	Solid	3541	
500-153999-5	S-180129-PS-05	Total/NA	Solid	3541	
500-153999-6	S-180129-PS-06	Total/NA	Solid	3541	
500-153999-7	S-180129-PS-07	Total/NA	Solid	3541	
500-153999-8	S-180129-PS-08	Total/NA	Solid	3541	
500-153999-9	S-180129-PS-09	Total/NA	Solid	3541	
500-153999-10	S-180129-PS-10	Total/NA	Solid	3541	
MB 500-458567/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-458567/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 458633

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-458567/1-A	Method Blank	Total/NA	Solid	8270D	458567
LCS 500-458567/2-A	Lab Control Sample	Total/NA	Solid	8270D	458567

Prep Batch: 458843

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	3541	
500-153999-2	S-180129-PS-02	Total/NA	Solid	3541	
500-153999-3	S-180129-PS-03	Total/NA	Solid	3541	
MB 500-458843/1-A	Method Blank	Total/NA	Solid	3541	
LCS 500-458843/2-A	Lab Control Sample	Total/NA	Solid	3541	

Analysis Batch: 458883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-4	S-180129-PS-04	Total/NA	Solid	8270D	458567
500-153999-5	S-180129-PS-05	Total/NA	Solid	8270D	458567
500-153999-6	S-180129-PS-06	Total/NA	Solid	8270D	458567
500-153999-7	S-180129-PS-07	Total/NA	Solid	8270D	458567
500-153999-8	S-180129-PS-08	Total/NA	Solid	8270D	458567
500-153999-9	S-180129-PS-09	Total/NA	Solid	8270D	458567
500-153999-10	S-180129-PS-10	Total/NA	Solid	8270D	458567

Analysis Batch: 458894

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 500-458843/1-A	Method Blank	Total/NA	Solid	8270D	458843
LCS 500-458843/2-A	Lab Control Sample	Total/NA	Solid	8270D	458843

Analysis Batch: 459093

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	8270D	458843
500-153999-2	S-180129-PS-02	Total/NA	Solid	8270D	458843
500-153999-3	S-180129-PS-03	Total/NA	Solid	8270D	458843

GC Semi VOA

Prep Batch: 458929

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	8151A	
500-153999-2	S-180129-PS-02	Total/NA	Solid	8151A	

TestAmerica Chicago

QC Association Summary

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

TestAmerica Job ID: 500-153999-1

GC Semi VOA (Continued)

Prep Batch: 458929 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-3	S-180129-PS-03	Total/NA	Solid	8151A	
500-153999-4	S-180129-PS-04	Total/NA	Solid	8151A	
500-153999-5	S-180129-PS-05	Total/NA	Solid	8151A	
500-153999-6	S-180129-PS-06	Total/NA	Solid	8151A	
500-153999-7	S-180129-PS-07	Total/NA	Solid	8151A	
500-153999-8	S-180129-PS-08	Total/NA	Solid	8151A	
500-153999-9	S-180129-PS-09	Total/NA	Solid	8151A	
500-153999-10	S-180129-PS-10	Total/NA	Solid	8151A	
MB 500-458929/1-A	Method Blank	Total/NA	Solid	8151A	
LCS 500-458929/2-A	Lab Control Sample	Total/NA	Solid	8151A	
500-153999-1 MS	S-180129-PS-01	Total/NA	Solid	8151A	
500-153999-1 MSD	S-180129-PS-01	Total/NA	Solid	8151A	

Analysis Batch: 459299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	8151A	458929
500-153999-2	S-180129-PS-02	Total/NA	Solid	8151A	458929
500-153999-3	S-180129-PS-03	Total/NA	Solid	8151A	458929
500-153999-4	S-180129-PS-04	Total/NA	Solid	8151A	458929
500-153999-5	S-180129-PS-05	Total/NA	Solid	8151A	458929
500-153999-6	S-180129-PS-06	Total/NA	Solid	8151A	458929
500-153999-7	S-180129-PS-07	Total/NA	Solid	8151A	458929
500-153999-8	S-180129-PS-08	Total/NA	Solid	8151A	458929
500-153999-9	S-180129-PS-09	Total/NA	Solid	8151A	458929
500-153999-10	S-180129-PS-10	Total/NA	Solid	8151A	458929
MB 500-458929/1-A	Method Blank	Total/NA	Solid	8151A	458929
LCS 500-458929/2-A	Lab Control Sample	Total/NA	Solid	8151A	458929
500-153999-1 MS	S-180129-PS-01	Total/NA	Solid	8151A	458929
500-153999-1 MSD	S-180129-PS-01	Total/NA	Solid	8151A	458929

Metals

Prep Batch: 458474

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	3050B	
500-153999-2	S-180129-PS-02	Total/NA	Solid	3050B	
500-153999-3	S-180129-PS-03	Total/NA	Solid	3050B	
500-153999-4	S-180129-PS-04	Total/NA	Solid	3050B	
500-153999-5	S-180129-PS-05	Total/NA	Solid	3050B	
500-153999-6	S-180129-PS-06	Total/NA	Solid	3050B	
500-153999-7	S-180129-PS-07	Total/NA	Solid	3050B	
500-153999-8	S-180129-PS-08	Total/NA	Solid	3050B	
500-153999-9	S-180129-PS-09	Total/NA	Solid	3050B	
500-153999-10	S-180129-PS-10	Total/NA	Solid	3050B	
MB 500-458474/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-458474/2-A	Lab Control Sample	Total/NA	Solid	3050B	
500-153999-3 MS	S-180129-PS-03	Total/NA	Solid	3050B	
500-153999-3 MSD	S-180129-PS-03	Total/NA	Solid	3050B	
500-153999-3 DU	S-180129-PS-03	Total/NA	Solid	3050B	

TestAmerica Chicago

QC Association Summary

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

TestAmerica Job ID: 500-153999-1

Metals (Continued)

Analysis Batch: 458826

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	6010C	458474
500-153999-2	S-180129-PS-02	Total/NA	Solid	6010C	458474
500-153999-3	S-180129-PS-03	Total/NA	Solid	6010C	458474
500-153999-4	S-180129-PS-04	Total/NA	Solid	6010C	458474
500-153999-5	S-180129-PS-05	Total/NA	Solid	6010C	458474
500-153999-6	S-180129-PS-06	Total/NA	Solid	6010C	458474
500-153999-7	S-180129-PS-07	Total/NA	Solid	6010C	458474
500-153999-8	S-180129-PS-08	Total/NA	Solid	6010C	458474
500-153999-9	S-180129-PS-09	Total/NA	Solid	6010C	458474
500-153999-10	S-180129-PS-10	Total/NA	Solid	6010C	458474
MB 500-458474/1-A	Method Blank	Total/NA	Solid	6010C	458474
LCS 500-458474/2-A	Lab Control Sample	Total/NA	Solid	6010C	458474
500-153999-3 MS	S-180129-PS-03	Total/NA	Solid	6010C	458474
500-153999-3 MSD	S-180129-PS-03	Total/NA	Solid	6010C	458474
500-153999-3 DU	S-180129-PS-03	Total/NA	Solid	6010C	458474

Prep Batch: 458968

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	3050B	
500-153999-2	S-180129-PS-02	Total/NA	Solid	3050B	
500-153999-3	S-180129-PS-03	Total/NA	Solid	3050B	
500-153999-4	S-180129-PS-04	Total/NA	Solid	3050B	
500-153999-5	S-180129-PS-05	Total/NA	Solid	3050B	
500-153999-6	S-180129-PS-06	Total/NA	Solid	3050B	
500-153999-7	S-180129-PS-07	Total/NA	Solid	3050B	
500-153999-8	S-180129-PS-08	Total/NA	Solid	3050B	
500-153999-9	S-180129-PS-09	Total/NA	Solid	3050B	
500-153999-10	S-180129-PS-10	Total/NA	Solid	3050B	
MB 500-458968/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-458968/2-A	Lab Control Sample	Total/NA	Solid	3050B	
500-153999-3 MS	S-180129-PS-03	Total/NA	Solid	3050B	
500-153999-3 MSD	S-180129-PS-03	Total/NA	Solid	3050B	
500-153999-3 DU	S-180129-PS-03	Total/NA	Solid	3050B	

Analysis Batch: 459148

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	6010C	458968
500-153999-2	S-180129-PS-02	Total/NA	Solid	6010C	458968
500-153999-3	S-180129-PS-03	Total/NA	Solid	6010C	458968
500-153999-4	S-180129-PS-04	Total/NA	Solid	6010C	458968
500-153999-5	S-180129-PS-05	Total/NA	Solid	6010C	458968
500-153999-6	S-180129-PS-06	Total/NA	Solid	6010C	458968
500-153999-7	S-180129-PS-07	Total/NA	Solid	6010C	458968
500-153999-8	S-180129-PS-08	Total/NA	Solid	6010C	458968
500-153999-9	S-180129-PS-09	Total/NA	Solid	6010C	458968
500-153999-10	S-180129-PS-10	Total/NA	Solid	6010C	458968
MB 500-458968/1-A	Method Blank	Total/NA	Solid	6010C	458968
LCS 500-458968/2-A	Lab Control Sample	Total/NA	Solid	6010C	458968
500-153999-3 MS	S-180129-PS-03	Total/NA	Solid	6010C	458968
500-153999-3 MSD	S-180129-PS-03	Total/NA	Solid	6010C	458968
500-153999-3 DU	S-180129-PS-03	Total/NA	Solid	6010C	458968

TestAmerica Chicago

QC Association Summary

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

TestAmerica Job ID: 500-153999-1

General Chemistry

Analysis Batch: 457609

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-153999-1	S-180129-PS-01	Total/NA	Solid	Moisture	
500-153999-2	S-180129-PS-02	Total/NA	Solid	Moisture	
500-153999-3	S-180129-PS-03	Total/NA	Solid	Moisture	
500-153999-4	S-180129-PS-04	Total/NA	Solid	Moisture	
500-153999-5	S-180129-PS-05	Total/NA	Solid	Moisture	
500-153999-6	S-180129-PS-06	Total/NA	Solid	Moisture	
500-153999-7	S-180129-PS-07	Total/NA	Solid	Moisture	
500-153999-8	S-180129-PS-08	Total/NA	Solid	Moisture	
500-153999-9	S-180129-PS-09	Total/NA	Solid	Moisture	
500-153999-10	S-180129-PS-10	Total/NA	Solid	Moisture	

Surrogate Summary

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

TestAmerica Job ID: 500-153999-1

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-126)	TOL (75-120)	BFB (72-124)	DBFM (75-120)
500-153999-1	S-180129-PS-01	108	97	99	99
500-153999-2	S-180129-PS-02	110	97	98	98
500-153999-3	S-180129-PS-03	107	97	99	97
500-153999-4	S-180129-PS-04	112	97	97	100
500-153999-5	S-180129-PS-05	109	97	98	101
500-153999-6	S-180129-PS-06	109	97	99	97
500-153999-7	S-180129-PS-07	112	97	98	98
500-153999-8	S-180129-PS-08	87	94	90	94
500-153999-8 MS	S-180129-PS-08	88	93	91	98
500-153999-8 MSD	S-180129-PS-08	87	94	90	96
500-153999-9	S-180129-PS-09	113	97	98	100
500-153999-10	S-180129-PS-10	113	95	100	98
LB3 500-457676/11-A	Method Blank	107	96	98	98
LCS 500-457676/12-A	Lab Control Sample	117	93	102	105
LCS 500-459259/8	Lab Control Sample	101	98	97	95
LCS 500-459630/5	Lab Control Sample	83	94	90	96
MB 500-459259/6	Method Blank	112	97	97	101
MB 500-459487/7	Method Blank	108	99	98	97
MB 500-459630/7	Method Blank	83	93	92	93

Surrogate Legend

DCA = 1,2-Dichloroethane-d4 (Surr)

TOL = Toluene-d8 (Surr)

BFB = 4-Bromofluorobenzene (Surr)

DBFM = Dibromofluoromethane

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

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCA (75-126)	TOL (75-120)	BFB (72-124)	DBFM (75-120)
500-153999-11	Trip Blank 004	100	99	97	92
LCS 500-459486/5	Lab Control Sample	98	99	99	93
MB 500-459486/7	Method Blank	108	99	98	97

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: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		2FP (31-166)	PHL (30-153)	NBZ (37-147)	FBP (43-145)	TBP (31-143)	TPHL (42-157)
500-153999-1	S-180129-PS-01	86	31	66	71	70	104
500-153999-2	S-180129-PS-02	82	59	62	65	64	99

TestAmerica Chicago

Surrogate Summary

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

TestAmerica Job ID: 500-153999-1

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

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)					
		2FP (31-166)	PHL (30-153)	NBZ (37-147)	FBP (43-145)	TBP (31-143)	TPHL (42-157)
500-153999-3	S-180129-PS-03	106	75	73	78	70	105
500-153999-4	S-180129-PS-04	108	74	81	96	48	110
500-153999-5	S-180129-PS-05	114	101	104	93	50	110
500-153999-6	S-180129-PS-06	129	116	107	94	46	114
500-153999-7	S-180129-PS-07	107	76	77	84	81	101
500-153999-8	S-180129-PS-08	120	68	85	95	93	111
500-153999-9	S-180129-PS-09	102	46	77	89	83	102
500-153999-10	S-180129-PS-10	126	113	81	98	87	107
LCS 500-458567/2-A	Lab Control Sample	101	108	100	100	122	114
LCS 500-458843/2-A	Lab Control Sample	103	100	95	95	87	107
MB 500-458567/1-A	Method Blank	101	109	87	100	112	118
MB 500-458843/1-A	Method Blank	117	123	108	111	88	136

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
PHL = Phenol-d5 (Surr)
NBZ = Nitrobenzene-d5 (Surr)
FBP = 2-Fluorobiphenyl (Surr)
TBP = 2,4,6-Tribromophenol (Surr)
TPHL = Terphenyl-d14 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Solid

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)
		DCPAA2 (25-120)
500-153999-1	S-180129-PS-01	45
500-153999-1 MS	S-180129-PS-01	50
500-153999-1 MSD	S-180129-PS-01	54
500-153999-2	S-180129-PS-02	45
500-153999-3	S-180129-PS-03	54
500-153999-4	S-180129-PS-04	49
500-153999-5	S-180129-PS-05	49
500-153999-6	S-180129-PS-06	52
500-153999-7	S-180129-PS-07	53
500-153999-8	S-180129-PS-08	52
500-153999-9	S-180129-PS-09	42
500-153999-10	S-180129-PS-10	49
LCS 500-458929/2-A	Lab Control Sample	13 X
MB 500-458929/1-A	Method Blank	47

Surrogate Legend

DCPAA = DCAA

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: LB3 500-457676/11-A
Matrix: Solid
Analysis Batch: 459259

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 457676

Analyte	LB3 LB3		LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Benzene	<7.3		13	7.3	ug/Kg		10/31/18 05:30	11/09/18 18:18	50
Ethylbenzene	<9.2		13	9.2	ug/Kg		10/31/18 05:30	11/09/18 18:18	50
Toluene	9.82	J	13	7.4	ug/Kg		10/31/18 05:30	11/09/18 18:18	50
Xylenes, Total	<11		25	11	ug/Kg		10/31/18 05:30	11/09/18 18:18	50

Surrogate	LB3 LB3		Limits	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier				
1,2-Dichloroethane-d4 (Surr)	107		75 - 126	10/31/18 05:30	11/09/18 18:18	50
4-Bromofluorobenzene (Surr)	98		72 - 124	10/31/18 05:30	11/09/18 18:18	50
Toluene-d8 (Surr)	96		75 - 120	10/31/18 05:30	11/09/18 18:18	50
Dibromofluoromethane	98		75 - 120	10/31/18 05:30	11/09/18 18:18	50

Lab Sample ID: LCS 500-457676/12-A
Matrix: Solid
Analysis Batch: 459487

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 457676

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	2500	2550		ug/Kg		102	70 - 123
Toluene	2500	2470		ug/Kg		99	70 - 125
Xylenes, Total	5000	5620		ug/Kg		112	70 - 125

Surrogate	LCS LCS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	117		75 - 126
4-Bromofluorobenzene (Surr)	102		72 - 124
Toluene-d8 (Surr)	93		75 - 120
Dibromofluoromethane	105		75 - 120

Lab Sample ID: 500-153999-8 MS
Matrix: Solid
Analysis Batch: 459630

Client Sample ID: S-180129-PS-08
Prep Type: Total/NA
Prep Batch: 458368

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	<11		3060	2610		ug/Kg	☼	85	70 - 123
Toluene	<9.0		3060	2540		ug/Kg	☼	83	70 - 125
Xylenes, Total	<13		6130	5240		ug/Kg	☼	86	70 - 125

Surrogate	MS MS		Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	88		75 - 126
4-Bromofluorobenzene (Surr)	91		72 - 124
Toluene-d8 (Surr)	93		75 - 120
Dibromofluoromethane	98		75 - 120

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: 500-153999-8 MSD
Matrix: Solid
Analysis Batch: 459630

Client Sample ID: S-180129-PS-08
Prep Type: Total/NA
Prep Batch: 458368

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<8.9		3060	2830		ug/Kg	☼	92	70 - 120	5	30
Ethylbenzene	<11		3060	2760		ug/Kg	☼	90	70 - 123	6	30
Toluene	<9.0		3060	2750		ug/Kg	☼	90	70 - 125	8	30
Xylenes, Total	<13		6130	5630		ug/Kg	☼	92	70 - 125	7	30

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	87		75 - 126
4-Bromofluorobenzene (Surr)	90		72 - 124
Toluene-d8 (Surr)	94		75 - 120
Dibromofluoromethane	96		75 - 120

Lab Sample ID: MB 500-459259/6
Matrix: Solid
Analysis Batch: 459259

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		0.25	0.15	ug/Kg			11/09/18 13:51	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			11/09/18 13:51	1
Toluene	<0.15		0.25	0.15	ug/Kg			11/09/18 13:51	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			11/09/18 13:51	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	112		75 - 126		11/09/18 13:51	1
4-Bromofluorobenzene (Surr)	97		72 - 124		11/09/18 13:51	1
Toluene-d8 (Surr)	97		75 - 120		11/09/18 13:51	1
Dibromofluoromethane	101		75 - 120		11/09/18 13:51	1

Lab Sample ID: LCS 500-459259/8
Matrix: Solid
Analysis Batch: 459259

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Benzene	50.0	49.5		ug/Kg		99	70 - 120
Ethylbenzene	50.0	48.5		ug/Kg		97	70 - 123
Toluene	50.0	46.4		ug/Kg		93	70 - 125
Xylenes, Total	100	104		ug/Kg		104	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	101		75 - 126
4-Bromofluorobenzene (Surr)	97		72 - 124
Toluene-d8 (Surr)	98		75 - 120
Dibromofluoromethane	95		75 - 120

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: MB 500-459486/7

Matrix: Water

Analysis Batch: 459486

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			11/10/18 09:12	1
Ethylbenzene	<0.18		0.50	0.18	ug/L			11/10/18 09:12	1
Toluene	<0.15		0.50	0.15	ug/L			11/10/18 09:12	1
Xylenes, Total	<0.22		1.0	0.22	ug/L			11/10/18 09:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 126		11/10/18 09:12	1
4-Bromofluorobenzene (Surr)	98		72 - 124		11/10/18 09:12	1
Toluene-d8 (Surr)	99		75 - 120		11/10/18 09:12	1
Dibromofluoromethane	97		75 - 120		11/10/18 09:12	1

Lab Sample ID: LCS 500-459486/5

Matrix: Water

Analysis Batch: 459486

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	50.1		ug/L		100	70 - 120
Ethylbenzene	50.0	49.5		ug/L		99	70 - 123
Toluene	50.0	46.9		ug/L		94	70 - 125
Xylenes, Total	100	105		ug/L		105	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	98		75 - 126
4-Bromofluorobenzene (Surr)	99		72 - 124
Toluene-d8 (Surr)	99		75 - 120
Dibromofluoromethane	93		75 - 120

Lab Sample ID: MB 500-459487/7

Matrix: Solid

Analysis Batch: 459487

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		0.25	0.15	ug/Kg			11/10/18 09:12	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			11/10/18 09:12	1
Toluene	<0.15		0.25	0.15	ug/Kg			11/10/18 09:12	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			11/10/18 09:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	108		75 - 126		11/10/18 09:12	1
4-Bromofluorobenzene (Surr)	98		72 - 124		11/10/18 09:12	1
Toluene-d8 (Surr)	99		75 - 120		11/10/18 09:12	1
Dibromofluoromethane	97		75 - 120		11/10/18 09:12	1

TestAmerica Chicago

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: MB 500-459630/7
Matrix: Solid
Analysis Batch: 459630

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		0.25	0.15	ug/Kg			11/12/18 10:35	1
Ethylbenzene	<0.18		0.25	0.18	ug/Kg			11/12/18 10:35	1
Toluene	<0.15		0.25	0.15	ug/Kg			11/12/18 10:35	1
Xylenes, Total	<0.22		0.50	0.22	ug/Kg			11/12/18 10:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	83		75 - 126		11/12/18 10:35	1
4-Bromofluorobenzene (Surr)	92		72 - 124		11/12/18 10:35	1
Toluene-d8 (Surr)	93		75 - 120		11/12/18 10:35	1
Dibromofluoromethane	93		75 - 120		11/12/18 10:35	1

Lab Sample ID: LCS 500-459630/5
Matrix: Solid
Analysis Batch: 459630

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	43.8		ug/Kg		88	70 - 120
Ethylbenzene	50.0	43.1		ug/Kg		86	70 - 123
Toluene	50.0	42.1		ug/Kg		84	70 - 125
Xylenes, Total	100	87.6		ug/Kg		88	70 - 125

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dichloroethane-d4 (Surr)	83		75 - 126
4-Bromofluorobenzene (Surr)	90		72 - 124
Toluene-d8 (Surr)	94		75 - 120
Dibromofluoromethane	96		75 - 120

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

Lab Sample ID: MB 500-458567/1-A
Matrix: Solid
Analysis Batch: 458633

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458567

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.1		67	6.1	ug/Kg		11/05/18 17:54	11/06/18 15:47	1
Fluorene	<4.7		33	4.7	ug/Kg		11/05/18 17:54	11/06/18 15:47	1
Isophorone	<37		170	37	ug/Kg		11/05/18 17:54	11/06/18 15:47	1
Naphthalene	<5.1		33	5.1	ug/Kg		11/05/18 17:54	11/06/18 15:47	1
Phenanthrene	<4.6		33	4.6	ug/Kg		11/05/18 17:54	11/06/18 15:47	1
1-Methylnaphthalene	<8.1		67	8.1	ug/Kg		11/05/18 17:54	11/06/18 15:47	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	101		31 - 166	11/05/18 17:54	11/06/18 15:47	1
Phenol-d5 (Surr)	109		30 - 153	11/05/18 17:54	11/06/18 15:47	1
Nitrobenzene-d5 (Surr)	87		37 - 147	11/05/18 17:54	11/06/18 15:47	1
2-Fluorobiphenyl (Surr)	100		43 - 145	11/05/18 17:54	11/06/18 15:47	1
2,4,6-Tribromophenol (Surr)	112		31 - 143	11/05/18 17:54	11/06/18 15:47	1

TestAmerica Chicago

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: MB 500-458567/1-A
Matrix: Solid
Analysis Batch: 458633

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458567

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	118		42 - 157	11/05/18 17:54	11/06/18 15:47	1

Lab Sample ID: LCS 500-458567/2-A
Matrix: Solid
Analysis Batch: 458633

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458567

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits %Rec.
2-Methylnaphthalene	1330	1330		ug/Kg		99	69 - 112
Fluorene	1330	1310		ug/Kg		98	62 - 120
Isophorone	1330	1240		ug/Kg		93	55 - 110
Naphthalene	1330	1280		ug/Kg		96	63 - 110
Phenanthrene	1330	1260		ug/Kg		95	62 - 120
1-Methylnaphthalene	1330	1290		ug/Kg		97	68 - 111

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	101		31 - 166
Phenol-d5 (Surr)	108		30 - 153
Nitrobenzene-d5 (Surr)	100		37 - 147
2-Fluorobiphenyl (Surr)	100		43 - 145
2,4,6-Tribromophenol (Surr)	122		31 - 143
Terphenyl-d14 (Surr)	114		42 - 157

Lab Sample ID: MB 500-458843/1-A
Matrix: Solid
Analysis Batch: 458894

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458843

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
2-Methylnaphthalene	<6.1		67	6.1	ug/Kg		11/07/18 07:33	11/07/18 15:35	1
Fluorene	<4.7		33	4.7	ug/Kg		11/07/18 07:33	11/07/18 15:35	1
Isophorone	<37		170	37	ug/Kg		11/07/18 07:33	11/07/18 15:35	1
Naphthalene	<5.1		33	5.1	ug/Kg		11/07/18 07:33	11/07/18 15:35	1
Phenanthrene	<4.6		33	4.6	ug/Kg		11/07/18 07:33	11/07/18 15:35	1
1-Methylnaphthalene	<8.1		67	8.1	ug/Kg		11/07/18 07:33	11/07/18 15:35	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorophenol (Surr)	117		31 - 166	11/07/18 07:33	11/07/18 15:35	1
Phenol-d5 (Surr)	123		30 - 153	11/07/18 07:33	11/07/18 15:35	1
Nitrobenzene-d5 (Surr)	108		37 - 147	11/07/18 07:33	11/07/18 15:35	1
2-Fluorobiphenyl (Surr)	111		43 - 145	11/07/18 07:33	11/07/18 15:35	1
2,4,6-Tribromophenol (Surr)	88		31 - 143	11/07/18 07:33	11/07/18 15:35	1
Terphenyl-d14 (Surr)	136		42 - 157	11/07/18 07:33	11/07/18 15:35	1

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: LCS 500-458843/2-A
Matrix: Solid
Analysis Batch: 458894

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458843

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
2-Methylnaphthalene	1330	1230		ug/Kg		92	69 - 112
Fluorene	1330	1240		ug/Kg		93	62 - 120
Isophorone	1330	1170		ug/Kg		88	55 - 110
Naphthalene	1330	1200		ug/Kg		90	63 - 110
Phenanthrene	1330	1260		ug/Kg		94	62 - 120
1-Methylnaphthalene	1330	1210		ug/Kg		91	68 - 111

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorophenol (Surr)	103		31 - 166
Phenol-d5 (Surr)	100		30 - 153
Nitrobenzene-d5 (Surr)	95		37 - 147
2-Fluorobiphenyl (Surr)	95		43 - 145
2,4,6-Tribromophenol (Surr)	87		31 - 143
Terphenyl-d14 (Surr)	107		42 - 157

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 500-458929/1-A
Matrix: Solid
Analysis Batch: 459299

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458929

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<61		170	61	ug/Kg		11/07/18 13:04	11/09/18 09:25	10

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCAA	47		25 - 120	11/07/18 13:04	11/09/18 09:25	10

Lab Sample ID: LCS 500-458929/2-A
Matrix: Solid
Analysis Batch: 459299

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458929

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	1330	109	J*	ug/Kg		8	30 - 110

Surrogate	LCS %Recovery	LCS Qualifier	Limits
DCAA	13	X	25 - 120

Lab Sample ID: 500-153999-1 MS
Matrix: Solid
Analysis Batch: 459299

Client Sample ID: S-180129-PS-01
Prep Type: Total/NA
Prep Batch: 458929

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Pentachlorophenol	<66	*	1440	627		ug/Kg	☼	44	30 - 110

Surrogate	MS %Recovery	MS Qualifier	Limits
DCAA	50		25 - 120

TestAmerica Chicago

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

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

Lab Sample ID: 500-153999-1 MSD

Matrix: Solid

Analysis Batch: 459299

Client Sample ID: S-180129-PS-01

Prep Type: Total/NA

Prep Batch: 458929

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Pentachlorophenol	<66	*	1440	652		ug/Kg	☼	45	30 - 110	4	30
Surrogate	%Recovery	MSD	MSD	Qualifiers	Limits						
DCAA	54				25 - 120						

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 500-458474/1-A

Matrix: Solid

Analysis Batch: 458826

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 458474

Analyte	MB	MB	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Arsenic	<0.34		1.0	0.34	mg/Kg		11/06/18 07:49	11/06/18 14:23	1
Copper	<0.28		1.0	0.28	mg/Kg		11/06/18 07:49	11/06/18 14:23	1

Lab Sample ID: LCS 500-458474/2-A

Matrix: Solid

Analysis Batch: 458826

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 458474

Analyte	Spike	LCS	LCS	Unit	D	%Rec	Limits
		Added	Result				
Arsenic	10.0	9.04		mg/Kg		90	80 - 120
Copper	25.0	24.20		mg/Kg		97	80 - 120

Lab Sample ID: 500-153999-3 MS

Matrix: Solid

Analysis Batch: 458826

Client Sample ID: S-180129-PS-03

Prep Type: Total/NA

Prep Batch: 458474

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	Limits
	Result	Qualifier		Result	Qualifier				
Arsenic	0.97		9.05	8.32		mg/Kg	☼	81	75 - 125
Copper	10.6		22.6	33.76		mg/Kg	☼	102	75 - 125

Lab Sample ID: 500-153999-3 MSD

Matrix: Solid

Analysis Batch: 458826

Client Sample ID: S-180129-PS-03

Prep Type: Total/NA

Prep Batch: 458474

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec	Limits	RPD	Limit
	Result	Qualifier		Result	Qualifier						
Arsenic	0.97		10.2	9.46		mg/Kg	☼	83	75 - 125	13	20
Copper	10.6		25.5	35.27		mg/Kg	☼	96	75 - 125	4	20

Lab Sample ID: 500-153999-3 DU

Matrix: Solid

Analysis Batch: 458826

Client Sample ID: S-180129-PS-03

Prep Type: Total/NA

Prep Batch: 458474

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	Limit
	Result	Qualifier		Result				
Arsenic	0.97		1.12		mg/Kg	☼	14	20
Copper	10.6		11.52		mg/Kg	☼	8	20

TestAmerica Chicago

QC Sample Results

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

TestAmerica Job ID: 500-153999-1

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: MB 500-458968/1-A
Matrix: Solid
Analysis Batch: 459148

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 458968

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Zinc	<0.88		2.0	0.88	mg/Kg		11/07/18 16:12	11/08/18 12:19	1

Lab Sample ID: LCS 500-458968/2-A
Matrix: Solid
Analysis Batch: 459148

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 458968

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Zinc	50.0	41.76		mg/Kg		84	80 - 120

Lab Sample ID: 500-153999-3 MS
Matrix: Solid
Analysis Batch: 459148

Client Sample ID: S-180129-PS-03
Prep Type: Total/NA
Prep Batch: 458968

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Zinc	11.4		48.2	54.31		mg/Kg	☼	89	75 - 125

Lab Sample ID: 500-153999-3 MSD
Matrix: Solid
Analysis Batch: 459148

Client Sample ID: S-180129-PS-03
Prep Type: Total/NA
Prep Batch: 458968

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Zinc	11.4		49.7	56.35		mg/Kg	☼	90	75 - 125	4	20

Lab Sample ID: 500-153999-3 DU
Matrix: Solid
Analysis Batch: 459148

Client Sample ID: S-180129-PS-03
Prep Type: Total/NA
Prep Batch: 458968

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Zinc	11.4		11.78		mg/Kg	☼	4	20

Lab Chronicle

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-01

Date Collected: 10/29/18 09:55

Date Received: 10/30/18 09:25

Lab Sample ID: 500-153999-1

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-01

Date Collected: 10/29/18 09:55

Date Received: 10/30/18 09:25

Lab Sample ID: 500-153999-1

Matrix: Solid

Percent Solids: 90.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 09:55	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 18:43	JJH	TAL CHI
Total/NA	Prep	3541			458843	11/07/18 07:33	DX	TAL CHI
Total/NA	Analysis	8270D		1	459093	11/08/18 11:52	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 11:03	BJJ	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 14:43	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 12:27	JEF	TAL CHI

Client Sample ID: S-180129-PS-02

Date Collected: 10/29/18 10:00

Date Received: 10/30/18 09:25

Lab Sample ID: 500-153999-2

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-02

Date Collected: 10/29/18 10:00

Date Received: 10/30/18 09:25

Lab Sample ID: 500-153999-2

Matrix: Solid

Percent Solids: 90.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 10:00	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 19:08	JJH	TAL CHI
Total/NA	Prep	3541			458843	11/07/18 07:33	DX	TAL CHI
Total/NA	Analysis	8270D		1	459093	11/08/18 12:18	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 13:05	BJJ	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 14:47	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 12:31	JEF	TAL CHI

TestAmerica Chicago

Lab Chronicle

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-03

Lab Sample ID: 500-153999-3

Date Collected: 10/29/18 10:10

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-03

Lab Sample ID: 500-153999-3

Date Collected: 10/29/18 10:10

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 94.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 10:10	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 19:33	JJH	TAL CHI
Total/NA	Prep	3541			458843	11/07/18 07:33	DX	TAL CHI
Total/NA	Analysis	8270D		1	459093	11/08/18 12:45	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 13:30	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 14:59	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 12:35	JEF	TAL CHI

Client Sample ID: S-180129-PS-04

Lab Sample ID: 500-153999-4

Date Collected: 10/29/18 10:35

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-04

Lab Sample ID: 500-153999-4

Date Collected: 10/29/18 10:35

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 90.0

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 10:35	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 19:58	JJH	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 11:23	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 13:54	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:19	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:03	JEF	TAL CHI

TestAmerica Chicago

Lab Chronicle

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-05

Lab Sample ID: 500-153999-5

Date Collected: 10/29/18 10:30

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-05

Lab Sample ID: 500-153999-5

Date Collected: 10/29/18 10:30

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 93.8

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 10:30	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 20:24	JJH	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 11:49	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 14:19	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:23	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:07	JEF	TAL CHI

Client Sample ID: S-180129-PS-06

Lab Sample ID: 500-153999-6

Date Collected: 10/29/18 10:50

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-06

Lab Sample ID: 500-153999-6

Date Collected: 10/29/18 10:50

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 94.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 10:50	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 20:49	JJH	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 12:16	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 14:43	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:27	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:11	JEF	TAL CHI

TestAmerica Chicago

Lab Chronicle

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-07

Lab Sample ID: 500-153999-7

Date Collected: 10/29/18 11:05

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-07

Lab Sample ID: 500-153999-7

Date Collected: 10/29/18 11:05

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 90.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 11:05	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 21:14	JJH	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 12:43	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 15:08	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:31	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:15	JEF	TAL CHI

Client Sample ID: S-180129-PS-08

Lab Sample ID: 500-153999-8

Date Collected: 10/29/18 11:30

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-08

Lab Sample ID: 500-153999-8

Date Collected: 10/29/18 11:30

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 89.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5030B			458368	11/04/18 08:22	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459630	11/12/18 18:41	PMF	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 13:10	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 15:32	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:35	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:19	JEF	TAL CHI

TestAmerica Chicago

Lab Chronicle

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: S-180129-PS-09

Lab Sample ID: 500-153999-9

Date Collected: 10/29/18 11:25

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-09

Lab Sample ID: 500-153999-9

Date Collected: 10/29/18 11:25

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 89.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 11:25	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 21:39	JJH	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 13:36	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 15:57	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:46	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:22	JEF	TAL CHI

Client Sample ID: S-180129-PS-10

Lab Sample ID: 500-153999-10

Date Collected: 10/29/18 11:40

Matrix: Solid

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	457609	10/30/18 16:46	PFK	TAL CHI

Client Sample ID: S-180129-PS-10

Lab Sample ID: 500-153999-10

Date Collected: 10/29/18 11:40

Matrix: Solid

Date Received: 10/30/18 09:25

Percent Solids: 93.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			457676	10/29/18 11:40	WRE	TAL CHI
Total/NA	Analysis	8260B		50	459259	11/09/18 22:05	JJH	TAL CHI
Total/NA	Prep	3541			458567	11/05/18 17:54	NRJ	TAL CHI
Total/NA	Analysis	8270D		1	458883	11/07/18 14:03	AJD	TAL CHI
Total/NA	Prep	8151A			458929	11/07/18 13:04	ACK	TAL CHI
Total/NA	Analysis	8151A		10	459299	11/09/18 16:21	JBj	TAL CHI
Total/NA	Prep	3050B			458474	11/06/18 07:49	SAH	TAL CHI
Total/NA	Analysis	6010C		1	458826	11/06/18 15:50	EEN	TAL CHI
Total/NA	Prep	3050B			458968	11/07/18 16:12	BDE	TAL CHI
Total/NA	Analysis	6010C		1	459148	11/08/18 13:26	JEF	TAL CHI

TestAmerica Chicago

Lab Chronicle

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

TestAmerica Job ID: 500-153999-1

Client Sample ID: Trip Blank 004

Lab Sample ID: 500-153999-11

Date Collected: 10/29/18 12:00

Matrix: Water

Date Received: 10/30/18 09:25

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	459486	11/10/18 09:38	JJH	TAL CHI

Laboratory References:

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

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Accreditation/Certification Summary

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

TestAmerica Job ID: 500-153999-1

Laboratory: TestAmerica Chicago

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Wisconsin	State Program	5	999580010	08-31-19

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
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Regulatory Program: DW NPDES RCRA Other:

Client Contact Company Name: <u>GHD</u> Address: <u>1801 Old Hwy 8</u> City/State/Zip: <u>St. Paul, MN 55112</u> Phone: <u>651-247-4218</u> Fax: Project Name: <u>Penta Wood</u> Site: <u>086165-05-04</u> P O #		Project Manager: Tel/Fax:		Site Contact: <u>G. Anderson</u> Lab Contact: <u>Mike Wright</u>		Date: <u>10-29-18</u> Carrier: <u>Red EX</u>		COC No: <u>1</u> of <u>1</u> COCs	
		Analysis Turnaround Time <input type="checkbox"/> CALENDAR DAYS <input type="checkbox"/> WORKING-DAYS TAT if different from Below: <input type="checkbox"/> 2 weeks <input type="checkbox"/> 1 week <input type="checkbox"/> 2 days <input type="checkbox"/> 1 day		Filtered Sample (Y/N) Perform MS / MSD (Y/N)				Sampler: For Lab Use Only: Walk-in Client: Lab Sampling: Job / SDG No.: <u>500-153999</u>	
		<u>Standard</u>		<u>Ventachlorophenol,</u> <u>Fluorene, Isophthalene,</u> <u>Methylmethylthiophene,</u> <u>Naphthalene,</u> <u>Phenanthrene</u> <u>BTEX</u> <u>metals (As, Cd, Zn)</u>				Sample Specific Notes:	
Sample Identification		Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.			
1 <u>S-181029-PS-01</u>		<u>10/29/18</u>	<u>0955</u>	<u>C</u>	<u>S</u>	<u>3</u>			
2 <u>02</u>			<u>1000</u>			<u>3</u>			
3 <u>03</u>			<u>1010</u>			<u>3</u>			
4 <u>04</u>			<u>1035</u>			<u>3</u>			
5 <u>05</u>			<u>1030</u>			<u>3</u>			
6 <u>06</u>			<u>1050</u>			<u>3</u>			
7 <u>07</u>			<u>1105</u>			<u>3</u>			
8 <u>08</u>			<u>1130</u>			<u>3</u>			
9 <u>09</u>			<u>1125</u>			<u>3</u>			
10 <u>10</u>			<u>1140</u>			<u>3</u>			
11 <u>TRIP BLANK 004</u>			<u>1200</u>		<u>W</u>	<u>1</u>			
Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other: <u>Methanol</u>						Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)			
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. <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown						<input type="checkbox"/> Return to Client <input type="checkbox"/> Disposal by Lab <input type="checkbox"/> Archive for _____ Months			
Special Instructions/QC Requirements & Comments:									
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Custody Seal No.:		Cooler Temp. (°C): Obs'd: <u>21</u> Corr'd: _____		Therm ID No.:			
Relinquished by: <u>Red EX</u>		Company: <u>GHD</u>		Date/Time: <u>10/29/18-1500</u>		Received by:		Company: _____	
Relinquished by:		Company:		Date/Time:		Received by:		Company: _____	
Relinquished by:		Company:		Date/Time:		Received in Laboratory by: <u>Ami Samoly</u>		Company: <u>TAAMI</u>	
								Date/Time: <u>10/30/18 0925</u>	



500-153999 COC

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 500-153999-1

Login Number: 153999

List Source: TestAmerica Chicago

List Number: 1

Creator: Sanchez, Ariel M

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	2.1
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	

