Rec 1/19/16
put on BRRTS
1/20/16(99)

Richard, Philip E - DNR

From: Ree, Timothy <Tim.Ree@ghd.com>
Sent: Tuesday, January 19, 2016 3:39 PM
To: Richard, Philip E - DNR
Cc: Frehner, Ron; Storlie, Pete
Subject: FW: Penta Wood - WPDES Permit ~COR-086165~
Attachments: Lab Report-240-59685-1-086165-02-06-2016-01-19.pdf

Phil,

Please find attached the results for the influent and effluent samples collected at the Penta Wood site on 1/6/2016. PCP was detected in the influent sample at a concentration of 35 ug/L. Naphthalene was not detected and DRO was detected at a concentration of 0.085 mg/L (estimated) in the effluent sample. PCP was detected in the effluent sample at a concentration of 0.53 ug/L, which exceeds the permit criteria of 0.1 ug/L. This represents the only sample collected during the system decommissioning utilizing the temporary carbon treatment system (refer to the email below). Therefore this result represents a non-compliance.

Even though the temporary system has already been shut down and all water (less than 15,000 gallons) within the system tanks/piping/components has been treated and discharged, to be consistent with how we have addressed previous non-compliances and to meet the substantive requirements of the WPDES permit (Article 3.2.1), GHD recommends that:

- Kathy Bartilson (WDNR permit engineer) be notified within 24 hours by a telephone call
- A written report be submitted to Kathy Bartilson describing the non-compliance within 5 days

There is no corrective action required.

Please advise how you would like for GHD to proceed. Let me know if you would like GHD to call Kathy Bartilson. Please notify Linda Martin (USEPA).

Regards,

Tim Ree

GHD
T: +1 651 639 0913 | M: +1 651 592 7697 | E: tim.ree@ghd.com
1801 Old Highway 8 NW Suite 114 St. Paul Minnesota 55112 USA | www.ghd.com

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From: Ree, Timothy
Sent: Thursday, December 17, 2015 11:31 AM
To: 'Richard, Philip E - DNR'
Subject: RE: Penta Wood - WPDES Permit ~COR-086165~

Phil,

As discussed, we plan to utilize a temporary/portable granular activated carbon (GAC) system to treat water remaining in the tanks, piping, and system components at the Penta Wood site and water generated during the decommissioning/cleaning of these components.

The treatment process would be the similar to what was previously used at the site. Process water would be flow through the bag filters, a primary GAC unit (200 pounds), and a secondary GAC unit (200 pounds) prior to discharge into the infiltration area. We will document the quantity of water treated and discharged on a daily basis. Design documentation for the temporary system is provided at the end of this email. Assuming an influent concentration of 1,000 ug/L PCP, breakthrough on the lead carbon unit is estimated to occur after treating approximately 28,000 gallons. We expect the influent concentration to be even less than 1,000 ug/L since we will be using clean water for the system decommissioning/cleaning.

We estimate that the total quantity of water to be treated will be less than 20,000 gallons and will be discharged intermittently during a two-week period. The work is scheduled to be conducted during January 2016. Since this is a relatively minor quantity of water compared with what the system treated/discharged during operation, we propose that WPDES compliance samples be collected as follows:

- Monthly influent – PCP
- Weekly effluent - PCP
- Monthly effluent – DRO and naphthalene

We propose that quarterly effluent (arsenic, copper, iron, manganese, and zinc and chloride) and annual effluent (BTEX, phenol, and dioxin) samples would not be collected. Following receipt of the effluent sample analytical results, we will prepare and submit the monthly DMR. The quarterly and annual DMRs would be submitted at a later date in compliance with the permit requirements depending on whether USEPA requires the existing system to be restarted.

Please forward to Kathy Bartilson.

Site: Pentawood Treatment, Siren, WI
Date: 12/17/15

Design Basis:

Flow rate:	**10**	gpm
Volume to be treated:	**20,000**	gallons
Water temperature:	55	°F (assumed)

Contaminant	Influent Conc. (ug/L)	Effluent Criteria (ug/L)
PCP	1,000	0.1

Recommendations:

Pre-Filters (to remove suspended solids)

One Krystil Klear L8830 bag filter (10-micron nominal) *followed by* another Krystil Klear L8830 bag filter (0.5-micron nominal)

- The pre-filters are recommended for the removal of suspended solids that may be associated with insoluble PCP.

Liquid Phase Carbon Adsorbers (to remove dissolved PCP)

Two LPC3 drums *in series*, each with 200 lbs of granular activated carbon

- Both drums are predicted to last 576,000 gallons of water. The lead drum is predicted to last only 28,800 gallons of water (see the modeling below).

LIQUID-PHASE CARBON ADSORPTION MODEL CALCULATIONS

CARBONAIR ENVIRONMENTAL SYSTEMS
1480 COUNTY ROAD C WEST
ROSEVILLE, MN 55113
PHONE: 800-526-4999
FAX: 651-202-2985

CARBON ADSORBERS:	LPC3
NO OF ADSORBERS IN SERIES:	2
TOTAL MASS OF CARBON (LBS):	400.00
FLOW RATE (GPM):	10.000
HYDRAULIC LOADING (GPM/SQ.FT):	3.5159
EMPTY BED CONTACT TIME (MIN.):	10.904
DESIGN COMPOUND:	PCP
EXPECTED INFLUENT CONCENTRATION (PPB):	1000.0
MODEL INFLUENT CONCENTRATION (PPB):	1000.0
EFFLUENT CRITERIA (PPB):	0.10000
EFFECTIVE K-VALUE (%):	10.000

TIME(DAYS)	VOLUME TREATED(GAL)	EFF. CONC.(PPB)	
5.0	72000.	0.0000	
10.0	144000.	0.0000	
15.0	216000.	0.0000	
20.0	288000.	0.0000	
25.0	360000.	0.0000	
30.0	432000.	0.0000	
35.0	504000.	0.0000	
40.0	576000.	0.0000	← BREAKTHROUGH
45.0	648000.	0.1535	
50.0	720000.	1.1078	
55.0	792000.	3.4784	
60.0	864000.	10.8726	
65.0	936000.	30.9246	
70.0	1008000.	91.0488	
75.0	1080000.	200.5161	
80.0	1152000.	311.4207	
85.0	1224000.	403.3961	
90.0	1296000.	479.6026	
95.0	1368000.	544.0810	
100.0	1440000.	599.3704	

Note: The model influent concentration results from the impact of the other background compounds, which is determined by using a competitive adsorption model

DISCLAIMER: ACTUAL RESULTS MAY VARY SIGNIFICANTLY FROM THE MODEL. THE MODEL IS BASED ON THE ASSUMPTIONS THAT THE FLOW RATE AND INFLUENT CONCENTRATION ARE CONSTANT, AND ONLY THE CONTAMINANTS PROVIDED TO CARBONAIR ARE PRESENT IN THE WATER. VARYING OPERATING CONDITIONS CAN HAVE ADVERSE EFFECTS ON CARBON ADSORPTIVE CAPACITY. THE PREDICTED BED LIFE IS NOT GUARANTEED.

LIQUID-PHASE CARBON ADSORPTION MODEL CALCULATIONS

CARBONAIR ENVIRONMENTAL SYSTEMS
1480 COUNTY ROAD C WEST
ROSEVILLE, MN 55113
PHONE: 800-526-4999
FAX: 651-202-2985

CARBON ADSORBERS:	LPC3
NO OF ADSORBERS IN SERIES:	1
TOTAL MASS OF CARBON (LBS):	200.00
FLOW RATE (GPM):	10.000
HYDRAULIC LOADING (GPM/SQ.FT):	3.5159
EMPTY BED CONTACT TIME (MIN.):	5.4521
DESIGN COMPOUND:	PCP
EXPECTED INFLUENT CONCENTRATION (PPB):	1000.0
MODEL INFLUENT CONCENTRATION (PPB):	1000.0
EFFLUENT CRITERIA (PPB):	0.10000
EFFECTIVE K-VALUE (%):	10.000

TIME(DAYS)	VOLUME TREATED(GAL)	EFF. CONC.(PPB)	
2.0	28800.	0.0705	← BREAKTHROUGH
4.0	57600.	0.1816	
6.0	86400.	0.4093	
8.0	115200.	0.8826	
10.0	144000.	1.7685	
12.0	172800.	3.4606	
14.0	201600.	6.3865	
16.0	230400.	11.7659	
18.0	259200.	20.8958	
20.0	288000.	36.5866	
22.0	316800.	62.6503	
24.0	345600.	103.3616	
26.0	374400.	159.1082	
28.0	403200.	221.7708	
30.0	432000.	282.4953	
32.0	460800.	337.4115	
34.0	489600.	386.1572	
36.0	518400.	429.3132	
38.0	547200.	467.8302	
40.0	576000.	502.4912	

Note: The model influent concentration results from the impact of the other background compounds, which is determined by using a competitive adsorption model

DISCLAIMER: ACTUAL RESULTS MAY VARY SIGNIFICANTLY FROM THE MODEL. THE MODEL IS BASED ON THE ASSUMPTIONS THAT THE FLOW RATE AND INFLUENT CONCENTRATION ARE CONSTANT, AND ONLY THE CONTAMINANTS PROVIDED TO CARBONAIR ARE PRESENT IN THE WATER. VARYING OPERATING CONDITIONS CAN HAVE ADVERSE EFFECTS ON CARBON ADSORPTIVE CAPACITY. THE PREDICTED BED LIFE IS NOT GUARANTEED.

Regards,

Tim Ree

GHD
T: +1 651 639 0913 | M: +1 651 592 7697 | E: tim.ree@ghd.com
1801 Old Highway 8 NW Suite 114 St. Paul Minnesota 55112 USA | www.ghd.com

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From: Richard, Philip E - DNR [mailto:Philip.Richard@wisconsin.gov]
Sent: Wednesday, December 02, 2015 10:22 AM
To: Ree, Timothy
Subject: FW: Penta Wood - WPDES Permit ~COR-086165~

fyi

Philip E. Richard
Hydrogeologist
Wisconsin Department of Natural Resources
Phone: 715 762 1352
Fax: 715 762 4348
philip.richard@wisconsin.gov

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From: Richard, Philip E - DNR
Sent: Tuesday, November 24, 2015 1:13 PM
To: Bartilson, Kathy M - DNR
Subject: RE: Penta Wood - WPDES Permit ~COR-086165~

There will be no discharge during the pilot study-the pilot study is essentially shutting the system down and monitoring groundwater for four years. Attached is the draft workplan for shutdown (still awaiting final approval from EPA). If gw sampling results indicate the plume is expanding, we would then possibly start the system up and be discharging at that time.

Philip E. Richard
Hydrogeologist
Wisconsin Department of Natural Resources
Phone: 715 762 1352

Fax: 715 762 4348
philip.richard@wisconsin.gov

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From: Bartilson, Kathy M - DNR
Sent: Tuesday, November 24, 2015 1:02 PM
To: Richard, Philip E - DNR
Subject: RE: Penta Wood - WPDES Permit ~COR-086165~

Thanks Phil – I'm assuming the discharge will resume during the pilot study? Can you just send me more details about how long it will be down, and what the study entails?

Thanks!

Kathy

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Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.

Kathy Bartilson
Phone: (715) 635-4053
Kathy.Bartilson@wisconsin.gov

From: Richard, Philip E - DNR
Sent: Tuesday, November 24, 2015 12:15 PM
To: Bartilson, Kathy M - DNR
Subject: FW: Penta Wood - WPDES Permit ~COR-086165~

Kathy,

Please see below-we will be shutting the down the remediation system at Penta Wood for a pilot study. Let me know if there is anything we need to do at this time in regards to the permit.

Thanks,

Phil

Philip E. Richard
Hydrogeologist
Wisconsin Department of Natural Resources
Phone: 715 762 1352

Fax: 715 762 4348
philip.richard@wisconsin.gov

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Visit our survey at http://dnr.wi.gov/customersurvey to evaluate how I did.


dnr.wi.gov

From: Ree, Timothy [mailto:Tim.Ree@ghd.com]
Sent: Friday, November 20, 2015 9:05 AM
To: Richard, Philip E - DNR
Subject: Penta Wood - WPDES Permit ~COR-086165~

Phil,

As you are aware, we will be shutting down the Penta Wood remediation system on Monday 11/23/2015. The system will remain off on a temporary basis for up to four years during the pilot study period (through 2019). If results are not favorable during the pilot study, USEPA may require that the system be restarted before the end of 2019. If results are favorable, the system would remain off on a permanent basis.

GHD recommends that we keep the existing substantive requirements of the WPDES permit "open" in the event we need to restart the system. However, no compliance samples would be collected while the system is not operating.

Please confirm with Kathy Bartilson what administrative requirements (i.e., DMRS, some sort of permit modification, system shutdown notification, etc.) are required related to the WPDES permit during the system shutdown period. Or let me know if you would prefer that GHD discuss with her. We would prepare the DMR long report for November 2015 and the DMR short reports for October through December 2015 and January through December 2015 when final compliance lab results are received for the November operating period.

Thanks,

Tim Ree

GHD
T: +1 651 639 0913 | M: +1 651 592 7697 | E: tim.ree@ghd.com
1801 Old Highway 8 NW Suite 114 St. Paul Minnesota 55112 USA | www.ghd.com

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

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

TestAmerica Job ID: 240-59685-1
Client Project/Site: 86165-03-03, Penta Wood

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

Attn: Mr. Grant Anderson

Denise D Heckler

Authorized for release by:
1/19/2016 2:46:53 PM

Denise Heckler, Project Manager II
(330)966-9477
denise.heckler@testamericainc.com

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

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

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Definitions/Glossary

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

TestAmerica Job ID: 240-59685-1

Qualifiers

GC Semi VOA

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

Glossary

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

Job ID: 240-59685-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-03-03, Penta Wood

Report Number: 240-59685-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 01/07/2016; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 4.4 C.

SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Sample W-160106-PS-ME (240-59685-1) was analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 01/08/2016 and analyzed on 01/11/2016.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

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

WISCONSIN DRO

Sample W-160106-PS-ME (240-59685-1) was analyzed for Wisconsin DRO in accordance with Wisconsin DNR Modified DRO. The samples were prepared on 01/08/2016 and analyzed on 01/18/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

Job ID: 240-59685-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

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

CHLORINATED HERBICIDES

Samples W-160106-PS-ME (240-59685-1) and W-160106-PS-MI (240-59685-2) were analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 01/08/2016 and analyzed on 01/11/2016 and 01/12/2016.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Sample W-160106-PS-MI (240-59685-2)[40X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Method Summary

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

TestAmerica Job ID: 240-59685-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CAN

Protocol References:

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

WI-DRO = "Modified DRO: Method For Determining Diesel Range Organics", Wisconsin DNR, Publ-SW-141, September, 1995.

Laboratory References:

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

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

Sample Summary

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

TestAmerica Job ID: 240-59685-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-59685-1	W-160106-PS-ME	Water	01/06/16 07:45	01/07/16 09:20
240-59685-2	W-160106-PS-MI	Water	01/06/16 08:00	01/07/16 09:20

Detection Summary

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

TestAmerica Job ID: 240-59685-1

Client Sample ID: W-160106-PS-ME — Lab Sample ID: 240-59685-1

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	0.53		0.094	0.015	ug/L	4		8151A	Total/NA
WI Diesel Range Organics (C10-C28)	0.085	J	0.095	0.048	mg/L	1		WI-DRO	Total/NA

Client Sample ID: W-160106-PS-MI — Lab Sample ID: 240-59685-2

Analyte	Result	Qualifier	LOQ	LOD	Unit	Dil Fac	D	Method	Prep Type
Pentachlorophenol	35		0.95	0.15	ug/L	40		8151A	Total/NA

This Detection Summary does not include radiochemical test results.

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

TestAmerica Job ID: 240-59685-1

Client Sample ID: W-160106-PS-ME
Date Collected: 01/06/16 07:45
Date Received: 01/07/16 09:20

Lab Sample ID: 240-59685-1
Matrix: Water

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

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.060		0.19	0.060	ug/L		01/08/16 08:48	01/11/16 12:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*75*		*29 - 110*	*01/08/16 08:48*	*01/11/16 12:33*	*1*
2-Fluorophenol (Surr)	*30*		*15 - 110*	*01/08/16 08:48*	*01/11/16 12:33*	*1*
2,4,6-Tribromophenol (Surr)	*63*		*21 - 128*	*01/08/16 08:48*	*01/11/16 12:33*	*1*
Nitrobenzene-d5 (Surr)	*72*		*31 - 110*	*01/08/16 08:48*	*01/11/16 12:33*	*1*
Phenol-d5 (Surr)	*15*		*10 - 110*	*01/08/16 08:48*	*01/11/16 12:33*	*1*
Terphenyl-d14 (Surr)	*47*		*31 - 115*	*01/08/16 08:48*	*01/11/16 12:33*	*1*

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	**0.53**		0.094	0.015	ug/L		01/08/16 15:40	01/11/16 15:13	4

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*77*		*32 - 140*	*01/08/16 15:40*	*01/11/16 15:13*	*4*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	**0.085**	**J**	0.095	0.048	mg/L		01/08/16 04:58	01/18/16 13:48	1

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

TestAmerica Job ID: 240-59685-1

Client Sample ID: W-160106-PS-MI
Date Collected: 01/06/16 08:00
Date Received: 01/07/16 09:20

Lab Sample ID: 240-59685-2
Matrix: Water

Method: 8151A - Herbicides (GC)

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	35		0.95	0.15	ug/L		01/08/16 15:40	01/12/16 10:23	40

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*46*	*p*	*32 - 140*	*01/08/16 15:40*	*01/12/16 10:23*	*40*

Surrogate Summary

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

TestAmerica Job ID: 240-59685-1

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

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

		Percent Surrogate Recovery (Acceptance Limits)					
		FBP	2FP	TBP	NBZ	PHL	TPH
Lab Sample ID	Client Sample ID	(29-110)	(15-110)	(21-128)	(31-110)	(10-110)	(31-115)
240-59685-1	W-160106-PS-ME	75	30	63	72	15	47
LCS 240-213494/15-A	Lab Control Sample	75	69	65	87	57	76
MB 240-213494/14-A	Method Blank	81	72	66	76	56	78

Surrogate Legend

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

Method: 8151A - Herbicides (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)	
		DCPA1	DCPA2
Lab Sample ID	Client Sample ID	(32-140)	(32-140)
240-59685-1	W-160106-PS-ME	75	77
240-59685-2	W-160106-PS-MI	75	46 p
LCS 180-165675/2-A	Lab Control Sample	74	72
LCSD 180-165675/3-A	Lab Control Sample Dup	72	69
MB 180-165675/1-A	Method Blank	94	96

Surrogate Legend

DCPA = 2,4-Dichlorophenylacetic acid

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

TestAmerica Job ID: 240-59685-1

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

Lab Sample ID: MB 240-213494/14-A
Matrix: Water
Analysis Batch: 213636

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 213494

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.063		0.20	0.063	ug/L		01/08/16 08:48	01/11/16 10:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*81*		*29 - 110*	*01/08/16 08:48*	*01/11/16 10:36*	*1*
2-Fluorophenol (Surr)	*72*		*15 - 110*	*01/08/16 08:48*	*01/11/16 10:36*	*1*
2,4,6-Tribromophenol (Surr)	*66*		*21 - 128*	*01/08/16 08:48*	*01/11/16 10:36*	*1*
Nitrobenzene-d5 (Surr)	*76*		*31 - 110*	*01/08/16 08:48*	*01/11/16 10:36*	*1*
Phenol-d5 (Surr)	*56*		*10 - 110*	*01/08/16 08:48*	*01/11/16 10:36*	*1*
Terphenyl-d14 (Surr)	*78*		*31 - 115*	*01/08/16 08:48*	*01/11/16 10:36*	*1*

Lab Sample ID: LCS 240-213494/15-A
Matrix: Water
Analysis Batch: 213636

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 213494

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Naphthalene	20.0	13.6		ug/L		68	52 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*75*		*29 - 110*
2-Fluorophenol (Surr)	*69*		*15 - 110*
2,4,6-Tribromophenol (Surr)	*65*		*21 - 128*
Nitrobenzene-d5 (Surr)	*87*		*31 - 110*
Phenol-d5 (Surr)	*57*		*10 - 110*
Terphenyl-d14 (Surr)	*76*		*31 - 115*

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-165675/1-A
Matrix: Water
Analysis Batch: 165835

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 165675

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		01/08/16 14:40	01/12/16 09:59	4

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4-Dichlorophenylacetic acid	*96*		*32 - 140*	*01/08/16 14:40*	*01/12/16 09:59*	*4*

Lab Sample ID: LCS 180-165675/2-A
Matrix: Water
Analysis Batch: 165772

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 165675

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Pentachlorophenol	5.00	4.15		ug/L		83	40 - 140

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*74*		*32 - 140*

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

Lab Sample ID: LCSD 180-165675/3-A
Matrix: Water
Analysis Batch: 165772

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 165675

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Pentachlorophenol			5.00	4.45		ug/L		89	40 - 140	7	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4-Dichlorophenylacetic acid	*72*		*32 - 140*

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Lab Sample ID: MB 240-213457/2-A
Matrix: Water
Analysis Batch: 214388

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 213457

Analyte	MB Result	MB Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
WI Diesel Range Organics (C10-C28)	<0.050		0.10	0.050	mg/L		01/08/16 04:58	01/18/16 12:53	1

Lab Sample ID: LCS 240-213457/3-A
Matrix: Water
Analysis Batch: 214388

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 213457

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
WI Diesel Range Organics (C10-C28)			0.500	0.494		mg/L		99	75 - 115		

Lab Sample ID: LCSD 240-213457/4-A
Matrix: Water
Analysis Batch: 214388

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 213457

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
WI Diesel Range Organics (C10-C28)			0.500	0.492		mg/L		98	75 - 115	0	20

QC Association Summary

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

TestAmerica Job ID: 240-59685-1

GC/MS Semi VOA

Prep Batch: 213494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-1	W-160106-PS-ME	Total/NA	Water	3510C	
LCS 240-213494/15-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-213494/14-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 213636

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-1	W-160106-PS-ME	Total/NA	Water	8270C	213494
LCS 240-213494/15-A	Lab Control Sample	Total/NA	Water	8270C	213494
MB 240-213494/14-A	Method Blank	Total/NA	Water	8270C	213494

GC Semi VOA

Prep Batch: 165675

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-1	W-160106-PS-ME	Total/NA	Water	8151A	
240-59685-2	W-160106-PS-MI	Total/NA	Water	8151A	
LCS 180-165675/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-165675/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-165675/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 165772

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-1	W-160106-PS-ME	Total/NA	Water	8151A	165675
LCS 180-165675/2-A	Lab Control Sample	Total/NA	Water	8151A	165675
LCSD 180-165675/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	165675

Analysis Batch: 165835

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-2	W-160106-PS-MI	Total/NA	Water	8151A	165675
MB 180-165675/1-A	Method Blank	Total/NA	Water	8151A	165675

Prep Batch: 213457

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-1	W-160106-PS-ME	Total/NA	Water	3520C	
LCS 240-213457/3-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 240-213457/4-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 240-213457/2-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 214388

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-59685-1	W-160106-PS-ME	Total/NA	Water	WI-DRO	213457
LCS 240-213457/3-A	Lab Control Sample	Total/NA	Water	WI-DRO	213457
LCSD 240-213457/4-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	213457
MB 240-213457/2-A	Method Blank	Total/NA	Water	WI-DRO	213457

Lab Chronicle

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

TestAmerica Job ID: 240-59685-1

Client Sample ID: W-160106-PS-ME

Lab Sample ID: 240-59685-1

Date Collected: 01/06/16 07:45
Matrix: Water
Date Received: 01/07/16 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			213494	01/08/16 08:48	JDR	TAL CAN
Total/NA	Analysis	8270C		1	213636	01/11/16 12:33	JMG	TAL CAN
Total/NA	Prep	8151A			165675	01/08/16 15:40	CBY	TAL PIT
Total/NA	Analysis	8151A		4	165772	01/11/16 15:13	JMO	TAL PIT
Total/NA	Prep	3520C			213457	01/08/16 04:58	CSC	TAL CAN
Total/NA	Analysis	WI-DRO		1	214388	01/18/16 13:48	DEB	TAL CAN

Client Sample ID: W-160106-PS-MI

Lab Sample ID: 240-59685-2

Date Collected: 01/06/16 08:00
Matrix: Water
Date Received: 01/07/16 09:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			165675	01/08/16 15:40	CBY	TAL PIT
Total/NA	Analysis	8151A		40	165835	01/12/16 10:23	JMO	TAL PIT

Laboratory References:

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

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

Certification Summary

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

TestAmerica Job ID: 240-59685-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

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

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

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

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY
AND
RECEIVING DOCUMENTS

4101 Shuffel Street, N.W. North Canton, OH 44720 tel 330.497.9396 fax 330.497.0772 www.testamericainc.com

TestAmerica Canton
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North Canton, OH 44720
Phone: 330.497.9396 Fax: 330.497.0772

4.7/C4.4

Chain of Custody Record

031642

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING
TestAmerica Laboratories, Inc.
TAL-8210 (0713)

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

grant.anderson@ghd.com

Client Contact	Project Manager: T. Rea	Site Contact:	Date: 1-6-16	COC No:
Company Name: GHD	Tel/Fax:	Lab Contact:	Carrier: Fed Ex (overnight)	1 of 1 COCs
Address: 8682 Daniels Trl	Analysis Turnaround Time			Sampler:
City/State/Zip: Siren WI 54872	☐ CALENDAR DAYS ☐ WORKING DAYS			For Lab Use Only:
Phone: 651-639-0913	TAT if different from Below _____			Walk-in Client:
Fax: 651-639-0923	☐ 2 weeks			Lab Sampling:
Project Name: 086165-03-03	☐ 1 week			
Site: Penta Wood	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS / MSD (Y/N)	PCP-8151	Naphthalene DEO													Sample Specific Notes:
W-160106-PS-ME	1-6-16	0745	G	W	6	N	N	X	X	X												Monthly Effluent
W-160106-PS-MI	1-6-16	0800	G	W	2	N	N	X														Monthly Influent

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other _____

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

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

☐ Return to Client ☒ Disposal by Lab ☐ Archive for _____ Months

Special Instructions/QC Requirements & Comments:

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

Relinquished by:	Company: GHD	Date/Time: 1-6-16 1630	Received by:	Company: TA	Date/Time: 1-7-16 920
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

TestAmerica Canton Sample Receipt Form/Narrative — Login # :
Canton Facility

Client GHD Site Name

Cooler unpacked by:

Cooler Received on 1-7-16 Opened on 1-7-16

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

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

TestAmerica Cooler # Foam Box Client Cooler Box Other

Packing material used: Bubble Wrap Foam Plastic Bag None Other

COOLANT: Wet Ice Blue Ice Dry Ice Water None

1. Cooler temperature upon receipt

IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp. 4.7 °C Corrected Cooler Temp. 4.4 °C ☐ See Multiple Cooler Form

~~IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C~~

IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected Cooler Temp. °C

2. Were custody seals on the outside of the cooler(s)? If Yes Quantity 1	Yes	No
-Were custody seals on the outside of the cooler(s) signed & dated?	Yes	No NA
-Were custody seals on the bottle(s) or bottle kits (LLHg/MeHg)?	Yes	No
3. Shippers' packing slip attached to the cooler(s)?	Yes	No
4. Did custody papers accompany the sample(s)?	Yes	No
5. Were the custody papers relinquished & signed in the appropriate place?	Yes	No
6. Was/were the person(s) who collected the samples clearly identified on the COC?	Yes	No
7. Did all bottles arrive in good condition (Unbroken)?	Yes	No
8. Could all bottle labels be reconciled with the COC?	Yes	No
9. Were correct bottle(s) used for the test(s) indicated?	Yes	No
10. Sufficient quantity received to perform indicated analyses?	Yes	No
11. Were sample(s) at the correct pH upon receipt?	Yes	No NA pH Strip Lot# HC559158
12. Were VOAs on the COC?	Yes	No
13. Were air bubbles >6 mm in any VOA vials?	Yes	No NA
14. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot #	Yes	No
15. Was a LL Hg or Me Hg trip blank present?	Yes	No

Contacted PM Date by via Verbal Voice Mail Other

Concerning

14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES

Samples processed by:

15. SAMPLE CONDITION

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

Sample(s) were received in a broken container.

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

16. SAMPLE PRESERVATION

Sample(s) were further preserved in the laboratory.

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

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
W-160106-PS-ME	240-59685-E-1	Amber Glass 1 liter - Hydrochloric	<2	_____	_____
W-160106-PS-ME	240-59685-F-1	Amber Glass 1 liter - Hydrochloric	<2	_____	_____

Login Sample Receipt Checklist

Client: GHD Services Inc.

Job Number: 240-59685-1

Login Number: 59685
List Number: 2
Creator: Neri, Tom

List Source: TestAmerica Pittsburgh
List Creation: 01/08/16 10:12 AM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	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	