ENVIRONMENTAL TROUBLESHOOTERS, INC.

3825 GRAND AVENUE
DULUTH, MN 55807
TEL: (218) 722-6013
FAX: (218) 722-6319
TOLL FREE: 1-800-470-3536

October 30, 2018

Mr. John T. Hunt P.G.
Hydrogeologist – Remediation and Redevelopment
Wisconsin Department of Natural Resources
1701 North 4th Street
Superior, Wisconsin 54880

RE: Request for Technical Assistance
Fraser Shipyards Inc.
1 Clough Ave, Superior, WI 54880
Punch Shed Building Addition Spill
BRRTs 02-16-562599
ET Project No. 14-1004

Dear Mr. Hunt,

This Request for Technical Assistance (Attachment 1) is being sent in response to outstanding items identified in the WDNRs November 15, 2016 correspondence for the site (Attachment 2). Enclosed please find the Technical Review Fee of $700.00 for the above referenced site. The BRRTs number has been inserted on the memo line of the check. Below is an update of site activities including data summary tables and figures depicting current site conditions. We are interested in pursuing site closure with soil contaminant concentrations exceeding industrial direct contact residual contaminant levels (I-RCLs) and groundwater concentrations exceeding enforcement standards (ESs). Please advise whether the information provided appears to be adequate to proceed with completion of a WDNR Closure Form (4400-202).

Each of the referenced bullet items in the WDNR November 15, 2016 correspondence are addressed below.

1. The WDNR concurs that there have likely been multiple releases at the site and affirms that naphthalene in soil has been adequately delineated. No additional action requested.
2. Polynuclear aromatic hydrocarbons (PAHs) have been adequately defined to the north and west with residual contamination under the building to be addressed through a continuing obligation for a structural impediment. No additional action requested.
3. PAHs have not been adequately defined to the east, south-east and south and additional borings should be performed to complete the delineation. ET conducted the additional borings and successfully delineated the PAHs in soil. Please note that the WDNR I-RCL for PAHs increased an order of magnitude in the interim. Attachment 3 includes the soil analytical summary table and figure depicting successful delineation of PAHs in soil, as

well as copies of the boring logs from the additional borings and copies of the laboratory reports.

4. Assess whether AOC#9 investigation data can be applied to the current PAH delineation efforts. ET responded to Mr. Saari via email on November 17, 2016: *We did review proximal AOCs #8 & #9. AOC#9 only had analyses for DRO and VOCs, no PAHs. AOC #8 had only analyses for VOCs and a few RCRA metals, no PAHs. So the data from these historic AOCs was not of value in our effort to delineate the extent of the PAHs in soil. The closure summary report prepared by SEH in November 1995 documents the analyses and results.* No additional action requested.
5. If soil was excavated during construction of the New Office Building, was it characterized for off-site disposal. ET responded to Mr. Saari via email on November 17, 2016: *The attached report (Site Investigation Report) sent to you on January 22 included the soil disposal information related to the excavation at the Punch Shed Addition relative to your recent project review*. This response did not address construction of the "New Office Building" which ET was not involved with. No additional action requested.
6. Groundwater contamination has been adequately delineated, but groundwater quality needs to be monitored to demonstrate stable or decreasing concentrations. Four groundwater monitoring wells were installed and sampled in April of 2016, followed by groundwater sampling in July 2016, January 2017 and August 2018. Attachment 4 includes a table summarizing the laboratory results, figures depicting the PAHs concentrations, potentiometric maps from each event, Mann-Kendall analysis tables, and copies of the groundwater laboratory reports. Mann-Kendall analysis from each of the four wells documents that three of the four wells, MW-1, MW-2 and MW-3, have decreasing or stable contaminant concentrations. MW-4 has an increasing concentration or no trend, but it is upgradient and may be attributable to AOC#8 (the closed adjacent spill to the south) which had elevated naphthalene in soil, but was not assessed for PAHs via EPA Method 8270. Attachment 5 includes excerpts from former SEH reports from AOC#8. Full PDF copies of these reports are available if needed.

On behalf of Fraser Shipyards, ET would like to request a technical review by the WDNR to obtain concurrence that site closure is warranted with certain limitations and institutional controls. We would be pleased to send your office additional information if needed for your review. If the WDNR concurs that no additional investigation is needed relative to this release, a Closure Form will be prepared including the sampling data gathered since the former investigation report for the site.

If you have any questions, please contact me at (218) 722-6013 or by email at jmccarthy@etsmn.com.

Sincerely,
Environmental Troubleshooters, Inc.

John McCarthy, CHMM
Project Manager

Cc: Fraser Shipyards, 1 Clough Ave., Superior, WI 54880, Attn: Mr. James Farkas

Attachments:

1. Request for Technical Assistance
2. WDNRs November 15, 2016 correspondence.
3. Soil analytical summary table.
   Figure depicting PAHs in soil.
   Copies of the boring logs from the additional borings.
   Copies of the soil sample laboratory reports.
4. Groundwater analytical summary table.
   Figures depicting the PAH concentrations and potentiometric elevation from each sampling event.
   Mann-Kendall analysis tables.
   Copies of the groundwater laboratory reports.
5. Excerpts from SEH AOC#8 Reports

Attachment 1

Request for Technical Assistance

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 9/15)

Notice: Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do <u>not</u> use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name
Farkas	James		Fraser Shipyard, Inc.

Mailing Address	City	State	ZIP Code
1 Clough Avenue	Superior	WI	54880

Phone # (include area code)	Fax # (include area code)	Email
(715) 394-7787		jfarkas@fraserindustries.com

The requester listed above: (select all that apply)

- ☒ Is currently the owner
- ☐ Is considering selling the Property
- ☐ Is renting or leasing the Property
- ☐ Is considering acquiring the Property
- ☐ Is a lender with a mortgagee interest in the Property
- ☐ Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request) ☒ Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name
Sean	Smith		Fraser Shipyard, Inc.

Mailing Address	City	State	ZIP Code
1 Clough Avenue	Superior	WI	54880

Phone # (include area code)	Fax # (include area code)	Email
(715) 394-7787		ssmith@noengwks.com

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name
McCarthy	John		Environmental Troubleshooters

Mailing Address	City	State	ZIP Code
3825 Grand Avenue	Duluth	MN	55807

Phone # (include area code)	Fax # (include area code)	Email
(218) 722-6013	(218) 722-6319	jmccarthy@etsmn.com

Section 2. Property Information

Property Name	FID No. (if known)
Fraser Shipyards Punch Shed Addition	

BRRTS No. (if known)	Parcel Identification Number
02-16-562599	03-803-02127-00

Street Address	City	State	ZIP Code
1 Clough Drive	Superior	WI	54880

County	Municipality where the Property is located	Property is composed of:	Property Size Acres
Douglas	◉ City ○ Town ○ Village of Superior	◉ Single tax parcel ○ Multiple tax parcels	17

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

◉ No ○ Yes

Date requested by: _____

Reason:

_____

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

◉ No. **Include the fee that is required for your request in Section 3, 4 or 5.**

○ Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:
Section 3. Technical Assistance or Post-Closure Modifications;
Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: **[Numbers in brackets are for WI DNR Use]**

☐ No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of $350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.

☐ Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**

☐ Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**

☐ Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**

☐ Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**

☐ Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**

☐ Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**

☐ Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**

☐ Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

☐ Schedule a Technical Assistance Meeting - **Include a fee of $700.**

☐ Hazardous Waste Determination - **Include a fee of $700.**

☒ Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

☐ Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**

☐ Include a fee of $300 for sites with residual soil contamination; and

☐ Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

☐ "Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the real Property, and/or the personal Property and fixtures;

(2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;

(3) the date the environmental assessment was conducted by the lender;

(4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.

(5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.

(6) a copy of the Property deed with the correct legal description; and,

(7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).

(8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:

h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.

i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

☐ "Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the Property;

(2) the date of Property acquisition by the representative;

(3) the means by which the Property was acquired;

(4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;

(5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and

(6) a copy of the Property deed with the correct legal description.

☐ Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

☐ hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];

☐ Perceived environmental contamination - [649];

☐ hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or

☐ solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of $700, a summary of the environmental liability clarification being requested, and the following:**

(1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).

(2) current and proposed ownership status of the Property;

(3) date and means by which the Property was acquired by the LGU, where applicable;

(4) a map and the ¼, ¼ section location of the Property;

(5) summary of current uses of the Property;

(6) intended or potential use(s) of the Property;

(7) descriptions of other investigations that have taken place on the Property; and

(8) (for solid waste clarifications) a summary of the license history of the facility.

Section 4. Request for Liability Clarification (cont.)

☐ Lease liability clarification - s. 292.55, Wis. Stats. [646]

- ❖ **Include a fee of $700 for a single Property, or $1400 for multiple Properties and the information listed below:**

(1) a copy of the proposed lease;

(2) the name of the current owner of the Property and the person who will lease the Property;

(3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;

(4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;

(5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and

(6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

- ❖ **Include a fee of $700 and an adequate summary of relevant environmental work to date.**

☐ No Action Required (NAR) - NR 716.05, [682]

- ❖ **Include a fee of $700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

☐ Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

- ❖ **Include a fee of $700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

☐ Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description; and,
(3) a draft 75.105 agreement based on the DNR's model (dnr.wi.gov/topic/brownfields/documents/mod75-105agrmt.pdf).

☐ Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

❖ **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description; and,
(3) a draft 75.105 agreement based on the DNR's model (dnr.wi.gov/topic/brownfields/documents/mod75-106agrmt.pdf).

☐ Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

❖ **Include a fee of $1400, and the information listed below:**

(1) a draft schedule for remediation; and,
(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

☐ Phase I Environmental Site Assessment Report - Date: _____

☐ Phase II Environmental Site Assessment Report - Date: _____

☐ Legal Description of Property (required for all liability requests and specialized agreements)

☒ Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

☒ Groundwater ☒ Soil ☐ Sediment ☐ Other medium - Describe: _____

Date of Collection: _____

☐ A copy of the closure letter and submittal materials

☐ Draft tax cancellation agreement

☐ Draft agreement for assignment of tax foreclosure judgment

☐ Other report(s) or information - Describe: _____

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

◯ Yes - Date (if known): _____
◯ No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Attachment 2

WDNRs November 15, 2016 correspondence.

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor
Cathy Stepp, Secretary

Ashland Service Center
2501 Golf Course Road
Ashland, Wisconsin 54806
Telephone 715-685-2900
FAX 715-685-2909

November 15, 2016

MR JORDAN HAFSTAD
FRASER SHIPYARDS INC
1 CLOUGH AVE
SUPERIOR WI 54880

Subject: Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request for the Site Investigation at the Fraser Shipyard Punch Shed Addition, Fraser Shipyard Facility, Superior, Wisconsin
WDNR BRRTS #02-16-562599

Dear Mr. Hafstad:

On October 20, 2016, the Department of Natural Resources' (DNR) Remediation and Redevelopment program received a completed Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request (Form 4400-237), prepared for the above named site by Environmental Troubleshooters, Inc. and dated October 17, 2016. This form was accompanied by the appropriate review fee for "Other Technical Assistance" as required under section NR 749.04, Wisconsin Administrative Code, as well as a compilation of the soil and groundwater investigation results and visual aids (i.e., maps and figures) collected to date.

As your consultant pointed out, the investigation results suggest that the contamination associated with the Punch Shed Addition release overlies a larger area of what appears to be historic soil and groundwater contamination. The request for technical assistance related to the current extent of investigation and whether or not further investigation would be needed to delineate the historic contamination.

Our evaluation consisted of reviewing the investigation data included with the request for technical assistance, as well as previous submittals from, and email correspondence with, Environmental Troubleshooters, Inc. I also presented the investigation data to the DNR's Northern Region Closure Committee for a discussion of the adequacy of the site investigation. Based on this evaluation, we concluded the following:

- We concur with the assessment of Environmental Troubleshooters, Inc. that the data likely represent two or more releases in this area, historic and more recent. Your consultant has delineated the more recent release(s) using the relatively high naphthalene concentrations in soil, as depicted on Figure 5 Soil Naphthalene from the packet that accompanied the request for technical assistance.
- The extent of soil contamination (historic and more recent) has been adequately defined to the north and west. Residual contamination under the Punch Shed Building will be addressed in the final closure letter through a continuing obligation for a structural impediment.

- The extent of historic soil contamination to the east and south of the New Office Building has not been adequately defined. Although your consultant has attributed this contamination to historic fill, given the 100+ year history of industrial operations at this facility, it is just as likely (if not more so) that the contamination is attributable to past activities at the facility. We believe that you should install a minimum of three additional soil borings to the east, south-east and south of the New Office Building to more completely delineate the extent of historic contamination.
- It appears from Figure 2 Vicinity Map that the Punch Shed Building and New Office Building area is near the former AOC #9 (part of DNR BRRTS Activity #02-16-000079), identified and investigated in the 1990s. If your consultant has not already done so, they should review the case file information for AOC #9 to see if any of that investigation data could be applied to the current investigation.
- The Closure Committee also questioned whether or not soil was excavated during construction of the New Office Building and, if so, was that soil characterized for the presence of contamination. If characterization was performed, your consultant should include those results with the site investigation results.
- It does appear that you have adequately delineated the degree and extent of groundwater contamination. You should continue to monitor groundwater quality until you can demonstrate stable or decreasing concentrations, as required for closure under ch. NR 726, Wis. Adm. Code.

The DNR appreciates the opportunity to review and comment on your results at this stage of the investigation. We find that this type of fee-based evaluation early in the process leads to more successful case closure applications at the end. We would be happy to discuss these conclusions further with you and/or your consultant.

If you have any questions concerning this letter or the project in general, please do not hesitate to write or call me at 715-685-2920. I can also be reached by e-mail at Christopher.Saari@Wisconsin.gov.

Sincerely,

Christopher A. Saari
Hydrogeologist

cc: John McCarthy – Environmental Troubleshooters, Inc.

Attachment 3

- Soil analytical summary table.
- Figure depicting PAHs in soil.
- Copies of the boring logs from the additional borings.
- Copies of the soil sample laboratory reports.

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary

All results in mg/kg (ppm)		Test Pits				RI Soil Borings	
	Boring / Test Pit	TP-1	TP-2	TP-3	TP-4	GP-1	GP-2
	Sample ID	TP1 0-2'	TP2 2-4'	TP3 0-2'	TP4 0-2'	GP1 2-4'	GP2 2-4'
	Sample Depth (ft)	0-2	2-4	0-2	0-2	2-4	2-4
	Total Depth	8	6	6	5		
	Refusal?	N	N	N	N	N	N
	Date	10/27/14	10/27/14	10/27/14	10/27/14	3/24/15	3/24/15
	Ind. - RCL						
Gasoline Range Organics	NE	**837**	**572**	**72.1**	**156**	--	--
RCRA Metals (total)							
Arsenic via 6010	2.39	**7.7**	**1.2**	**7.7**	**3.9**	--	--
Arsenic via 6020	2.39	**8.5**	**2.6**	**10.6**	**5.1**	--	--
Barium	100000	**87.3**	**18.4**	**49.9**	**109**	--	--
Cadmium	799	**0.58**	**0.13**	**0.36**	**1.4**	--	--
Chromium	5.58 (VI)/100000	**12**	**5.5**	**10.1**	**42.4**	--	--
Lead	800	**296**	**41.5**	**118**	**212**	--	--
Mercury	3.13	**0.061**	**0.022**	**0.036**	**0.11**	--	--
Selenium	5110	**2.4**	**0.53**	**2.0**	**3.5**	--	--
Silver	5110	**0.065**	<0.045	<0.055	**24.5**	--	--
VOCs							
Acetone	100000	<0.594	<1.120	<0.604	<0.575	<1.150	<1.250
Allyl Chloride	4.85	<0.0078	<0.147	<0.0079	<0.0075	<0.229	<0.250
Benzene	7.41	**0.0525**	<0.0224	**0.0605**	<0.0115	<0.0229	<0.025
Bromobenzene	679	<0.0103	<0.0194	<0.0105	<0.010	<0.0573	<0.0624
Bromochloromethane	976	<0.0081	<0.0152	<0.0082	<0.0078	<0.229	<0.250
Bromodichloromethane	1.96	<0.0106	<0.0199	<0.0107	<0.0102	<0.0573	<0.0624
Bromoform	115	<0.119	<0.224	<0.121	<0.115	<0.229	<0.250
Bromomethane	46	<0.297	<0.560	<0.302	<0.288	<0.573	<0.624
2-Butanone (MEK)	28400	<0.148	<0.280	<0.151	<0.144	<0.286	<0.312
n-Butylbenzene	108	**0.426**	**0.795**	<0.0073	<0.0070	<0.0573	<0.0624
sec-Butylbenzene	145	**0.298**	**0.261**	**0.0285**	<0.0068	<0.0573	<0.0624
tert-Butylbenzene	183	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
Carbon Tetrachloride	4.25	**0.0753**	<0.0181	<0.0098	<0.0093	<0.229	<0.250
Chlorobenzene	761	<0.0091	<0.0172	<0.0093	<0.0088	<0.0573	<0.0624
Chloroethane	3.03	**3.140**	<0.0282	**0.753**	<0.0145	<0.573	<0.624
Chloroform	2.13	<0.0090	<0.0171	<0.0092	<0.0088	<0.0573	<0.0624
Chloromethane (methyl chloride)	720	<0.0108	<0.0204	<0.0110	<0.0105	<0.229	<0.250
2-Chlorotoluene	907	**0.423**	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
4-Chlorotoluene	253	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,2-Dibromo-3-chloropropane	0.099	<0.0315	<0.0593	<0.0320	<0.0305	<0.573	<0.624
Dibromochloromethane	34.1	<0.0128	<0.0242	<0.0130	<0.0124	<0.0573	<0.0624
1,2-Dibromoethane (EDB)	0.23	<0.0073	<0.0138	<0.0074	<0.0071	<0.0573	<0.0624
Dibromomethane	154	<0.0166	<0.0314	<0.0169	<0.0161	<0.0573	<0.0624
1,2-Dichlorobenzene	376	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,3-Dichlorobenzene	297	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,4-Dichlorobenzene	17.5	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
Dichlorodifluoromethane	571	<0.0274	<0.0517	<0.0279	<0.0266	<0.229	<0.250

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary

All results in mg/kg (ppm)		Test Pits				RI Soil Borings	
	Boring / Test Pit	TP-1	TP-2	TP-3	TP-4	GP-1	GP-2
	Sample ID	TP1 0-2'	TP2 2-4'	TP3 0-2'	TP4 0-2'	GP1 2-4'	GP2 2-4'
	Sample Depth (ft)	0-2	2-4	0-2	0-2	2-4	2-4
	Total Depth	8	6	6	5		
	Refusal?	N	N	N	N	N	N
	Date	10/27/14	10/27/14	10/27/14	10/27/14	3/24/15	3/24/15
1,1-Dichloroethane (DCA)	23.7	**2.660**	**0.0766**	**0.0885**	**0.0702**	<0.0573	<0.0624
1,2-Dichloroethane	3.03	<0.0140	<0.264	<0.0142	<0.0136	<0.0573	<0.0624
1,1-Dichloroethene	1190	**0.0516**	<0.0224	<0.0121	<0.0115	<0.229	<0.250
cis-1,2-Dichloroethene (DCE)	2040	<0.0121	<0.0228	<0.0123	**0.137**	<0.0573	<0.0624
trans-1,2-Dichloroethene	1850	<0.0118	<0.0222	<0.0120	**0.0402**	<0.229	<0.250
Dichlorofluoromethane	NE	<0.297	<0.560	<0.302	<0.288	<0.573	<0.624
1,2-Dichloropropane	6.62	<0.0095	<0.0180	<0.0097	<0.0092	<0.0573	<0.0624
1,3-Dichloropropane	1490	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
2,2-Dichloropropane	191	<0.0079	<0.0150	<0.0081	<0.0077	<0.229	<0.250
1,1-Dichloropropene	NL?	<0.0097	<0.0183	<0.0099	<0.0094	<0.0573	<0.0624
cis-1,3-Dichloropropene	1210	<0.0075	<0.0141	<0.0076	<0.0072	<0.0573	<0.0624
trans-1,3-Dichloropropene	1510	<0.0084	<0.0158	<0.0085	<0.0081	<0.0573	<0.0624
Diethyl Ether (Ethyl Ether)	10100	<0.0126	<0.0237	<0.0128	<0.0122	<0.229	<0.250
Ethylbenzene	37	**0.163**	**0.0901**	**0.130**	**0.0407**	<0.0573	<0.0624
Hexachloro-1,3-butadiene	7.45	<0.148	<0.280	<0.151	<0.144	<0.286	<0.312
Isopropylbenzene (cumene)	268	0.0933	0.0845	0.0560	<0.0288	<0.0573	<0.0624
p-Isopropyltoluene	162	**0.976**	**1.57**	**0.0373**	**0.126**	<0.0573	<0.0624
Methylene Chloride	1070	<0.0119	<0.224	<0.121	<0.115	<0.229	<0.250
4-Methyl-2-pentanone (MIBK)	2450	**0.318**	<0.280	<0.151	<0.144	<0.286	<0.312
Methyl-tert-butyl-ether (MTBE)	293	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
Naphthalene	26	**2.27**	**4.39**	**0.473**	**0.641**	<0.229	<0.250
n-Propylbenzene	264	**0.181**	**0.242**	**0.0753**	<0.0070	<0.0573	<0.0624
Styrene	867	<0.0089	<0.0167	<0.0090	<0.0086	<0.0573	<0.0624
1,1,1,2-Tetrachloroethane	12.9	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,1,2,2-Tetrachloroethane	3.69	<0.0081	<0.0154	<0.0083	<0.0079	<0.0573	<0.0624
Tetrachloroethene (PCE)	153	<0.0214	<0.0404	<0.0218	**0.331**	<0.0573	<0.0624
Tetrahydrofuran (THF)	100000	<0.0759	<0.143	<0.0771	<0.0735	<2.290	<2.500
Toluene	818	**0.27**	**0.0235**	**0.306**	**0.0962**	<0.0573	<0.0624
1,2,3-Trichlorobenzene	818	<0.0141	<0.0266	<0.0144	<0.0137	<0.0573	<0.0624
1,2,4-Trichlorobenzene	98.7	<0.0108	<0.0204	<0.0110	<0.0105	<0.0573	<0.0624
1,1,1-Trichloroethane (TCA)	640	**0.472**	**0.535**	<0.0302	**0.0757**	<0.0573	<0.0624
1,1,2-Trichloroethane (TCA)	7.34	<0.0100	<0.0189	<0.0102	<0.0097	<0.0573	<0.0624
Trichloroethene (TCE)	8.81	<0.0074	<0.0139	<0.0075	**0.421**	<0.0573	<0.0624
Trichlorofluoromethane	1230	<0.0106	<0.0199	<0.0107	<0.0102	<0.229	<0.250
1,2,3-Trichloropropane	0.095	**0.369**	<0.0149	<0.0080	<0.0076	<0.229	<0.250
1,1,2-Trichlorofluoroethane	910	<0.0248	<0.0468	<0.0252	<0.0240	<0.229	<0.250
1,2,4-Trimethylbenzene	219	**3.25**	**3.67**	**0.305**	**0.138**	<0.0573	<0.0624
1,3,5-Trimethylbenzene	182	**3.88**	**1.53**	**0.124**	**0.096**	<0.0573	<0.0624
Vinyl Chloride	2.03	<0.0088	<0.0166	<0.0090	<0.0085	<0.0229	<0.0250
Xylene (total)	260	**0.937**	**0.692**	**0.814**	**0.209**	<0.172	<0.187

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Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary

All results in mg/kg (ppm)		Test Pits				RI Soil Borings	
	Boring / Test Pit	TP-1	TP-2	TP-3	TP-4	GP-1	GP-2
	Sample ID	TP1 0-2'	TP2 2-4'	TP3 0-2'	TP4 0-2'	GP1 2-4'	GP2 2-4'
	Sample Depth (ft)	0-2	2-4	0-2	0-2	2-4	2-4
	Total Depth	8	6	6	5		
	Refusal?	N	N	N	N	N	N
	Date	10/27/14	10/27/14	10/27/14	10/27/14	3/24/15	3/24/15
PAHs							
Acenaphthene	45200	**0.589**	**0.342**	<0.0597	**0.748**	<0.0118	**0.0154**
Acenaphthylene	NE	**0.566**	**0.210**	**0.105**	<0.282	<0.0118	**0.0384**
Anthracene	100000	**0.409**	**0.468**	**0.061**	**1.490**	<0.0118	**0.0509**
Benzo(a)anthracene	20.8	**1.000**	**1.090**	**0.108**	**3.350**	<0.0118	**0.1310**
Benzo(a)pyrene [B(a)P]	2.11	**1.150**	**1.010**	**0.126**	**3.530**	<0.0118	**0.1750**
Benzo(b)fluoranthene	21.1	**2.000**	**1.250**	**0.280**	**4.400**	<0.0118	**0.2280**
Benzo(g,h,i)perylene	NE	**1.170**	**0.723**	**0.176**	**2.480**	<0.0118	**0.1280**
Benzo(k)fluoranthene	211	**0.935**	**0.636**	**0.128**	**2.200**	<0.0118	**0.0744**
Chrysene	2110	**1.340**	**1.230**	**0.189**	**3.950**	<0.0118	**0.1770**
Dibenzo(a,h)anthracene	2.11	**0.333**	**0.193**	<0.0597	**0.666**	<0.0118	<0.0125
Fluoranthene	30100	**2.190**	**2.400**	**0.207**	**7.550**	<0.0118	**0.3280**
Fluorene	30100	**1.200**	**0.389**	<0.0597	**0.968**	<0.0118	**0.0180**
Indeno(1,2,3-cd)pyrene	21.1	**0.990**	**0.566**	**0.146**	**2.010**	<0.0118	**0.1080**
Naphthalene	24.1	**1.450**	**1.490**	**0.402**	**0.297**	<0.0118	**0.0206**
Phenanthrene	NE	**1.450**	**2.390**	**0.254**	**5.620**	<0.0118	**0.2480**
Pyrene	22600	**2.020**	**2.410**	**0.213**	**6.180**	<0.0118	**0.3750**

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Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		RI Soil Borings					
	Boring / Test Pit	GP-3	GP-4	GP-5	GP-50	GP-6	GP-7
	Sample ID	GP3 2-4'	GP4 2-4'	GP5 4-8'	GP-5	GP6 4-8'	GP7 2-4'
	Sample Depth (ft)	2-4	2-4	4-8	Duplicate	4-8	2-4
	Total Depth						
	Refusal?	N	N	N		N	N
	Date	3/24/15	3/24/15	3/25/15	3/25/15	3/24/15	3/24/15
	Ind. - RCL						
Gasoline Range Organics	NE	--	--	--	--	--	--
RCRA Metals (total)							
Arsenic via 6010	2.39	--	--	--	--	--	--
Arsenic via 6020	2.39	--	--	--	--	--	--
Barium	100000	--	--	--	--	--	--
Cadmium	799	--	--	--	--	--	--
Chromium	5.58 (VI)/100000	--	--	--	--	--	--
Lead	800	--	--	--	--	--	--
Mercury	3.13	--	--	--	--	--	--
Selenium	5110	--	--	--	--	--	--
Silver	5110	--	--	--	--	--	--
VOCs							
Acetone	100000	<1.350	<1.270	<6.210	<7.090	<1.900	<1.160
Allyl Chloride	4.85	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Benzene	7.41	<0.0269	<0.0254	<0.124	<0.124	<0.0379	<0.0232
Bromobenzene	679	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Bromochloromethane	976	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Bromodichloromethane	1.96	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Bromoform	115	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Bromomethane	46	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
2-Butanone (MEK)	28400	<0.336	<0.318	<1.550	<1.770	<0.474	<0.290
n-Butylbenzene	108	<0.0673	<0.0636	<0.310	**1.330**	**4.980**	**0.107**
sec-Butylbenzene	145	<0.0673	<0.0636	<0.310	**0.614**	**0.320**	<0.0580
tert-Butylbenzene	183	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Carbon Tetrachloride	4.25	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Chlorobenzene	761	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Chloroethane	3.03	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
Chloroform	2.13	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Chloromethane (methyl chloride)	720	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
2-Chlorotoluene	907	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
4-Chlorotoluene	253	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2-Dibromo-3-chloropropane	0.099	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
Dibromochloromethane	34.1	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2-Dibromoethane (EDB)	0.23	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Dibromomethane	154	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2-Dichlorobenzene	376	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,3-Dichlorobenzene	297	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,4-Dichlorobenzene	17.5	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Dichlorodifluoromethane	571	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232

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Bold Text - Reported above detection limit.
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Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		RI Soil Borings					
	Boring / Test Pit	GP-3	GP-4	GP-5	GP-50	GP-6	GP-7
	Sample ID	GP3 2-4'	GP4 2-4'	GP5 4-8'	GP-5	GP6 4-8'	GP7 2-4'
	Sample Depth (ft)	2-4	2-4	4-8	Duplicate	4-8	2-4
	Total Depth						
	Refusal?	N	N	N		N	N
	Date	3/24/15	3/24/15	3/25/15	3/25/15	3/24/15	3/24/15
1,1-Dichloroethane (DCA)	23.7	<0.0673	**0.142**	<0.310	<0.354	<0.0949	<0.0580
1,2-Dichloroethane	3.03	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1-Dichloroethene	1190	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
cis-1,2-Dichloroethene (DCE)	2040	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.580
trans-1,2-Dichloroethene	1850	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Dichlorofluoromethane	NE	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
1,2-Dichloropropane	6.62	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,3-Dichloropropane	1490	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
2,2-Dichloropropane	191	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,1-Dichloropropene	NL?	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
cis-1,3-Dichloropropene	1210	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
trans-1,3-Dichloropropene	1510	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Diethyl Ether (Ethyl Ether)	10100	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Ethylbenzene	37	<0.0673	<0.0636	<0.310	**0.406**	**0.301**	**0.088**
Hexachloro-1,3-butadiene	7.45	<0.336	<0.318	<1.550	<1.770	<0.474	<0.290
Isopropylbenzene (cumene)	268	<0.0673	<0.0636	<0.310	<0.354	**0.268**	<0.0580
p-Isopropyltoluene	162	<0.0673	<0.0636	**1.88**	**3.180**	**1.680**	<0.0580
Methylene Chloride	1070	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
4-Methyl-2-pentanone (MIBK)	2450	<0.336	<0.318	<1.550	<1.770	<0.474	<0.290
Methyl-tert-butyl-ether (MTBE)	293	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Naphthalene	26	<0.269	<0.254	**18.80**	**33.700**	**67.500**	**10.300**
n-Propylbenzene	264	<0.0673	<0.0636	<0.310	**0.527**	**0.553**	<0.0580
Styrene	867	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1,1,2-Tetrachloroethane	12.9	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1,2,2-Tetrachloroethane	3.69	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Tetrachloroethene (PCE)	153	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Tetrahydrofuran (THF)	100000	<2.690	<2.540	<12.400	<14.200	<3.790	<2.320
Toluene	818	<0.0673	<0.0636	<0.310	<0.354	<0.0949	**0.224**
1,2,3-Trichlorobenzene	818	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2,4-Trichlorobenzene	98.7	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1,1-Trichloroethane (TCA)	640	<0.0673	<0.0636	<0.310	<0.354	<0.0949	**0.460**
1,1,2-Trichloroethane (TCA)	7.34	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Trichloroethene (TCE)	8.81	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Trichlorofluoromethane	1230	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,2,3-Trichloropropane	0.095	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,1,2-Trichlorofluoroethane	910	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,2,4-Trimethylbenzene	219	<0.0673	**0.142**	**6.390**	**11.200**	**13.100**	**0.200**
1,3,5-Trimethylbenzene	182	<0.0673	**0.103**	**3.000**	**3.720**	**4.720**	**0.0712**
Vinyl Chloride	2.03	<0.0269	<0.0254	<0.124	<0.142	<0.0379	<0.0232
Xylene (total)	260	<0.202	<0.191	<0.931	**3.280**	**4.570**	**0.749**

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Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		RI Soil Borings					
	Boring / Test Pit	GP-3	GP-4	GP-5	GP-50	GP-6	GP-7
	Sample ID	GP3 2-4'	GP4 2-4'	GP5 4-8'	GP-5	GP6 4-8'	GP7 2-4'
	Sample Depth (ft)	2-4	2-4	4-8	Duplicate	4-8	2-4
	Total Depth						
	Refusal?	N	N	N		N	N
	Date	3/24/15	3/24/15	3/25/15	3/25/15	3/24/15	3/24/15
PAHs							
Acenaphthene	45200	<0.0134	**0.246**	**3.080**	**2.240**	**6.970**	**121.0**
Acenaphthylene	NE	<0.0134	**0.163**	<0.621	<0.673	<0.979	**1.1**
Anthracene	100000	**0.0180**	**0.406**	<0.621	<0.673	<0.979	**182.0**
Benzo(a)anthracene	20.8	**0.0470**	**0.980**	<0.621	<0.673	<0.979	**215.0**
Benzo(a)pyrene [B(a)P]	2.11	**0.0541**	**1.150**	<0.621	<0.673	<0.979	**204.0**
Benzo(b)fluoranthene	21.1	**0.0705**	**1.500**	<0.621	<0.673	<0.979	**237.0**
Benzo(g,h,i)perylene	NE	**0.0402**	**0.751**	<0.621	<0.673	<0.979	**113.0**
Benzo(k)fluoranthene	211	**0.0282**	**0.601**	<0.621	<0.673	<0.979	**101.0**
Chrysene	2110	**0.0616**	**1.250**	<0.621	<0.673	<0.979	**207.0**
Dibenzo(a,h)anthracene	2.11	<0.0134	<0.0132	<0.621	<0.673	<0.979	<0.0573
Fluoranthene	30100	**0.1220**	**2.800**	<0.621	<0.673	<0.979	**645.0**
Fluorene	30100	<0.0134	**0.268**	**2.190**	**1.690**	**3.640**	**112.0**
Indeno(1,2,3-cd)pyrene	21.1	**0.0333**	**0.648**	<0.621	<0.673	<0.979	**105.0**
Naphthalene	24.1	<0.0134	**0.275**	**39.00**	**20.000**	**83.800**	**80.20**
Phenanthrene	NE	**0.0959**	**2.660**	**3.560**	**2.290**	**2.470**	**838.0**
Pyrene	22600	**0.1510**	**3.870**	**1.730**	**1.190**	**2.800**	**684.0**

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Soil Analytical Summary (cont)

All results in mg/kg (ppm)		Supplemental RI Borings				
	Boring / Test Pit	GP-8	GP-9		GP-10	GP-11
	Sample ID	GP8 2-4	GP9 2-4'	GP9 6-8'	GP10 2-4'	GP11 2-4'
	Sample Depth (ft)	2-4	2-4	6-8	2-4	2-4
	Total Depth					
	Refusal?	N	N	N	N	N
	Date	3/24/15	3/24/15	3/24/15	3/24/15	3/24/15
	Ind. - RCL					
Gasoline Range Organics	NE	--	--	--	--	--
RCRA Metals (total)						
Arsenic via 6010	2.39	--	--	--	--	--
Arsenic via 6020	2.39	--	--	--	--	--
Barium	100000	--	--	--	--	--
Cadmium	799	--	--	--	--	--
Chromium	5.58 (VI)/100000	--	--	--	--	--
Lead	800	--	--	--	--	--
Mercury	3.13	--	--	--	--	--
Selenium	5110	--	--	--	--	--
Silver	5110	--	--	--	--	--
VOCs						
Acetone	100000	--	--	--	--	--
Allyl Chloride	4.85	--	--	--	--	--
Benzene	7.41	--	--	--	--	--
Bromobenzene	679	--	--	--	--	--
Bromochloromethane	976	--	--	--	--	--
Bromodichloromethane	1.96	--	--	--	--	--
Bromoform	115	--	--	--	--	--
Bromomethane	46	--	--	--	--	--
2-Butanone (MEK)	28400	--	--	--	--	--
n-Butylbenzene	108	--	--	--	--	--
sec-Butylbenzene	145	--	--	--	--	--
tert-Butylbenzene	183	--	--	--	--	--
Carbon Tetrachloride	4.25	--	--	--	--	--
Chlorobenzene	761	--	--	--	--	--
Chloroethane	3.03	--	--	--	--	--
Chloroform	2.13	--	--	--	--	--
Chloromethane (methyl chloride)	720	--	--	--	--	--
2-Chlorotoluene	907	--	--	--	--	--
4-Chlorotoluene	253	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.099	--	--	--	--	--
Dibromochloromethane	34.1	--	--	--	--	--
1,2-Dibromoethane (EDB)	0.23	--	--	--	--	--
Dibromomethane	154	--	--	--	--	--
1,2-Dichlorobenzene	376	--	--	--	--	--
1,3-Dichlorobenzene	297	--	--	--	--	--
1,4-Dichlorobenzene	17.5	--	--	--	--	--
Dichlorodifluoromethane	571	--	--	--	--	--

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Soil Analytical Summary (cont)

All results in mg/kg (ppm)		Supplemental RI Borings				
	Boring / Test Pit	GP-8	GP-9		GP-10	GP-11
	Sample ID	GP8 2-4	GP9 2-4'	GP9 6-8'	GP10 2-4'	GP11 2-4'
	Sample Depth (ft)	2-4	2-4	6-8	2-4	2-4
	Total Depth					
	Refusal?	N	N	N	N	N
	Date	3/24/15	3/24/15	3/24/15	3/24/15	3/24/15
1,1-Dichloroethane (DCA)	23.7	--	--	--	--	--
1,2-Dichloroethane	3.03	--	--	--	--	--
1,1-Dichloroethene	1190	--	--	--	--	--
cis-1,2-Dichloroethene (DCE)	2040	--	--	--	--	--
trans-1,2-Dichloroethene	1850	--	--	--	--	--
Dichlorofluoromethane	NE	--	--	--	--	--
1,2-Dichloropropane	6.62	--	--	--	--	--
1,3-Dichloropropane	1490	--	--	--	--	--
2,2-Dichloropropane	191	--	--	--	--	--
1,1-Dichloropropene	NL?	--	--	--	--	--
cis-1,3-Dichloropropene	1210	--	--	--	--	--
trans-1,3-Dichloropropene	1510	--	--	--	--	--
Diethyl Ether (Ethyl Ether)	10100	--	--	--	--	--
Ethylbenzene	37	--	--	--	--	--
Hexachloro-1,3-butadiene	7.45	--	--	--	--	--
Isopropylbenzene (cumene)	268	--	--	--	--	--
p-Isopropyltoluene	162	--	--	--	--	--
Methylene Chloride	1070	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	2450	--	--	--	--	--
Methyl-tert-butyl-ether (MTBE)	293	--	--	--	--	--
Naphthalene	26	--	--	--	--	--
n-Propylbenzene	264	--	--	--	--	--
Styrene	867	--	--	--	--	--
1,1,1,2-Tetrachloroethane	12.9	--	--	--	--	--
1,1,2,2-Tetrachloroethane	3.69	--	--	--	--	--
Tetrachloroethene (PCE)	153	--	--	--	--	--
Tetrahydrofuran (THF)	100000	--	--	--	--	--
Toluene	818	--	--	--	--	--
1,2,3-Trichlorobenzene	818	--	--	--	--	--
1,2,4-Trichlorobenzene	98.7	--	--	--	--	--
1,1,1-Trichloroethane (TCA)	640	--	--	--	--	--
1,1,2-Trichloroethane (TCA)	7.34	--	--	--	--	--
Trichloroethene (TCE)	8.81	--	--	--	--	--
Trichlorofluoromethane	1230	--	--	--	--	--
1,2,3-Trichloropropane	0.095	--	--	--	--	--
1,1,2-Trichlorofluoroethane	910	--	--	--	--	--
1,2,4-Trimethylbenzene	219	--	--	--	--	--
1,3,5-Trimethylbenzene	182	--	--	--	--	--
Vinyl Chloride	2.03	--	--	--	--	--
Xylene (total)	260	--	--	--	--	--

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Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Soil Analytical Summary (cont)

All results in mg/kg (ppm)		Supplemental RI Borings				
	Boring / Test Pit	GP-8	GP-9		GP-10	GP-11
	Sample ID	GP8 2-4	GP9 2-4'	GP9 6-8'	GP10 2-4'	GP11 2-4'
	Sample Depth (ft)	2-4	2-4	6-8	2-4	2-4
	Total Depth					
	Refusal?	N	N	N	N	N
	Date	3/24/15	3/24/15	3/24/15	3/24/15	3/24/15
PAHs						
Acenaphthene	45200	**0.268**	**0.0359**	<0.0125	**0.0156**	**0.081**
Acenaphthylene	NE	**0.120**	**0.0135**	<0.0125	**0.0304**	**0.0582**
Anthracene	100000	**0.544**	**0.0785**	<0.0125	**0.0643**	**0.362**
Benzo(a)anthracene	20.8	**1.340**	**0.272**	**0.0183**	**0.185**	**0.980**
Benzo(a)pyrene [B(a)P]	2.11	**1.540**	**0.287**	**0.0262**	**0.151**	**0.983**
Benzo(b)fluoranthene	21.1	**1.760**	**0.339**	**0.0352**	**0.206**	**1.260**
Benzo(g,h,i)perylene	NE	**1.080**	**0.181**	**0.0194**	**0.120**	**0.763**
Benzo(k)fluoranthene	211	**0.674**	**0.137**	**0.0131**	**0.0633**	**0.494**
Chrysene	2110	**1.560**	**0.309**	**0.0316**	**0.243**	**1.570**
Dibenzo(a,h)anthracene	2.11	**0.320**	**0.0591**	<0.0125	**0.0458**	**0.213**
Fluoranthene	30100	**3.110**	**0.608**	**0.0983**	**0.267**	**1.790**
Fluorene	30100	**0.274**	**0.0344**	<0.0125	**0.0288**	**0.173**
Indeno(1,2,3-cd)pyrene	21.1	**0.878**	**0.162**	**0.0153**	**0.0911**	**0.611**
Naphthalene	24.1	**0.142**	**0.0270**	<0.0125	**0.0711**	**0.310**
Phenanthrene	NE	**2.940**	**0.462**	**0.0948**	**0.365**	**1.500**
Pyrene	22600	**3.120**	**0.576**	**0.0822**	**0.299**	**1.920**

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Table 2: Fraser (cont)
Soil Analytical

All results in mg/kg (ppm)		Supplemental RI Borings					
	Boring / Test Pit	GP-12	GP-13	GP-14	GP-15	GP-16	GP-17
	Sample ID	GP12 4-6	GP13 0-2	GP14 2-4	GP15(2-4)	GP16(4-6)	GP17(2-4)
	Sample Depth (ft)	4-6	0-2	2-4	2-4	4-6	2-4
	Total Depth						
	Refusal?	N	N	N	N	N	N
	Date	4/14/16	4/14/16	4/14/16	8/22/18	8/22/18	8/22/18
	Ind. - RCL						
Gasoline Range Organics	NE	--	--	--	--	--	--
RCRA Metals (total)							
Arsenic via 6010	2.39	--	--	--	--	--	--
Arsenic via 6020	2.39	--	--	--	--	--	--
Barium	100000	--	--	--	--	--	--
Cadmium	799	--	--	--	--	--	--
Chromium	5.58 (VI)/100000	--	--	--	--	--	--
Lead	800	--	--	--	--	--	--
Mercury	3.13	--	--	--	--	--	--
Selenium	5110	--	--	--	--	--	--
Silver	5110	--	--	--	--	--	--
VOCs							
Acetone	100000	--	--	--	--	--	--
Allyl Chloride	4.85	--	--	--	--	--	--
Benzene	7.41	--	--	--	--	--	--
Bromobenzene	679	--	--	--	--	--	--
Bromochloromethane	976	--	--	--	--	--	--
Bromodichloromethane	1.96	--	--	--	--	--	--
Bromoform	115	--	--	--	--	--	--
Bromomethane	46	--	--	--	--	--	--
2-Butanone (MEK)	28400	--	--	--	--	--	--
n-Butylbenzene	108	--	--	--	--	--	--
sec-Butylbenzene	145	--	--	--	--	--	--
tert-Butylbenzene	183	--	--	--	--	--	--
Carbon Tetrachloride	4.25	--	--	--	--	--	--
Chlorobenzene	761	--	--	--	--	--	--
Chloroethane	3.03	--	--	--	--	--	--
Chloroform	2.13	--	--	--	--	--	--
Chloromethane (methyl chloride)	720	--	--	--	--	--	--
2-Chlorotoluene	907	--	--	--	--	--	--
4-Chlorotoluene	253	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.099	--	--	--	--	--	--
Dibromochloromethane	34.1	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	0.23	--	--	--	--	--	--
Dibromomethane	154	--	--	--	--	--	--
1,2-Dichlorobenzene	376	--	--	--	--	--	--
1,3-Dichlorobenzene	297	--	--	--	--	--	--
1,4-Dichlorobenzene	17.5	--	--	--	--	--	--
Dichlorodifluoromethane	571	--	--	--	--	--	--

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Table 2: Fraser (cont)
Soil Analytical

All results in mg/kg (ppm)		Supplemental RI Borings					
	Boring / Test Pit	GP-12	GP-13	GP-14	GP-15	GP-16	GP-17
	Sample ID	GP12 4-6	GP13 0-2	GP14 2-4	GP15(2-4)	GP16(4-6)	GP17(2-4)
	Sample Depth (ft)	4-6	0-2	2-4	2-4	4-6	2-4
	Total Depth						
	Refusal?	N	N	N	N	N	N
	Date	4/14/16	4/14/16	4/14/16	8/22/18	8/22/18	8/22/18
1,1-Dichloroethane (DCA)	23.7	--	--	--	--	--	--
1,2-Dichloroethane	3.03	--	--	--	--	--	--
1,1-Dichloroethene	1190	--	--	--	--	--	--
cis-1,2-Dichloroethene (DCE)	2040	--	--	--	--	--	--
trans-1,2-Dichloroethene	1850	--	--	--	--	--	--
Dichlorofluoromethane	NE	--	--	--	--	--	--
1,2-Dichloropropane	6.62	--	--	--	--	--	--
1,3-Dichloropropane	1490	--	--	--	--	--	--
2,2-Dichloropropane	191	--	--	--	--	--	--
1,1-Dichloropropene	NL?	--	--	--	--	--	--
cis-1,3-Dichloropropene	1210	--	--	--	--	--	--
trans-1,3-Dichloropropene	1510	--	--	--	--	--	--
Diethyl Ether (Ethyl Ether)	10100	--	--	--	--	--	--
Ethylbenzene	37	--	--	--	--	--	--
Hexachloro-1,3-butadiene	7.45	--	--	--	--	--	--
Isopropylbenzene (cumene)	268	--	--	--	--	--	--
p-Isopropyltoluene	162	--	--	--	--	--	--
Methylene Chloride	1070	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	2450	--	--	--	--	--	--
Methyl-tert-butyl-ether (MTBE)	293	--	--	--	--	--	--
Naphthalene	26	--	--	--	--	--	--
n-Propylbenzene	264	--	--	--	--	--	--
Styrene	867	--	--	--	--	--	--
1,1,1,2-Tetrachloroethane	12.9	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	3.69	--	--	--	--	--	--
Tetrachloroethene (PCE)	153	--	--	--	--	--	--
Tetrahydrofuran (THF)	100000	--	--	--	--	--	--
Toluene	818	--	--	--	--	--	--
1,2,3-Trichlorobenzene	818	--	--	--	--	--	--
1,2,4-Trichlorobenzene	98.7	--	--	--	--	--	--
1,1,1-Trichloroethane (TCA)	640	--	--	--	--	--	--
1,1,2-Trichloroethane (TCA)	7.34	--	--	--	--	--	--
Trichloroethene (TCE)	8.81	--	--	--	--	--	--
Trichlorofluoromethane	1230	--	--	--	--	--	--
1,2,3-Trichloropropane	0.095	--	--	--	--	--	--
1,1,2-Trichlorofluoroethane	910	--	--	--	--	--	--
1,2,4-Trimethylbenzene	219	--	--	--	--	--	--
1,3,5-Trimethylbenzene	182	--	--	--	--	--	--
Vinyl Chloride	2.03	--	--	--	--	--	--
Xylene (total)	260	--	--	--	--	--	--

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Bold Text - Reported above detection limit.
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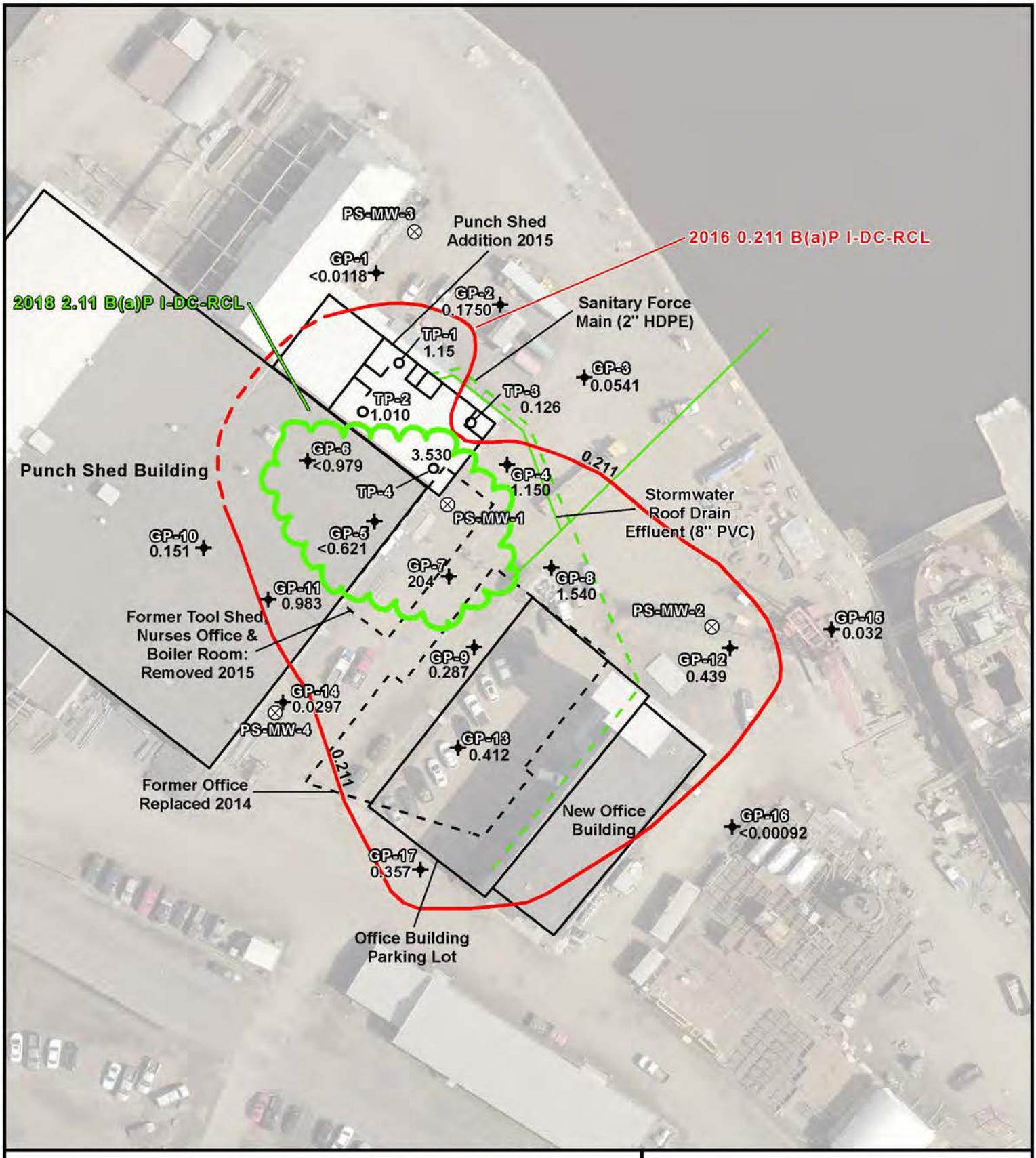
Table 2: Fraser (cont)
Soil Analytical

All results in mg/kg (ppm)		Supplemental RI Borings					
	Boring / Test Pit	GP-12	GP-13	GP-14	GP-15	GP-16	GP-17
	Sample ID	GP12 4-6	GP13 0-2	GP14 2-4	GP15(2-4)	GP16(4-6)	GP17(2-4)
	Sample Depth (ft)	4-6	0-2	2-4	2-4	4-6	2-4
	Total Depth						
	Refusal?	N	N	N	N	N	N
	Date	4/14/16	4/14/16	4/14/16	8/22/18	8/22/18	8/22/18
PAHs							
Acenaphthene	45200	**0.0148**	**0.0668**	<0.0015	<0.00043	<0.00055	**0.0651**
Acenaphthylene	NE	**0.0244**	**0.0109**	<0.0011	<0.00052	<0.00067	**0.0249**
Anthracene	100000	**0.0775**	**0.246**	**0.0118**	**0.012**	<0.00063	**0.163**
Benzo(a)anthracene	20.8	**0.401**	**0.422**	**0.0269**	**0.03**	<0.0015	**0.3660**
Benzo(a)pyrene [B(a)P]	2.11	**0.439**	**0.417**	**0.0297**	**0.032**	<0.00092	**0.357**
Benzo(b)fluoranthene	21.1	**0.637**	**0.602**	**0.038**	**0.042**	<0.00050	**0.481**
Benzo(g,h,i)perylene	NE	**0.189**	**0.157**	**0.0136**	**0.0227**	<0.00085	**0.229**
Benzo(k)fluoranthene	211	**0.218**	**0.224**	**0.0171**	**0.0166**	<0.0011	**0.165**
Chrysene	2110	**0.463**	**0.458**	**0.033**	**0.0309**	<0.0018	**0.334**
Dibenzo(a,h)anthracene	2.11	**0.0805**	**0.0633**	<0.0013	<0.00048	<0.00062	**0.591**
Fluoranthene	30100	**0.726**	**1.08**	**0.0675**	**0.0625**	<0.00058	**0.8360**
Fluorene	30100	**0.0176**	**0.12**	<0.0015	<0.00033	<0.00042	**0.0806**
Indeno(1,2,3-cd)pyrene	21.1	**0.192**	**0.164**	**0.0109**	**0.0178**	<0.00090	**0.182**
Naphthalene	24.1	**0.0505**	**0.0127**	<0.0014	<0.00081	<0.0010	**0.080**
Phenanthrene	NE	**0.222**	**0.805**	**0.0592**	**0.0394**	<0.0026	**0.7380**
Pyrene	22600	**0.68**	**0.891**	**0.0634**	**0.0526**	<0.0021	**0.7700**

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 0.211 I-RCL
- 2.11 2018 I-RCL

Exceedances all within B(a)P extents:
- Benzo(a)anthracene
- Benzo(b)Flouranthene
- Benzo(k)flouranthene
- Dibenzo(a,h)anthracene
- Flourene
- Naphthalene

N

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

FIGURE 4
Soil Benzo(a)Pyrene

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004
DATE: 10/12/2018 **CREATED BY:** CGIS
FILE NAME: //GIS/2014 Projects/14-1004 /Projects/Figure4

ENVIRONMENTAL TROUBLESHOOTERS

Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
02-16-562599

# of Soil-Concentration Entries: 16

GP-14 2-4'

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.	1.8E-07

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 6/2/2016.
Date of Worksheet Used: 12/11/2015.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	871.	26.	26.	ca		0.0014		0.	5.4E-11
Benzo[a]pyrene	50-32-8	-	0.211	0.211	ca		0.0297			1.4E-07
Acenaphthene	83-32-9	33,000.	-	33,000.	nc		0.0015		0.	
Acenaphthylene	208-96-8	-	-				0.0011			
Anthracene	120-12-7	165,000.	-	100,000.	ceiling		0.0118		0.	
Benz[a]anthracene	56-55-3	-	2.1	2.1	ca		0.0269			1.3E-08
Benzo[b]fluoranthene	205-99-2	-	2.11	2.11	ca		0.038			1.8E-08
Benzo[g,h,i]perylene	191-24-2	-	-				0.0136			
Benzo[k]fluoranthene	207-08-9	-	21.1	21.1	ca		0.0171			8.1E-10
Chrysene	218-01-9	-	211.	211.	ca		0.033			1.6E-10
Dibenz[a,h]anthracene	53-70-3	-	0.211	0.211	ca		0.0013			6.2E-09
Fluoranthene	206-44-0	22,000.	-	22,000.	nc		0.0675		0.	
Fluorene	86-73-7	22,000.	-	22,000.	nc		0.0015		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	2.11	2.11	ca		0.0109			5.2E-09
Phenanthrene	85-01-8	-	-				0.0592			
Pyrene	129-00-0	16,500.	-	16,500.	nc		0.0634		0.	

Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
02-16-562599

GP13 0-2'

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
1	0.0001	2.9E-06

Bottom-Line: **NO! This INDUSTRIAL site sampling location will need either further cleanup to lower contaminant levels or the construction of a cap/cover to address the direct-contact pathway.**

Date of Entry: 6/2/2016.
Date of Worksheet Used: 12/11/2015.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	871.	26.	26.	ca		0.0127		0.	4.9E-10
Benzo[a]pyrene	50-32-8	-	0.211	0.211	ca		0.417	E		2.0E-06
Acenaphthene	83-32-9	33,000.	-	33,000.	nc		0.0668		0.	
Acenaphthylene	208-96-8	-	-				0.0109			
Anthracene	120-12-7	165,000.	-	100,000.	ceiling		0.246		0.	
Benz[a]anthracene	56-55-3	-	2.1	2.1	ca		0.422			2.0E-07
Benzo[b]fluoranthene	205-99-2	-	2.11	2.11	ca		0.602			2.9E-07
Benzo[g,h,i]perylene	191-24-2	-	-				0.157			
Benzo[k]fluoranthene	207-08-9	-	21.1	21.1	ca		0.224			1.1E-08
Chrysene	218-01-9	-	211.	211.	ca		0.458			2.2E-09
Dibenz[a,h]anthracene	53-70-3	-	0.211	0.211	ca		0.0633			3.0E-07
Fluoranthene	206-44-0	22,000.	-	22,000.	nc		1.08		0.	
Fluorene	86-73-7	22,000.	-	22,000.	nc		0.12		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	2.11	2.11	ca		0.164			7.8E-08
Phenanthrene	85-01-8	-	-				0.805			
Pyrene	129-00-0	16,500.	-	16,500.	nc		0.891		0.0001	

Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
02-16-562599

GP-12 4-6'

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
1	0.0001	3.1E-06

Bottom-Line: **NO! This INDUSTRIAL site sampling location will need either further cleanup to lower contaminant levels or the construction of a cap/cover to address the direct-contact pathway.**

Date of Entry: 6/2/2016.
Date of Worksheet Used: 12/11/2015.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	871.	26.	26.	ca		0.0505		0.0001	1.9E-09
Benzo[a]pyrene	50-32-8	-	0.211	0.211	ca		0.439	E		2.1E-06
Acenaphthene	83-32-9	33,000.	-	33,000.	nc		0.0148		0.	
Acenaphthylene	208-96-8	-	-				0.0244			
Anthracene	120-12-7	165,000.	-	100,000.	ceiling		0.0775		0.	
Benz[a]anthracene	56-55-3	-	2.1	2.1	ca		0.401			1.9E-07
Benzo[b]fluoranthene	205-99-2	-	2.11	2.11	ca		0.637			3.0E-07
Benzo[g,h,i]perylene	191-24-2	-	-				0.189			
Benzo[k]fluoranthene	207-08-9	-	21.1	21.1	ca		0.218			1.0E-08
Chrysene	218-01-9	-	211.	211.	ca		0.463			2.2E-09
Dibenz[a,h]anthracene	53-70-3	-	0.211	0.211	ca		0.0805			3.8E-07
Fluoranthene	206-44-0	22,000.	-	22,000.	nc		0.726		0.	
Fluorene	86-73-7	22,000.	-	22,000.	nc		0.0176		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	2.11	2.11	ca		0.192			9.1E-08
Phenanthrene	85-01-8	-	-				0.222			
Pyrene	129-00-0	16,500.	-	16,500.	nc		0.68		0.	

NR 720 Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
Type BRRTS No. Here (If Known)

GP17 2-4'

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.0018	2.5E-07

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 10/10/2018.
Date of Worksheet Used: 06/01/2018.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	830.	24.1	24.1	ca		0.0798		0.0001	3.3E-09
Benzo[a]pyrene	50-32-8	222.	2.11	2.11	ca		0.357		0.0016	1.7E-07
Acenaphthene	83-32-9	45,200.	-	45,200.	nc		0.651		0.	
Acenaphthylene	208-96-8	-	-				0.0249			
Anthracene	120-12-7	226,000.	-	100,000.	ceiling		0.163		0.	
Benz[a]anthracene	56-55-3	-	20.8	20.8	ca		0.366			1.8E-08
Benzo[b]fluoranthene	205-99-2	-	21.1	21.1	ca		0.481			2.3E-08
Benzo[g,h,i]perylene	191-24-2	-	-				0.229			
Benzo[k]fluoranthene	207-08-9	-	211.	211.	ca		0.165			7.8E-10
Chrysene	218-01-9	-	2,110.	2,110.	ca		0.334			1.6E-10
Dibenz[a,h]anthracene	53-70-3	-	2.11	2.11	ca		0.0591			2.8E-08
Fluoranthene	206-44-0	30,100.	-	30,100.	nc		0.836		0.	
Fluorene	86-73-7	30,100.	-	30,100.	nc		0.0806		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	21.1	21.1	ca		0.182			8.6E-09
Phenanthrene	85-01-8	-	-				0.738			
Pyrene	129-00-0	22,600.	-	22,600.	nc		0.77		0.	

NR 720 Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
Type BRRTS No. Here (If Known)

GP16 4-6

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.	3.1E-09

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 10/10/2018.
Date of Worksheet Used: 06/01/2018.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	830.	24.1	24.1	ca		0.0035		0.	1.5E-10
Benzo[a]pyrene	50-32-8	222.	2.11	2.11	ca		0.0031		0.	1.5E-09
Acenaphthene	83-32-9	45,200.	-	45,200.	nc		0.0018		0.	
Acenaphthylene	208-96-8	-	-				0.0022			
Anthracene	120-12-7	226,000.	-	100,000.	ceiling		0.0021		0.	
Benz[a]anthracene	56-55-3	-	20.8	20.8	ca		0.0048			2.3E-10
Benzo[b]fluoranthene	205-99-2	-	21.1	21.1	ca		0.0017			8.1E-11
Benzo[g,h,i]perylene	191-24-2	-	-				0.0028			
Benzo[k]fluoranthene	207-08-9	-	211.	211.	ca		0.0038			1.8E-11
Chrysene	218-01-9	-	2,110.	2,110.	ca		0.0061			2.9E-12
Dibenz[a,h]anthracene	53-70-3	-	2.11	2.11	ca		0.0021			1.0E-09
Fluoranthene	206-44-0	30,100.	-	30,100.	nc		0.0019		0.	
Fluorene	86-73-7	30,100.	-	30,100.	nc		0.0014		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	21.1	21.1	ca		0.003			1.4E-10
Phenanthrene	85-01-8	-	-				0.0086			
Pyrene	129-00-0	22,600.	-	22,600.	nc		0.0021		0.	

Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
02-16-562599

GP15 2-4

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.	1.8E-07

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 10/10/2018.
Date of Worksheet Used: 12/11/2015.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	871.	26.	26.	ca		0.0014		0.	5.4E-11
Benzo[a]pyrene	50-32-8	-	0.211	0.211	ca		0.0297			1.4E-07
Acenaphthene	83-32-9	33,000.	-	33,000.	nc		0.0015		0.	
Acenaphthylene	208-96-8	-	-				0.0011			
Anthracene	120-12-7	165,000.	-	100,000.	ceiling		0.0118		0.	
Benz[a]anthracene	56-55-3	-	2.1	2.1	ca		0.0269			1.3E-08
Benzo[b]fluoranthene	205-99-2	-	2.11	2.11	ca		0.038			1.8E-08
Benzo[g,h,i]perylene	191-24-2	-	-				0.0136			
Benzo[k]fluoranthene	207-08-9	-	21.1	21.1	ca		0.0171			8.1E-10
Chrysene	218-01-9	-	211.	211.	ca		0.033			1.6E-10
Dibenz[a,h]anthracene	53-70-3	-	0.211	0.211	ca		0.0013			6.2E-09
Fluoranthene	206-44-0	22,000.	-	22,000.	nc		0.0675		0.	
Fluorene	86-73-7	22,000.	-	22,000.	nc		0.0015		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	2.11	2.11	ca		0.0109			5.2E-09
Phenanthrene	85-01-8	-	-				0.0592			
Pyrene	129-00-0	16,500.	-	16,500.	nc		0.0634		0.	

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-12**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Nicole Torgerson**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **4/14/2016**

Depth of Boring (ft): **12**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **4-6**

Water Table Depth (ft): **~6**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	9" Dark brown sandy gravel. 3" Dark brown sandy silt with clay. Low plasticity. No odor. Low moisture.	GW ML	1.0
2'-4'	12"/24"	2' - 3' -	Same as previous interval.	ML	1.3
4'-6'	10"/24"	4' - 5' -	Angular coarse sand. Unconsolidated. Low odor. Moderate moisture.	GP	1.6
6'-8'	10"/24"	6' - 7' -	Same as previous interval, but saturated.	GP	1.0
8'-10'	24"/24"	8' - 9' -	Reddish brown fatty clay. Low density / high plasticity. Moderate moisture.	CH	0.4
10'-12'	24"/24"	10' - 11' -	Same as previous interval.	CH	0.6

End of Boring: 12 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: Fraser Shipyard LSI
Project Number: 14-1004
Boring Drilled By (Firm Name and crew Chief): Environmental Troubleshooters, Inc.
Boring Number: PSA GP-13
Well Number (If Applicable):
Chief Driller: Joe Fye
Scientist: Nicole Torgerson
Drilling Method Used: Geoprobe
Date Drilling Occurred: 4/14/2016
Depth of Boring (ft): 12
Screen Interval (ft): n/a
Boring Location:
Water Sample Depth (ft): n/a
Soil Sample Interval (ft): 0-2
Water Table Depth (ft): ~2
Boring Elevation: n/a

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	8" Brown sandy gravel. Unconsolidated. No odor. 4" Rust colored coarse sand. Saturated.	GW SP	1.7
2'-4'	12"/24"	2' - 3' -	4": Same as previous interval. 8": Balck/Dark Brown fine - coarse sand, saturated.	SP	1.3
4'-6'	22"/24"	4' - 5' -	Red fatty clay. Medium dense. High plasticity. Saturated.	CH	0.9
6'-8'	22"/24"	6' - 7' -	Same as previous interval with decreasing moisture.	CH	0.6
8'-10'	5"/24"	8' - 9' -	Same as previous interval, low moisture	CH	0.7
10'-12'	5"/24"	10' - 11' -	Same as previous interval	CH	0.6

End of Boring: 12 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-14**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Nicole Torgerson**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **4/14/2016**

Depth of Boring (ft): **12**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **~4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	2": Black / dark brown sandy gravel. 10": Reddish brown fine sand. Low moisture.	GW SP	0.7
2'-4'	12"/24"	2' - 3' -	Same as previous interval.	SP	1.2
4'-6'	16"/24"	4' - 5' -	8": Dark brown silty sand. No plasticity. No odor. Saturated. 8": Reddish brown silty clay. Low density. High plasticity. No odor. Saturated.	CH	0.5
6'-8'	16"/24"	6' - 7' -	12": Same as previous interval. 4" Peat. Saturated.	CH PT	1.0
8'-10'	22"/24"	8' - 9' -	Red fatty clay, low density, high plasticity, low moisture.	CH	0.5
10'-12'	22"/24"	10' - 11' -	6" Same as previous interval. 18" Blackish orange/brown fatty clay, low density, high plasticity, low moisture	CH	0.5

End of Boring: 12 ft

SOIL BORING LOG INFORMATION

Facility/Project Name:
Fraser Shipyard LSI

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief):
Environmental Troubleshooters, Inc.

Boring Number: **PSA GP-15**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Brice Wizner**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **8/22/2018**

Depth of Boring (ft): **8**
Screen Interval (ft): **n/a**
Water Sample Depth (ft): **n/a**
Soil Sample Interval (ft): **2-4**
Water Table Depth (ft): **~4**
Boring Elevation: **n/a**

Boring Location:
See map.

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'		0' -	2": Class V sandy gravel.		
	12"/24"	1' -	10": Light brown/grey gravel and sand, no odor or plasticity, low moisture.	GW	1.7
2'-4'		2' -	12": Dark brown gravelly sand, no odor or plasticity, very moist.		
	12"/24"	3' -		GW	1.8
4'-6'		4' -	10": Saturated dark brown gravelly sand.		
	20"/24"	5' -	10": Moist clay, no odor, medium plasticity.	GW, CL	1.5
6'-8'		6' -	20": Moist dark brown soft clay, medium plasticity, no odor.		
	20"/24"	7' -		CL	1.3

End of Boring: 8 ft

SOIL BORING LOG INFORMATION

Facility/Project Name:
Fraser Shipyard LSI

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief):
Environmental Troubleshooters, Inc.

Boring Number: **PSA GP-16**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Brice Wizner**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **8/22/2018**

Depth of Boring (ft): **8**
Screen Interval (ft): **n/a**
Water Sample Depth (ft): **n/a**
Soil Sample Interval (ft): **4-6**
Water Table Depth (ft): **~4**
Boring Elevation: **n/a**

Boring Location:
See map.

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'		0' -	2": Class V gravel and sand.		
	12"/24"	1' -	10": Light brown sand lense, no odor or plasticity, low moisture.	GW	1.0
2'-4'		2' -	12": Dark brown silty sand, no odor or plasticity, low moisture.		
	12"/24"	3' -		SM	1.1
4'-6'		4' -	10": Dark brown silty sand, no odor or plasticity, low moisture.		
	20"/24"	5' -	10": Dark brown solf clay, no odor, medium pasticity, low moisture.	SM, CL	2.4
6'-8'		6' -	20": Soft clay, brown, no odor, medium plasticity, low moisture.		
	20"/24"	7' -		CL	1.6

End of Boring: 8 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: Fraser Shipyard LSI

Project Number: 14-1004

Boring Drilled By (Firm Name and crew Chief): Environmental Troubleshooters, Inc.

Boring Number: PSA GP-17

Well Number (If Applicable):

Chief Driller: Joe Fye

Scientist: Brice Wizner

Drilling Method Used: Geoprobe

Date Drilling Occurred: 8/22/2018

Depth of Boring (ft): 8

Screen Interval (ft): n/a

Boring Location: See map.

Water Sample Depth (ft): n/a

Soil Sample Interval (ft): 2-4

Water Table Depth (ft): ~4

Boring Elevation: n/a

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	16"/24"	0' - 1' -	16": Class V followed by gravelly sand, dark brown, no odor or plasticity, low moisture.	GW	0.1
2'-4'	16"/24"	2' - 3' -	16": Brown silty sand with a mix of gravel, no odor or plasticity, medium moisture.	GW, SM	1.9
4'-6'	24"/24"	4' - 5' -	12": Moist silty sand. 12": Brown soft clay, no odor, medium plasticity, low moisture.	SM, CL	1.1
6'-8'	24"/24"	6' - 7' -	24": Brown soft clay, no odor, medium plasticity, low moisture.	CL	0.3

End of Boring: 8 ft

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

April 28, 2016

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lori Castille
lori.castille@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

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(612)607-1700

SAMPLE SUMMARY

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10345030001	**GP-12 (4-6)**	Solid	04/14/16 14:25	04/15/16 17:40
10345030002	**GP-13 (0-2)**	Solid	04/14/16 13:55	04/15/16 17:40
10345030003	**GP-14 (2-4)**	Solid	04/14/16 13:30	04/15/16 17:40

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(612)607-1700

SAMPLE ANALYTE COUNT

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10345030001	**GP-12 (4-6)**	ASTM D2974	JDL	1
		EPA 8270D by SIM	AS1	18
10345030002	**GP-13 (0-2)**	ASTM D2974	JDL	1
		EPA 8270D by SIM	AS1	18
10345030003	**GP-14 (2-4)**	ASTM D2974	JDL	1
		EPA 8270D by SIM	AS1	18

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Sample: GP-12 (4-6) **Lab ID: 10345030001** Collected: 04/14/16 14:25 Received: 04/15/16 17:40 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight	Analytical Method: ASTM D2974								
Percent Moisture	**9.7**	%	0.10	0.10	1		04/26/16 16:07		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	**14.8**	ug/kg	1.4	0.43	1	04/21/16 11:33	04/22/16 17:16	83-32-9	
Acenaphthylene	**24.4**	ug/kg	1.0	0.30	1	04/21/16 11:33	04/22/16 17:16	208-96-8	
Anthracene	**77.5**	ug/kg	1.7	0.50	1	04/21/16 11:33	04/22/16 17:16	120-12-7	
Benzo(a)anthracene	**401**	ug/kg	8.6	2.6	5	04/21/16 11:33	04/22/16 23:16	56-55-3	
Benzo(a)pyrene	**439**	ug/kg	6.4	1.9	5	04/21/16 11:33	04/22/16 23:16	50-32-8	
Benzo(b)fluoranthene	**637**	ug/kg	10.5	3.2	5	04/21/16 11:33	04/22/16 23:16	205-99-2	
Benzo(g,h,i)perylene	**189**	ug/kg	1.7	0.51	1	04/21/16 11:33	04/22/16 17:16	191-24-2	
Benzo(k)fluoranthene	**218**	ug/kg	1.8	0.54	1	04/21/16 11:33	04/22/16 17:16	207-08-9	
Chrysene	**463**	ug/kg	10.2	3.1	5	04/21/16 11:33	04/22/16 23:16	218-01-9	
Dibenz(a,h)anthracene	**80.5**	ug/kg	1.2	0.36	1	04/21/16 11:33	04/22/16 17:16	53-70-3	
Fluoranthene	**726**	ug/kg	14.4	4.3	5	04/21/16 11:33	04/22/16 23:16	206-44-0	
Fluorene	**17.6**	ug/kg	1.4	0.42	1	04/21/16 11:33	04/22/16 17:16	86-73-7	
Indeno(1,2,3-cd)pyrene	**192**	ug/kg	1.7	0.83	1	04/21/16 11:33	04/22/16 17:16	193-39-5	
Naphthalene	**50.5**	ug/kg	1.3	0.39	1	04/21/16 11:33	04/22/16 17:16	91-20-3	
Phenanthrene	**222**	ug/kg	1.5	0.44	1	04/21/16 11:33	04/22/16 17:16	85-01-8	
Pyrene	**680**	ug/kg	15.2	4.6	5	04/21/16 11:33	04/22/16 23:16	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	64	%.	41-125		1	04/21/16 11:33	04/22/16 17:16	321-60-8	
p-Terphenyl-d14 (S)	79	%.	39-125		1	04/21/16 11:33	04/22/16 17:16	1718-51-0	

Sample: GP-13 (0-2) **Lab ID: 10345030002** Collected: 04/14/16 13:55 Received: 04/15/16 17:40 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight	Analytical Method: ASTM D2974								
Percent Moisture	**9.9**	%	0.10	0.10	1		04/26/16 16:07		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	**66.8**	ug/kg	1.4	0.43	1	04/21/16 11:33	04/22/16 17:58	83-32-9	
Acenaphthylene	**10.9**	ug/kg	1.0	0.30	1	04/21/16 11:33	04/22/16 17:58	208-96-8	
Anthracene	**246**	ug/kg	1.7	0.50	1	04/21/16 11:33	04/22/16 17:58	120-12-7	
Benzo(a)anthracene	**422**	ug/kg	8.7	2.6	5	04/21/16 11:33	04/22/16 23:37	56-55-3	
Benzo(a)pyrene	**417**	ug/kg	6.4	1.9	5	04/21/16 11:33	04/22/16 23:37	50-32-8	
Benzo(b)fluoranthene	**602**	ug/kg	10.6	3.2	5	04/21/16 11:33	04/22/16 23:37	205-99-2	
Benzo(g,h,i)perylene	**157**	ug/kg	1.7	0.51	1	04/21/16 11:33	04/22/16 17:58	191-24-2	
Benzo(k)fluoranthene	**224**	ug/kg	1.8	0.55	1	04/21/16 11:33	04/22/16 17:58	207-08-9	
Chrysene	**458**	ug/kg	10.3	3.1	5	04/21/16 11:33	04/22/16 23:37	218-01-9	
Dibenz(a,h)anthracene	**63.3**	ug/kg	1.2	0.36	1	04/21/16 11:33	04/22/16 17:58	53-70-3	
Fluoranthene	**1080**	ug/kg	14.5	4.3	5	04/21/16 11:33	04/22/16 23:37	206-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Sample: GP-13 (0-2) **Lab ID: 10345030002** Collected: 04/14/16 13:55 Received: 04/15/16 17:40 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Fluorene	**120**	ug/kg	1.4	0.43	1	04/21/16 11:33	04/22/16 17:58	86-73-7	
Indeno(1,2,3-cd)pyrene	**164**	ug/kg	1.8	0.83	1	04/21/16 11:33	04/22/16 17:58	193-39-5	
Naphthalene	**12.7**	ug/kg	1.3	0.40	1	04/21/16 11:33	04/22/16 17:58	91-20-3	
Phenanthrene	**805**	ug/kg	7.4	2.2	5	04/21/16 11:33	04/22/16 23:37	85-01-8	
Pyrene	**891**	ug/kg	15.3	4.6	5	04/21/16 11:33	04/22/16 23:37	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	57	%.	41-125		1	04/21/16 11:33	04/22/16 17:58	321-60-8	
p-Terphenyl-d14 (S)	79	%.	39-125		1	04/21/16 11:33	04/22/16 17:58	1718-51-0	

Sample: GP-14 (2-4) **Lab ID: 10345030003** Collected: 04/14/16 13:30 Received: 04/15/16 17:40 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight	Analytical Method: ASTM D2974								
Percent Moisture	**15.4**	%	0.10	0.10	1		04/26/16 16:07		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.5	0.46	1	04/21/16 11:33	04/22/16 18:19	83-32-9	
Acenaphthylene	ND	ug/kg	1.1	0.32	1	04/21/16 11:33	04/22/16 18:19	208-96-8	
Anthracene	**11.8**	ug/kg	1.8	0.54	1	04/21/16 11:33	04/22/16 18:19	120-12-7	
Benzo(a)anthracene	**26.9**	ug/kg	1.8	0.55	1	04/21/16 11:33	04/22/16 18:19	56-55-3	
Benzo(a)pyrene	**29.7**	ug/kg	1.4	0.41	1	04/21/16 11:33	04/22/16 18:19	50-32-8	
Benzo(b)fluoranthene	**38.1**	ug/kg	2.3	0.68	1	04/21/16 11:33	04/22/16 18:19	205-99-2	
Benzo(g,h,i)perylene	**13.6**	ug/kg	1.8	0.54	1	04/21/16 11:33	04/22/16 18:19	191-24-2	
Benzo(k)fluoranthene	**17.1**	ug/kg	1.9	0.58	1	04/21/16 11:33	04/22/16 18:19	207-08-9	
Chrysene	**33.1**	ug/kg	2.2	0.66	1	04/21/16 11:33	04/22/16 18:19	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	1.3	0.39	1	04/21/16 11:33	04/22/16 18:19	53-70-3	
Fluoranthene	**67.5**	ug/kg	3.1	0.93	1	04/21/16 11:33	04/22/16 18:19	206-44-0	
Fluorene	ND	ug/kg	1.5	0.45	1	04/21/16 11:33	04/22/16 18:19	86-73-7	
Indeno(1,2,3-cd)pyrene	**10.9**	ug/kg	1.9	0.89	1	04/21/16 11:33	04/22/16 18:19	193-39-5	
Naphthalene	ND	ug/kg	1.4	0.42	1	04/21/16 11:33	04/22/16 18:19	91-20-3	
Phenanthrene	**59.2**	ug/kg	1.6	0.48	1	04/21/16 11:33	04/22/16 18:19	85-01-8	
Pyrene	**63.4**	ug/kg	3.3	0.98	1	04/21/16 11:33	04/22/16 18:19	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	62	%.	41-125		1	04/21/16 11:33	04/22/16 18:19	321-60-8	
p-Terphenyl-d14 (S)	79	%.	39-125		1	04/21/16 11:33	04/22/16 18:19	1718-51-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

QC Batch: MPRP/62887 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10345030001, 10345030002, 10345030003

SAMPLE DUPLICATE: 2241165

Parameter	Units	10345106001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	13.9	13.8	1	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

QC Batch: OEXT/33218 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3550 Analysis Description: 8270D Solid PAH by SIM MSSV
Associated Lab Samples: 10345030001, 10345030002, 10345030003

METHOD BLANK: 2237630 Matrix: Solid
Associated Lab Samples: 10345030001, 10345030002, 10345030003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/kg	ND	1.3	04/22/16 14:05	
Acenaphthylene	ug/kg	ND	0.91	04/22/16 14:05	
Anthracene	ug/kg	ND	1.5	04/22/16 14:05	
Benzo(a)anthracene	ug/kg	ND	1.6	04/22/16 14:05	
Benzo(a)pyrene	ug/kg	ND	1.2	04/22/16 14:05	
Benzo(b)fluoranthene	ug/kg	ND	1.9	04/22/16 14:05	
Benzo(g,h,i)perylene	ug/kg	ND	1.5	04/22/16 14:05	
Benzo(k)fluoranthene	ug/kg	ND	1.6	04/22/16 14:05	
Chrysene	ug/kg	ND	1.8	04/22/16 14:05	
Dibenz(a,h)anthracene	ug/kg	ND	1.1	04/22/16 14:05	
Fluoranthene	ug/kg	ND	2.6	04/22/16 14:05	
Fluorene	ug/kg	ND	1.3	04/22/16 14:05	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	1.6	04/22/16 14:05	
Naphthalene	ug/kg	ND	1.2	04/22/16 14:05	
Phenanthrene	ug/kg	ND	1.3	04/22/16 14:05	
Pyrene	ug/kg	ND	2.8	04/22/16 14:05	
2-Fluorobiphenyl (S)	%.	80	41-125	04/22/16 14:05	
p-Terphenyl-d14 (S)	%.	99	39-125	04/22/16 14:05	

LABORATORY CONTROL SAMPLE: 2237631

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/kg	33.3	23.5	70	53-125	
Acenaphthylene	ug/kg	33.3	24.8	74	50-125	
Anthracene	ug/kg	33.3	28.0	84	60-125	
Benzo(a)anthracene	ug/kg	33.3	28.0	84	63-125	
Benzo(a)pyrene	ug/kg	33.3	30.1	90	65-125	
Benzo(b)fluoranthene	ug/kg	33.3	29.1	87	61-125	
Benzo(g,h,i)perylene	ug/kg	33.3	30.1	90	62-125	
Benzo(k)fluoranthene	ug/kg	33.3	31.1	93	65-125	
Chrysene	ug/kg	33.3	28.6	86	62-125	
Dibenz(a,h)anthracene	ug/kg	33.3	31.9	96	61-125	
Fluoranthene	ug/kg	33.3	28.5	85	64-125	
Fluorene	ug/kg	33.3	25.4	76	57-125	
Indeno(1,2,3-cd)pyrene	ug/kg	33.3	30.0	90	61-125	
Naphthalene	ug/kg	33.3	23.5	70	52-125	
Phenanthrene	ug/kg	33.3	25.0	75	58-125	
Pyrene	ug/kg	33.3	29.1	87	65-125	
2-Fluorobiphenyl (S)	%.			75	41-125	
p-Terphenyl-d14 (S)	%.			90	39-125	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2237632 2237633

Parameter	Units	10344970001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/kg	ND	43.8	44	29.9	29.8	68	68	37-125	0	30	
Acenaphthylene	ug/kg	ND	43.8	44	30.9	31.6	70	72	30-132	2	30	
Anthracene	ug/kg	ND	43.8	44	32.0	29.2	73	66	30-150	9	30	
Benzo(a)anthracene	ug/kg	ND	43.8	44	39.1	39.3	89	89	30-144	0	30	
Benzo(a)pyrene	ug/kg	ND	43.8	44	43.6	47.1	99	107	30-150	8	30	
Benzo(b)fluoranthene	ug/kg	ND	43.8	44	47.5	54.1	108	123	30-150	13	30	
Benzo(g,h,i)perylene	ug/kg	ND	43.8	44	42.3	30.3	96	69	30-150	33	30	R1
Benzo(k)fluoranthene	ug/kg	ND	43.8	44	42.4	47.5	97	108	30-150	11	30	
Chrysene	ug/kg	ND	43.8	44	43.9	50.6	100	115	30-129	14	30	
Dibenz(a,h)anthracene	ug/kg	ND	43.8	44	39.3	28.7	89	65	30-150	31	30	R1
Fluoranthene	ug/kg	ND	43.8	44	46.0	45.2	105	103	30-150	2	30	
Fluorene	ug/kg	ND	43.8	44	32.2	32.7	73	74	30-136	2	30	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	43.8	44	39.5	28.4	90	65	30-143	33	30	R1
Naphthalene	ug/kg	ND	43.8	44	27.7	28.2	63	64	30-125	2	30	
Phenanthrene	ug/kg	ND	43.8	44	33.6	32.9	77	75	30-129	2	30	
Pyrene	ug/kg	ND	43.8	44	49.7	77.2	88	150	30-150	43	30	R1
2-Fluorobiphenyl (S)	%.						69	70	41-125			
p-Terphenyl-d14 (S)	%.						79	84	39-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALIFIERS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

R1 RPD value was outside control limits.

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(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10345030

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10345030001	**GP-12 (4-6)**	ASTM D2974	MPRP/62887		
10345030002	**GP-13 (0-2)**	ASTM D2974	MPRP/62887		
10345030003	**GP-14 (2-4)**	ASTM D2974	MPRP/62887		
10345030001	**GP-12 (4-6)**	EPA 3550	OEXT/33218	EPA 8270D by SIM	MSSV/14157
10345030002	**GP-13 (0-2)**	EPA 3550	OEXT/33218	EPA 8270D by SIM	MSSV/14157
10345030003	**GP-14 (2-4)**	EPA 3550	OEXT/33218	EPA 8270D by SIM	MSSV/14157

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

60345030

Page: 1 of 1

2025333

Section A Required Client Information:

Company: Environmental Troubleshooters Inc.
Address: 325 Grand Ave
Duluth MN 55807
Email To: JMccarthy@etsmn.com
Phone: 2187226013 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: John McCarthy
Copy To:
Purchase Order No.:
Project Name: Fraser Shipyard
Project Number:

Section C Invoice Information:

Attention: Same-client info
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #: 22491

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER

Site Location STATE: WI

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analysis Test: PAH Dry weight	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GP-12 (4-6)			4/14	1425				2	2									X X		001
2	GP-13 (0-2)			↓	1355				2	2									X X		002
3	GP-14 (2-4)			↓	1330				2	2									X X		003
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
		15:34	4/14	Karolina Polson	4/14	1534	5.1	Y	N	Y
				(MS) iPace	4/15/16	1740	1.0	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Nicole Tarkinson

SIGNATURE of SAMPLER: [signature]

DATE Signed (MM/DD/YY): 4/14/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 05Jan2016 Page 1 of 1
	Document No.: F-MN-L-213-rev.15	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Environmental Troubleshooters

Project #: **WO# : 10345030**

10345030

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ SpeeDee ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No Seals Intact? ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: Temp Blank? ☑ Yes ☐ No

Thermometer Used: ☑ 151401163 ☐ 151401164 ☐ B88A912167504 ☐ B88A0143310098 Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 1.0 Cooler Temp Corrected (°C): 1.0 Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C Correction Factor: TRUE Date and Initials of Person Examining Contents: CMB 4/15/16

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or WA (check maps)? ☐ Yes ☑ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: Soil	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☐ No	☑ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Lori Peterson Date: 4/18/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

September 06, 2018

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on August 24, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Shawn Davis
shawn.davis@pacelabs.com
612-607-6378
Project Manager

Enclosures

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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1700 Elm Street - Suite 200
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SAMPLE SUMMARY

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10444925001	**GP-15 (2-4)**	Solid	08/22/18 10:10	08/24/18 19:30
10444925002	**GP-16 (4-6)**	Solid	08/22/18 10:50	08/24/18 19:30
10444925003	**PS-MW-3**	Water	08/22/18 13:30	08/24/18 19:30
10444925004	**PS-MW-3.1**	Water	08/22/18 13:35	08/24/18 19:30
10444925005	**PS-MW-4**	Water	08/22/18 14:35	08/24/18 19:30
10444925006	**PS-MW-2**	Water	08/23/18 11:05	08/24/18 19:30
10444925007	**PS-MW-1**	Water	08/23/18 11:15	08/24/18 19:30
10444925008	**GP-17(2-4)**	Solid	08/24/18 09:20	08/24/18 19:30

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SAMPLE ANALYTE COUNT

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10444925001	**GP-15 (2-4)**	ASTM D2974	DCF	1
		EPA 8270D by SIM	STB	18
10444925002	**GP-16 (4-6)**	ASTM D2974	DCF	1
		EPA 8270D by SIM	STB	18
10444925003	**PS-MW-3**	EPA 8270D by SIM	STB	18
10444925004	**PS-MW-3.1**	EPA 8270D by SIM	STB	18
10444925005	**PS-MW-4**	EPA 8270D by SIM	STB	18
10444925006	**PS-MW-2**	EPA 8270D by SIM	STB	18
10444925007	**PS-MW-1**	EPA 8270D by SIM	STB	18
10444925008	**GP-17(2-4)**	ASTM D2974	JDL	1
		EPA 8270D by SIM	STB	18

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-15 (2-4) **Lab ID: 10444925001** Collected: 08/22/18 10:10 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**4.5**	%	0.10	0.10	1		08/27/18 13:54		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.4	0.43	1	08/28/18 08:34	09/05/18 01:48	83-32-9	
Acenaphthylene	ND	ug/kg	1.7	0.52	1	08/28/18 08:34	09/05/18 01:48	208-96-8	
Anthracene	**12.0**	ug/kg	1.6	0.49	1	08/28/18 08:34	09/05/18 01:48	120-12-7	
Benzo(a)anthracene	**31.1**	ug/kg	3.8	1.1	1	08/28/18 08:34	09/05/18 01:48	56-55-3	
Benzo(a)pyrene	**32.0**	ug/kg	2.4	0.72	1	08/28/18 08:34	09/05/18 01:48	50-32-8	
Benzo(b)fluoranthene	**41.9**	ug/kg	1.3	0.39	1	08/28/18 08:34	09/05/18 01:48	205-99-2	
Benzo(g,h,i)perylene	**22.7**	ug/kg	2.2	0.66	1	08/28/18 08:34	09/05/18 01:48	191-24-2	
Benzo(k)fluoranthene	**16.6**	ug/kg	2.9	0.88	1	08/28/18 08:34	09/05/18 01:48	207-08-9	
Chrysene	**30.9**	ug/kg	4.7	1.4	1	08/28/18 08:34	09/05/18 01:48	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	1.6	0.48	1	08/28/18 08:34	09/05/18 01:48	53-70-3	
Fluoranthene	**62.5**	ug/kg	1.5	0.45	1	08/28/18 08:34	09/05/18 01:48	206-44-0	
Fluorene	ND	ug/kg	1.1	0.33	1	08/28/18 08:34	09/05/18 01:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**17.8**	ug/kg	2.3	0.70	1	08/28/18 08:34	09/05/18 01:48	193-39-5	
Naphthalene	ND	ug/kg	2.7	0.81	1	08/28/18 08:34	09/05/18 01:48	91-20-3	
Phenanthrene	**39.4**	ug/kg	6.7	2.0	1	08/28/18 08:34	09/05/18 01:48	85-01-8	
Pyrene	**52.6**	ug/kg	5.3	1.6	1	08/28/18 08:34	09/05/18 01:48	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	42-125		1	08/28/18 08:34	09/05/18 01:48	321-60-8	
p-Terphenyl-d14 (S)	74	%.	57-125		1	08/28/18 08:34	09/05/18 01:48	1718-51-0	

Sample: GP-16 (4-6) **Lab ID: 10444925002** Collected: 08/22/18 10:50 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**25.9**	%	0.10	0.10	1		08/27/18 13:55		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.8	0.55	1	08/28/18 08:34	09/05/18 02:09	83-32-9	
Acenaphthylene	ND	ug/kg	2.2	0.67	1	08/28/18 08:34	09/05/18 02:09	208-96-8	
Anthracene	ND	ug/kg	2.1	0.63	1	08/28/18 08:34	09/05/18 02:09	120-12-7	
Benzo(a)anthracene	ND	ug/kg	4.8	1.5	1	08/28/18 08:34	09/05/18 02:09	56-55-3	
Benzo(a)pyrene	ND	ug/kg	3.1	0.92	1	08/28/18 08:34	09/05/18 02:09	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	1.7	0.50	1	08/28/18 08:34	09/05/18 02:09	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	2.8	0.85	1	08/28/18 08:34	09/05/18 02:09	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	3.8	1.1	1	08/28/18 08:34	09/05/18 02:09	207-08-9	
Chrysene	ND	ug/kg	6.1	1.8	1	08/28/18 08:34	09/05/18 02:09	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	2.1	0.62	1	08/28/18 08:34	09/05/18 02:09	53-70-3	
Fluoranthene	ND	ug/kg	1.9	0.58	1	08/28/18 08:34	09/05/18 02:09	206-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-16 (4-6) **Lab ID: 10444925002** Collected: 08/22/18 10:50 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Fluorene	ND	ug/kg	1.4	0.42	1	08/28/18 08:34	09/05/18 02:09	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	3.0	0.90	1	08/28/18 08:34	09/05/18 02:09	193-39-5	
Naphthalene	ND	ug/kg	3.5	1.0	1	08/28/18 08:34	09/05/18 02:09	91-20-3	
Phenanthrene	ND	ug/kg	8.6	2.6	1	08/28/18 08:34	09/05/18 02:09	85-01-8	
Pyrene	ND	ug/kg	6.8	2.1	1	08/28/18 08:34	09/05/18 02:09	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	77	%.	42-125		1	08/28/18 08:34	09/05/18 02:09	321-60-8	
p-Terphenyl-d14 (S)	81	%.	57-125		1	08/28/18 08:34	09/05/18 02:09	1718-51-0	

Sample: PS-MW-3 **Lab ID: 10444925003** Collected: 08/22/18 13:30 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**2.1**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 12:29	83-32-9	
Acenaphthylene	**0.16**	ug/L	0.016	0.0047	1	08/27/18 13:02	09/01/18 12:29	208-96-8	
Anthracene	**0.47**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 12:29	120-12-7	
Benzo(a)anthracene	**0.62**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 12:29	56-55-3	
Benzo(a)pyrene	**0.69**	ug/L	0.013	0.0041	1	08/27/18 13:02	09/01/18 12:29	50-32-8	
Benzo(b)fluoranthene	**0.90**	ug/L	0.043	0.013	1	08/27/18 13:02	09/01/18 12:29	205-99-2	
Benzo(g,h,i)perylene	**0.46**	ug/L	0.033	0.0099	1	08/27/18 13:02	09/01/18 12:29	191-24-2	
Benzo(k)fluoranthene	**0.32**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 12:29	207-08-9	
Chrysene	**0.62**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 12:29	218-01-9	
Dibenz(a,h)anthracene	**0.082**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 12:29	53-70-3	
Fluoranthene	**1.9**	ug/L	0.062	0.018	1	08/27/18 13:02	09/01/18 12:29	206-44-0	
Fluorene	**0.91**	ug/L	0.020	0.0060	1	08/27/18 13:02	09/01/18 12:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.37**	ug/L	0.045	0.013	1	08/27/18 13:02	09/01/18 12:29	193-39-5	
Naphthalene	**0.65**	ug/L	0.023	0.0069	1	08/27/18 13:02	09/01/18 12:29	91-20-3	
Phenanthrene	**3.0**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 12:29	85-01-8	
Pyrene	**1.9**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 12:29	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	30-145		1	08/27/18 13:02	09/01/18 12:29	321-60-8	
p-Terphenyl-d14 (S)	78	%.	30-149		1	08/27/18 13:02	09/01/18 12:29	1718-51-0	

Sample: PS-MW-3.1 **Lab ID: 10444925004** Collected: 08/22/18 13:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**2.4**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 12:50	83-32-9	
Acenaphthylene	**0.18**	ug/L	0.015	0.0046	1	08/27/18 13:02	09/01/18 12:50	208-96-8	
Anthracene	**0.61**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 12:50	120-12-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: PS-MW-3.1 **Lab ID: 10444925004** Collected: 08/22/18 13:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Benzo(a)anthracene	**0.84**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 12:50	56-55-3	
Benzo(a)pyrene	**0.95**	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 12:50	50-32-8	
Benzo(b)fluoranthene	**1.1**	ug/L	0.042	0.013	1	08/27/18 13:02	09/01/18 12:50	205-99-2	
Benzo(g,h,i)perylene	**0.59**	ug/L	0.033	0.0098	1	08/27/18 13:02	09/01/18 12:50	191-24-2	
Benzo(k)fluoranthene	**0.53**	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 12:50	207-08-9	
Chrysene	**0.83**	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 12:50	218-01-9	
Dibenz(a,h)anthracene	**0.10**	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 12:50	53-70-3	
Fluoranthene	**2.5**	ug/L	0.061	0.018	1	08/27/18 13:02	09/01/18 12:50	206-44-0	
Fluorene	**1.1**	ug/L	0.020	0.0059	1	08/27/18 13:02	09/01/18 12:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.48**	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 12:50	193-39-5	
Naphthalene	**0.74**	ug/L	0.023	0.0068	1	08/27/18 13:02	09/01/18 12:50	91-20-3	
Phenanthrene	**3.7**	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 12:50	85-01-8	
Pyrene	**2.6**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 12:50	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	79	%.	30-145		1	08/27/18 13:02	09/01/18 12:50	321-60-8	
p-Terphenyl-d14 (S)	86	%.	30-149		1	08/27/18 13:02	09/01/18 12:50	1718-51-0	

Sample: PS-MW-4 **Lab ID: 10444925005** Collected: 08/22/18 14:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**0.041**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 13:11	83-32-9	
Acenaphthylene	ND	ug/L	0.016	0.0047	1	08/27/18 13:02	09/01/18 13:11	208-96-8	
Anthracene	**0.10**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 13:11	120-12-7	
Benzo(a)anthracene	**0.32**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 13:11	56-55-3	
Benzo(a)pyrene	**0.36**	ug/L	0.013	0.0041	1	08/27/18 13:02	09/01/18 13:11	50-32-8	
Benzo(b)fluoranthene	**0.54**	ug/L	0.043	0.013	1	08/27/18 13:02	09/01/18 13:11	205-99-2	
Benzo(g,h,i)perylene	**0.28**	ug/L	0.033	0.0099	1	08/27/18 13:02	09/01/18 13:11	191-24-2	
Benzo(k)fluoranthene	**0.18**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 13:11	207-08-9	
Chrysene	**0.36**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 13:11	218-01-9	
Dibenz(a,h)anthracene	**0.047**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 13:11	53-70-3	
Fluoranthene	**0.82**	ug/L	0.062	0.018	1	08/27/18 13:02	09/01/18 13:11	206-44-0	
Fluorene	ND	ug/L	0.020	0.0060	1	08/27/18 13:02	09/01/18 13:11	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.22**	ug/L	0.045	0.013	1	08/27/18 13:02	09/01/18 13:11	193-39-5	
Naphthalene	ND	ug/L	0.023	0.0069	1	08/27/18 13:02	09/01/18 13:11	91-20-3	
Phenanthrene	**0.44**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 13:11	85-01-8	
Pyrene	**0.79**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 13:11	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	76	%.	30-145		1	08/27/18 13:02	09/01/18 13:11	321-60-8	
p-Terphenyl-d14 (S)	77	%.	30-149		1	08/27/18 13:02	09/01/18 13:11	1718-51-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: PS-MW-2 **Lab ID: 10444925006** Collected: 08/23/18 11:05 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	ND	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 13:32	83-32-9	
Acenaphthylene	ND	ug/L	0.015	0.0046	1	08/27/18 13:02	09/01/18 13:32	208-96-8	
Anthracene	ND	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 13:32	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 13:32	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 13:32	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.042	0.013	1	08/27/18 13:02	09/01/18 13:32	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.033	0.0098	1	08/27/18 13:02	09/01/18 13:32	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 13:32	207-08-9	
Chrysene	ND	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 13:32	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 13:32	53-70-3	
Fluoranthene	ND	ug/L	0.061	0.018	1	08/27/18 13:02	09/01/18 13:32	206-44-0	
Fluorene	ND	ug/L	0.020	0.0059	1	08/27/18 13:02	09/01/18 13:32	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 13:32	193-39-5	
Naphthalene	ND	ug/L	0.023	0.0068	1	08/27/18 13:02	09/01/18 13:32	91-20-3	
Phenanthrene	ND	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 13:32	85-01-8	
Pyrene	ND	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 13:32	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	85	%.	30-145		1	08/27/18 13:02	09/01/18 13:32	321-60-8	
p-Terphenyl-d14 (S)	89	%.	30-149		1	08/27/18 13:02	09/01/18 13:32	1718-51-0	

Sample: PS-MW-1 **Lab ID: 10444925007** Collected: 08/23/18 11:15 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	ND	ug/L	0.011	0.0033	1	08/27/18 13:02	09/01/18 13:53	83-32-9	
Acenaphthylene	ND	ug/L	0.016	0.0048	1	08/27/18 13:02	09/01/18 13:53	208-96-8	
Anthracene	ND	ug/L	0.021	0.0064	1	08/27/18 13:02	09/01/18 13:53	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 13:53	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.014	0.0041	1	08/27/18 13:02	09/01/18 13:53	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 13:53	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.034	0.010	1	08/27/18 13:02	09/01/18 13:53	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.036	0.011	1	08/27/18 13:02	09/01/18 13:53	207-08-9	
Chrysene	ND	ug/L	0.032	0.0095	1	08/27/18 13:02	09/01/18 13:53	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.032	0.0095	1	08/27/18 13:02	09/01/18 13:53	53-70-3	
Fluoranthene	ND	ug/L	0.063	0.019	1	08/27/18 13:02	09/01/18 13:53	206-44-0	
Fluorene	ND	ug/L	0.020	0.0061	1	08/27/18 13:02	09/01/18 13:53	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.046	0.014	1	08/27/18 13:02	09/01/18 13:53	193-39-5	
Naphthalene	**0.043**	ug/L	0.023	0.0070	1	08/27/18 13:02	09/01/18 13:53	91-20-3	
Phenanthrene	ND	ug/L	0.036	0.011	1	08/27/18 13:02	09/01/18 13:53	85-01-8	
Pyrene	ND	ug/L	0.050	0.015	1	08/27/18 13:02	09/01/18 13:53	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%.	30-145		1	08/27/18 13:02	09/01/18 13:53	321-60-8	
p-Terphenyl-d14 (S)	74	%.	30-149		1	08/27/18 13:02	09/01/18 13:53	1718-51-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-17(2-4) **Lab ID: 10444925008** Collected: 08/24/18 09:20 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**17.0**	%	0.10	0.10	1		08/28/18 13:32		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	**65.1**	ug/kg	1.6	0.49	1	08/28/18 08:34	09/05/18 02:30	83-32-9	
Acenaphthylene	**24.9**	ug/kg	2.0	0.60	1	08/28/18 08:34	09/05/18 02:30	208-96-8	
Anthracene	**163**	ug/kg	1.9	0.56	1	08/28/18 08:34	09/05/18 02:30	120-12-7	
Benzo(a)anthracene	**366**	ug/kg	4.3	1.3	1	08/28/18 08:34	09/05/18 02:30	56-55-3	
Benzo(a)pyrene	**357**	ug/kg	2.8	0.83	1	08/28/18 08:34	09/05/18 02:30	50-32-8	
Benzo(b)fluoranthene	**481**	ug/kg	7.5	2.2	5	08/28/18 08:34	09/05/18 13:46	205-99-2	
Benzo(g,h,i)perylene	**229**	ug/kg	2.5	0.76	1	08/28/18 08:34	09/05/18 02:30	191-24-2	
Benzo(k)fluoranthene	**165**	ug/kg	3.4	1.0	1	08/28/18 08:34	09/05/18 02:30	207-08-9	
Chrysene	**334**	ug/kg	5.4	1.6	1	08/28/18 08:34	09/05/18 02:30	218-01-9	
Dibenz(a,h)anthracene	**59.1**	ug/kg	1.8	0.55	1	08/28/18 08:34	09/05/18 02:30	53-70-3	
Fluoranthene	**836**	ug/kg	8.6	2.6	5	08/28/18 08:34	09/05/18 13:46	206-44-0	
Fluorene	**80.6**	ug/kg	1.3	0.38	1	08/28/18 08:34	09/05/18 02:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**182**	ug/kg	2.7	0.81	1	08/28/18 08:34	09/05/18 02:30	193-39-5	
Naphthalene	**79.8**	ug/kg	3.1	0.93	1	08/28/18 08:34	09/05/18 02:30	91-20-3	
Phenanthrene	**738**	ug/kg	38.4	11.5	5	08/28/18 08:34	09/05/18 13:46	85-01-8	
Pyrene	**770**	ug/kg	30.6	9.2	5	08/28/18 08:34	09/05/18 13:46	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%.	42-125		1	08/28/18 08:34	09/05/18 02:30	321-60-8	
p-Terphenyl-d14 (S)	85	%.	57-125		1	08/28/18 08:34	09/05/18 02:30	1718-51-0	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559127 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight / %M by ASTM D2974
Associated Lab Samples: 10444925001, 10444925002

SAMPLE DUPLICATE: 3035887

Parameter	Units	10444914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.0	5.2	5	30	

SAMPLE DUPLICATE: 3035888

Parameter	Units	12114434003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	61.2	61.3	0	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559406
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight / %M by ASTM D2974
Associated Lab Samples: 10444925008

SAMPLE DUPLICATE: 3037265

Parameter	Units	10444849001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.8	11.0	2	30	

SAMPLE DUPLICATE: 3037266

Parameter	Units	10444849011 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.9	4.8	2	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559367 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3550 Analysis Description: 8270D Solid PAH by SIM MSSV
Associated Lab Samples: 10444925001, 10444925002, 10444925008

METHOD BLANK: 3036724 Matrix: Solid
Associated Lab Samples: 10444925001, 10444925002, 10444925008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/kg	ND	1.4	09/04/18 17:47	
Acenaphthylene	ug/kg	ND	1.6	09/04/18 17:47	
Anthracene	ug/kg	ND	1.6	09/04/18 17:47	
Benzo(a)anthracene	ug/kg	ND	3.6	09/04/18 17:47	
Benzo(a)pyrene	ug/kg	ND	2.3	09/04/18 17:47	
Benzo(b)fluoranthene	ug/kg	ND	1.2	09/04/18 17:47	
Benzo(g,h,i)perylene	ug/kg	ND	2.1	09/04/18 17:47	
Benzo(k)fluoranthene	ug/kg	ND	2.8	09/04/18 17:47	
Chrysene	ug/kg	ND	4.5	09/04/18 17:47	
Dibenz(a,h)anthracene	ug/kg	ND	1.5	09/04/18 17:47	
Fluoranthene	ug/kg	ND	1.4	09/04/18 17:47	
Fluorene	ug/kg	ND	1.0	09/04/18 17:47	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	2.2	09/04/18 17:47	
Naphthalene	ug/kg	ND	2.6	09/04/18 17:47	
Phenanthrene	ug/kg	ND	6.4	09/04/18 17:47	
Pyrene	ug/kg	ND	5.1	09/04/18 17:47	
2-Fluorobiphenyl (S)	%.	63	42-125	09/04/18 17:47	
p-Terphenyl-d14 (S)	%.	70	57-125	09/04/18 17:47	

LABORATORY CONTROL SAMPLE: 3036725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/kg	33.3	20.1	60	52-125	
Acenaphthylene	ug/kg	33.3	20.2	61	50-125	
Anthracene	ug/kg	33.3	25.0	75	65-125	
Benzo(a)anthracene	ug/kg	33.3	24.2	73	60-125	
Benzo(a)pyrene	ug/kg	33.3	25.2	76	69-125	
Benzo(b)fluoranthene	ug/kg	33.3	26.0	78	61-125	
Benzo(g,h,i)perylene	ug/kg	33.3	26.8	80	60-125	
Benzo(k)fluoranthene	ug/kg	33.3	25.1	75	67-125	
Chrysene	ug/kg	33.3	23.5	70	67-125	
Dibenz(a,h)anthracene	ug/kg	33.3	26.7	80	63-125	
Fluoranthene	ug/kg	33.3	25.0	75	75-125	
Fluorene	ug/kg	33.3	21.3	64	54-125	
Indeno(1,2,3-cd)pyrene	ug/kg	33.3	27.2	81	63-125	
Naphthalene	ug/kg	33.3	21.8	65	49-125	
Phenanthrene	ug/kg	33.3	23.2	70	65-125	
Pyrene	ug/kg	33.3	24.1	72	64-125	
2-Fluorobiphenyl (S)	%.			65	42-125	
p-Terphenyl-d14 (S)	%.			70	57-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3036726 3036727

Parameter	Units	10444649001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/kg	2.2J	35.2	35.2	29.2	27.9	77	73	30-125	4	30	
Acenaphthylene	ug/kg	<0.52	35.2	35.2	26.5	25.7	75	73	30-133	3	30	
Anthracene	ug/kg	2.8J	35.2	35.2	32.3	32.2	84	84	30-150	0	30	
Benzo(a)anthracene	ug/kg	9.4J	35.2	35.2	41.8	39.1	92	84	30-150	7	30	
Benzo(a)pyrene	ug/kg	10.3J	35.2	35.2	40.8	37.1	87	76	30-150	9	30	
Benzo(b)fluoranthene	ug/kg	9.5J	35.2	35.2	37.8	38.8	80	83	30-150	3	30	
Benzo(g,h,i)perylene	ug/kg	12.5	35.2	35.2	42.2	39.0	84	75	30-150	8	30	
Benzo(k)fluoranthene	ug/kg	3.7J	35.2	35.2	30.6	29.7	77	74	30-150	3	30	
Chrysene	ug/kg	21.5	35.2	35.2	54.7	50.9	95	84	30-150	7	30	
Dibenz(a,h)anthracene	ug/kg	2.1J	35.2	35.2	31.7	30.9	84	82	30-131	2	30	
Fluoranthene	ug/kg	11.9	35.2	35.2	42.4	40.8	87	82	30-150	4	30	
Fluorene	ug/kg	3.7J	35.2	35.2	32.3	32.8	81	83	30-147	2	30	
Indeno(1,2,3-cd)pyrene	ug/kg	4.3J	35.2	35.2	32.5	31.2	80	77	30-150	4	30	
Naphthalene	ug/kg	1.4J	35.2	35.2	26.5	25.1	71	67	30-131	5	30	
Phenanthrene	ug/kg	16.0	35.2	35.2	43.5	44.8	78	82	30-150	3	30	
Pyrene	ug/kg	31.7	35.2	35.2	60.2	57.8	81	74	30-150	4	30	
2-Fluorobiphenyl (S)	%.						82	80	42-125			
p-Terphenyl-d14 (S)	%.						79	77	57-125			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559221 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10444925003, 10444925004, 10444925005, 10444925006, 10444925007

METHOD BLANK: 3036187 Matrix: Water
Associated Lab Samples: 10444925003, 10444925004, 10444925005, 10444925006, 10444925007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.011	08/30/18 15:34	
Acenaphthylene	ug/L	ND	0.015	08/30/18 15:34	
Anthracene	ug/L	ND	0.021	08/30/18 15:34	
Benzo(a)anthracene	ug/L	ND	0.013	08/30/18 15:34	
Benzo(a)pyrene	ug/L	ND	0.013	08/30/18 15:34	
Benzo(b)fluoranthene	ug/L	ND	0.042	08/30/18 15:34	
Benzo(g,h,i)perylene	ug/L	ND	0.033	08/30/18 15:34	
Benzo(k)fluoranthene	ug/L	ND	0.035	08/30/18 15:34	
Chrysene	ug/L	ND	0.031	08/30/18 15:34	
Dibenz(a,h)anthracene	ug/L	ND	0.031	08/30/18 15:34	
Fluoranthene	ug/L	ND	0.061	08/30/18 15:34	
Fluorene	ug/L	ND	0.020	08/30/18 15:34	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.044	08/30/18 15:34	
Naphthalene	ug/L	ND	0.023	08/30/18 15:34	
Phenanthrene	ug/L	ND	0.035	08/30/18 15:34	
Pyrene	ug/L	ND	0.049	08/30/18 15:34	
2-Fluorobiphenyl (S)	%.	89	30-145	08/30/18 15:34	
p-Terphenyl-d14 (S)	%.	85	30-149	08/30/18 15:34	

LABORATORY CONTROL SAMPLE: 3036188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.75	75	50-125	
Acenaphthylene	ug/L	1	0.75	75	47-125	
Anthracene	ug/L	1	0.91	91	65-125	
Benzo(a)anthracene	ug/L	1	0.77	77	60-125	
Benzo(a)pyrene	ug/L	1	0.93	93	67-125	
Benzo(b)fluoranthene	ug/L	1	0.87	87	64-125	
Benzo(g,h,i)perylene	ug/L	1	0.94	94	53-125	
Benzo(k)fluoranthene	ug/L	1	0.87	87	61-125	
Chrysene	ug/L	1	0.90	90	68-125	
Dibenz(a,h)anthracene	ug/L	1	0.86	86	45-125	
Fluoranthene	ug/L	1	0.86	86	73-125	
Fluorene	ug/L	1	0.81	81	53-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.91	91	62-125	
Naphthalene	ug/L	1	0.70	70	46-125	
Phenanthrene	ug/L	1	0.81	81	66-125	
Pyrene	ug/L	1	0.91	91	65-125	
2-Fluorobiphenyl (S)	%.			76	30-145	
p-Terphenyl-d14 (S)	%.			90	30-149	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3036278 3036279

Parameter	Units	10445022001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	ND	3.3	3.3	2.7	2.6	82	78	53-125	4	30	
Acenaphthylene	ug/L	ND	3.3	3.3	2.8	2.7	85	80	48-125	7	30	
Anthracene	ug/L	ND	3.3	3.3	3.6	3.6	108	108	66-125	0	30	
Benzo(a)anthracene	ug/L	ND	3.3	3.3	2.9	2.8	87	85	57-125	2	30	
Benzo(a)pyrene	ug/L	ND	3.3	3.3	3.2	3.1	96	94	62-125	2	30	
Benzo(b)fluoranthene	ug/L	ND	3.3	3.3	3.2	3.1	96	93	50-125	3	30	
Benzo(g,h,i)perylene	ug/L	ND	3.3	3.3	3.2	3.1	97	94	34-125	3	30	
Benzo(k)fluoranthene	ug/L	ND	3.3	3.3	3.1	2.9	92	87	50-125	6	30	
Chrysene	ug/L	ND	3.3	3.3	3.1	3.0	92	89	65-125	3	30	
Dibenz(a,h)anthracene	ug/L	ND	3.3	3.3	3.0	2.9	90	88	31-127	2	30	
Fluoranthene	ug/L	ND	3.3	3.3	3.5	3.4	106	101	70-125	5	30	
Fluorene	ug/L	ND	3.3	3.3	3.1	3.0	92	90	53-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	3.3	3.3	3.1	3.1	93	93	45-125	1	30	
Naphthalene	ug/L	ND	3.3	3.3	2.7	2.7	80	81	34-125	1	30	
Phenanthrene	ug/L	ND	3.3	3.3	3.3	3.2	99	97	61-125	3	30	
Pyrene	ug/L	ND	3.3	3.3	3.4	3.2	101	96	60-125	5	30	
2-Fluorobiphenyl (S)	%.						89	85	30-145			
p-Terphenyl-d14 (S)	%.						93	90	30-149			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10444925001	**GP-15 (2-4)**	ASTM D2974	559127		
10444925002	**GP-16 (4-6)**	ASTM D2974	559127		
10444925008	**GP-17(2-4)**	ASTM D2974	559406		
10444925001	**GP-15 (2-4)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925002	**GP-16 (4-6)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925008	**GP-17(2-4)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925003	**PS-MW-3**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925004	**PS-MW-3.1**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925005	**PS-MW-4**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925006	**PS-MW-2**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925007	**PS-MW-1**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed

WO# : 10444925

10444925

Section A — Required Client Information:

Company: Environmental Troubleshooters
Address: 3825 Grand Avenue
Email To: JmcCarthy@etsmn.com
Phone: 218-722-6013 Fax:
Requested Due Date/TAT: Standard

Section B — Required Project Information:

Report To: John McCarthy
Copy To:
Purchase Order No.:
Project Name: Fraser Shipyard
Project Number: 14-1004

Section C — Invoice Information:

Attention: Same as Report To:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Shawn Davis
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER

Site Location STATE: WI

Section D — Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: PAH	Dry wt.	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GP-15 (2-4)	SL	G			8/22	1010		3	3								X	X		W1
2	GP-16 (4-6)	SL	G			8/22	1050		3	3								X	X		W2
3	PS-MW-3	WT	G			8/22	1330		2	2								X			W3
4	PS-MW-3.1	WT	G			8/22	1335		2	2								X			W4
5	PS-MW-4	WT	G			8/22	1435		2	2								X			W5
6	PS-MW-2	WT	G			8/23	1105		2	2								X			W6
7	PS-MW-1	WT	G			8/23	1115		2	2								X			W7
8	GP-17 (2-4)	SL	G			8/24	920		3	3								X	X		W08
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	B. Wr	8/24/18	1145		8/24/18	11:45	0.3	Y	N	Y
		8/24/18	1630	RJ CL	8-24-18	1630	0.1	Y	N	Y
	RJ CL	8.24.18	1930	ON-PACE	8/24/18	19:30	0.1		(Y)	8/24/18 LT

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Brice Wizner
SIGNATURE of SAMPLER: B. Wr
DATE Signed (MM/DD/YY): 8/24/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 02May2018 Page 1 of 2
	Document No.: F-MN-L-213-rev.23	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Environmental

Project #: WO# : 10444925

PM: SRD Due Date: 08/29/18
CLIENT: ENV TROUBLE

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ SpeeDee ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☑ Yes ☐ No

Thermometer Used: ☑ G87A9170600254 ☐ G87A9155100842 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 0.1 **Cooler Temp Corrected (°C):** 0.1 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** 8/24/18 LJ

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☑ No/wt

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No/wt

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No		1.
Chain of Custody Filled Out?	☑ Yes	☐ No		2.
Chain of Custody Relinquished?	☑ Yes	☐ No		3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		6.
Rush Turn Around Time Requested?	☐ Yes	☑ No		7.
Sufficient Volume?	☑ Yes	☐ No		8.
Correct Containers Used?	☑ Yes	☐ No		9.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: SL/wt	☑ Yes	☐ No		12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: [signature] **Date:** 08/27/2018

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Attachment 4

- Groundwater analytical summary table.
- Figures depicting the PAH concentrations and potentiometric elevation from each sampling event.
- Mann-Kendall analysis tables.
- Copies of the groundwater laboratory reports.

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		GP-1	GP-2	GP-3	GP-4	GP-6	GP-7	GP-8	GP-81	GP-9
All results in ug/L	Sample Date		3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	6/29/2015	Dup	6/29/2015
VOCs	ES	PAL									
Acetone	9000	1800	<20.0	<20.0	<20.0	**33.5**	**60.5**	<20.0	--	--	--
Allyl Chloride	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Benzene	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Bromobenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Bromochloromethane	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Bromodichloromethane	0.6	0.06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Bromoform	4.4	0.44	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Bromomethane	10	1	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
2-Butanone (MEK)	4000	800	<5.0	<5.0	<5.0	<5.0	**14.5**	<5.0	--	--	--
n-Butylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	**2.7**	<1.0	--	--	--
sec-Butylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	**1.6**	<1.0	--	--	--
tert-Butylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Carbon Tetrachloride	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Chlorobenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Chloroethane	400	80	<1.0	**3.4**	<1.0	<1.0	<1.0	<1.0	--	--	--
Chloroform	6	0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Chloromethane	30	3	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
2-Chlorotoluene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
4-Chlorotoluene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Dibromochloromethane	60	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Dibromomethane	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,2-Dichlorobenzene	600	60	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,3-Dichlorobenzene	600	120	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,4-Dichlorobenzene	75	15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Dichlorodifluoromethane	1000	200	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,1-Dichloroethane (DCA)	850	85	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dichloroethane	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1-Dichloroethene	7	0.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
trans-1,2-Dichloroethene	100	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		GP-1	GP-2	GP-3	GP-4	GP-6	GP-7	GP-8	GP-81	GP-9
All results in ug/L	Sample Date		3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	6/29/2015	Dup	6/29/2015
Dichlorofluoromethane	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dichloropropane	5	0.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,3-Dichloropropane	0.4	0.04	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
2,2-Dichloropropane	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,1-Dichloropropene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
cis-1,3-Dichloropropene	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
trans-1,3-Dichloropropene	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Ethylbenzene	700	140	<1.0	<1.0	<1.0	<1.0	**4.6**	<1.0	--	--	--
Hexachloro-1,3-butadiene	NP	NP	<1.0	**1.0**	<1.0	<1.0	<1.0	<1.0	--	--	--
Isopropylbenzene (cumene)	NP	NP	<1.0	<1.0	<1.0	<1.0	**2.1**	<1.0	--	--	--
p-Isopropyltoluene	NP	NP	**4.8**	<1.0	<1.0	<1.0	**12.1**	<1.0	--	--	--
Methylene Chloride	5	0.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
4-Methyl-2-pentanone (MIBK)	500	50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Naphthalene	100	10	<4.0	<4.0	<4.0	<4.0	***228***	<4.0	--	--	--
n-Propylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	**2.8**	<1.0	--	--	--
Styrene	100	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,1,2-Tetrachloroethane	70	7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Tetrachloroethene (PCE)	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Tetrahydrofuran (THF)	50	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--
Toluene	800	160	<1.0	<1.0	<1.0	<1.0	**1.8**	<1.0	--	--	--
1,2,3-Trichlorobenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2,4-Trichlorobenzene	70	14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,1-Trichloroethane (TCA)	200	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Trichloroethene (TCE)	5	0.5	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	--	--	--
Trichlorofluoromethane	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2,3-Trichloropropane*	60	12	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2,4-Trimethylbenzene	480	96	<1.0	<1.0	<1.0	<1.0	**96.4**	<1.0	--	--	--
1,3,5-Trimethylbenzene			<1.0	<1.0	<1.0	<1.0	**32.6**	<1.0	--	--	--
Vinyl Chloride	0.2	0.02	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	--	--	--
Xylene (total)	2000	400	<3.0	<3.0	<3.0	<3.0	**49.7**	<3.0	--	--	--

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		GP-1	GP-2	GP-3	GP-4	GP-6	GP-7	GP-8	GP-81	GP-9
	Sample Date		3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	6/29/2015	Dup	6/29/2015
PAHs											
Acenaphthene	NP	NP	**1.2**	**0.19**	**0.15**	<0.045	**4.4**	**3.0**	**0.78**	**0.71**	**1.4**
Acenaphthylene	NP	NP	**0.17**	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	**0.092**	<0.043
Anthracene	3000	600	**0.18**	<0.043	<0.042	<0.045	<0.21	**1.1**	**0.079**	**0.073**	**0.17**
Benzo(a)anthracene	NP	NP	**0.43**	<0.043	<0.042	<0.045	<0.21	**0.15**	<0.043	<0.042	<0.043
Benzo(a)pyrene	0.2	0.02	***0.57***	<0.043	<0.042	<0.045	<0.21	**0.14**	<0.043	<0.042	<0.043
Benzo(b)fluoranthene	0.2	0.02	***0.84***	<0.043	<0.042	<0.045	<0.21	**0.16**	<0.043	<0.042	<0.043
Benzo(g,h,i)perylene	NP	NP	**0.52**	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	<0.042	<0.043
Benzo(k)fluoranthene	NP	NP	**0.27**	<0.043	<0.042	<0.045	<0.21	**0.068**	<0.043	<0.042	<0.043
Chrysene	0.2	0.02	***0.63***	<0.043	<0.042	<0.045	<0.21	**0.16**	<0.043	<0.042	<0.043
Dibenzo(a,h)anthracene	NP	NP	<0.041	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	<0.042	<0.043
Fluoranthene	400	80	**1.4**	**0.078**	<0.042	<0.045	<0.21	**0.9**	**0.087**	**0.086**	**0.17**
Fluorene	400	80	**0.35**	**0.17**	<0.042	<0.045	**2.3**	**1.6**	**0.56**	**0.51**	**0.46**
Indeno(1,2,3-cd)pyrene	NP	NP	**0.45**	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	<0.042	<0.043
Naphthalene	100	10	<0.041	<0.043	<0.042	<0.045	***231***	**2.1**	**0.056**	**0.064**	**0.29**
Phenanthrene	NP	NP	**0.89**	**0.11**	**0.083**	<0.045	**0.92**	**4.2**	<0.043	<0.042	**1.5**
Pyrene	250	50	**1.2**	**0.07**	<0.042	<0.045	<0.21	**0.7**	**0.063**	**0.068**	**0.14**

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-1				PS-MW-2				
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	4/27/2016	4/27/2016	7/19/2016	1/10/2017	8/23/2018
VOCs	ES	PAL						MW-2 Dup			
Acetone	9000	1800	**73.7**	**6.4J**	--	--	**93.9**	**88.5**	**2.7J**	--	--
Allyl Chloride	NP	NP	<4.0	<0.25	--	--	<4.0	<4.0	<0.25	--	--
Benzene	5	0.5	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--
Bromobenzene	NP	NP	<1.0	<0.34	--	--	<1.0	<1.0	<0.34	--	--
Bromochloromethane	NP	NP	<4.0	<0.19	--	--	<4.0	<4.0	<0.19	--	--
Bromodichloromethane	0.6	0.06	<1.0	<0.24	--	--	<1.0	<1.0	<0.24	--	--
Bromoform	4.4	0.44	<4.0	<0.27	--	--	<4.0	<4.0	<0.27	--	--
Bromomethane	10	1	<4.0	<0.44	--	--	<4.0	<4.0	<0.44	--	--
2-Butanone (MEK)	4000	800	<5.0	<1.1	--	--	<5.0	<5.0	<1.1	--	--
n-Butylbenzene	NP	NP	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--
sec-Butylbenzene	NP	NP	<1.0	<0.19	--	--	<1.0	<1.0	<0.19	--	--
tert-Butylbenzene	NP	NP	<1.0	<0.22	--	--	<1.0	<1.0	<0.22	--	--
Carbon Tetrachloride	5	0.5	<1.0	<0.20	--	--	<1.0	<1.0	<0.20	--	--
Chlorobenzene	NP	NP	<1.0	<0.11	--	--	<1.0	<1.0	<0.11	--	--
Chloroethane	400	80	<1.0	<0.34	--	--	<1.0	<1.0	<0.34	--	--
Chloroform	6	0.6	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
Chloromethane	30	3	<4.0	<0.25	--	--	<4.0	<4.0	<0.25	--	--
2-Chlorotoluene	NP	NP	<1.0	<0.30	--	--	<1.0	<1.0	<0.30	--	--
4-Chlorotoluene	NP	NP	<1.0	<0.26	--	--	<1.0	<1.0	<0.26	--	--
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<0.60	--	--	<4.0	<4.0	<0.60	--	--
Dibromochloromethane	60	6	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<0.20	--	--	<1.0	<1.0	<0.20	--	--
Dibromomethane	NP	NP	<4.0	<0.19	--	--	<4.0	<4.0	<0.19	--	--
1,2-Dichlorobenzene	600	60	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,3-Dichlorobenzene	600	120	<1.0	<0.12	--	--	<1.0	<1.0	<0.12	--	--
1,4-Dichlorobenzene	75	15	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
Dichlorodifluoromethane	1000	200	<4.0	<0.23	--	--	<4.0	<4.0	<0.23	--	--
1,1-Dichloroethane (DCA)	850	85	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,2-Dichloroethane	5	0.5	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,1-Dichloroethene	7	0.7	<1.0	<0.28	--	--	<1.0	<1.0	<0.28	--	--
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<0.12	--	--	<1.0	<1.0	<0.12	--	--
trans-1,2-Dichloroethene	100	20	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-1				PS-MW-2				
	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	4/27/2016	4/27/2016	7/19/2016	1/10/2017	8/23/2018
Dichlorofluoromethane	NP	NP	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
1,2-Dichloropropane	5	0.5	<4.0	<0.22	--	--	<4.0	<4.0	<0.22	--	--
1,3-Dichloropropane	0.4	0.04	<1.0	<0.096	--	--	<1.0	<1.0	<0.096	--	--
2,2-Dichloropropane	NP	NP	<4.0	<0.13	--	--	<4.0	<4.0	<0.13	--	--
1,1-Dichloropropene	NP	NP	<1.0	<0.23	--	--	<1.0	<1.0	<0.23	--	--
cis-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<4.0	<4.0	<0.15	--	--
trans-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<4.0	<4.0	<0.15	--	--
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<0.19	--	--	<4.0	<4.0	<0.19	--	--
Ethylbenzene	700	140	<1.0	**0.24J**	--	--	<1.0	<1.0	**0.24J**	--	--
Hexachloro-1,3-butadiene	NP	NP	<1.0	<0.18	--	--	<1.0	<1.0	<0.18	--	--
Isopropylbenzene (cumene)	NP	NP	<1.0	<0.25	--	--	<1.0	<1.0	<0.25	--	--
p-Isopropyltoluene	NP	NP	**6.6**	**0.93J**	--	--	**2.8**	**2.9**	<0.19	--	--
Methylene Chloride	5	0.5	<4.0	<0.29	--	--	<4.0	<4.0	<0.29	--	--
4-Methyl-2-pentanone (MIBK)	500	50	**8.4**	**0.69J**	--	--	<5.0	<5.0	<0.43	--	--
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<0.15	--	--	<1.0	<1.0	<0.15	--	--
Naphthalene	100	10	<4.0	**0.21J**	--	--	<4.0	<4.0	<0.20	--	--
n-Propylbenzene	NP	NP	<1.0	<0.23	--	--	<1.0	<1.0	<0.23	--	--
Styrene	100	10	<1.0	<0.29	--	--	<1.0	<1.0	<0.29	--	--
1,1,1,2-Tetrachloroethane	70	7	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<0.22	--	--	<1.0	<1.0	<0.22	--	--
Tetrachloroethene (PCE)	5	0.5	<1.0	<0.25	--	--	<1.0	<1.0	<0.25	--	--
Tetrahydrofuran (THF)	50	10	<10.0	<1.5	--	--	<10.0	<10.0	<1.5	--	--
Toluene	800	160	**1.0**	**0.58J**	--	--	**1.4**	**1.2**	<0.14	--	--
1,2,3-Trichlorobenzene	NP	NP	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
1,2,4-Trichlorobenzene	70	14	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
1,1,1-Trichloroethane (TCA)	200	40	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<0.15	--	--	<1.0	<1.0	<0.15	--	--
Trichloroethene (TCE)	5	0.5	<0.40	<0.20	--	--	<0.40	<0.40	<0.20	--	--
Trichlorofluoromethane	NP	NP	<1.0	<0.33	--	--	<1.0	<1.0	<0.33	--	--
1,2,3-Trichloropropane*	60	12	<4.0	<0.28	--	--	<4.0	<4.0	<0.28	--	--
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<0.32	--	--	<1.0	<1.0	<0.32	--	--
1,2,4-Trimethylbenzene	480	96	**3.1**	**0.55J**	--	--	**2.1**	**2.2**	**0.35J**	--	--
1,3,5-Trimethylbenzene			**2.0**	<0.27	--	--	<1.0	<1.0	<0.27	--	--
Vinyl Chloride	0.2	0.02	<0.40	<0.29	--	--	<0.40	<0.40	<0.29	--	--
Xylene (total)	2000	400	**5.6**	<0.32	--	--	**4.2**	**3.9**	<0.32	--	--

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-1				PS-MW-2				
	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	4/27/2016	4/27/2016	7/19/2016	1/10/2017	8/23/2018
PAHs											
Acenaphthene	NP	NP	<0.051	**0.069**	**0.210**	<0.0033	<0.043	<0.044	**0.0017J**	<0.0064	<0.0032
Acenaphthylene	NP	NP	<0.051	**0.011J**	**0.042**	<0.0048	<0.043	<0.044	<0.0075	<0.013	<0.0046
Anthracene	3000	600	<0.051	**0.0066J**	**0.13**	<0.0064	<0.043	<0.044	**0.011J**	**0.010J**	<0.0062
Benzo(a)anthracene	NP	NP	<0.051	**0.011**	**0.015**	<0.0040	<0.043	<0.044	**0.031**	**0.028**	<0.0039
Benzo(a)pyrene	0.2	0.02	<0.051	<0.0056	**0.0091J**	<0.0041	<0.043	<0.044	**0.027**	**0.021J**	<0.004
Benzo(b)fluoranthene	0.2	0.02	<0.051	**0.0083J**	**0.017**	<0.013	<0.043	<0.044	**0.038**	**0.028**	<0.013
Benzo(g,h,i)perylene	NP	NP	<0.051	**0.0063J**	**0.011J**	<0.010	<0.043	<0.044	**0.022**	**0.02J**	<0.0098
Benzo(k)fluoranthene	NP	NP	<0.051	<0.0043	**0.0078J**	<0.011	<0.043	<0.044	**0.017**	**0.014J**	<0.010
Chrysene	0.2	0.02	<0.051	**0.0068J**	**0.018**	<0.0095	<0.043	<0.044	**0.029**	**0.022J**	<0.0092
Dibenzo(a,h)anthracene	NP	NP	<0.051	<0.0040	**0.0071J**	<0.0095	<0.043	<0.044	**0.0051J**	**0.011J**	<0.0092
Fluoranthene	400	80	**0.058**	**0.016J**	**0.045**	<0.019	<0.043	<0.044	**0.066**	**0.047**	<0.0018
Fluorene	400	80	<0.051	**0.0094J**	**0.075**	<0.0061	**0.063**	**0.064**	**0.019J**	**0.011J**	<0.0059
Indeno(1,2,3-cd)pyrene	NP	NP	<0.051	<0.0042	**0.010J**	<0.014	<0.043	<0.044	**0.017J**	**0.018J**	<0.013
Naphthalene	100	10	**0.061**	**0.013J**	**0.440**	**0.0430**	**0.11**	**0.093**	**0.077**	**0.022J**	<0.0068
Phenanthrene	NP	NP	**0.071**	**0.019J**	**0.066**	<0.011	**0.15**	**0.14**	**0.096**	**0.042**	<0.010
Pyrene	250	50	<0.051	**0.027**	**0.031**	<0.015	<0.043	<0.044	**0.059**	**0.037**	<0.015

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-3						
All results in ug/L	Sample Date		4/27/2016	7/19/2016	7/19/2016	1/10/2017	1/10/2017	8/23/2018	8/23/2018
VOCs	ES	PAL			Dup		Dup		Dup
Acetone	9000	1800	<20.0	**5.9J**	**4.1J**	--	--	--	--
Allyl Chloride	NP	NP	<4.0	<0.25	<0.25	--	--	--	--
Benzene	5	0.5	<1.0	<0.16	<0.16	--	--	--	--
Bromobenzene	NP	NP	<1.0	<0.34	<0.34	--	--	--	--
Bromochloromethane	NP	NP	<4.0	<0.19	<0.19	--	--	--	--
Bromodichloromethane	0.6	0.06	<1.0	<0.24	<0.24	--	--	--	--
Bromoform	4.4	0.44	<4.0	<0.27	<0.27	--	--	--	--
Bromomethane	10	1	<4.0	<0.44	<0.44	--	--	--	--
2-Butanone (MEK)	4000	800	<5.0	<1.1	<1.1	--	--	--	--
n-Butylbenzene	NP	NP	<1.0	<0.16	<0.16	--	--	--	--
sec-Butylbenzene	NP	NP	<1.0	<0.19	<0.19	--	--	--	--
tert-Butylbenzene	NP	NP	<1.0	<0.22	<0.22	--	--	--	--
Carbon Tetrachloride	5	0.5	<1.0	<0.20	<0.20	--	--	--	--
Chlorobenzene	NP	NP	<1.0	<0.11	<0.11	--	--	--	--
Chloroethane	400	80	<1.0	<0.34	<0.34	--	--	--	--
Chloroform	6	0.6	<1.0	<0.21	<0.21	--	--	--	--
Chloromethane	30	3	<4.0	<0.25	<0.25	--	--	--	--
2-Chlorotoluene	NP	NP	<1.0	<0.30	<0.30	--	--	--	--
4-Chlorotoluene	NP	NP	<1.0	<0.26	<0.26	--	--	--	--
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<0.60	<0.60	--	--	--	--
Dibromochloromethane	60	6	<1.0	<0.16	<0.16	--	--	--	--
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<0.20	<0.20	--	--	--	--
Dibromomethane	NP	NP	<4.0	<0.19	<0.19	--	--	--	--
1,2-Dichlorobenzene	600	60	<1.0	<0.17	<0.17	--	--	--	--
1,3-Dichlorobenzene	600	120	<1.0	<0.12	<0.12	--	--	--	--
1,4-Dichlorobenzene	75	15	<1.0	<0.21	<0.21	--	--	--	--
Dichlorodifluoromethane	1000	200	<4.0	<0.23	<0.23	--	--	--	--
1,1-Dichloroethane (DCA)	850	85	<1.0	**0.76J**	**0.93J**	--	--	--	--
1,2-Dichloroethane	5	0.5	<1.0	<0.17	<0.17	--	--	--	--
1,1-Dichloroethene	7	0.7	<1.0	<0.28	<0.28	--	--	--	--
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<0.12	<0.12	--	--	--	--
trans-1,2-Dichloroethene	100	20	<1.0	<0.16	<0.16	--	--	--	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-3						
	Sample Date		4/27/2016	7/19/2016	7/19/2016	1/10/2017	1/10/2017	8/23/2018	8/23/2018
Dichlorofluoromethane	NP	NP	<1.0	<0.21	<0.21	--	--	--	--
1,2-Dichloropropane	5	0.5	<4.0	<0.22	<0.22	--	--	--	--
1,3-Dichloropropane	0.4	0.04	<1.0	<0.096	<0.096	--	--	--	--
2,2-Dichloropropane	NP	NP	<4.0	<0.13	<0.13	--	--	--	--
1,1-Dichloropropene	NP	NP	<1.0	<0.23	<0.23	--	--	--	--
cis-1,3-Dichloropropene	NP	NP	<4.0	<0.15	<0.15	--	--	--	--
trans-1,3-Dichloropropene	NP	NP	<4.0	<0.15	<0.15	--	--	--	--
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<0.19	<0.19	--	--	--	--
Ethylbenzene	700	140	<1.0	<0.15	<0.15	--	--	--	--
Hexachloro-1,3-butadiene	NP	NP	<1.0	<0.18	<0.18	--	--	--	--
Isopropylbenzene (cumene)	NP	NP	<1.0	<0.25	<0.25	--	--	--	--
p-Isopropyltoluene	NP	NP	<1.0	<0.19	<0.19	--	--	--	--
Methylene Chloride	5	0.5	<4.0	<0.29	<0.29	--	--	--	--
4-Methyl-2-pentanone (MIBK)	500	50	<5.0	<0.43	<0.43	--	--	--	--
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<0.15	<0.15	--	--	--	--
Naphthalene	100	10	<4.0	**1.9J**	**1.2J**	--	--	--	--
n-Propylbenzene	NP	NP	<1.0	<0.23	<0.23	--	--	--	--
Styrene	100	10	<1.0	<0.29	<0.29	--	--	--	--
1,1,1,2-Tetrachloroethane	70	7	<1.0	<0.17	<0.17	--	--	--	--
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<0.22	<0.22	--	--	--	--
Tetrachloroethene (PCE)	5	0.5	<1.0	<0.25	<0.25	--	--	--	--
Tetrahydrofuran (THF)	50	10	**24.2**	<1.5	**4.3J**	--	--	--	--
Toluene	800	160	<1.0	<0.14	<0.14	--	--	--	--
1,2,3-Trichlorobenzene	NP	NP	<1.0	<0.21	<0.21	--	--	--	--
1,2,4-Trichlorobenzene	70	14	<1.0	<0.21	<0.21	--	--	--	--
1,1,1-Trichloroethane (TCA)	200	40	<1.0	<0.17	<0.17	--	--	--	--
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<0.15	<0.15	--	--	--	--
Trichloroethene (TCE)	5	0.5	<0.40	<0.20	<0.20	--	--	--	--
Trichlorofluoromethane	NP	NP	<1.0	<0.33	<0.33	--	--	--	--
1,2,3-Trichloropropane*	60	12	<4.0	<0.28	<0.28	--	--	--	--
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<0.32	<0.32	--	--	--	--
1,2,4-Trimethylbenzene	480	96	<1.0	**0.38J**	**0.21J**	--	--	--	--
1,3,5-Trimethylbenzene			<1.0	<0.27	<0.27	--	--	--	--
Vinyl Chloride	0.2	0.02	<0.40	<0.29	<0.29	--	--	--	--
Xylene (total)	2000	400	<3.0	<0.32	<0.32	--	--	--	--

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-3						
	Sample Date		4/27/2016	7/19/2016	7/19/2016	1/10/2017	1/10/2017	8/23/2018	8/23/2018
PAHs									
Acenaphthene	NP	NP	**0.51**	**1.3**	**1.1**	**1.6**	**1.4**	**2.1**	**2.400**
Acenaphthylene	NP	NP	**0.10**	**0.078**	**0.051**	**0.033**	**0.014J**	**0.160**	**0.180**
Anthracene	3000	600	**0.44**	**0.28**	**0.24**	**0.15**	**0.11**	**0.47**	**0.610**
Benzo(a)anthracene	NP	NP	**0.54**	**0.28**	**0.21**	**0.094**	**0.021**	**0.620**	**0.840**
Benzo(a)pyrene	0.2	0.02	***0.59***	***0.31***	***0.24***	**0.12**	**0.020**	**0.69**	**0.950**
Benzo(b)fluoranthene	0.2	0.02	***0.69***	***0.37***	***0.29***	**0.13**	**0.022**	**0.90**	**1.100**
Benzo(g,h,i)perylene	NP	NP	**0.36**	**0.19**	**0.15**	**0.079**	**0.013**	**0.460**	**0.590**
Benzo(k)fluoranthene	NP	NP	**0.25**	**0.14**	**0.11**	**0.055**	**0.0077J**	**0.320**	**0.530**
Chrysene	0.2	0.02	***0.55***	***0.31***	***0.24***	**0.12**	**0.020**	**0.62**	**0.830**
Dibenzo(a,h)anthracene	NP	NP	**0.083**	**0.040**	**0.032J**	**0.018**	**<0.0039**	**0.082**	**0.100**
Fluoranthene	400	80	**1.50**	**0.83**	**0.69**	**0.38**	**0.13**	**1.90**	**2.500**
Fluorene	400	80	**0.31**	**0.46**	**0.41**	**0.48**	**0.43**	**0.91**	**1.100**
Indeno(1,2,3-cd)pyrene	NP	NP	**0.30**	**0.16**	**0.13**	**0.063**	**0.010J**	**0.370**	**0.480**
Naphthalene	100	10	**0.41**	**0.97**	**0.79**	**0.61**	**0.50**	**0.65**	**0.740**
Phenanthrene	NP	NP	**2.1**	**1.7**	**1.4**	**1.2**	**0.93**	**3.0**	**3.700**
Pyrene	250	50	**1.40**	**0.82**	**0.65**	**0.31**	**0.091**	**1.90**	**2.600**

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-4				HCL Trip
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	7/19/2016
VOCs	ES	PAL					
Acetone	9000	1800	<20.0	**5.4J**	--	--	**6.8J**
Allyl Chloride	NP	NP	<4.0	<0.25	--	--	<0.25
Benzene	5	0.5	<1.0	<0.16	--	--	<0.16
Bromobenzene	NP	NP	<1.0	<0.34	--	--	<0.34
Bromochloromethane	NP	NP	<4.0	<0.19	--	--	<0.19
Bromodichloromethane	0.6	0.06	<1.0	<0.24	--	--	<0.24
Bromoform	4.4	0.44	<4.0	<0.27	--	--	<0.27
Bromomethane	10	1	<4.0	<0.44	--	--	<0.44
2-Butanone (MEK)	4000	800	<5.0	<1.1	--	--	<1.1
n-Butylbenzene	NP	NP	<1.0	<0.16	--	--	<0.16
sec-Butylbenzene	NP	NP	<1.0	<0.19	--	--	<0.19
tert-Butylbenzene	NP	NP	<1.0	<0.22	--	--	<0.22
Carbon Tetrachloride	5	0.5	<1.0	<0.20	--	--	<0.20
Chlorobenzene	NP	NP	<1.0	<0.11	--	--	<0.11
Chloroethane	400	80	<1.0	<0.34	--	--	<0.34
Chloroform	6	0.6	<1.0	<0.21	--	--	<0.21
Chloromethane	30	3	<4.0	<0.25	--	--	<0.25
2-Chlorotoluene	NP	NP	<1.0	<0.30	--	--	<0.30
4-Chlorotoluene	NP	NP	<1.0	<0.26	--	--	<0.26
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<0.60	--	--	<0.60
Dibromochloromethane	60	6	<1.0	<0.16	--	--	<0.16
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<0.20	--	--	<0.20
Dibromomethane	NP	NP	<4.0	<0.19	--	--	<0.19
1,2-Dichlorobenzene	600	60	<1.0	<0.17	--	--	<0.17
1,3-Dichlorobenzene	600	120	<1.0	<0.12	--	--	<0.12
1,4-Dichlorobenzene	75	15	<1.0	<0.21	--	--	<0.21
Dichlorodifluoromethane	1000	200	<4.0	<0.23	--	--	<0.23
1,1-Dichloroethane (DCA)	850	85	<1.0	<0.17	--	--	<0.17
1,2-Dichloroethane	5	0.5	<1.0	<0.17	--	--	<0.17
1,1-Dichloroethene	7	0.7	<1.0	<0.28	--	--	<0.28
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<0.12	--	--	<0.12
trans-1,2-Dichloroethene	100	20	<1.0	<0.16	--	--	<0.16

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

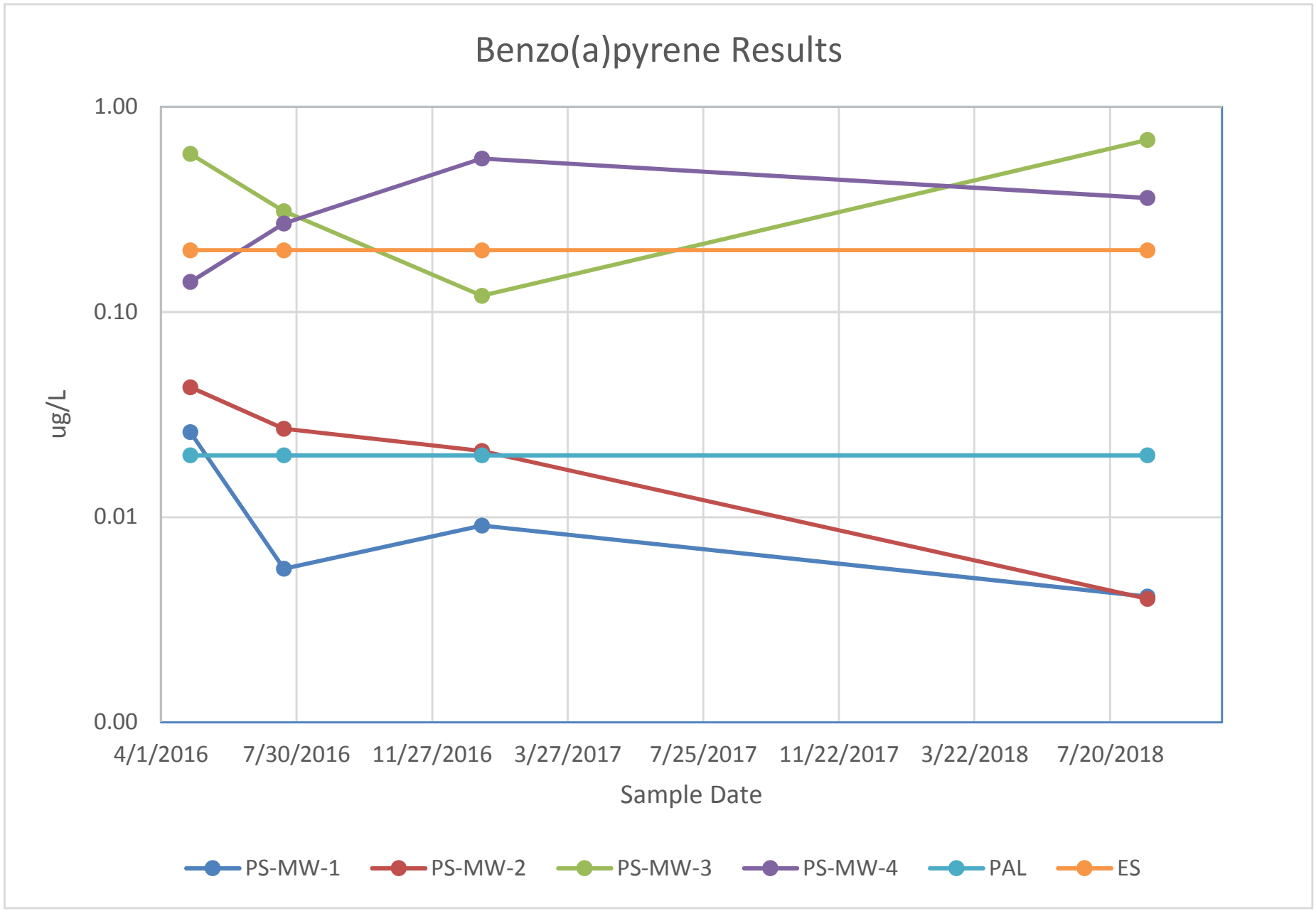
Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-4				HCL Trip
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	7/19/2016
Dichlorofluoromethane	NP	NP	<1.0	<0.21	--	--	<0.21
1,2-Dichloropropane	5	0.5	<4.0	<0.22	--	--	<0.22
1,3-Dichloropropane	0.4	0.04	<1.0	<0.096	--	--	<0.096
2,2-Dichloropropane	NP	NP	<4.0	<0.13	--	--	<0.13
1,1-Dichloropropene	NP	NP	<1.0	<0.23	--	--	<0.23
cis-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<0.15
trans-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<0.15
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<0.19	--	--	<0.19
Ethylbenzene	700	140	<1.0	<0.15	--	--	<0.15
Hexachloro-1,3-butadiene	NP	NP	<1.0	<0.18	--	--	<0.18
Isopropylbenzene (cumene)	NP	NP	<1.0	<0.25	--	--	<0.25
p-Isopropyltoluene	NP	NP	**1.9**	**0.48J**	--	--	<0.19
Methylene Chloride	5	0.5	<4.0	<0.29	--	--	**0.37J**
4-Methyl-2-pentanone (MIBK)	500	50	<5.0	<0.43	--	--	<0.43
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<0.15	--	--	<0.15
Naphthalene	100	10	<4.0	<0.20	--	--	<0.20
n-Propylbenzene	NP	NP	<1.0	<0.23	--	--	<0.23
Styrene	100	10	<1.0	<0.29	--	--	<0.29
1,1,1,2-Tetrachloroethane	70	7	<1.0	<0.17	--	--	<0.17
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<0.22	--	--	<0.22
Tetrachloroethene (PCE)	5	0.5	<1.0	<0.25	--	--	<0.25
Tetrahydrofuran (THF)	50	10	<10.0	<1.5	--	--	<1.5
Toluene	800	160	<1.0	<0.14	--	--	<0.14
1,2,3-Trichlorobenzene	NP	NP	<1.0	<0.21	--	--	<0.21
1,2,4-Trichlorobenzene	70	14	<1.0	<0.21	--	--	<0.21
1,1,1-Trichloroethane (TCA)	200	40	<1.0	**0.30J**	--	--	<0.17
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<0.15	--	--	<0.15
Trichloroethene (TCE)	5	0.5	<0.40	<0.20	--	--	<0.20
Trichlorofluoromethane	NP	NP	<1.0	<0.33	--	--	<0.33
1,2,3-Trichloropropane*	60	12	<4.0	<0.28	--	--	<0.28
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<0.32	--	--	<0.32
1,2,4-Trimethylbenzene	480	96	**1.6**	**0.21J**	--	--	<0.18
1,3,5-Trimethylbenzene			<1.0	<0.27	--	--	<0.27
Vinyl Chloride	0.2	0.02	<0.40	<0.29	--	--	<0.29
Xylene (total)	2000	400	<3.0	<0.32	--	--	<0.32

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-4				HCL Trip
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	7/19/2016
PAHs							
Acenaphthene	NP	NP	**0.26**	**0.047**	**0.037**	**0.041**	--
Acenaphthylene	NP	NP	<0.041	**0.031**	**0.071**	<0.00047	--
Anthracene	3000	600	**0.058**	**0.071**	**0.140**	**0.100**	--
Benzo(a)anthracene	NP	NP	**0.14**	**0.23**	**0.48**	**0.32**	--
Benzo(a)pyrene	0.2	0.02	**0.14**	***0.27***	***0.56***	***0.36***	--
Benzo(b)fluoranthene	0.2	0.02	***0.20***	***0.36***	***0.69***	***0.54***	--
Benzo(g,h,i)perylene	NP	NP	**0.11**	**0.19**	**0.42**	**0.28**	--
Benzo(k)fluoranthene	NP	NP	**0.074**	**0.130**	**0.280**	**0.180**	--
Chrysene	0.2	0.02	**0.14**	***0.27***	***0.53***	***0.36***	--
Dibenzo(a,h)anthracene	NP	NP	<0.041	**0.040**	**0.099**	**0.047**	--
Fluoranthene	400	80	**0.39**	**0.58**	**1.30**	**0.82**	--
Fluorene	400	80	**0.065**	**0.027**	**0.048**	<0.0060	--
Indeno(1,2,3-cd)pyrene	NP	NP	**0.088**	**0.16**	**0.36**	**0.22**	--
Naphthalene	100	10	**0.11**	**0.055**	**0.075**	<0.0069	--
Phenanthrene	NP	NP	**0.34**	**0.30**	**0.65**	**0.44**	--
Pyrene	250	50	**0.32**	**0.56**	**0.99**	**0.79**	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published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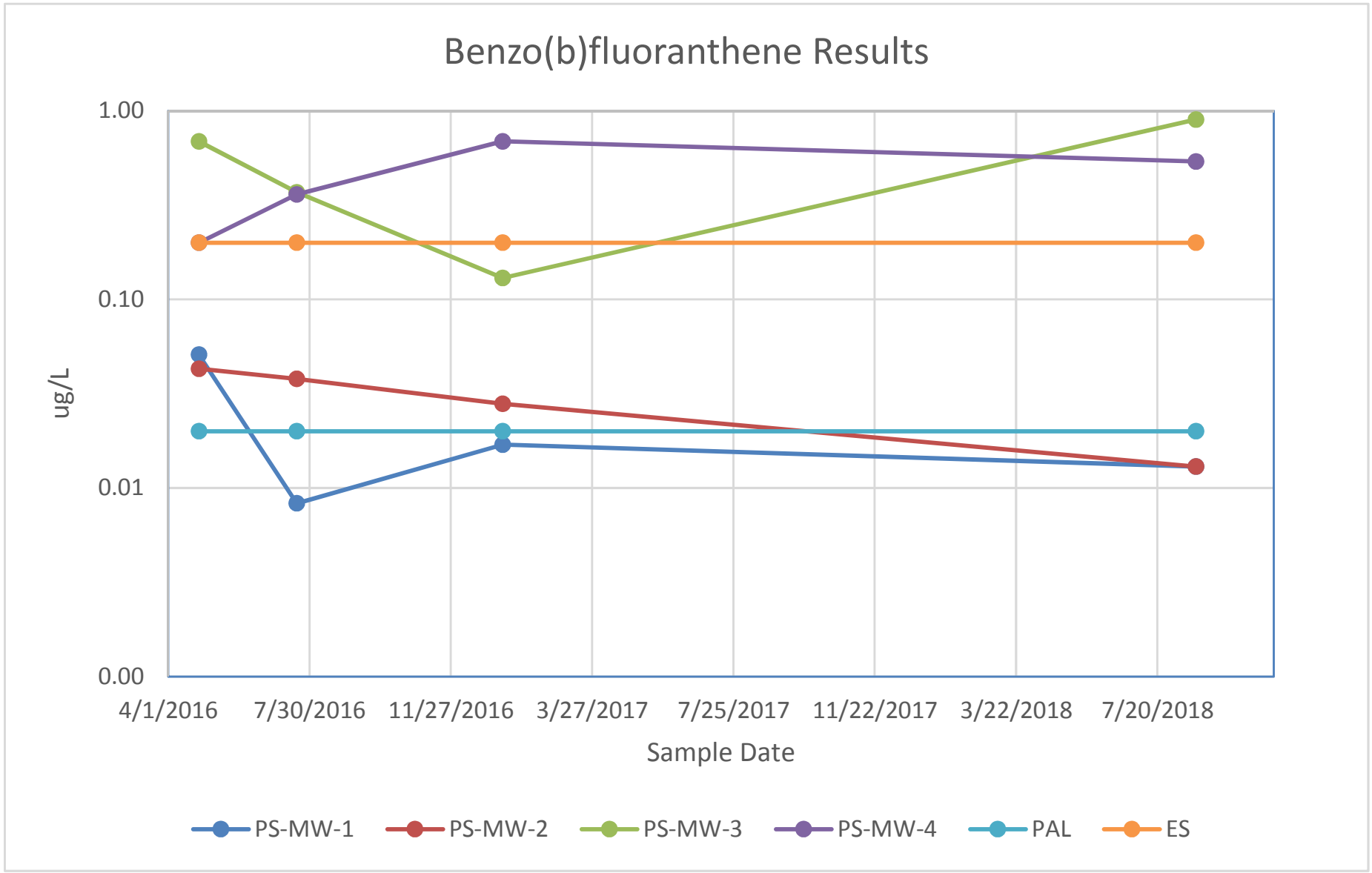
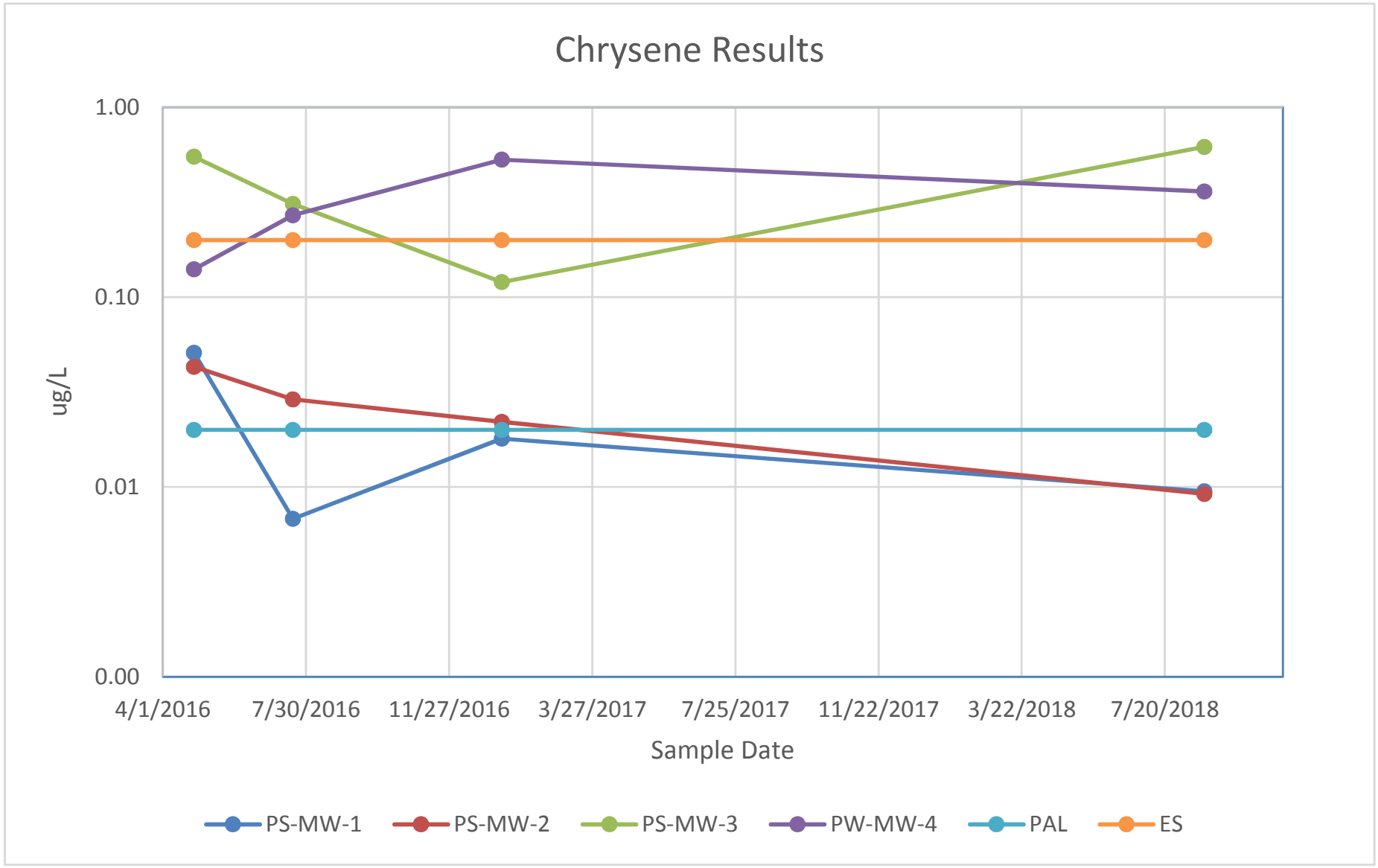
0.10
0.01
0.00
ug/L
4/1/2016
7/30/2016
11/27/2016
3/27/2017
7/25/2017
11/22/2017
3/22/2018
7/20/2018
Sample Date
PS-MW-1
PS-MW-2
PS-MW-3
PS-MW-4
PAL
ES


Benzo(b)fluoranthene Results
1.00
0.10
0.01
0.00
ug/L
4/1/2016
7/30/2016
11/27/2016
3/27/2017
7/25/2017
11/22/2017
3/22/2018
7/20/2018
Sample Date
PS-MW-1
PS-MW-2
PS-MW-3
PS-MW-4
PAL
ES


Chrysene Results
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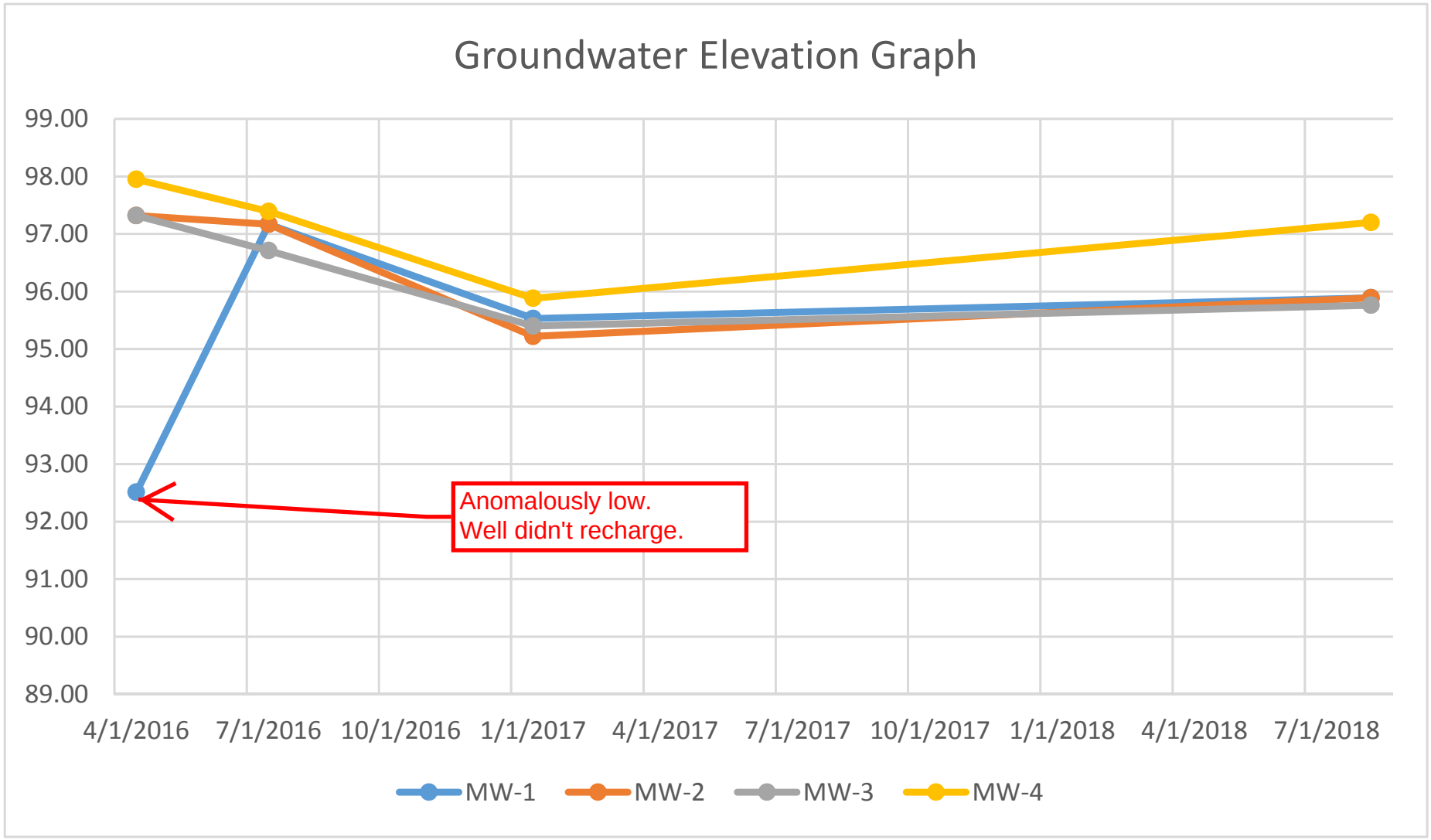
0.10
0.01
0.00
ug/L
4/1/2016
7/30/2016
11/27/2016
3/27/2017
7/25/2017
11/22/2017
3/22/2018
7/20/2018
Sample Date
PS-MW-1
PS-MW-2
PS-MW-3
PW-MW-4
PAL
ES


Groundwater Elevation Graph
99.00
98.00
97.00
96.00
95.00
94.00
93.00
92.00
91.00
90.00
89.00
4/1/2016
7/1/2016
10/1/2016
1/1/2017
4/1/2017
7/1/2017
10/1/2017
1/1/2018
4/1/2018
7/1/2018
Anomalously low.
Well didn't recharge.
MW-1
MW-2
MW-3
MW-4

Legend

- AOCs
- Approximate Property Line
- Railroads

310 155 0 310 620 930 1,240 Feet

SCALE: 1/3,600
1 inch = 300 feet

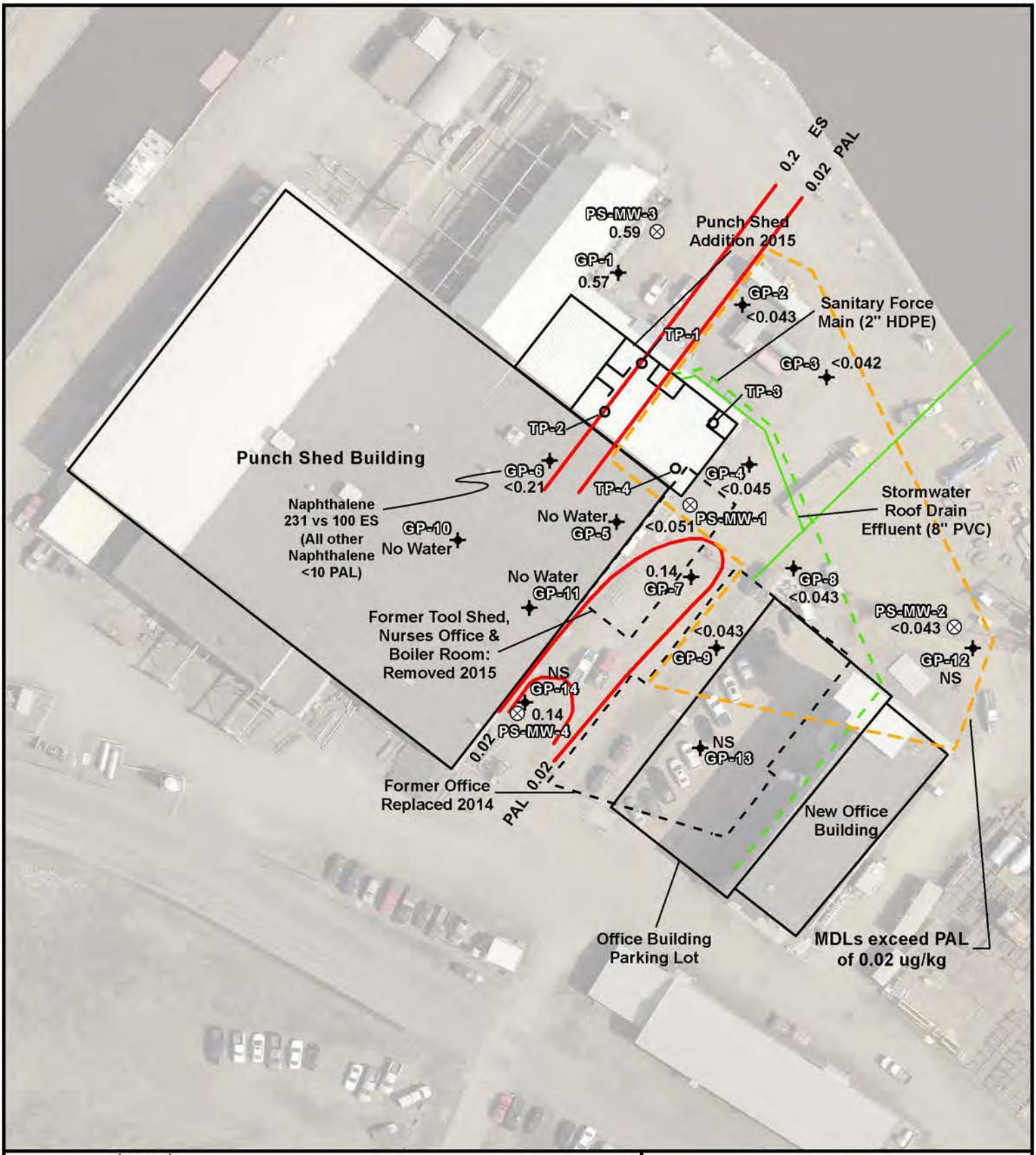
Did you guys use this to create Figure 2? Can you turn on AOC location layer?

N

FIGURE 3 ~~2~~
AOC Locations

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 09-0405
DATE: 05/05/2009 CREATED BY: MLT
FILE NAME: //GIS/2009Projects/09-0405 FraserShipyardPhaseIESA/Figure3



Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

N

0 35 70 140 Feet

SCALE: 1:840 1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

FIGURE 6

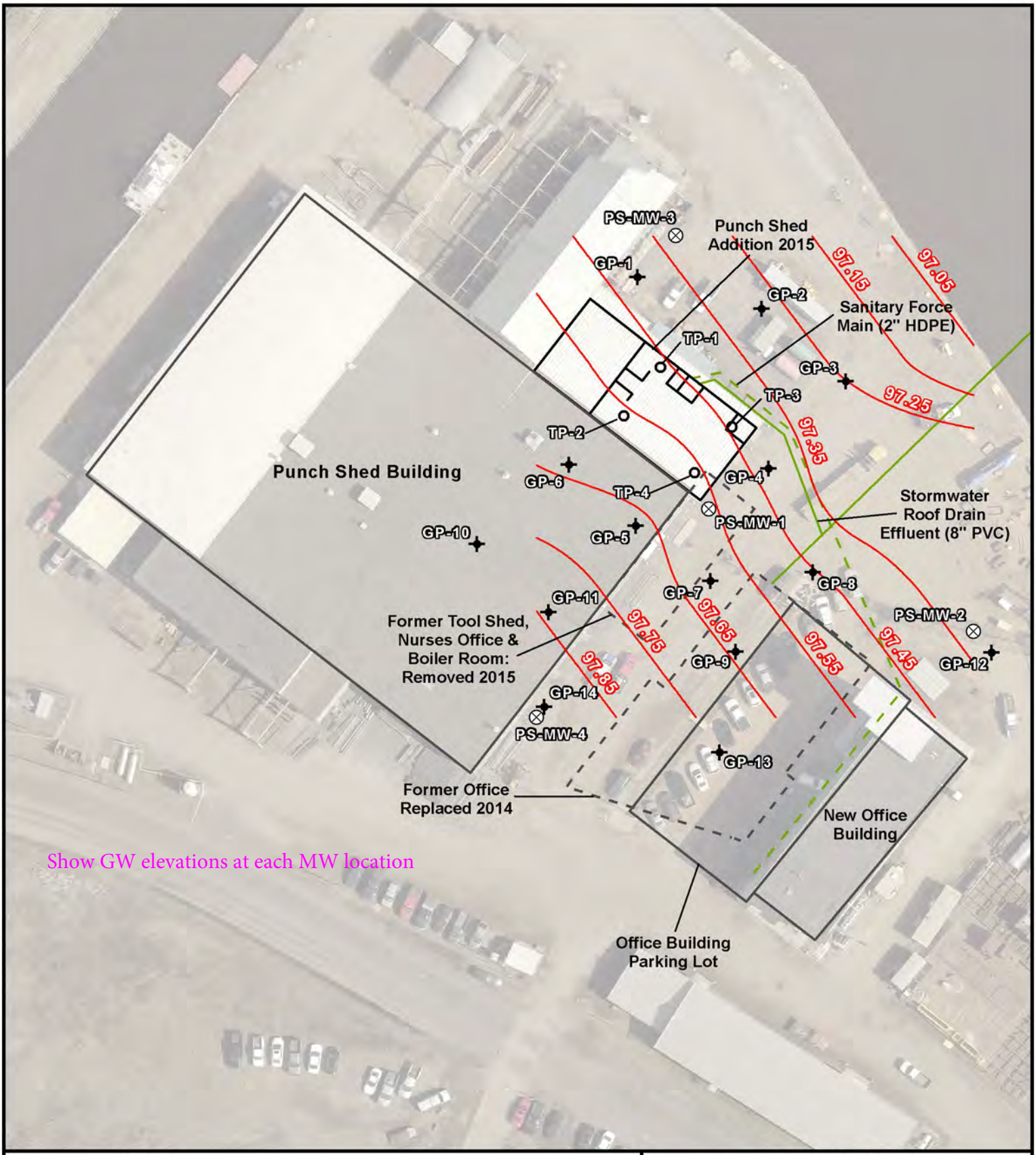
Groundwater Benzo(a)pyrene
Sample Date: 4/27/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 09/21/2016 **CREATED BY:** CGIS

FILE NAME: //GIS/2014 Projects/14-1004/Projects/Figure6



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 97.05 Equipotential Contour
- * PS-MW-1 data anomalous and not included

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

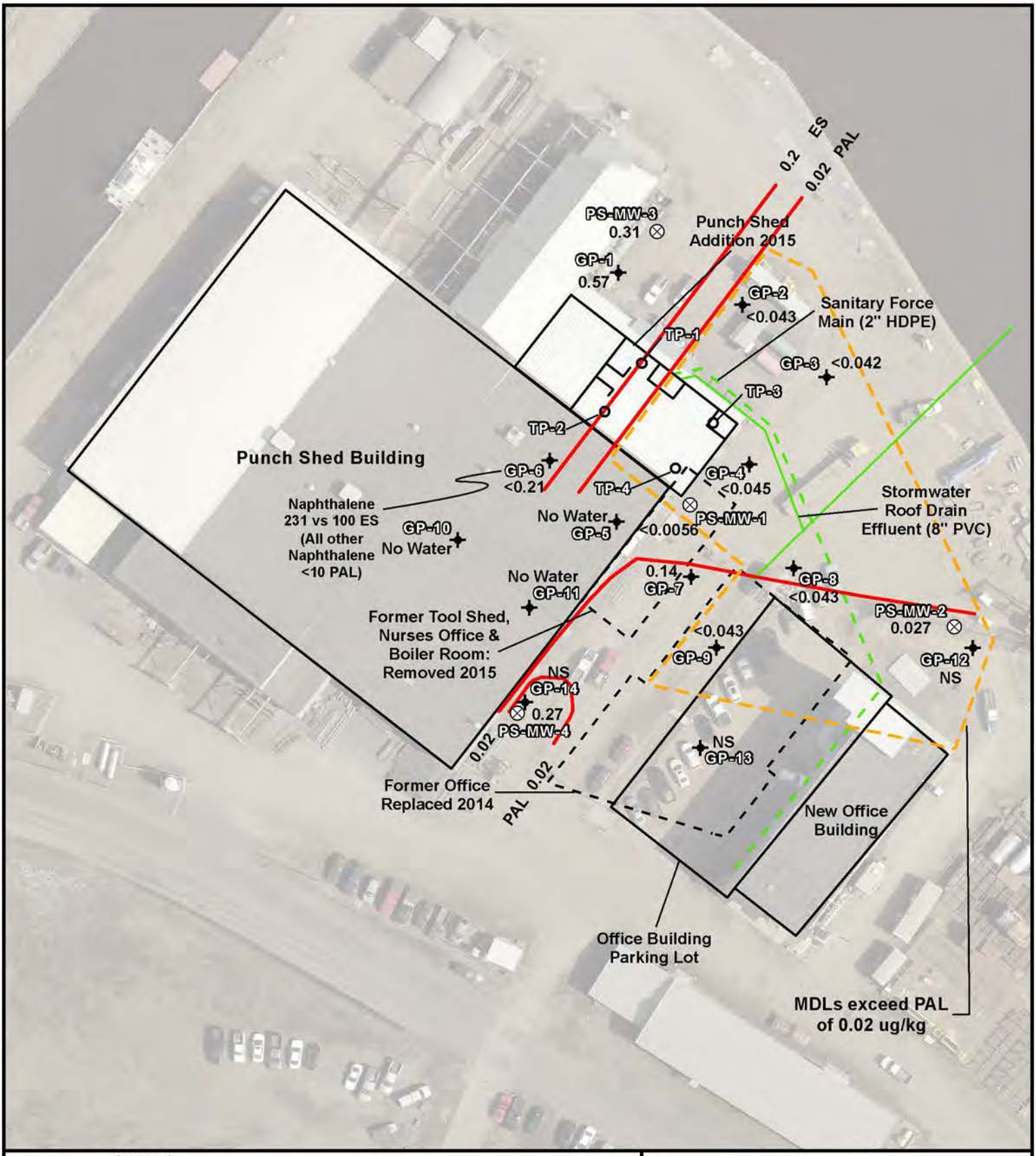
N

FIGURE 8a

Groundwater Potentiometric
Sample Date: 04/27/2016

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 08/29/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure 8a



Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet

SCALE: 1:840 1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

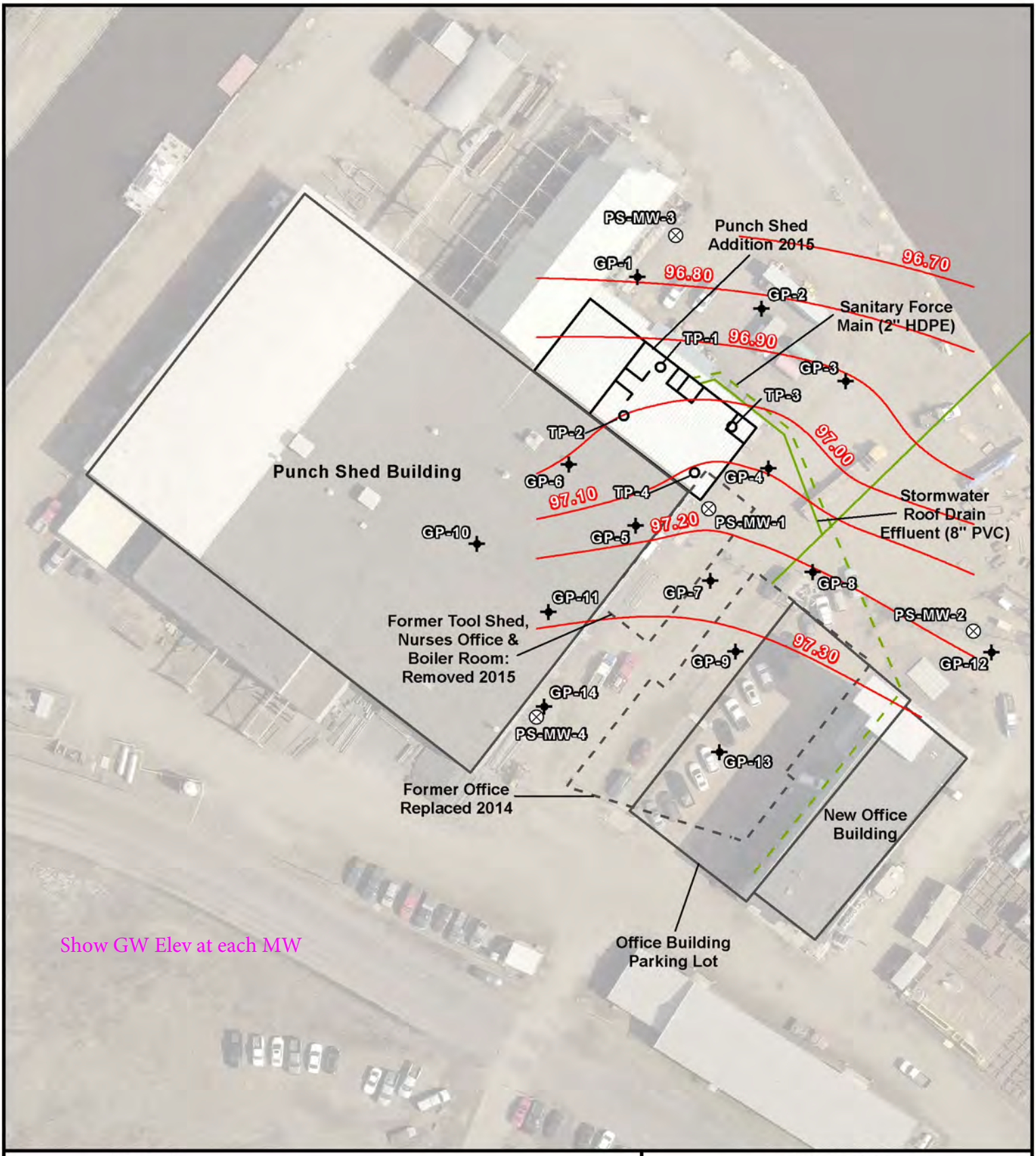
N

FIGURE 7

Groundwater Benzo(a)pyrene
Sample Date: 7/19/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 09/21/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure7



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 96.70 Equipotential Contour

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

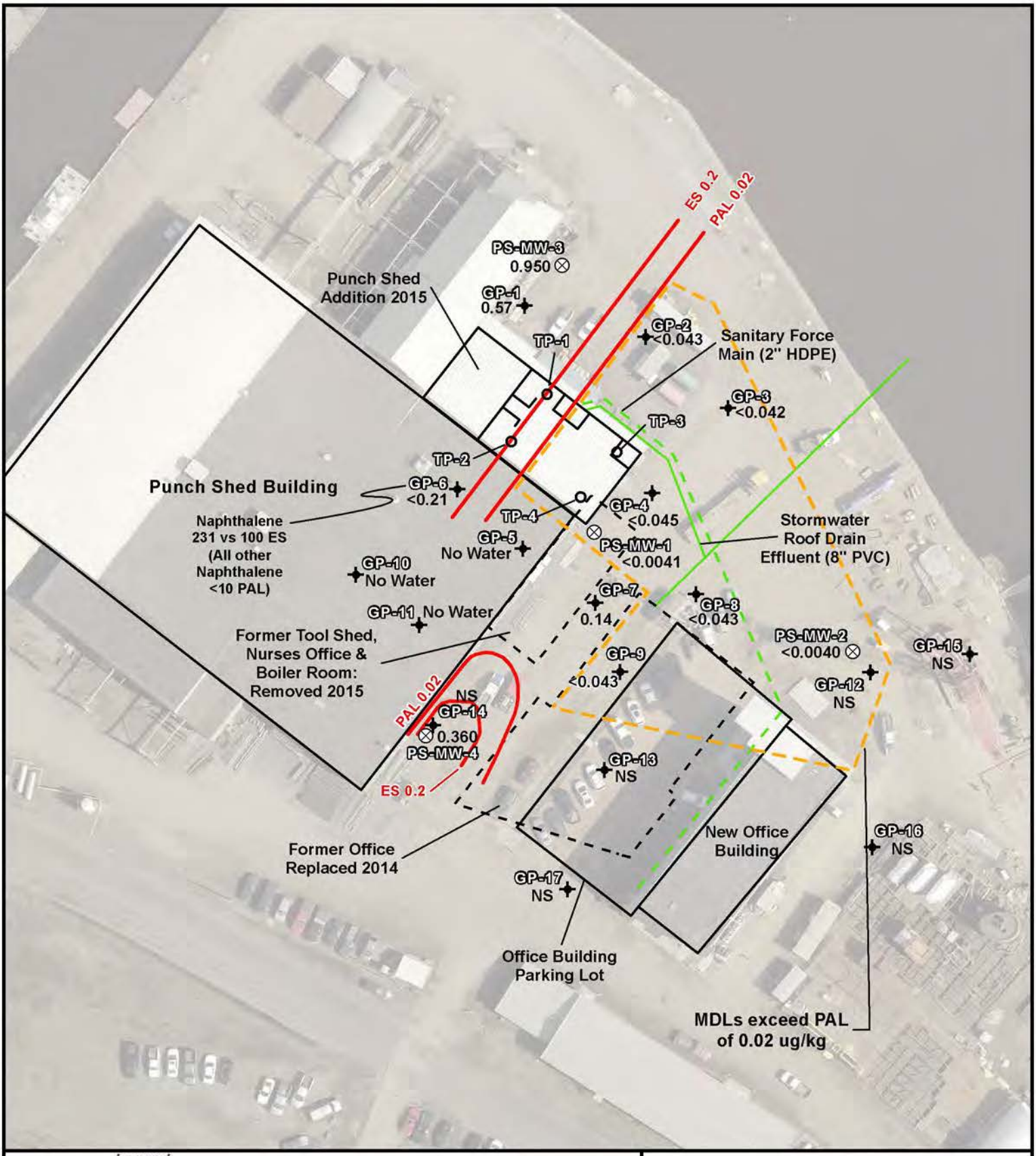
N

FIGURE 8b

Groundwater Potentiometric
Sample Date: 07/19/2016

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 08/29/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure 8b



Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet

SCALE: 1:840 1 inch = 72 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

N

FIGURE 7

Groundwater Benzo(a)pyrene
Sample Date:8/22/16

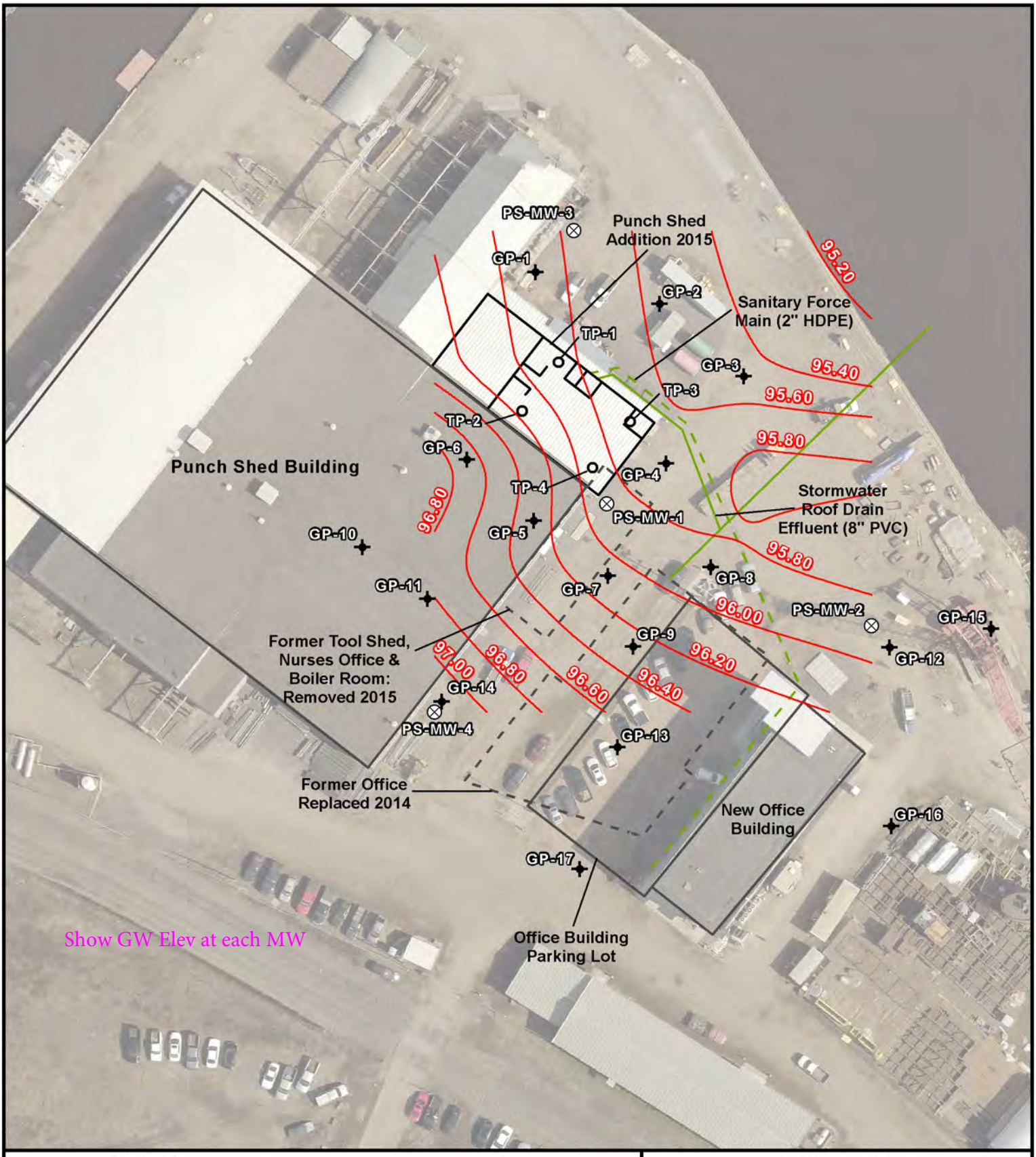
RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 10/12/2018 **CREATED BY:** CGIS

FILE NAME: //GIS/2014 Projects/14-1004 /Projects/Figure7

ENVIRONMENTAL TROUBLESHOOTERS



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 96.70 Equipotential Contour

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

N

FIGURE 8c

Groundwater Potentiometric
Sample Date: 8/22/2018

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 10/12/2018	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure 8c

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

Notice: This form is the DNR supplied spreadsheet referenced in Appendices A of Comm 46 and NR 746, Wis. Adm. Code. It is provided to consultants as an optional tool for groundwater contaminant trend analysis to support site closure requests under s. Comm 46.07, Comm 46.08, NR 746.07, NR 746.08, Wis. Adm. Code. Use this form or a manual method when seeking case closure under those rules. Earlier versions of this form should not be used.

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW1	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.03	0.05	0.05			
2	19-Jul-16	0.01	0.01	0.01			
3	10-Jan-17	0.01	0.02	0.02			
4	22-Aug-18	0.00	0.01	0.01			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	-6.0	-2.0	-2.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.01	0.02	0.02	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.011	0.019	0.020	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.860	0.859	0.943	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at			**CV <= 1**	**CV <= 1**	n<4	n<4	n<4
80% Confidence Level		NA	**STABLE**	**STABLE**	n<4	n<4	n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW2	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.04	0.04	0.04			
2	19-Jul-16	0.03	0.04	0.03			
3	10-Jan-17	0.02	0.03	0.02			
4	22-Aug-18	0.00	0.01	0.01			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	-6.0	-6.0	-6.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.02	0.03	0.03	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.015	0.012	0.013	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.650	0.415	0.519	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	DECREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	DECREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW-3	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.59	0.69	0.55			
2	19-Jul-16	0.31	0.37	0.31			
3	10-Jan-17	0.12	0.13	0.12			
4	22-Aug-18	0.69	0.90	0.62			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	0.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.43	0.52	0.40	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.261	0.341	0.229	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.609	0.652	0.573	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		**CV <= 1 STABLE**	**CV <= 1 STABLE**	**CV <= 1 STABLE**	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW4	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.14	0.20	0.14			
2	19-Jul-16	0.27	0.36	0.27			
3	10-Jan-17	0.56	0.69	0.53			
4	22-Aug-18	0.36	0.54	0.36			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	4.0	4.0	4.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.33	0.45	0.33	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.177	0.213	0.164	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.531	0.476	0.504	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

May 11, 2016

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 Fraser
Pace Project No.: 10346509

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on April 28, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lori Castille
lori.castille@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 14-1004 Fraser
Pace Project No.: 10346509

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10346509001	**PS-MW-4 VT910**	Water	04/27/16 12:15	04/28/16 17:00
10346509002	**PS-MW-3 VT912**	Water	04/27/16 13:45	04/28/16 17:00
10346509003	**PS-MW-2 VT911**	Water	04/27/16 15:40	04/28/16 17:00
10346509004	**PS-MW-2.1 VT911**	Water	04/27/16 15:45	04/28/16 17:00
10346509005	**PS-MW-1 VT908**	Water	04/27/16 16:30	04/28/16 17:00
10346509006	**VOC Trip Blank**	Water	04/27/16 00:00	04/28/16 17:00

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE ANALYTE COUNT

Project: 14-1004 Fraser
Pace Project No.: 10346509

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10346509001	**PS-MW-4 VT910**	EPA 8270D by SIM	AS1	18
		EPA 8260B	PRD	70
10346509002	**PS-MW-3 VT912**	EPA 8270D by SIM	AS1	18
		EPA 8260B	PRD	70
10346509003	**PS-MW-2 VT911**	EPA 8270D by SIM	AS1	18
		EPA 8260B	PRD	70
10346509004	**PS-MW-2.1 VT911**	EPA 8270D by SIM	AS1	18
		EPA 8260B	PRD	70
10346509005	**PS-MW-1 VT908**	EPA 8270D by SIM	AS1	18
		EPA 8260B	PRD	70
10346509006	**VOC Trip Blank**	EPA 8260B	PRD	70

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(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-4 VT910 **Lab ID: 10346509001** Collected: 04/27/16 12:15 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C							
Acenaphthene	**0.26**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	83-32-9	
Acenaphthylene	ND	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	208-96-8	
Anthracene	**0.058**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	120-12-7	
Benzo(a)anthracene	**0.14**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	56-55-3	
Benzo(a)pyrene	**0.14**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	50-32-8	
Benzo(b)fluoranthene	**0.20**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	205-99-2	
Benzo(g,h,i)perylene	**0.11**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	191-24-2	
Benzo(k)fluoranthene	**0.074**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	207-08-9	
Chrysene	**0.14**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	53-70-3	
Fluoranthene	**0.39**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	206-44-0	
Fluorene	**0.065**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.088**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	193-39-5	
Naphthalene	**0.11**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	91-20-3	
Phenanthrene	**0.34**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	85-01-8	
Pyrene	**0.32**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:33	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	66	%.	53-125	1	04/29/16 12:31	05/02/16 20:33	321-60-8	
p-Terphenyl-d14 (S)	82	%.	57-125	1	04/29/16 12:31	05/02/16 20:33	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	20.0	1		05/10/16 01:38	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		05/10/16 01:38	107-05-1	
Benzene	ND	ug/L	1.0	1		05/10/16 01:38	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/10/16 01:38	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/10/16 01:38	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/10/16 01:38	75-27-4	
Bromoform	ND	ug/L	4.0	1		05/10/16 01:38	75-25-2	
Bromomethane	ND	ug/L	4.0	1		05/10/16 01:38	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/10/16 01:38	78-93-3	
n-Butylbenzene	ND	ug/L	4.0	1		05/10/16 01:38	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		05/10/16 01:38	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/10/16 01:38	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		05/10/16 01:38	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/10/16 01:38	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/10/16 01:38	75-00-3	
Chloroform	ND	ug/L	4.0	1		05/10/16 01:38	67-66-3	
Chloromethane	ND	ug/L	4.0	1		05/10/16 01:38	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 01:38	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 01:38	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/10/16 01:38	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/10/16 01:38	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/10/16 01:38	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		05/10/16 01:38	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:38	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:38	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:38	106-46-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-4 VT910 **Lab ID: 10346509001** Collected: 04/27/16 12:15 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/10/16 01:38	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/10/16 01:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/10/16 01:38	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/10/16 01:38	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 01:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 01:38	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 01:38	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 01:38	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/10/16 01:38	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 01:38	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/10/16 01:38	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 01:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 01:38	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		05/10/16 01:38	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		05/10/16 01:38	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/10/16 01:38	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	4.0	1		05/10/16 01:38	98-82-8	
p-Isopropyltoluene	**1.9**	ug/L	1.0	1		05/10/16 01:38	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		05/10/16 01:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/10/16 01:38	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/10/16 01:38	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		05/10/16 01:38	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		05/10/16 01:38	103-65-1	
Styrene	ND	ug/L	1.0	1		05/10/16 01:38	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 01:38	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 01:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/10/16 01:38	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		05/10/16 01:38	109-99-9	
Toluene	ND	ug/L	1.0	1		05/10/16 01:38	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:38	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:38	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/10/16 01:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/10/16 01:38	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		05/10/16 01:38	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 01:38	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		05/10/16 01:38	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		05/10/16 01:38	76-13-1	
1,2,4-Trimethylbenzene	**1.6**	ug/L	1.0	1		05/10/16 01:38	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 01:38	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		05/10/16 01:38	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		05/10/16 01:38	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		05/10/16 01:38	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		05/10/16 01:38	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125	1		05/10/16 01:38	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-3 VT912 **Lab ID: 10346509002** Collected: 04/27/16 13:45 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C							
Acenaphthene	**0.51**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	83-32-9	
Acenaphthylene	**0.10**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	208-96-8	
Anthracene	**0.44**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	120-12-7	
Benzo(a)anthracene	**0.54**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	56-55-3	
Benzo(a)pyrene	**0.59**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	50-32-8	
Benzo(b)fluoranthene	**0.69**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	205-99-2	
Benzo(g,h,i)perylene	**0.36**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	191-24-2	
Benzo(k)fluoranthene	**0.25**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	207-08-9	
Chrysene	**0.55**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	218-01-9	
Dibenz(a,h)anthracene	**0.083**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	53-70-3	
Fluoranthene	**1.5**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	206-44-0	
Fluorene	**0.31**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.30**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	193-39-5	
Naphthalene	**0.41**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	91-20-3	
Phenanthrene	**2.1**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	85-01-8	
Pyrene	**1.4**	ug/L	0.041	1	04/29/16 12:31	05/02/16 20:54	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	70	%.	53-125	1	04/29/16 12:31	05/02/16 20:54	321-60-8	
p-Terphenyl-d14 (S)	80	%.	57-125	1	04/29/16 12:31	05/02/16 20:54	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	20.0	1		05/10/16 01:54	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		05/10/16 01:54	107-05-1	
Benzene	ND	ug/L	1.0	1		05/10/16 01:54	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/10/16 01:54	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/10/16 01:54	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/10/16 01:54	75-27-4	
Bromoform	ND	ug/L	4.0	1		05/10/16 01:54	75-25-2	
Bromomethane	ND	ug/L	4.0	1		05/10/16 01:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/10/16 01:54	78-93-3	
n-Butylbenzene	ND	ug/L	4.0	1		05/10/16 01:54	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		05/10/16 01:54	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/10/16 01:54	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		05/10/16 01:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/10/16 01:54	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/10/16 01:54	75-00-3	
Chloroform	ND	ug/L	4.0	1		05/10/16 01:54	67-66-3	
Chloromethane	ND	ug/L	4.0	1		05/10/16 01:54	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 01:54	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 01:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/10/16 01:54	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/10/16 01:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/10/16 01:54	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		05/10/16 01:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:54	106-46-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-3 VT912 **Lab ID: 10346509002** Collected: 04/27/16 13:45 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/10/16 01:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/10/16 01:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/10/16 01:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/10/16 01:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 01:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 01:54	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 01:54	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 01:54	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/10/16 01:54	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 01:54	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/10/16 01:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 01:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 01:54	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		05/10/16 01:54	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		05/10/16 01:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/10/16 01:54	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	4.0	1		05/10/16 01:54	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/10/16 01:54	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		05/10/16 01:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/10/16 01:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/10/16 01:54	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		05/10/16 01:54	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		05/10/16 01:54	103-65-1	
Styrene	ND	ug/L	1.0	1		05/10/16 01:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 01:54	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 01:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/10/16 01:54	127-18-4	
Tetrahydrofuran	**24.2**	ug/L	10.0	1		05/10/16 01:54	109-99-9	
Toluene	ND	ug/L	1.0	1		05/10/16 01:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 01:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/10/16 01:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/10/16 01:54	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		05/10/16 01:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 01:54	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		05/10/16 01:54	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		05/10/16 01:54	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 01:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 01:54	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		05/10/16 01:54	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		05/10/16 01:54	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		05/10/16 01:54	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		05/10/16 01:54	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125	1		05/10/16 01:54	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-2 VT911 **Lab ID: 10346509003** Collected: 04/27/16 15:40 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C							
Acenaphthene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	83-32-9	
Acenaphthylene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	208-96-8	
Anthracene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	207-08-9	
Chrysene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	53-70-3	
Fluoranthene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	206-44-0	
Fluorene	**0.063**	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	193-39-5	
Naphthalene	**0.11**	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	91-20-3	
Phenanthrene	**0.15**	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	85-01-8	
Pyrene	ND	ug/L	0.043	1	04/29/16 12:31	05/02/16 21:14	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	70	%.	53-125	1	04/29/16 12:31	05/02/16 21:14	321-60-8	
p-Terphenyl-d14 (S)	81	%.	57-125	1	04/29/16 12:31	05/02/16 21:14	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B							
Acetone	**93.9**	ug/L	20.0	1		05/10/16 02:09	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		05/10/16 02:09	107-05-1	
Benzene	ND	ug/L	1.0	1		05/10/16 02:09	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/10/16 02:09	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/10/16 02:09	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/10/16 02:09	75-27-4	
Bromoform	ND	ug/L	4.0	1		05/10/16 02:09	75-25-2	
Bromomethane	ND	ug/L	4.0	1		05/10/16 02:09	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/10/16 02:09	78-93-3	
n-Butylbenzene	ND	ug/L	4.0	1		05/10/16 02:09	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		05/10/16 02:09	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/10/16 02:09	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		05/10/16 02:09	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/10/16 02:09	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/10/16 02:09	75-00-3	
Chloroform	ND	ug/L	4.0	1		05/10/16 02:09	67-66-3	
Chloromethane	ND	ug/L	4.0	1		05/10/16 02:09	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 02:09	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 02:09	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/10/16 02:09	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/10/16 02:09	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/10/16 02:09	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		05/10/16 02:09	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:09	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:09	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:09	106-46-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-2 VT911 **Lab ID: 10346509003** Collected: 04/27/16 15:40 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/10/16 02:09	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/10/16 02:09	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/10/16 02:09	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:09	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:09	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:09	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 02:09	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 02:09	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/10/16 02:09	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 02:09	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/10/16 02:09	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 02:09	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 02:09	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		05/10/16 02:09	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		05/10/16 02:09	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/10/16 02:09	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	4.0	1		05/10/16 02:09	98-82-8	
p-Isopropyltoluene	**2.8**	ug/L	1.0	1		05/10/16 02:09	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		05/10/16 02:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/10/16 02:09	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/10/16 02:09	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		05/10/16 02:09	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		05/10/16 02:09	103-65-1	
Styrene	ND	ug/L	1.0	1		05/10/16 02:09	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 02:09	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 02:09	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/10/16 02:09	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		05/10/16 02:09	109-99-9	
Toluene	**1.4**	ug/L	1.0	1		05/10/16 02:09	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:09	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:09	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/10/16 02:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/10/16 02:09	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		05/10/16 02:09	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 02:09	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		05/10/16 02:09	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		05/10/16 02:09	76-13-1	
1,2,4-Trimethylbenzene	**2.1**	ug/L	1.0	1		05/10/16 02:09	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 02:09	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		05/10/16 02:09	75-01-4	
Xylene (Total)	**4.2**	ug/L	3.0	1		05/10/16 02:09	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	98	%.	75-125	1		05/10/16 02:09	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		05/10/16 02:09	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125	1		05/10/16 02:09	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-2.1 VT911 **Lab ID: 10346509004** Collected: 04/27/16 15:45 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C							
Acenaphthene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	83-32-9	
Acenaphthylene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	208-96-8	
Anthracene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	207-08-9	
Chrysene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	53-70-3	
Fluoranthene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	206-44-0	
Fluorene	**0.064**	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	193-39-5	
Naphthalene	**0.093**	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	91-20-3	
Phenanthrene	**0.14**	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	85-01-8	
Pyrene	ND	ug/L	0.044	1	04/29/16 12:31	05/02/16 21:35	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	64	%.	53-125	1	04/29/16 12:31	05/02/16 21:35	321-60-8	
p-Terphenyl-d14 (S)	81	%.	57-125	1	04/29/16 12:31	05/02/16 21:35	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B							
Acetone	**88.5**	ug/L	20.0	1		05/10/16 02:25	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		05/10/16 02:25	107-05-1	
Benzene	ND	ug/L	1.0	1		05/10/16 02:25	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/10/16 02:25	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/10/16 02:25	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/10/16 02:25	75-27-4	
Bromoform	ND	ug/L	4.0	1		05/10/16 02:25	75-25-2	
Bromomethane	ND	ug/L	4.0	1		05/10/16 02:25	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/10/16 02:25	78-93-3	
n-Butylbenzene	ND	ug/L	4.0	1		05/10/16 02:25	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		05/10/16 02:25	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/10/16 02:25	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		05/10/16 02:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/10/16 02:25	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/10/16 02:25	75-00-3	
Chloroform	ND	ug/L	4.0	1		05/10/16 02:25	67-66-3	
Chloromethane	ND	ug/L	4.0	1		05/10/16 02:25	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 02:25	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 02:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/10/16 02:25	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/10/16 02:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/10/16 02:25	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		05/10/16 02:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:25	106-46-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-2.1 VT911 **Lab ID: 10346509004** Collected: 04/27/16 15:45 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/10/16 02:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/10/16 02:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/10/16 02:25	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:25	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 02:25	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 02:25	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/10/16 02:25	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 02:25	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/10/16 02:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 02:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 02:25	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		05/10/16 02:25	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		05/10/16 02:25	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/10/16 02:25	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	4.0	1		05/10/16 02:25	98-82-8	
p-Isopropyltoluene	**2.9**	ug/L	1.0	1		05/10/16 02:25	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		05/10/16 02:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/10/16 02:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/10/16 02:25	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		05/10/16 02:25	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		05/10/16 02:25	103-65-1	
Styrene	ND	ug/L	1.0	1		05/10/16 02:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 02:25	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 02:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/10/16 02:25	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		05/10/16 02:25	109-99-9	
Toluene	**1.2**	ug/L	1.0	1		05/10/16 02:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:25	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/10/16 02:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/10/16 02:25	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		05/10/16 02:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 02:25	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		05/10/16 02:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		05/10/16 02:25	76-13-1	
1,2,4-Trimethylbenzene	**2.2**	ug/L	1.0	1		05/10/16 02:25	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 02:25	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		05/10/16 02:25	75-01-4	
Xylene (Total)	**3.9**	ug/L	3.0	1		05/10/16 02:25	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	101	%.	75-125	1		05/10/16 02:25	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		05/10/16 02:25	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125	1		05/10/16 02:25	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-1 VT908 **Lab ID: 10346509005** Collected: 04/27/16 16:30 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C							
Acenaphthene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	83-32-9	
Acenaphthylene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	208-96-8	
Anthracene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	207-08-9	
Chrysene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	53-70-3	
Fluoranthene	**0.058**	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	206-44-0	
Fluorene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	193-39-5	
Naphthalene	**0.061**	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	91-20-3	
Phenanthrene	**0.071**	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	85-01-8	
Pyrene	ND	ug/L	0.051	1	04/29/16 12:31	05/02/16 21:56	129-00-0	
Surrogates								
2-Fluorobiphenyl (S)	68	%.	53-125	1	04/29/16 12:31	05/02/16 21:56	321-60-8	
p-Terphenyl-d14 (S)	81	%.	57-125	1	04/29/16 12:31	05/02/16 21:56	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B							
Acetone	**73.7**	ug/L	20.0	1		05/10/16 02:41	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		05/10/16 02:41	107-05-1	
Benzene	ND	ug/L	1.0	1		05/10/16 02:41	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/10/16 02:41	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/10/16 02:41	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/10/16 02:41	75-27-4	
Bromoform	ND	ug/L	4.0	1		05/10/16 02:41	75-25-2	
Bromomethane	ND	ug/L	4.0	1		05/10/16 02:41	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/10/16 02:41	78-93-3	
n-Butylbenzene	ND	ug/L	4.0	1		05/10/16 02:41	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		05/10/16 02:41	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/10/16 02:41	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		05/10/16 02:41	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/10/16 02:41	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/10/16 02:41	75-00-3	
Chloroform	ND	ug/L	4.0	1		05/10/16 02:41	67-66-3	
Chloromethane	ND	ug/L	4.0	1		05/10/16 02:41	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 02:41	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 02:41	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/10/16 02:41	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/10/16 02:41	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/10/16 02:41	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		05/10/16 02:41	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:41	106-46-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: PS-MW-1 VT908 **Lab ID: 10346509005** Collected: 04/27/16 16:30 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/10/16 02:41	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/10/16 02:41	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/10/16 02:41	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:41	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 02:41	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 02:41	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 02:41	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/10/16 02:41	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 02:41	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/10/16 02:41	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 02:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 02:41	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		05/10/16 02:41	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		05/10/16 02:41	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/10/16 02:41	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	4.0	1		05/10/16 02:41	98-82-8	
p-Isopropyltoluene	**6.6**	ug/L	1.0	1		05/10/16 02:41	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		05/10/16 02:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	**8.4**	ug/L	5.0	1		05/10/16 02:41	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/10/16 02:41	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		05/10/16 02:41	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		05/10/16 02:41	103-65-1	
Styrene	ND	ug/L	1.0	1		05/10/16 02:41	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 02:41	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 02:41	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/10/16 02:41	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		05/10/16 02:41	109-99-9	
Toluene	**1.0**	ug/L	1.0	1		05/10/16 02:41	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:41	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 02:41	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/10/16 02:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/10/16 02:41	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		05/10/16 02:41	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 02:41	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		05/10/16 02:41	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		05/10/16 02:41	76-13-1	
1,2,4-Trimethylbenzene	**3.1**	ug/L	1.0	1		05/10/16 02:41	95-63-6	
1,3,5-Trimethylbenzene	**2.0**	ug/L	1.0	1		05/10/16 02:41	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		05/10/16 02:41	75-01-4	
Xylene (Total)	**5.6**	ug/L	3.0	1		05/10/16 02:41	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		05/10/16 02:41	17060-07-0	
Toluene-d8 (S)	97	%.	75-125	1		05/10/16 02:41	2037-26-5	
4-Bromofluorobenzene (S)	97	%.	75-125	1		05/10/16 02:41	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: VOC Trip Blank **Lab ID: 10346509006** Collected: 04/27/16 00:00 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Acetone	ND	ug/L	20.0	1		05/10/16 13:54	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		05/10/16 13:54	107-05-1	
Benzene	ND	ug/L	1.0	1		05/10/16 13:54	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		05/10/16 13:54	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		05/10/16 13:54	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		05/10/16 13:54	75-27-4	
Bromoform	ND	ug/L	4.0	1		05/10/16 13:54	75-25-2	
Bromomethane	ND	ug/L	4.0	1		05/10/16 13:54	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		05/10/16 13:54	78-93-3	
n-Butylbenzene	ND	ug/L	4.0	1		05/10/16 13:54	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		05/10/16 13:54	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		05/10/16 13:54	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		05/10/16 13:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		05/10/16 13:54	108-90-7	
Chloroethane	ND	ug/L	1.0	1		05/10/16 13:54	75-00-3	
Chloroform	ND	ug/L	4.0	1		05/10/16 13:54	67-66-3	
Chloromethane	ND	ug/L	4.0	1		05/10/16 13:54	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 13:54	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		05/10/16 13:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		05/10/16 13:54	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		05/10/16 13:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		05/10/16 13:54	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		05/10/16 13:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 13:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 13:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		05/10/16 13:54	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		05/10/16 13:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		05/10/16 13:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		05/10/16 13:54	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		05/10/16 13:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 13:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		05/10/16 13:54	156-60-5	
Dichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 13:54	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 13:54	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		05/10/16 13:54	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		05/10/16 13:54	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		05/10/16 13:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 13:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		05/10/16 13:54	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		05/10/16 13:54	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		05/10/16 13:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		05/10/16 13:54	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	4.0	1		05/10/16 13:54	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		05/10/16 13:54	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		05/10/16 13:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		05/10/16 13:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		05/10/16 13:54	1634-04-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser
Pace Project No.: 10346509

Sample: VOC Trip Blank **Lab ID: 10346509006** Collected: 04/27/16 00:00 Received: 04/28/16 17:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B							
Naphthalene	ND	ug/L	4.0	1		05/10/16 13:54	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		05/10/16 13:54	103-65-1	
Styrene	ND	ug/L	1.0	1		05/10/16 13:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 13:54	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		05/10/16 13:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		05/10/16 13:54	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		05/10/16 13:54	109-99-9	
Toluene	ND	ug/L	1.0	1		05/10/16 13:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 13:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		05/10/16 13:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		05/10/16 13:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		05/10/16 13:54	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		05/10/16 13:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		05/10/16 13:54	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		05/10/16 13:54	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		05/10/16 13:54	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 13:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		05/10/16 13:54	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		05/10/16 13:54	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		05/10/16 13:54	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	100	%.	75-125	1		05/10/16 13:54	17060-07-0	
Toluene-d8 (S)	98	%.	75-125	1		05/10/16 13:54	2037-26-5	
4-Bromofluorobenzene (S)	98	%.	75-125	1		05/10/16 13:54	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

QC Batch: MSV/35498 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV 465 W
Associated Lab Samples: 10346509001, 10346509002, 10346509003, 10346509004, 10346509005

METHOD BLANK: 2253258 Matrix: Water
Associated Lab Samples: 10346509001, 10346509002, 10346509003, 10346509004, 10346509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/09/16 21:58	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/09/16 21:58	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/09/16 21:58	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/09/16 21:58	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	05/09/16 21:58	
1,1-Dichloroethane	ug/L	ND	1.0	05/09/16 21:58	
1,1-Dichloroethene	ug/L	ND	1.0	05/09/16 21:58	
1,1-Dichloropropene	ug/L	ND	1.0	05/09/16 21:58	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/09/16 21:58	
1,2,3-Trichloropropane	ug/L	ND	4.0	05/09/16 21:58	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/09/16 21:58	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/09/16 21:58	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	05/09/16 21:58	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/09/16 21:58	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/09/16 21:58	
1,2-Dichloroethane	ug/L	ND	1.0	05/09/16 21:58	
1,2-Dichloropropane	ug/L	ND	4.0	05/09/16 21:58	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/09/16 21:58	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/09/16 21:58	
1,3-Dichloropropane	ug/L	ND	1.0	05/09/16 21:58	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/09/16 21:58	
2,2-Dichloropropane	ug/L	ND	4.0	05/09/16 21:58	
2-Butanone (MEK)	ug/L	ND	5.0	05/09/16 21:58	
2-Chlorotoluene	ug/L	ND	1.0	05/09/16 21:58	
4-Chlorotoluene	ug/L	ND	1.0	05/09/16 21:58	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/09/16 21:58	
Acetone	ug/L	ND	20.0	05/09/16 21:58	
Allyl chloride	ug/L	ND	4.0	05/09/16 21:58	
Benzene	ug/L	ND	1.0	05/09/16 21:58	
Bromobenzene	ug/L	ND	1.0	05/09/16 21:58	
Bromochloromethane	ug/L	ND	1.0	05/09/16 21:58	
Bromodichloromethane	ug/L	ND	1.0	05/09/16 21:58	
Bromoform	ug/L	ND	4.0	05/09/16 21:58	
Bromomethane	ug/L	ND	4.0	05/09/16 21:58	
Carbon tetrachloride	ug/L	ND	1.0	05/09/16 21:58	
Chlorobenzene	ug/L	ND	1.0	05/09/16 21:58	
Chloroethane	ug/L	ND	1.0	05/09/16 21:58	
Chloroform	ug/L	ND	4.0	05/09/16 21:58	
Chloromethane	ug/L	ND	4.0	05/09/16 21:58	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/09/16 21:58	
cis-1,3-Dichloropropene	ug/L	ND	4.0	05/09/16 21:58	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

METHOD BLANK: 2253258 Matrix: Water
Associated Lab Samples: 10346509001, 10346509002, 10346509003, 10346509004, 10346509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	05/09/16 21:58	
Dibromomethane	ug/L	ND	4.0	05/09/16 21:58	
Dichlorodifluoromethane	ug/L	ND	1.0	05/09/16 21:58	
Dichlorofluoromethane	ug/L	ND	1.0	05/09/16 21:58	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	05/09/16 21:58	
Ethylbenzene	ug/L	ND	1.0	05/09/16 21:58	
Hexachloro-1,3-butadiene	ug/L	1.8	1.0	05/09/16 21:58	P8
Isopropylbenzene (Cumene)	ug/L	ND	4.0	05/09/16 21:58	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/09/16 21:58	
Methylene Chloride	ug/L	ND	4.0	05/09/16 21:58	
n-Butylbenzene	ug/L	ND	4.0	05/09/16 21:58	
n-Propylbenzene	ug/L	ND	1.0	05/09/16 21:58	
Naphthalene	ug/L	ND	4.0	05/09/16 21:58	
p-Isopropyltoluene	ug/L	ND	1.0	05/09/16 21:58	
sec-Butylbenzene	ug/L	ND	1.0	05/09/16 21:58	
Styrene	ug/L	ND	1.0	05/09/16 21:58	
tert-Butylbenzene	ug/L	ND	1.0	05/09/16 21:58	
Tetrachloroethene	ug/L	ND	1.0	05/09/16 21:58	
Tetrahydrofuran	ug/L	ND	10.0	05/09/16 21:58	
Toluene	ug/L	ND	1.0	05/09/16 21:58	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/09/16 21:58	
trans-1,3-Dichloropropene	ug/L	ND	4.0	05/09/16 21:58	
Trichloroethene	ug/L	ND	0.40	05/09/16 21:58	
Trichlorofluoromethane	ug/L	ND	1.0	05/09/16 21:58	
Vinyl chloride	ug/L	ND	0.40	05/09/16 21:58	
Xylene (Total)	ug/L	ND	3.0	05/09/16 21:58	
1,2-Dichloroethane-d4 (S)	%.	104	75-125	05/09/16 21:58	
4-Bromofluorobenzene (S)	%.	97	75-125	05/09/16 21:58	
Toluene-d8 (S)	%.	99	75-125	05/09/16 21:58	

LABORATORY CONTROL SAMPLE & LCSD: 2253259 2254010

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	50	51.8	50.3	104	101	75-125	3	20	
1,1,1-Trichloroethane	ug/L	50	47.8	49.0	96	98	73-125	2	20	
1,1,2,2-Tetrachloroethane	ug/L	50	43.6	42.2	87	84	75-128	3	20	
1,1,2-Trichloroethane	ug/L	50	53.4	51.2	107	102	75-129	4	20	
1,1,2-Trichlorotrifluoroethane	ug/L	50	55.9	54.6	112	109	69-125	2	20	
1,1-Dichloroethane	ug/L	50	45.1	48.1	90	96	75-131	6	20	
1,1-Dichloroethene	ug/L	50	47.1	47.9	94	96	72-125	2	20	
1,1-Dichloropropene	ug/L	50	50.1	51.0	100	102	74-125	2	20	
1,2,3-Trichlorobenzene	ug/L	50	52.1	48.4	104	97	68-127	7	20	
1,2,3-Trichloropropane	ug/L	50	48.1	45.9	96	92	75-125	5	20	
1,2,4-Trichlorobenzene	ug/L	50	52.1	51.0	104	102	70-125	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

LABORATORY CONTROL SAMPLE & LCSD: 2253259 2254010

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trimethylbenzene	ug/L	50	48.5	50.5	97	101	75-130	4	20	
1,2-Dibromo-3-chloropropane	ug/L	125	109	92.5	87	74	74-125	16	20	
1,2-Dibromoethane (EDB)	ug/L	50	53.7	50.3	107	101	75-125	7	20	
1,2-Dichlorobenzene	ug/L	50	49.1	51.4	98	103	75-125	5	20	
1,2-Dichloroethane	ug/L	50	46.6	46.3	93	93	72-129	1	20	
1,2-Dichloropropane	ug/L	50	50.9	51.7	102	103	71-129	2	20	
1,3,5-Trimethylbenzene	ug/L	50	47.4	49.4	95	99	75-127	4	20	
1,3-Dichlorobenzene	ug/L	50	48.4	50.6	97	101	75-125	4	20	
1,3-Dichloropropane	ug/L	50	51.8	49.9	104	100	75-125	4	20	
1,4-Dichlorobenzene	ug/L	50	46.6	47.9	93	96	75-125	3	20	
2,2-Dichloropropane	ug/L	50	52.3	46.8	105	94	71-125	11	20	
2-Butanone (MEK)	ug/L	250	228	201	91	81	58-150	13	20	
2-Chlorotoluene	ug/L	50	46.7	49.6	93	99	75-125	6	20	
4-Chlorotoluene	ug/L	50	45.6	47.8	91	96	75-130	5	20	
4-Methyl-2-pentanone (MIBK)	ug/L	250	244	235	98	94	72-140	4	20	
Acetone	ug/L	250	270	281	108	112	69-137	4	20	
Allyl chloride	ug/L	50	46.3	43.8	93	88	68-132	6	20	
Benzene	ug/L	50	47.8	49.3	96	99	75-125	3	20	
Bromobenzene	ug/L	50	51.6	53.5	103	107	75-125	4	20	
Bromochloromethane	ug/L	50	52.7	53.7	105	107	75-125	2	20	
Bromodichloromethane	ug/L	50	50.0	50.1	100	100	69-128	0	20	
Bromoform	ug/L	50	47.4	39.1	95	78	75-125	19	20	
Bromomethane	ug/L	50	45.8	32.2	92	64	30-150	35	20	R1
Carbon tetrachloride	ug/L	50	51.3	51.8	103	104	74-125	1	20	
Chlorobenzene	ug/L	50	51.3	51.4	103	103	75-125	0	20	
Chloroethane	ug/L	50	46.9	47.7	94	95	60-150	2	20	
Chloroform	ug/L	50	45.6	46.4	91	93	75-126	2	20	
Chloromethane	ug/L	50	44.0	35.1	88	70	46-150	23	20	R1
cis-1,2-Dichloroethene	ug/L	50	47.8	49.0	96	98	75-126	3	20	
cis-1,3-Dichloropropene	ug/L	50	51.9	49.6	104	99	75-125	5	20	
Dibromochloromethane	ug/L	50	55.0	49.8	110	100	75-125	10	20	
Dibromomethane	ug/L	50	56.9	57.0	114	114	72-127	0	20	
Dichlorodifluoromethane	ug/L	50	52.1	50.8	104	102	58-135	3	20	
Dichlorofluoromethane	ug/L	50	48.4	50.0	97	100	68-149	3	20	
Diethyl ether (Ethyl ether)	ug/L	50	49.5	48.3	99	97	66-144	2	20	
Ethylbenzene	ug/L	50	46.5	46.6	93	93	75-125	0	20	
Hexachloro-1,3-butadiene	ug/L	50	50.3	47.3	101	95	73-125	6	20	
Isopropylbenzene (Cumene)	ug/L	50	44.8	44.7	90	89	69-140	0	20	
Methyl-tert-butyl ether	ug/L	50	51.3	50.1	103	100	75-126	2	20	
Methylene Chloride	ug/L	50	45.7	46.3	91	93	71-130	1	20	
n-Butylbenzene	ug/L	50	44.5	46.0	89	92	71-129	3	20	
n-Propylbenzene	ug/L	50	46.9	49.1	94	98	71-133	5	20	
Naphthalene	ug/L	50	45.3	40.5	91	81	59-137	11	20	
p-Isopropyltoluene	ug/L	50	50.6	53.1	101	106	74-127	5	20	
sec-Butylbenzene	ug/L	50	46.6	47.4	93	95	66-140	2	20	
Styrene	ug/L	50	51.2	50.6	102	101	75-125	1	20	
tert-Butylbenzene	ug/L	50	46.8	48.0	94	96	73-129	3	20	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

LABORATORY CONTROL SAMPLE & LCSD: 2253259 2254010

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Tetrachloroethene	ug/L	50	52.0	52.4	104	105	75-125	1	20	
Tetrahydrofuran	ug/L	500	561	586	112	117	71-129	4	20	
Toluene	ug/L	50	50.1	50.0	100	100	75-125	0	20	
trans-1,2-Dichloroethene	ug/L	50	45.9	46.8	92	94	75-125	2	20	
trans-1,3-Dichloropropene	ug/L	50	53.9	48.8	108	98	75-125	10	20	
Trichloroethene	ug/L	50	54.9	56.6	110	113	75-125	3	20	
Trichlorofluoromethane	ug/L	50	52.6	53.2	105	106	74-128	1	20	
Vinyl chloride	ug/L	50	46.1	44.7	92	89	71-131	3	20	
Xylene (Total)	ug/L	150	150	151	100	101	75-125	1	20	
1,2-Dichloroethane-d4 (S)	%.				105	102	75-125			
4-Bromofluorobenzene (S)	%.				97	98	75-125			
Toluene-d8 (S)	%.				103	99	75-125			

MATRIX SPIKE SAMPLE: 2254016

Parameter	Units	10346505003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	23.1	115	75-125	
1,1,1-Trichloroethane	ug/L	ND	20	28.0	140	71-144	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	21.6	108	75-131	
1,1,2-Trichloroethane	ug/L	ND	20	23.6	118	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	29.8	149	75-150	
1,1-Dichloroethane	ug/L	ND	20	26.7	134	64-150	
1,1-Dichloroethene	ug/L	ND	20	26.6	133	68-150	
1,1-Dichloropropene	ug/L	ND	20	28.7	143	68-145	
1,2,3-Trichlorobenzene	ug/L	ND	20	25.7	128	57-142	
1,2,3-Trichloropropane	ug/L	ND	20	23.6	118	75-125	
1,2,4-Trichlorobenzene	ug/L	ND	20	25.8	129	60-135	
1,2,4-Trimethylbenzene	ug/L	ND	20	23.5	118	67-148	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	51.9	104	32-137	
1,2-Dibromoethane (EDB)	ug/L	ND	20	23.5	117	75-125	
1,2-Dichlorobenzene	ug/L	ND	20	24.2	121	75-125	
1,2-Dichloroethane	ug/L	ND	20	23.3	116	62-138	
1,2-Dichloropropane	ug/L	ND	20	25.4	127	62-144	
1,3,5-Trimethylbenzene	ug/L	ND	20	23.8	119	67-148	
1,3-Dichlorobenzene	ug/L	ND	20	24.0	120	74-131	
1,3-Dichloropropane	ug/L	ND	20	23.2	116	75-127	
1,4-Dichlorobenzene	ug/L	ND	20	23.0	115	74-126	
2,2-Dichloropropane	ug/L	ND	20	29.3	146	56-146	
2-Butanone (MEK)	ug/L	ND	100	111	111	47-150	
2-Chlorotoluene	ug/L	ND	20	23.8	119	74-137	
4-Chlorotoluene	ug/L	ND	20	23.3	116	72-138	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	107	107	60-147	
Acetone	ug/L	ND	100	121	121	61-150	
Allyl chloride	ug/L	ND	20	25.3	126	53-150	
Benzene	ug/L	ND	20	24.4	122	52-147	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

MATRIX SPIKE SAMPLE: 2254016

Parameter	Units	10346505003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromobenzene	ug/L	ND	20	25.5	127	75-129	
Bromochloromethane	ug/L	ND	20	27.4	137	72-128	M1
Bromodichloromethane	ug/L	ND	20	24.9	125	65-137	
Bromoform	ug/L	ND	20	20.5	102	59-133	
Bromomethane	ug/L	ND	20	25.3	126	30-150	
Carbon tetrachloride	ug/L	ND	20	27.6	138	73-144	
Chlorobenzene	ug/L	ND	20	22.9	115	75-126	
Chloroethane	ug/L	ND	20	22.7	114	55-150	
Chloroform	ug/L	ND	20	22.8	114	66-143	
Chloromethane	ug/L	ND	20	20.7	104	42-150	
cis-1,2-Dichloroethene	ug/L	ND	20	25.5	128	65-143	
cis-1,3-Dichloropropene	ug/L	ND	20	26.4	132	75-125	M1
Dibromochloromethane	ug/L	ND	20	23.2	116	75-125	
Dibromomethane	ug/L	ND	20	28.3	142	66-133	M1
Dichlorodifluoromethane	ug/L	ND	20	23.8	119	74-150	
Dichlorofluoromethane	ug/L	ND	20	24.3	122	68-150	
Diethyl ether (Ethyl ether)	ug/L	ND	20	24.1	120	57-148	
Ethylbenzene	ug/L	ND	20	21.0	105	67-149	
Hexachloro-1,3-butadiene	ug/L	ND	20	28.8	144	65-143	M1
Isopropylbenzene (Cumene)	ug/L	ND	20	20.7	103	64-150	
Methyl-tert-butyl ether	ug/L	ND	20	24.8	124	71-130	
Methylene Chloride	ug/L	ND	20	23.4	117	67-137	
n-Butylbenzene	ug/L	ND	20	24.0	120	70-138	
n-Propylbenzene	ug/L	ND	20	24.8	124	70-148	
Naphthalene	ug/L	ND	20	20.7	104	39-150	
p-Isopropyltoluene	ug/L	ND	20	24.6	123	74-138	
sec-Butylbenzene	ug/L	ND	20	24.7	123	64-150	
Styrene	ug/L	ND	20	21.6	108	75-132	
tert-Butylbenzene	ug/L	ND	20	24.8	124	75-138	
Tetrachloroethene	ug/L	2.5	20	27.7	126	73-136	
Tetrahydrofuran	ug/L	ND	200	248	124	68-142	
Toluene	ug/L	ND	20	23.0	115	69-139	
trans-1,2-Dichloroethene	ug/L	ND	20	25.6	128	75-135	
trans-1,3-Dichloropropene	ug/L	ND	20	23.6	118	66-136	
Trichloroethene	ug/L	ND	20	30.0	150	74-135	M1
Trichlorofluoromethane	ug/L	ND	20	28.0	140	75-150	
Vinyl chloride	ug/L	ND	20	24.4	122	69-150	
Xylene (Total)	ug/L	ND	60	68.2	114	70-147	
1,2-Dichloroethane-d4 (S)	%.				103	75-125	
4-Bromofluorobenzene (S)	%.				97	75-125	
Toluene-d8 (S)	%.				89	75-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

SAMPLE DUPLICATE: 2254017

Parameter	Units	10346505004 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
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(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

SAMPLE DUPLICATE: 2254017

Parameter	Units	10346505004 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	4.7	4.9	2	30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	101	101	0		
4-Bromofluorobenzene (S)	%.	98	98	0		
Toluene-d8 (S)	%.	98	99	1		

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

QC Batch: MSV/35508 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV 465 W
Associated Lab Samples: 10346509006

METHOD BLANK: 2254131 Matrix: Water
Associated Lab Samples: 10346509006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	05/10/16 13:15	
1,1,1-Trichloroethane	ug/L	ND	1.0	05/10/16 13:15	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	05/10/16 13:15	
1,1,2-Trichloroethane	ug/L	ND	1.0	05/10/16 13:15	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	05/10/16 13:15	
1,1-Dichloroethane	ug/L	ND	1.0	05/10/16 13:15	
1,1-Dichloroethene	ug/L	ND	1.0	05/10/16 13:15	
1,1-Dichloropropene	ug/L	ND	1.0	05/10/16 13:15	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	05/10/16 13:15	
1,2,3-Trichloropropane	ug/L	ND	4.0	05/10/16 13:15	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	05/10/16 13:15	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	05/10/16 13:15	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	05/10/16 13:15	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	05/10/16 13:15	
1,2-Dichlorobenzene	ug/L	ND	1.0	05/10/16 13:15	
1,2-Dichloroethane	ug/L	ND	1.0	05/10/16 13:15	
1,2-Dichloropropane	ug/L	ND	4.0	05/10/16 13:15	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	05/10/16 13:15	
1,3-Dichlorobenzene	ug/L	ND	1.0	05/10/16 13:15	
1,3-Dichloropropane	ug/L	ND	1.0	05/10/16 13:15	
1,4-Dichlorobenzene	ug/L	ND	1.0	05/10/16 13:15	
2,2-Dichloropropane	ug/L	ND	4.0	05/10/16 13:15	
2-Butanone (MEK)	ug/L	ND	5.0	05/10/16 13:15	
2-Chlorotoluene	ug/L	ND	1.0	05/10/16 13:15	
4-Chlorotoluene	ug/L	ND	1.0	05/10/16 13:15	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	05/10/16 13:15	
Acetone	ug/L	ND	20.0	05/10/16 13:15	
Allyl chloride	ug/L	ND	4.0	05/10/16 13:15	
Benzene	ug/L	ND	1.0	05/10/16 13:15	
Bromobenzene	ug/L	ND	1.0	05/10/16 13:15	
Bromochloromethane	ug/L	ND	1.0	05/10/16 13:15	
Bromodichloromethane	ug/L	ND	1.0	05/10/16 13:15	
Bromoform	ug/L	ND	4.0	05/10/16 13:15	
Bromomethane	ug/L	ND	4.0	05/10/16 13:15	
Carbon tetrachloride	ug/L	ND	1.0	05/10/16 13:15	
Chlorobenzene	ug/L	ND	1.0	05/10/16 13:15	
Chloroethane	ug/L	ND	1.0	05/10/16 13:15	
Chloroform	ug/L	ND	4.0	05/10/16 13:15	
Chloromethane	ug/L	ND	4.0	05/10/16 13:15	
cis-1,2-Dichloroethene	ug/L	ND	1.0	05/10/16 13:15	
cis-1,3-Dichloropropene	ug/L	ND	4.0	05/10/16 13:15	

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

METHOD BLANK: 2254131 Matrix: Water
Associated Lab Samples: 10346509006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	05/10/16 13:15	
Dibromomethane	ug/L	ND	4.0	05/10/16 13:15	
Dichlorodifluoromethane	ug/L	ND	1.0	05/10/16 13:15	
Dichlorofluoromethane	ug/L	ND	1.0	05/10/16 13:15	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	05/10/16 13:15	
Ethylbenzene	ug/L	ND	1.0	05/10/16 13:15	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	05/10/16 13:15	
Isopropylbenzene (Cumene)	ug/L	ND	4.0	05/10/16 13:15	
Methyl-tert-butyl ether	ug/L	ND	1.0	05/10/16 13:15	
Methylene Chloride	ug/L	ND	4.0	05/10/16 13:15	
n-Butylbenzene	ug/L	ND	4.0	05/10/16 13:15	
n-Propylbenzene	ug/L	ND	1.0	05/10/16 13:15	
Naphthalene	ug/L	ND	4.0	05/10/16 13:15	
p-Isopropyltoluene	ug/L	ND	1.0	05/10/16 13:15	
sec-Butylbenzene	ug/L	ND	1.0	05/10/16 13:15	
Styrene	ug/L	ND	1.0	05/10/16 13:15	
tert-Butylbenzene	ug/L	ND	1.0	05/10/16 13:15	
Tetrachloroethene	ug/L	ND	1.0	05/10/16 13:15	
Tetrahydrofuran	ug/L	ND	10.0	05/10/16 13:15	
Toluene	ug/L	ND	1.0	05/10/16 13:15	
trans-1,2-Dichloroethene	ug/L	ND	1.0	05/10/16 13:15	
trans-1,3-Dichloropropene	ug/L	ND	4.0	05/10/16 13:15	
Trichloroethene	ug/L	ND	0.40	05/10/16 13:15	
Trichlorofluoromethane	ug/L	ND	1.0	05/10/16 13:15	
Vinyl chloride	ug/L	ND	0.40	05/10/16 13:15	
Xylene (Total)	ug/L	ND	3.0	05/10/16 13:15	
1,2-Dichloroethane-d4 (S)	%.	100	75-125	05/10/16 13:15	
4-Bromofluorobenzene (S)	%.	99	75-125	05/10/16 13:15	
Toluene-d8 (S)	%.	98	75-125	05/10/16 13:15	

LABORATORY CONTROL SAMPLE: 2254132

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.4	92	75-125	
1,1,1-Trichloroethane	ug/L	20	19.1	96	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	17.4	87	75-128	
1,1,2-Trichloroethane	ug/L	20	19.1	95	75-129	
1,1,2-Trichlorotrifluoroethane	ug/L	20	20.5	103	69-125	
1,1-Dichloroethane	ug/L	20	18.3	91	75-131	
1,1-Dichloroethene	ug/L	20	18.4	92	72-125	
1,1-Dichloropropene	ug/L	20	19.8	99	74-125	
1,2,3-Trichlorobenzene	ug/L	20	19.9	99	68-127	
1,2,3-Trichloropropane	ug/L	20	18.9	95	75-125	
1,2,4-Trichlorobenzene	ug/L	20	21.0	105	70-125	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

LABORATORY CONTROL SAMPLE: 2254132

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.6	98	75-130	
1,2-Dibromo-3-chloropropane	ug/L	50	41.6	83	74-125	
1,2-Dibromoethane (EDB)	ug/L	20	19.0	95	75-125	
1,2-Dichlorobenzene	ug/L	20	20.0	100	75-125	
1,2-Dichloroethane	ug/L	20	18.4	92	72-129	
1,2-Dichloropropane	ug/L	20	20.1	100	71-129	
1,3,5-Trimethylbenzene	ug/L	20	19.5	97	75-127	
1,3-Dichlorobenzene	ug/L	20	19.8	99	75-125	
1,3-Dichloropropane	ug/L	20	18.5	93	75-125	
1,4-Dichlorobenzene	ug/L	20	18.8	94	75-125	
2,2-Dichloropropane	ug/L	20	21.5	107	71-125	
2-Butanone (MEK)	ug/L	100	85.6	86	58-150	
2-Chlorotoluene	ug/L	20	18.9	94	75-125	
4-Chlorotoluene	ug/L	20	18.8	94	75-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	86.3	86	72-140	
Acetone	ug/L	100	99.7	100	69-137	
Allyl chloride	ug/L	20	18.5	93	68-132	
Benzene	ug/L	20	19.4	97	75-125	
Bromobenzene	ug/L	20	21.2	106	75-125	
Bromochloromethane	ug/L	20	21.2	106	75-125	
Bromodichloromethane	ug/L	20	20.1	101	69-128	
Bromoform	ug/L	20	16.9	84	75-125	
Bromomethane	ug/L	20	17.7	88	30-150	
Carbon tetrachloride	ug/L	20	19.7	98	74-125	
Chlorobenzene	ug/L	20	18.4	92	75-125	
Chloroethane	ug/L	20	19.2	96	60-150	
Chloroform	ug/L	20	17.7	89	75-126	
Chloromethane	ug/L	20	15.4	77	46-150	
cis-1,2-Dichloroethene	ug/L	20	17.8	89	75-126	
cis-1,3-Dichloropropene	ug/L	20	20.9	104	75-125	
Dibromochloromethane	ug/L	20	19.4	97	75-125	
Dibromomethane	ug/L	20	23.0	115	72-127	
Dichlorodifluoromethane	ug/L	20	18.8	94	58-135	
Dichlorofluoromethane	ug/L	20	19.4	97	68-149	
Diethyl ether (Ethyl ether)	ug/L	20	19.5	97	66-144	
Ethylbenzene	ug/L	20	16.3	81	75-125	
Hexachloro-1,3-butadiene	ug/L	20	21.7	109	73-125	
Isopropylbenzene (Cumene)	ug/L	20	16.3	82	69-140	
Methyl-tert-butyl ether	ug/L	20	19.5	97	75-126	
Methylene Chloride	ug/L	20	18.6	93	71-130	
n-Butylbenzene	ug/L	20	19.2	96	71-129	
n-Propylbenzene	ug/L	20	19.2	96	71-133	
Naphthalene	ug/L	20	17.0	85	59-137	
p-Isopropyltoluene	ug/L	20	20.3	102	74-127	
sec-Butylbenzene	ug/L	20	18.8	94	66-140	
Styrene	ug/L	20	18.1	91	75-125	
tert-Butylbenzene	ug/L	20	19.3	96	73-129	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

LABORATORY CONTROL SAMPLE: 2254132

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	18.8	94	75-125	
Tetrahydrofuran	ug/L	200	223	112	71-129	
Toluene	ug/L	20	18.1	91	75-125	
trans-1,2-Dichloroethene	ug/L	20	18.9	94	75-125	
trans-1,3-Dichloropropene	ug/L	20	19.1	96	75-125	
Trichloroethene	ug/L	20	21.6	108	75-125	
Trichlorofluoromethane	ug/L	20	19.7	99	74-128	
Vinyl chloride	ug/L	20	17.5	88	71-131	
Xylene (Total)	ug/L	60	53.2	89	75-125	
1,2-Dichloroethane-d4 (S)	%.			100	75-125	
4-Bromofluorobenzene (S)	%.			98	75-125	
Toluene-d8 (S)	%.			91	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2255380 2255381

Parameter	Units	10346828004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	21.1	21.8	105	109	75-125	3	30	
1,1,1-Trichloroethane	ug/L	ND	20	20	23.3	23.3	117	116	71-144	0	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.8	18.9	99	94	75-131	5	30	
1,1,2-Trichloroethane	ug/L	ND	20	20	21.4	23.7	107	118	75-125	10	30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	23.8	25.9	119	130	75-150	8	30	
1,1-Dichloroethane	ug/L	ND	20	20	22.8	22.9	114	115	64-150	1	30	
1,1-Dichloroethene	ug/L	ND	20	20	22.7	24.3	114	122	68-150	7	30	
1,1-Dichloropropene	ug/L	ND	20	20	25.2	25.0	126	125	68-145	1	30	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	22.4	24.0	112	120	57-142	7	30	
1,2,3-Trichloropropane	ug/L	ND	20	20	21.8	21.0	109	105	75-125	4	30	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	23.1	24.5	116	123	60-135	6	30	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.1	23.1	111	115	67-148	4	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	47.3	43.2	95	86	32-137	9	30	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	21.4	22.1	107	111	75-125	4	30	
1,2-Dichlorobenzene	ug/L	ND	20	20	22.3	23.0	111	115	75-125	3	30	
1,2-Dichloroethane	ug/L	ND	20	20	21.3	21.1	106	105	62-138	1	30	
1,2-Dichloropropane	ug/L	ND	20	20	23.3	23.3	117	116	62-144	0	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.0	23.7	110	119	67-148	8	30	
1,3-Dichlorobenzene	ug/L	ND	20	20	22.7	22.9	113	115	74-131	1	30	
1,3-Dichloropropane	ug/L	ND	20	20	21.2	22.0	106	110	75-127	4	30	
1,4-Dichlorobenzene	ug/L	ND	20	20	22.0	21.8	110	109	74-126	1	30	
2,2-Dichloropropane	ug/L	ND	20	20	27.0	24.6	135	123	56-146	9	30	
2-Butanone (MEK)	ug/L	ND	100	100	97.2	98.2	97	98	47-150	1	30	
2-Chlorotoluene	ug/L	ND	20	20	22.0	22.3	110	111	74-137	1	30	
4-Chlorotoluene	ug/L	ND	20	20	21.8	21.6	109	108	72-138	1	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	96.7	103	97	103	60-147	6	30	
Acetone	ug/L	ND	100	100	113	199	109	195	61-150	55	30	M1,R1

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2255380 2255381

Parameter	Units	10346828004 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Allyl chloride	ug/L	ND	20	20	23.0	20.6	115	103	53-150	11	30	
Benzene	ug/L	ND	20	20	22.1	21.9	110	109	52-147	1	30	
Bromobenzene	ug/L	ND	20	20	23.9	23.3	120	117	75-129	3	30	
Bromochloromethane	ug/L	ND	20	20	24.4	21.0	122	105	72-128	15	30	
Bromodichloromethane	ug/L	ND	20	20	22.4	21.8	112	109	65-137	3	30	
Bromoform	ug/L	ND	20	20	18.6	18.8	93	94	59-133	1	30	
Bromomethane	ug/L	ND	20	20	20.1	17.3	101	86	30-150	15	30	
Carbon tetrachloride	ug/L	ND	20	20	23.9	22.6	119	113	73-144	5	30	
Chlorobenzene	ug/L	ND	20	20	20.9	22.8	105	114	75-126	9	30	
Chloroethane	ug/L	ND	20	20	21.9	22.6	109	113	55-150	3	30	
Chloroform	ug/L	ND	20	20	19.4	20.3	97	102	66-143	5	30	
Chloromethane	ug/L	ND	20	20	17.5	19.3	88	97	42-150	10	30	
cis-1,2-Dichloroethene	ug/L	ND	20	20	22.5	21.9	113	109	65-143	3	30	
cis-1,3-Dichloropropene	ug/L	ND	20	20	23.9	21.5	120	107	75-125	11	30	
Dibromochloromethane	ug/L	ND	20	20	21.0	21.8	105	109	75-125	4	30	
Dibromomethane	ug/L	ND	20	20	26.4	26.0	132	130	66-133	1	30	
Dichlorodifluoromethane	ug/L	ND	20	20	22.6	28.3	113	141	74-150	22	30	
Dichlorofluoromethane	ug/L	ND	20	20	22.0	24.1	110	121	68-150	9	30	
Diethyl ether (Ethyl ether)	ug/L	ND	20	20	22.2	22.3	111	112	57-148	1	30	
Ethylbenzene	ug/L	ND	20	20	19.1	21.2	95	106	67-149	10	30	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	22.0	32.9	110	164	65-143	40	30	M1,R1
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.9	22.2	94	111	64-150	16	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	22.0	21.8	110	109	71-130	1	30	
Methylene Chloride	ug/L	ND	20	20	20.7	21.4	103	107	67-137	4	30	
n-Butylbenzene	ug/L	ND	20	20	21.6	24.2	108	121	70-138	11	30	
n-Propylbenzene	ug/L	ND	20	20	23.1	23.9	115	119	70-148	3	30	
Naphthalene	ug/L	ND	20	20	19.1	18.7	95	94	39-150	2	30	
p-Isopropyltoluene	ug/L	ND	20	20	22.3	25.1	111	126	74-138	12	30	
sec-Butylbenzene	ug/L	ND	20	20	22.1	26.0	111	130	64-150	16	30	
Styrene	ug/L	ND	20	20	20.2	22.0	101	110	75-132	9	30	
tert-Butylbenzene	ug/L	ND	20	20	22.4	27.3	112	137	75-138	20	30	
Tetrachloroethene	ug/L	ND	20	20	23.0	25.5	115	127	73-136	10	30	
Tetrahydrofuran	ug/L	ND	200	200	228	313	114	157	68-142	32	30	M1,R1
Toluene	ug/L	ND	20	20	20.9	22.7	104	113	69-139	9	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	21.9	23.2	110	116	75-135	6	30	
trans-1,3-Dichloropropene	ug/L	ND	20	20	22.0	21.0	110	105	66-136	5	30	
Trichloroethene	ug/L	ND	20	20	26.4	26.9	132	134	74-135	2	30	
Trichlorofluoromethane	ug/L	ND	20	20	24.3	27.3	122	136	75-150	11	30	
Vinyl chloride	ug/L	ND	20	20	21.8	24.1	109	121	69-150	10	30	
Xylene (Total)	ug/L	ND	60	60	62.1	69.8	104	116	70-147	12	30	
1,2-Dichloroethane-d4 (S)	%.						102	100	75-125			HS,pH
4-Bromofluorobenzene (S)	%.						100	97	75-125			
Toluene-d8 (S)	%.						89	99	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser
Pace Project No.: 10346509

QC Batch: OEXT/33320 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10346509001, 10346509002, 10346509003, 10346509004, 10346509005

METHOD BLANK: 2244558 Matrix: Water
Associated Lab Samples: 10346509001, 10346509002, 10346509003, 10346509004, 10346509005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.040	05/02/16 10:23	
Acenaphthylene	ug/L	ND	0.040	05/02/16 10:23	
Anthracene	ug/L	ND	0.040	05/02/16 10:23	
Benzo(a)anthracene	ug/L	ND	0.040	05/02/16 10:23	
Benzo(a)pyrene	ug/L	ND	0.040	05/02/16 10:23	
Benzo(b)fluoranthene	ug/L	ND	0.040	05/02/16 10:23	
Benzo(g,h,i)perylene	ug/L	ND	0.040	05/02/16 10:23	
Benzo(k)fluoranthene	ug/L	ND	0.040	05/02/16 10:23	
Chrysene	ug/L	ND	0.040	05/02/16 10:23	
Dibenz(a,h)anthracene	ug/L	ND	0.040	05/02/16 10:23	
Fluoranthene	ug/L	ND	0.040	05/02/16 10:23	
Fluorene	ug/L	ND	0.040	05/02/16 10:23	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.040	05/02/16 10:23	
Naphthalene	ug/L	ND	0.040	05/02/16 10:23	
Phenanthrene	ug/L	ND	0.040	05/02/16 10:23	
Pyrene	ug/L	ND	0.040	05/02/16 10:23	
2-Fluorobiphenyl (S)	%.	71	53-125	05/02/16 10:23	
p-Terphenyl-d14 (S)	%.	90	57-125	05/02/16 10:23	

LABORATORY CONTROL SAMPLE & LCSD: 2244559 2244560

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.63	0.75	63	75	55-125	17	20	
Acenaphthylene	ug/L	1	0.62	0.72	62	72	55-125	14	20	
Anthracene	ug/L	1	0.77	0.82	77	82	66-125	6	20	
Benzo(a)anthracene	ug/L	1	0.76	0.79	76	79	66-125	3	20	
Benzo(a)pyrene	ug/L	1	0.82	0.85	82	85	74-125	3	20	
Benzo(b)fluoranthene	ug/L	1	0.81	0.83	81	83	65-125	3	20	
Benzo(g,h,i)perylene	ug/L	1	0.78	0.81	78	81	68-125	3	20	
Benzo(k)fluoranthene	ug/L	1	0.78	0.79	78	79	72-125	1	20	
Chrysene	ug/L	1	0.79	0.80	79	80	69-125	1	20	
Dibenz(a,h)anthracene	ug/L	1	0.76	0.78	76	78	61-125	2	20	
Fluoranthene	ug/L	1	0.81	0.84	81	84	75-125	3	20	
Fluorene	ug/L	1	0.70	0.80	70	80	63-125	14	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.78	0.81	78	81	66-125	4	20	
Naphthalene	ug/L	1	0.66	0.77	66	77	51-125	15	20	
Phenanthrene	ug/L	1	0.75	0.79	75	79	64-125	6	20	
Pyrene	ug/L	1	0.78	0.81	78	81	72-125	4	20	
2-Fluorobiphenyl (S)	%.				62	71	53-125			
p-Terphenyl-d14 (S)	%.				85	86	57-125			

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALIFIERS

Project: 14-1004 Fraser
Pace Project No.: 10346509

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSSV/14187

[M5]	A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

HS	Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P8	Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.
R1	RPD value was outside control limits.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

Pace Analytical Services, Inc.
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 Fraser
Pace Project No.: 10346509

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10346509001	**PS-MW-4 VT910**	EPA 3510C	OEXT/33320	EPA 8270D by SIM	MSSV/14187
10346509002	**PS-MW-3 VT912**	EPA 3510C	OEXT/33320	EPA 8270D by SIM	MSSV/14187
10346509003	**PS-MW-2 VT911**	EPA 3510C	OEXT/33320	EPA 8270D by SIM	MSSV/14187
10346509004	**PS-MW-2.1 VT911**	EPA 3510C	OEXT/33320	EPA 8270D by SIM	MSSV/14187
10346509005	**PS-MW-1 VT908**	EPA 3510C	OEXT/33320	EPA 8270D by SIM	MSSV/14187
10346509001	**PS-MW-4 VT910**	EPA 8260B	MSV/35498		
10346509002	**PS-MW-3 VT912**	EPA 8260B	MSV/35498		
10346509003	**PS-MW-2 VT911**	EPA 8260B	MSV/35498		
10346509004	**PS-MW-2.1 VT911**	EPA 8260B	MSV/35498		
10346509005	**PS-MW-1 VT908**	EPA 8260B	MSV/35498		
10346509006	**VOC Trip Blank**	EPA 8260B	MSV/35508		

Pace Analytical®
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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10346509

Page: 1 of 1

2034608

Section A Required Client Information:

Company: Environmental Troubleshooters
Address: 3825 Grand Avenue
Duluth, MN
Email To: jmccarthy@etsmn.com
Phone: 218-722-6013 Fax: -
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: jmccarthy@etsmn.com
Copy To: same
Purchase Order No.:
Project Name: Fraser
Project Number: 14-1004

Section C Invoice Information:

Attention:
Company Name: same
Address:
Pace Quote Reference:
Pace Project Manager: Lori Castille
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER

Site Location STATE: WI

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analysis Test: VOC	PAH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PS-MW-4 VT910	WT	G			4/27/16	1215		5	2			3						X	X			-001
2	PS-MW-3 VT912						1345		5	2			3						X	X			-002
3	PS-MW-2 VT911						1540		5	2			3						X	X			-003
4	PS-MW-2.1 VT911						1545		5	2			3						X	X			-004
5	PS-MW-1 VT908						1630		5	2			3						X	X			-005
6	VOC Trip Blank								2				2						X				-006
7																							
8																							
9																							
10																							
11																							
12																							

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
For samples PS-MW-2, PS-MW-2.1, & PS-MW-1 - Each have 1 PAH sample taken 4/28 due to slow recharge rates.	Brice Wizner	4/28/16	1224	Kristina Polson (Pace)	4/28/16	1224	3.3	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brice Wizner

SIGNATURE of SAMPLER: Brice Wizner DATE Signed (MM/DD/YY): 04/28/16

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical®	Document Name: Sample Condition Upon Receipt Form	Document Revised: 05Jan2016 Page 1 of 1
	Document No.: F-MN-L-213-rev.15	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Environmental Troubleshooters

Project #: **WO# : 10346509**

10346509

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☑ Pace ☐ SpeeDee ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No Seals Intact? ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other: Temp Blank? ☑ Yes ☐ No

Thermometer Used: ☐ 151401163 ☑ B88A912167504 ☐ 151401164 ☐ B88A0143310098 Type of Ice: ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.3 Cooler Temp Corrected (°C): 3.3 Biological Tissue Frozen? ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C Correction Factor: TRUE Date and Initials of Person Examining Contents: CMB 4/28/16

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or WA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: water				
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☑ Yes	☐ No	☐ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☑ No	☐ N/A	14.
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	15.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (if purchased): 022216-3BZA				

CLIENT NOTIFICATION/RESOLUTION Field Data Required? ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: Lori Peterson Date: 4/29/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

July 28, 2016

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on July 20, 2016. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lori Castille
lori.castille@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10356146001	**PS MW -2**	Water	07/19/16 09:30	07/20/16 18:15
10356146002	**PS MW -1**	Water	07/19/16 10:15	07/20/16 18:15
10356146003	**PS MW -3**	Water	07/19/16 12:10	07/20/16 18:15
10356146004	**PS MW -3.1**	Water	07/19/16 12:15	07/20/16 18:15
10356146005	**PS MW -4**	Water	07/19/16 13:45	07/20/16 18:15
10356146006	**HCL TRIP BLANK**	Water	07/19/16 14:00	07/20/16 18:15

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SAMPLE ANALYTE COUNT

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10356146001	**PS MW -2**	EPA 8270D by SIM	AS1	18
		EPA 8260B	DJB	70
10356146002	**PS MW -1**	EPA 8270D by SIM	AS1	18
		EPA 8260B	DJB	70
10356146003	**PS MW -3**	EPA 8270D by SIM	AS1	18
		EPA 8260B	DJB	70
10356146004	**PS MW -3.1**	EPA 8270D by SIM	AS1	18
		EPA 8260B	DJB	70
10356146005	**PS MW -4**	EPA 8270D by SIM	AS1	18
		EPA 8260B	DJB	70
10356146006	**HCL TRIP BLANK**	EPA 8260B	DJB	70

Pace Analytical Services, Inc.
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Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -2 **Lab ID: 10356146001** Collected: 07/19/16 09:30 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C								
Acenaphthene	**0.0071J**	ug/L	0.011	0.0038	1	07/22/16 08:52	07/25/16 16:43	83-32-9	
Acenaphthylene	**<0.0075**	ug/L	0.014	0.0075	1	07/22/16 08:52	07/25/16 16:43	208-96-8	
Anthracene	**0.011J**	ug/L	0.015	0.0044	1	07/22/16 08:52	07/25/16 16:43	120-12-7	
Benzo(a)anthracene	**0.031**	ug/L	0.010	0.0039	1	07/22/16 08:52	07/25/16 16:43	56-55-3	B
Benzo(a)pyrene	**0.027**	ug/L	0.010	0.0054	1	07/22/16 08:52	07/25/16 16:43	50-32-8	
Benzo(b)fluoranthene	**0.038**	ug/L	0.026	0.0046	1	07/22/16 08:52	07/25/16 16:43	205-99-2	
Benzo(g,h,i)perylene	**0.022**	ug/L	0.019	0.0038	1	07/22/16 08:52	07/25/16 16:43	191-24-2	
Benzo(k)fluoranthene	**0.017**	ug/L	0.013	0.0041	1	07/22/16 08:52	07/25/16 16:43	207-08-9	
Chrysene	**0.029**	ug/L	0.018	0.0039	1	07/22/16 08:52	07/25/16 16:43	218-01-9	
Dibenz(a,h)anthracene	**0.0051J**	ug/L	0.033	0.0039	1	07/22/16 08:52	07/25/16 16:43	53-70-3	
Fluoranthene	**0.066**	ug/L	0.019	0.0060	1	07/22/16 08:52	07/25/16 16:43	206-44-0	
Fluorene	**0.019J**	ug/L	0.019	0.0046	1	07/22/16 08:52	07/25/16 16:43	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.017J**	ug/L	0.019	0.0040	1	07/22/16 08:52	07/25/16 16:43	193-39-5	
Naphthalene	**0.077**	ug/L	0.031	0.0050	1	07/22/16 08:52	07/25/16 16:43	91-20-3	
Phenanthrene	**0.096**	ug/L	0.043	0.0065	1	07/22/16 08:52	07/25/16 16:43	85-01-8	B
Pyrene	**0.059**	ug/L	0.022	0.0055	1	07/22/16 08:52	07/25/16 16:43	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	70	%.	53-125		1	07/22/16 08:52	07/25/16 16:43	321-60-8	
p-Terphenyl-d14 (S)	83	%.	57-125		1	07/22/16 08:52	07/25/16 16:43	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B								
Acetone	**2.7J**	ug/L	20.0	0.64	1		07/21/16 15:23	67-64-1	
Allyl chloride	**<0.25**	ug/L	4.0	0.25	1		07/21/16 15:23	107-05-1	
Benzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 15:23	71-43-2	
Bromobenzene	**<0.34**	ug/L	1.0	0.34	1		07/21/16 15:23	108-86-1	
Bromochloromethane	**<0.19**	ug/L	1.0	0.19	1		07/21/16 15:23	74-97-5	
Bromodichloromethane	**<0.24**	ug/L	1.0	0.24	1		07/21/16 15:23	75-27-4	
Bromoform	**<0.27**	ug/L	4.0	0.27	1		07/21/16 15:23	75-25-2	
Bromomethane	**<0.44**	ug/L	4.0	0.44	1		07/21/16 15:23	74-83-9	
2-Butanone (MEK)	**<1.1**	ug/L	5.0	1.1	1		07/21/16 15:23	78-93-3	
n-Butylbenzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 15:23	104-51-8	
sec-Butylbenzene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 15:23	135-98-8	
tert-Butylbenzene	**<0.22**	ug/L	1.0	0.22	1		07/21/16 15:23	98-06-6	
Carbon tetrachloride	**<0.20**	ug/L	4.0	0.20	1		07/21/16 15:23	56-23-5	
Chlorobenzene	**<0.11**	ug/L	1.0	0.11	1		07/21/16 15:23	108-90-7	
Chloroethane	**<0.34**	ug/L	1.0	0.34	1		07/21/16 15:23	75-00-3	
Chloroform	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:23	67-66-3	
Chloromethane	**<0.25**	ug/L	4.0	0.25	1		07/21/16 15:23	74-87-3	
2-Chlorotoluene	**<0.30**	ug/L	1.0	0.30	1		07/21/16 15:23	95-49-8	
4-Chlorotoluene	**<0.26**	ug/L	1.0	0.26	1		07/21/16 15:23	106-43-4	
1,2-Dibromo-3-chloropropane	**<0.60**	ug/L	10.0	0.60	1		07/21/16 15:23	96-12-8	
Dibromochloromethane	**<0.16**	ug/L	4.0	0.16	1		07/21/16 15:23	124-48-1	
1,2-Dibromoethane (EDB)	**<0.20**	ug/L	1.0	0.20	1		07/21/16 15:23	106-93-4	
Dibromomethane	**<0.19**	ug/L	4.0	0.19	1		07/21/16 15:23	74-95-3	
1,2-Dichlorobenzene	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:23	95-50-1	
1,3-Dichlorobenzene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 15:23	541-73-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -2 **Lab ID: 10356146001** Collected: 07/19/16 09:30 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
1,4-Dichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:23	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		07/21/16 15:23	75-71-8	
1,1-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:23	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:23	107-06-2	
1,1-Dichloroethene	**<0.28**	ug/L	1.0	0.28	1		07/21/16 15:23	75-35-4	
cis-1,2-Dichloroethene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 15:23	156-59-2	
trans-1,2-Dichloroethene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 15:23	156-60-5	
Dichlorofluoromethane	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:23	75-43-4	
1,2-Dichloropropane	**<0.22**	ug/L	4.0	0.22	1		07/21/16 15:23	78-87-5	
1,3-Dichloropropane	**<0.096**	ug/L	1.0	0.096	1		07/21/16 15:23	142-28-9	
2,2-Dichloropropane	**<0.13**	ug/L	4.0	0.13	1		07/21/16 15:23	594-20-7	
1,1-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 15:23	563-58-6	
cis-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 15:23	10061-01-5	
trans-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 15:23	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.19**	ug/L	4.0	0.19	1		07/21/16 15:23	60-29-7	
Ethylbenzene	**0.24J**	ug/L	1.0	0.15	1		07/21/16 15:23	100-41-4	
Hexachloro-1,3-butadiene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 15:23	87-68-3	
Isopropylbenzene (Cumene)	**<0.25**	ug/L	1.0	0.25	1		07/21/16 15:23	98-82-8	
p-Isopropyltoluene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 15:23	99-87-6	
Methylene Chloride	**<0.29**	ug/L	4.0	0.29	1		07/21/16 15:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.43**	ug/L	5.0	0.43	1		07/21/16 15:23	108-10-1	
Methyl-tert-butyl ether	**<0.15**	ug/L	1.0	0.15	1		07/21/16 15:23	1634-04-4	
Naphthalene	**<0.20**	ug/L	4.0	0.20	1		07/21/16 15:23	91-20-3	
n-Propylbenzene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 15:23	103-65-1	
Styrene	**<0.29**	ug/L	1.0	0.29	1		07/21/16 15:23	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.17**	ug/L	4.0	0.17	1		07/21/16 15:23	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.22**	ug/L	1.0	0.22	1		07/21/16 15:23	79-34-5	
Tetrachloroethene	**<0.25**	ug/L	1.0	0.25	1		07/21/16 15:23	127-18-4	
Tetrahydrofuran	**<1.5**	ug/L	10.0	1.5	1		07/21/16 15:23	109-99-9	
Toluene	**<0.14**	ug/L	1.0	0.14	1		07/21/16 15:23	108-88-3	
1,2,3-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:23	87-61-6	
1,2,4-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:23	120-82-1	
1,1,1-Trichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:23	71-55-6	
1,1,2-Trichloroethane	**<0.15**	ug/L	1.0	0.15	1		07/21/16 15:23	79-00-5	
Trichloroethene	**<0.20**	ug/L	0.40	0.20	1		07/21/16 15:23	79-01-6	
Trichlorofluoromethane	**<0.33**	ug/L	1.0	0.33	1		07/21/16 15:23	75-69-4	
1,2,3-Trichloropropane	**<0.28**	ug/L	4.0	0.28	1		07/21/16 15:23	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.32**	ug/L	1.0	0.32	1		07/21/16 15:23	76-13-1	
1,2,4-Trimethylbenzene	**0.35J**	ug/L	1.0	0.18	1		07/21/16 15:23	95-63-6	
1,3,5-Trimethylbenzene	**<0.27**	ug/L	1.0	0.27	1		07/21/16 15:23	108-67-8	
Vinyl chloride	**<0.29**	ug/L	0.40	0.29	1		07/21/16 15:23	75-01-4	
Xylene (Total)	**<0.32**	ug/L	3.0	0.32	1		07/21/16 15:23	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		07/21/16 15:23	17060-07-0	
Toluene-d8 (S)	91	%.	75-125		1		07/21/16 15:23	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	75-125		1		07/21/16 15:23	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -1 **Lab ID: 10356146002** Collected: 07/19/16 10:15 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C								
Acenaphthene	**0.069**	ug/L	0.012	0.0040	1	07/22/16 08:52	07/25/16 17:05	83-32-9	
Acenaphthylene	**0.011J**	ug/L	0.014	0.0078	1	07/22/16 08:52	07/25/16 17:05	208-96-8	
Anthracene	**0.0066J**	ug/L	0.016	0.0046	1	07/22/16 08:52	07/25/16 17:05	120-12-7	
Benzo(a)anthracene	**0.011**	ug/L	0.011	0.0041	1	07/22/16 08:52	07/25/16 17:05	56-55-3	B
Benzo(a)pyrene	**<0.0056**	ug/L	0.011	0.0056	1	07/22/16 08:52	07/25/16 17:05	50-32-8	
Benzo(b)fluoranthene	**0.0083J**	ug/L	0.027	0.0048	1	07/22/16 08:52	07/25/16 17:05	205-99-2	
Benzo(g,h,i)perylene	**0.0063J**	ug/L	0.019	0.0039	1	07/22/16 08:52	07/25/16 17:05	191-24-2	
Benzo(k)fluoranthene	**<0.0043**	ug/L	0.014	0.0043	1	07/22/16 08:52	07/25/16 17:05	207-08-9	
Chrysene	**0.0068J**	ug/L	0.019	0.0041	1	07/22/16 08:52	07/25/16 17:05	218-01-9	
Dibenz(a,h)anthracene	**<0.0040**	ug/L	0.034	0.0040	1	07/22/16 08:52	07/25/16 17:05	53-70-3	
Fluoranthene	**0.016J**	ug/L	0.020	0.0063	1	07/22/16 08:52	07/25/16 17:05	206-44-0	B
Fluorene	**0.0094J**	ug/L	0.020	0.0048	1	07/22/16 08:52	07/25/16 17:05	86-73-7	
Indeno(1,2,3-cd)pyrene	**<0.0042**	ug/L	0.020	0.0042	1	07/22/16 08:52	07/25/16 17:05	193-39-5	
Naphthalene	**0.013J**	ug/L	0.033	0.0052	1	07/22/16 08:52	07/25/16 17:05	91-20-3	
Phenanthrene	**0.019J**	ug/L	0.044	0.0068	1	07/22/16 08:52	07/25/16 17:05	85-01-8	B
Pyrene	**0.027**	ug/L	0.023	0.0057	1	07/22/16 08:52	07/25/16 17:05	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	72	%.	53-125		1	07/22/16 08:52	07/25/16 17:05	321-60-8	
p-Terphenyl-d14 (S)	83	%.	57-125		1	07/22/16 08:52	07/25/16 17:05	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B								
Acetone	**6.4J**	ug/L	20.0	0.64	1		07/21/16 15:45	67-64-1	
Allyl chloride	**<0.25**	ug/L	4.0	0.25	1		07/21/16 15:45	107-05-1	
Benzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 15:45	71-43-2	
Bromobenzene	**<0.34**	ug/L	1.0	0.34	1		07/21/16 15:45	108-86-1	
Bromochloromethane	**<0.19**	ug/L	1.0	0.19	1		07/21/16 15:45	74-97-5	
Bromodichloromethane	**<0.24**	ug/L	1.0	0.24	1		07/21/16 15:45	75-27-4	
Bromoform	**<0.27**	ug/L	4.0	0.27	1		07/21/16 15:45	75-25-2	
Bromomethane	**<0.44**	ug/L	4.0	0.44	1		07/21/16 15:45	74-83-9	
2-Butanone (MEK)	**<1.1**	ug/L	5.0	1.1	1		07/21/16 15:45	78-93-3	
n-Butylbenzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 15:45	104-51-8	
sec-Butylbenzene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 15:45	135-98-8	
tert-Butylbenzene	**<0.22**	ug/L	1.0	0.22	1		07/21/16 15:45	98-06-6	
Carbon tetrachloride	**<0.20**	ug/L	4.0	0.20	1		07/21/16 15:45	56-23-5	
Chlorobenzene	**<0.11**	ug/L	1.0	0.11	1		07/21/16 15:45	108-90-7	
Chloroethane	**<0.34**	ug/L	1.0	0.34	1		07/21/16 15:45	75-00-3	
Chloroform	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:45	67-66-3	
Chloromethane	**<0.25**	ug/L	4.0	0.25	1		07/21/16 15:45	74-87-3	
2-Chlorotoluene	**<0.30**	ug/L	1.0	0.30	1		07/21/16 15:45	95-49-8	
4-Chlorotoluene	**<0.26**	ug/L	1.0	0.26	1		07/21/16 15:45	106-43-4	
1,2-Dibromo-3-chloropropane	**<0.60**	ug/L	10.0	0.60	1		07/21/16 15:45	96-12-8	
Dibromochloromethane	**<0.16**	ug/L	4.0	0.16	1		07/21/16 15:45	124-48-1	
1,2-Dibromoethane (EDB)	**<0.20**	ug/L	1.0	0.20	1		07/21/16 15:45	106-93-4	
Dibromomethane	**<0.19**	ug/L	4.0	0.19	1		07/21/16 15:45	74-95-3	
1,2-Dichlorobenzene	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:45	95-50-1	
1,3-Dichlorobenzene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 15:45	541-73-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -1 **Lab ID: 10356146002** Collected: 07/19/16 10:15 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
1,4-Dichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:45	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		07/21/16 15:45	75-71-8	
1,1-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:45	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:45	107-06-2	
1,1-Dichloroethene	**<0.28**	ug/L	1.0	0.28	1		07/21/16 15:45	75-35-4	
cis-1,2-Dichloroethene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 15:45	156-59-2	
trans-1,2-Dichloroethene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 15:45	156-60-5	
Dichlorofluoromethane	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:45	75-43-4	
1,2-Dichloropropane	**<0.22**	ug/L	4.0	0.22	1		07/21/16 15:45	78-87-5	
1,3-Dichloropropane	**<0.096**	ug/L	1.0	0.096	1		07/21/16 15:45	142-28-9	
2,2-Dichloropropane	**<0.13**	ug/L	4.0	0.13	1		07/21/16 15:45	594-20-7	
1,1-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 15:45	563-58-6	
cis-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 15:45	10061-01-5	
trans-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 15:45	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.19**	ug/L	4.0	0.19	1		07/21/16 15:45	60-29-7	
Ethylbenzene	**0.24J**	ug/L	1.0	0.15	1		07/21/16 15:45	100-41-4	
Hexachloro-1,3-butadiene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 15:45	87-68-3	
Isopropylbenzene (Cumene)	**<0.25**	ug/L	1.0	0.25	1		07/21/16 15:45	98-82-8	
p-Isopropyltoluene	**0.93J**	ug/L	1.0	0.19	1		07/21/16 15:45	99-87-6	
Methylene Chloride	**<0.29**	ug/L	4.0	0.29	1		07/21/16 15:45	75-09-2	
4-Methyl-2-pentanone (MIBK)	**0.69J**	ug/L	5.0	0.43	1		07/21/16 15:45	108-10-1	
Methyl-tert-butyl ether	**<0.15**	ug/L	1.0	0.15	1		07/21/16 15:45	1634-04-4	
Naphthalene	**0.21J**	ug/L	4.0	0.20	1		07/21/16 15:45	91-20-3	
n-Propylbenzene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 15:45	103-65-1	
Styrene	**<0.29**	ug/L	1.0	0.29	1		07/21/16 15:45	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.17**	ug/L	4.0	0.17	1		07/21/16 15:45	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.22**	ug/L	1.0	0.22	1		07/21/16 15:45	79-34-5	
Tetrachloroethene	**<0.25**	ug/L	1.0	0.25	1		07/21/16 15:45	127-18-4	
Tetrahydrofuran	**<1.5**	ug/L	10.0	1.5	1		07/21/16 15:45	109-99-9	
Toluene	**0.58J**	ug/L	1.0	0.14	1		07/21/16 15:45	108-88-3	
1,2,3-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:45	87-61-6	
1,2,4-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 15:45	120-82-1	
1,1,1-Trichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 15:45	71-55-6	
1,1,2-Trichloroethane	**<0.15**	ug/L	1.0	0.15	1		07/21/16 15:45	79-00-5	
Trichloroethene	**<0.20**	ug/L	0.40	0.20	1		07/21/16 15:45	79-01-6	
Trichlorofluoromethane	**<0.33**	ug/L	1.0	0.33	1		07/21/16 15:45	75-69-4	
1,2,3-Trichloropropane	**<0.28**	ug/L	4.0	0.28	1		07/21/16 15:45	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.32**	ug/L	1.0	0.32	1		07/21/16 15:45	76-13-1	
1,2,4-Trimethylbenzene	**0.55J**	ug/L	1.0	0.18	1		07/21/16 15:45	95-63-6	
1,3,5-Trimethylbenzene	**<0.27**	ug/L	1.0	0.27	1		07/21/16 15:45	108-67-8	
Vinyl chloride	**<0.29**	ug/L	0.40	0.29	1		07/21/16 15:45	75-01-4	
Xylene (Total)	**<0.32**	ug/L	3.0	0.32	1		07/21/16 15:45	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	100	%.	75-125		1		07/21/16 15:45	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		07/21/16 15:45	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	75-125		1		07/21/16 15:45	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -3 **Lab ID: 10356146003** Collected: 07/19/16 12:10 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C								
Acenaphthene	**1.3**	ug/L	0.011	0.0038	1	07/22/16 08:52	07/25/16 17:26	83-32-9	
Acenaphthylene	**0.078**	ug/L	0.014	0.0075	1	07/22/16 08:52	07/25/16 17:26	208-96-8	
Anthracene	**0.28**	ug/L	0.015	0.0044	1	07/22/16 08:52	07/25/16 17:26	120-12-7	
Benzo(a)anthracene	**0.28**	ug/L	0.010	0.0040	1	07/22/16 08:52	07/25/16 17:26	56-55-3	
Benzo(a)pyrene	**0.31**	ug/L	0.010	0.0054	1	07/22/16 08:52	07/25/16 17:26	50-32-8	
Benzo(b)fluoranthene	**0.37**	ug/L	0.026	0.0047	1	07/22/16 08:52	07/25/16 17:26	205-99-2	
Benzo(g,h,i)perylene	**0.19**	ug/L	0.019	0.0038	1	07/22/16 08:52	07/25/16 17:26	191-24-2	
Benzo(k)fluoranthene	**0.14**	ug/L	0.013	0.0041	1	07/22/16 08:52	07/25/16 17:26	207-08-9	
Chrysene	**0.31**	ug/L	0.018	0.0039	1	07/22/16 08:52	07/25/16 17:26	218-01-9	
Dibenz(a,h)anthracene	**0.040**	ug/L	0.033	0.0039	1	07/22/16 08:52	07/25/16 17:26	53-70-3	
Fluoranthene	**0.83**	ug/L	0.020	0.0060	1	07/22/16 08:52	07/25/16 17:26	206-44-0	
Fluorene	**0.46**	ug/L	0.019	0.0046	1	07/22/16 08:52	07/25/16 17:26	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.16**	ug/L	0.019	0.0041	1	07/22/16 08:52	07/25/16 17:26	193-39-5	
Naphthalene	**0.97**	ug/L	0.031	0.0050	1	07/22/16 08:52	07/25/16 17:26	91-20-3	
Phenanthrene	**1.7**	ug/L	0.043	0.0065	1	07/22/16 08:52	07/25/16 17:26	85-01-8	
Pyrene	**0.82**	ug/L	0.022	0.0055	1	07/22/16 08:52	07/25/16 17:26	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	81	%.	53-125		1	07/22/16 08:52	07/25/16 17:26	321-60-8	
p-Terphenyl-d14 (S)	90	%.	57-125		1	07/22/16 08:52	07/25/16 17:26	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B								
Acetone	**5.9J**	ug/L	20.0	0.64	1		07/21/16 16:07	67-64-1	
Allyl chloride	**<0.25**	ug/L	4.0	0.25	1		07/21/16 16:07	107-05-1	
Benzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:07	71-43-2	
Bromobenzene	**<0.34**	ug/L	1.0	0.34	1		07/21/16 16:07	108-86-1	
Bromochloromethane	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:07	74-97-5	
Bromodichloromethane	**<0.24**	ug/L	1.0	0.24	1		07/21/16 16:07	75-27-4	
Bromoform	**<0.27**	ug/L	4.0	0.27	1		07/21/16 16:07	75-25-2	
Bromomethane	**<0.44**	ug/L	4.0	0.44	1		07/21/16 16:07	74-83-9	
2-Butanone (MEK)	**<1.1**	ug/L	5.0	1.1	1		07/21/16 16:07	78-93-3	
n-Butylbenzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:07	104-51-8	
sec-Butylbenzene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:07	135-98-8	
tert-Butylbenzene	**<0.22**	ug/L	1.0	0.22	1		07/21/16 16:07	98-06-6	
Carbon tetrachloride	**<0.20**	ug/L	4.0	0.20	1		07/21/16 16:07	56-23-5	
Chlorobenzene	**<0.11**	ug/L	1.0	0.11	1		07/21/16 16:07	108-90-7	
Chloroethane	**<0.34**	ug/L	1.0	0.34	1		07/21/16 16:07	75-00-3	
Chloroform	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:07	67-66-3	
Chloromethane	**<0.25**	ug/L	4.0	0.25	1		07/21/16 16:07	74-87-3	
2-Chlorotoluene	**<0.30**	ug/L	1.0	0.30	1		07/21/16 16:07	95-49-8	
4-Chlorotoluene	**<0.26**	ug/L	1.0	0.26	1		07/21/16 16:07	106-43-4	
1,2-Dibromo-3-chloropropane	**<0.60**	ug/L	10.0	0.60	1		07/21/16 16:07	96-12-8	
Dibromochloromethane	**<0.16**	ug/L	4.0	0.16	1		07/21/16 16:07	124-48-1	
1,2-Dibromoethane (EDB)	**<0.20**	ug/L	1.0	0.20	1		07/21/16 16:07	106-93-4	
Dibromomethane	**<0.19**	ug/L	4.0	0.19	1		07/21/16 16:07	74-95-3	
1,2-Dichlorobenzene	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:07	95-50-1	
1,3-Dichlorobenzene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 16:07	541-73-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
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ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -3 **Lab ID: 10356146003** Collected: 07/19/16 12:10 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
1,4-Dichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:07	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:07	75-71-8	
1,1-Dichloroethane	**0.76J**	ug/L	1.0	0.17	1		07/21/16 16:07	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:07	107-06-2	
1,1-Dichloroethene	**<0.28**	ug/L	1.0	0.28	1		07/21/16 16:07	75-35-4	
cis-1,2-Dichloroethene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 16:07	156-59-2	
trans-1,2-Dichloroethene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:07	156-60-5	
Dichlorofluoromethane	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:07	75-43-4	
1,2-Dichloropropane	**<0.22**	ug/L	4.0	0.22	1		07/21/16 16:07	78-87-5	
1,3-Dichloropropane	**<0.096**	ug/L	1.0	0.096	1		07/21/16 16:07	142-28-9	
2,2-Dichloropropane	**<0.13**	ug/L	4.0	0.13	1		07/21/16 16:07	594-20-7	
1,1-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:07	563-58-6	
cis-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 16:07	10061-01-5	
trans-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 16:07	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.19**	ug/L	4.0	0.19	1		07/21/16 16:07	60-29-7	
Ethylbenzene	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:07	100-41-4	
Hexachloro-1,3-butadiene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 16:07	87-68-3	
Isopropylbenzene (Cumene)	**<0.25**	ug/L	1.0	0.25	1		07/21/16 16:07	98-82-8	
p-Isopropyltoluene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:07	99-87-6	
Methylene Chloride	**<0.29**	ug/L	4.0	0.29	1		07/21/16 16:07	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.43**	ug/L	5.0	0.43	1		07/21/16 16:07	108-10-1	
Methyl-tert-butyl ether	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:07	1634-04-4	
Naphthalene	**1.9J**	ug/L	4.0	0.20	1		07/21/16 16:07	91-20-3	
n-Propylbenzene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:07	103-65-1	
Styrene	**<0.29**	ug/L	1.0	0.29	1		07/21/16 16:07	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.17**	ug/L	4.0	0.17	1		07/21/16 16:07	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.22**	ug/L	1.0	0.22	1		07/21/16 16:07	79-34-5	
Tetrachloroethene	**<0.25**	ug/L	1.0	0.25	1		07/21/16 16:07	127-18-4	
Tetrahydrofuran	**<1.5**	ug/L	10.0	1.5	1		07/21/16 16:07	109-99-9	
Toluene	**<0.14**	ug/L	1.0	0.14	1		07/21/16 16:07	108-88-3	
1,2,3-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:07	87-61-6	
1,2,4-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:07	120-82-1	
1,1,1-Trichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:07	71-55-6	
1,1,2-Trichloroethane	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:07	79-00-5	
Trichloroethene	**<0.20**	ug/L	0.40	0.20	1		07/21/16 16:07	79-01-6	
Trichlorofluoromethane	**<0.33**	ug/L	1.0	0.33	1		07/21/16 16:07	75-69-4	
1,2,3-Trichloropropane	**<0.28**	ug/L	4.0	0.28	1		07/21/16 16:07	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.32**	ug/L	1.0	0.32	1		07/21/16 16:07	76-13-1	
1,2,4-Trimethylbenzene	**0.38J**	ug/L	1.0	0.18	1		07/21/16 16:07	95-63-6	
1,3,5-Trimethylbenzene	**<0.27**	ug/L	1.0	0.27	1		07/21/16 16:07	108-67-8	
Vinyl chloride	**<0.29**	ug/L	0.40	0.29	1		07/21/16 16:07	75-01-4	
Xylene (Total)	**<0.32**	ug/L	3.0	0.32	1		07/21/16 16:07	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	98	%.	75-125		1		07/21/16 16:07	17060-07-0	
Toluene-d8 (S)	93	%.	75-125		1		07/21/16 16:07	2037-26-5	
4-Bromofluorobenzene (S)	91	%.	75-125		1		07/21/16 16:07	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -3.1 **Lab ID: 10356146004** Collected: 07/19/16 12:15 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C								
Acenaphthene	**1.1**	ug/L	0.011	0.0038	1	07/22/16 08:52	07/25/16 17:48	83-32-9	
Acenaphthylene	**0.051**	ug/L	0.014	0.0075	1	07/22/16 08:52	07/25/16 17:48	208-96-8	
Anthracene	**0.24**	ug/L	0.015	0.0044	1	07/22/16 08:52	07/25/16 17:48	120-12-7	
Benzo(a)anthracene	**0.21**	ug/L	0.010	0.0039	1	07/22/16 08:52	07/25/16 17:48	56-55-3	
Benzo(a)pyrene	**0.24**	ug/L	0.010	0.0054	1	07/22/16 08:52	07/25/16 17:48	50-32-8	
Benzo(b)fluoranthene	**0.29**	ug/L	0.026	0.0046	1	07/22/16 08:52	07/25/16 17:48	205-99-2	
Benzo(g,h,i)perylene	**0.15**	ug/L	0.019	0.0038	1	07/22/16 08:52	07/25/16 17:48	191-24-2	
Benzo(k)fluoranthene	**0.11**	ug/L	0.013	0.0041	1	07/22/16 08:52	07/25/16 17:48	207-08-9	
Chrysene	**0.24**	ug/L	0.018	0.0039	1	07/22/16 08:52	07/25/16 17:48	218-01-9	
Dibenz(a,h)anthracene	**0.032J**	ug/L	0.033	0.0039	1	07/22/16 08:52	07/25/16 17:48	53-70-3	
Fluoranthene	**0.69**	ug/L	0.019	0.0060	1	07/22/16 08:52	07/25/16 17:48	206-44-0	
Fluorene	**0.41**	ug/L	0.019	0.0046	1	07/22/16 08:52	07/25/16 17:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.13**	ug/L	0.019	0.0040	1	07/22/16 08:52	07/25/16 17:48	193-39-5	
Naphthalene	**0.79**	ug/L	0.031	0.0050	1	07/22/16 08:52	07/25/16 17:48	91-20-3	
Phenanthrene	**1.4**	ug/L	0.043	0.0065	1	07/22/16 08:52	07/25/16 17:48	85-01-8	
Pyrene	**0.65**	ug/L	0.022	0.0055	1	07/22/16 08:52	07/25/16 17:48	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	53-125		1	07/22/16 08:52	07/25/16 17:48	321-60-8	
p-Terphenyl-d14 (S)	88	%.	57-125		1	07/22/16 08:52	07/25/16 17:48	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B								
Acetone	**4.1J**	ug/L	20.0	0.64	1		07/21/16 16:30	67-64-1	
Allyl chloride	**<0.25**	ug/L	4.0	0.25	1		07/21/16 16:30	107-05-1	
Benzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:30	71-43-2	
Bromobenzene	**<0.34**	ug/L	1.0	0.34	1		07/21/16 16:30	108-86-1	
Bromochloromethane	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:30	74-97-5	
Bromodichloromethane	**<0.24**	ug/L	1.0	0.24	1		07/21/16 16:30	75-27-4	
Bromoform	**<0.27**	ug/L	4.0	0.27	1		07/21/16 16:30	75-25-2	
Bromomethane	**<0.44**	ug/L	4.0	0.44	1		07/21/16 16:30	74-83-9	
2-Butanone (MEK)	**<1.1**	ug/L	5.0	1.1	1		07/21/16 16:30	78-93-3	
n-Butylbenzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:30	104-51-8	
sec-Butylbenzene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:30	135-98-8	
tert-Butylbenzene	**<0.22**	ug/L	1.0	0.22	1		07/21/16 16:30	98-06-6	
Carbon tetrachloride	**<0.20**	ug/L	4.0	0.20	1		07/21/16 16:30	56-23-5	
Chlorobenzene	**<0.11**	ug/L	1.0	0.11	1		07/21/16 16:30	108-90-7	
Chloroethane	**<0.34**	ug/L	1.0	0.34	1		07/21/16 16:30	75-00-3	
Chloroform	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:30	67-66-3	
Chloromethane	**<0.25**	ug/L	4.0	0.25	1		07/21/16 16:30	74-87-3	
2-Chlorotoluene	**<0.30**	ug/L	1.0	0.30	1		07/21/16 16:30	95-49-8	
4-Chlorotoluene	**<0.26**	ug/L	1.0	0.26	1		07/21/16 16:30	106-43-4	
1,2-Dibromo-3-chloropropane	**<0.60**	ug/L	10.0	0.60	1		07/21/16 16:30	96-12-8	
Dibromochloromethane	**<0.16**	ug/L	4.0	0.16	1		07/21/16 16:30	124-48-1	
1,2-Dibromoethane (EDB)	**<0.20**	ug/L	1.0	0.20	1		07/21/16 16:30	106-93-4	
Dibromomethane	**<0.19**	ug/L	4.0	0.19	1		07/21/16 16:30	74-95-3	
1,2-Dichlorobenzene	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:30	95-50-1	
1,3-Dichlorobenzene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 16:30	541-73-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -3.1 **Lab ID: 10356146004** Collected: 07/19/16 12:15 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
1,4-Dichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:30	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:30	75-71-8	
1,1-Dichloroethane	**0.93J**	ug/L	1.0	0.17	1		07/21/16 16:30	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:30	107-06-2	
1,1-Dichloroethene	**<0.28**	ug/L	1.0	0.28	1		07/21/16 16:30	75-35-4	
cis-1,2-Dichloroethene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 16:30	156-59-2	
trans-1,2-Dichloroethene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:30	156-60-5	
Dichlorofluoromethane	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:30	75-43-4	
1,2-Dichloropropane	**<0.22**	ug/L	4.0	0.22	1		07/21/16 16:30	78-87-5	
1,3-Dichloropropane	**<0.096**	ug/L	1.0	0.096	1		07/21/16 16:30	142-28-9	
2,2-Dichloropropane	**<0.13**	ug/L	4.0	0.13	1		07/21/16 16:30	594-20-7	
1,1-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:30	563-58-6	
cis-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 16:30	10061-01-5	
trans-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 16:30	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.19**	ug/L	4.0	0.19	1		07/21/16 16:30	60-29-7	
Ethylbenzene	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:30	100-41-4	
Hexachloro-1,3-butadiene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 16:30	87-68-3	
Isopropylbenzene (Cumene)	**<0.25**	ug/L	1.0	0.25	1		07/21/16 16:30	98-82-8	
p-Isopropyltoluene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:30	99-87-6	
Methylene Chloride	**<0.29**	ug/L	4.0	0.29	1		07/21/16 16:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.43**	ug/L	5.0	0.43	1		07/21/16 16:30	108-10-1	
Methyl-tert-butyl ether	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:30	1634-04-4	
Naphthalene	**1.2J**	ug/L	4.0	0.20	1		07/21/16 16:30	91-20-3	
n-Propylbenzene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:30	103-65-1	
Styrene	**<0.29**	ug/L	1.0	0.29	1		07/21/16 16:30	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.17**	ug/L	4.0	0.17	1		07/21/16 16:30	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.22**	ug/L	1.0	0.22	1		07/21/16 16:30	79-34-5	
Tetrachloroethene	**<0.25**	ug/L	1.0	0.25	1		07/21/16 16:30	127-18-4	
Tetrahydrofuran	**4.3J**	ug/L	10.0	1.5	1		07/21/16 16:30	109-99-9	
Toluene	**<0.14**	ug/L	1.0	0.14	1		07/21/16 16:30	108-88-3	
1,2,3-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:30	87-61-6	
1,2,4-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:30	120-82-1	
1,1,1-Trichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:30	71-55-6	
1,1,2-Trichloroethane	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:30	79-00-5	
Trichloroethene	**<0.20**	ug/L	0.40	0.20	1		07/21/16 16:30	79-01-6	
Trichlorofluoromethane	**<0.33**	ug/L	1.0	0.33	1		07/21/16 16:30	75-69-4	
1,2,3-Trichloropropane	**<0.28**	ug/L	4.0	0.28	1		07/21/16 16:30	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.32**	ug/L	1.0	0.32	1		07/21/16 16:30	76-13-1	
1,2,4-Trimethylbenzene	**0.21J**	ug/L	1.0	0.18	1		07/21/16 16:30	95-63-6	
1,3,5-Trimethylbenzene	**<0.27**	ug/L	1.0	0.27	1		07/21/16 16:30	108-67-8	
Vinyl chloride	**<0.29**	ug/L	0.40	0.29	1		07/21/16 16:30	75-01-4	
Xylene (Total)	**<0.32**	ug/L	3.0	0.32	1		07/21/16 16:30	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	103	%.	75-125		1		07/21/16 16:30	17060-07-0	
Toluene-d8 (S)	92	%.	75-125		1		07/21/16 16:30	2037-26-5	
4-Bromofluorobenzene (S)	90	%.	75-125		1		07/21/16 16:30	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
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ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -4 **Lab ID: 10356146005** Collected: 07/19/16 13:45 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3510C								
Acenaphthene	**0.047**	ug/L	0.011	0.0038	1	07/22/16 08:52	07/25/16 18:09	83-32-9	
Acenaphthylene	**0.031**	ug/L	0.014	0.0075	1	07/22/16 08:52	07/25/16 18:09	208-96-8	
Anthracene	**0.071**	ug/L	0.015	0.0044	1	07/22/16 08:52	07/25/16 18:09	120-12-7	
Benzo(a)anthracene	**0.23**	ug/L	0.010	0.0040	1	07/22/16 08:52	07/25/16 18:09	56-55-3	
Benzo(a)pyrene	**0.27**	ug/L	0.010	0.0054	1	07/22/16 08:52	07/25/16 18:09	50-32-8	
Benzo(b)fluoranthene	**0.36**	ug/L	0.026	0.0047	1	07/22/16 08:52	07/25/16 18:09	205-99-2	
Benzo(g,h,i)perylene	**0.19**	ug/L	0.019	0.0038	1	07/22/16 08:52	07/25/16 18:09	191-24-2	
Benzo(k)fluoranthene	**0.13**	ug/L	0.013	0.0041	1	07/22/16 08:52	07/25/16 18:09	207-08-9	
Chrysene	**0.27**	ug/L	0.018	0.0039	1	07/22/16 08:52	07/25/16 18:09	218-01-9	
Dibenz(a,h)anthracene	**0.040**	ug/L	0.033	0.0039	1	07/22/16 08:52	07/25/16 18:09	53-70-3	
Fluoranthene	**0.58**	ug/L	0.020	0.0060	1	07/22/16 08:52	07/25/16 18:09	206-44-0	
Fluorene	**0.027**	ug/L	0.019	0.0046	1	07/22/16 08:52	07/25/16 18:09	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.16**	ug/L	0.019	0.0041	1	07/22/16 08:52	07/25/16 18:09	193-39-5	
Naphthalene	**0.055**	ug/L	0.031	0.0050	1	07/22/16 08:52	07/25/16 18:09	91-20-3	
Phenanthrene	**0.30**	ug/L	0.043	0.0065	1	07/22/16 08:52	07/25/16 18:09	85-01-8	
Pyrene	**0.56**	ug/L	0.022	0.0055	1	07/22/16 08:52	07/25/16 18:09	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	73	%.	53-125		1	07/22/16 08:52	07/25/16 18:09	321-60-8	
p-Terphenyl-d14 (S)	87	%.	57-125		1	07/22/16 08:52	07/25/16 18:09	1718-51-0	
8260B VOC	Analytical Method: EPA 8260B								
Acetone	**5.4J**	ug/L	20.0	0.64	1		07/21/16 16:52	67-64-1	
Allyl chloride	**<0.25**	ug/L	4.0	0.25	1		07/21/16 16:52	107-05-1	
Benzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:52	71-43-2	
Bromobenzene	**<0.34**	ug/L	1.0	0.34	1		07/21/16 16:52	108-86-1	
Bromochloromethane	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:52	74-97-5	
Bromodichloromethane	**<0.24**	ug/L	1.0	0.24	1		07/21/16 16:52	75-27-4	
Bromoform	**<0.27**	ug/L	4.0	0.27	1		07/21/16 16:52	75-25-2	
Bromomethane	**<0.44**	ug/L	4.0	0.44	1		07/21/16 16:52	74-83-9	
2-Butanone (MEK)	**<1.1**	ug/L	5.0	1.1	1		07/21/16 16:52	78-93-3	
n-Butylbenzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:52	104-51-8	
sec-Butylbenzene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 16:52	135-98-8	
tert-Butylbenzene	**<0.22**	ug/L	1.0	0.22	1		07/21/16 16:52	98-06-6	
Carbon tetrachloride	**<0.20**	ug/L	4.0	0.20	1		07/21/16 16:52	56-23-5	
Chlorobenzene	**<0.11**	ug/L	1.0	0.11	1		07/21/16 16:52	108-90-7	
Chloroethane	**<0.34**	ug/L	1.0	0.34	1		07/21/16 16:52	75-00-3	
Chloroform	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:52	67-66-3	
Chloromethane	**<0.25**	ug/L	4.0	0.25	1		07/21/16 16:52	74-87-3	
2-Chlorotoluene	**<0.30**	ug/L	1.0	0.30	1		07/21/16 16:52	95-49-8	
4-Chlorotoluene	**<0.26**	ug/L	1.0	0.26	1		07/21/16 16:52	106-43-4	
1,2-Dibromo-3-chloropropane	**<0.60**	ug/L	10.0	0.60	1		07/21/16 16:52	96-12-8	
Dibromochloromethane	**<0.16**	ug/L	4.0	0.16	1		07/21/16 16:52	124-48-1	
1,2-Dibromoethane (EDB)	**<0.20**	ug/L	1.0	0.20	1		07/21/16 16:52	106-93-4	
Dibromomethane	**<0.19**	ug/L	4.0	0.19	1		07/21/16 16:52	74-95-3	
1,2-Dichlorobenzene	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:52	95-50-1	
1,3-Dichlorobenzene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 16:52	541-73-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: PS MW -4 **Lab ID: 10356146005** Collected: 07/19/16 13:45 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
1,4-Dichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:52	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:52	75-71-8	
1,1-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:52	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 16:52	107-06-2	
1,1-Dichloroethene	**<0.28**	ug/L	1.0	0.28	1		07/21/16 16:52	75-35-4	
cis-1,2-Dichloroethene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 16:52	156-59-2	
trans-1,2-Dichloroethene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 16:52	156-60-5	
Dichlorofluoromethane	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:52	75-43-4	
1,2-Dichloropropane	**<0.22**	ug/L	4.0	0.22	1		07/21/16 16:52	78-87-5	
1,3-Dichloropropane	**<0.096**	ug/L	1.0	0.096	1		07/21/16 16:52	142-28-9	
2,2-Dichloropropane	**<0.13**	ug/L	4.0	0.13	1		07/21/16 16:52	594-20-7	
1,1-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:52	563-58-6	
cis-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 16:52	10061-01-5	
trans-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 16:52	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.19**	ug/L	4.0	0.19	1		07/21/16 16:52	60-29-7	
Ethylbenzene	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:52	100-41-4	
Hexachloro-1,3-butadiene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 16:52	87-68-3	
Isopropylbenzene (Cumene)	**<0.25**	ug/L	1.0	0.25	1		07/21/16 16:52	98-82-8	
p-Isopropyltoluene	**0.48J**	ug/L	1.0	0.19	1		07/21/16 16:52	99-87-6	
Methylene Chloride	**<0.29**	ug/L	4.0	0.29	1		07/21/16 16:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.43**	ug/L	5.0	0.43	1		07/21/16 16:52	108-10-1	
Methyl-tert-butyl ether	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:52	1634-04-4	
Naphthalene	**<0.20**	ug/L	4.0	0.20	1		07/21/16 16:52	91-20-3	
n-Propylbenzene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 16:52	103-65-1	
Styrene	**<0.29**	ug/L	1.0	0.29	1		07/21/16 16:52	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.17**	ug/L	4.0	0.17	1		07/21/16 16:52	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.22**	ug/L	1.0	0.22	1		07/21/16 16:52	79-34-5	
Tetrachloroethene	**<0.25**	ug/L	1.0	0.25	1		07/21/16 16:52	127-18-4	
Tetrahydrofuran	**<1.5**	ug/L	10.0	1.5	1		07/21/16 16:52	109-99-9	
Toluene	**<0.14**	ug/L	1.0	0.14	1		07/21/16 16:52	108-88-3	
1,2,3-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:52	87-61-6	
1,2,4-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 16:52	120-82-1	
1,1,1-Trichloroethane	**0.30J**	ug/L	1.0	0.17	1		07/21/16 16:52	71-55-6	
1,1,2-Trichloroethane	**<0.15**	ug/L	1.0	0.15	1		07/21/16 16:52	79-00-5	
Trichloroethene	**<0.20**	ug/L	0.40	0.20	1		07/21/16 16:52	79-01-6	
Trichlorofluoromethane	**<0.33**	ug/L	1.0	0.33	1		07/21/16 16:52	75-69-4	
1,2,3-Trichloropropane	**<0.28**	ug/L	4.0	0.28	1		07/21/16 16:52	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.32**	ug/L	1.0	0.32	1		07/21/16 16:52	76-13-1	
1,2,4-Trimethylbenzene	**0.21J**	ug/L	1.0	0.18	1		07/21/16 16:52	95-63-6	
1,3,5-Trimethylbenzene	**<0.27**	ug/L	1.0	0.27	1		07/21/16 16:52	108-67-8	
Vinyl chloride	**<0.29**	ug/L	0.40	0.29	1		07/21/16 16:52	75-01-4	
Xylene (Total)	**<0.32**	ug/L	3.0	0.32	1		07/21/16 16:52	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	95	%.	75-125		1		07/21/16 16:52	17060-07-0	
Toluene-d8 (S)	90	%.	75-125		1		07/21/16 16:52	2037-26-5	
4-Bromofluorobenzene (S)	89	%.	75-125		1		07/21/16 16:52	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: HCL TRIP BLANK **Lab ID: 10356146006** Collected: 07/19/16 14:00 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
Acetone	**6.8J**	ug/L	20.0	0.64	1		07/21/16 14:38	67-64-1	
Allyl chloride	**<0.25**	ug/L	4.0	0.25	1		07/21/16 14:38	107-05-1	
Benzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 14:38	71-43-2	
Bromobenzene	**<0.34**	ug/L	1.0	0.34	1		07/21/16 14:38	108-86-1	
Bromochloromethane	**<0.19**	ug/L	1.0	0.19	1		07/21/16 14:38	74-97-5	
Bromodichloromethane	**<0.24**	ug/L	1.0	0.24	1		07/21/16 14:38	75-27-4	
Bromoform	**<0.27**	ug/L	4.0	0.27	1		07/21/16 14:38	75-25-2	
Bromomethane	**<0.44**	ug/L	4.0	0.44	1		07/21/16 14:38	74-83-9	
2-Butanone (MEK)	**<1.1**	ug/L	5.0	1.1	1		07/21/16 14:38	78-93-3	
n-Butylbenzene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 14:38	104-51-8	
sec-Butylbenzene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 14:38	135-98-8	
tert-Butylbenzene	**<0.22**	ug/L	1.0	0.22	1		07/21/16 14:38	98-06-6	
Carbon tetrachloride	**<0.20**	ug/L	4.0	0.20	1		07/21/16 14:38	56-23-5	
Chlorobenzene	**<0.11**	ug/L	1.0	0.11	1		07/21/16 14:38	108-90-7	
Chloroethane	**<0.34**	ug/L	1.0	0.34	1		07/21/16 14:38	75-00-3	
Chloroform	**<0.21**	ug/L	1.0	0.21	1		07/21/16 14:38	67-66-3	
Chloromethane	**<0.25**	ug/L	4.0	0.25	1		07/21/16 14:38	74-87-3	
2-Chlorotoluene	**<0.30**	ug/L	1.0	0.30	1		07/21/16 14:38	95-49-8	
4-Chlorotoluene	**<0.26**	ug/L	1.0	0.26	1		07/21/16 14:38	106-43-4	
1,2-Dibromo-3-chloropropane	**<0.60**	ug/L	10.0	0.60	1		07/21/16 14:38	96-12-8	
Dibromochloromethane	**<0.16**	ug/L	4.0	0.16	1		07/21/16 14:38	124-48-1	
1,2-Dibromoethane (EDB)	**<0.20**	ug/L	1.0	0.20	1		07/21/16 14:38	106-93-4	
Dibromomethane	**<0.19**	ug/L	4.0	0.19	1		07/21/16 14:38	74-95-3	
1,2-Dichlorobenzene	**<0.17**	ug/L	1.0	0.17	1		07/21/16 14:38	95-50-1	
1,3-Dichlorobenzene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 14:38	541-73-1	
1,4-Dichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 14:38	106-46-7	
Dichlorodifluoromethane	**<0.23**	ug/L	1.0	0.23	1		07/21/16 14:38	75-71-8	
1,1-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 14:38	75-34-3	
1,2-Dichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 14:38	107-06-2	
1,1-Dichloroethene	**<0.28**	ug/L	1.0	0.28	1		07/21/16 14:38	75-35-4	
cis-1,2-Dichloroethene	**<0.12**	ug/L	1.0	0.12	1		07/21/16 14:38	156-59-2	
trans-1,2-Dichloroethene	**<0.16**	ug/L	1.0	0.16	1		07/21/16 14:38	156-60-5	
Dichlorofluoromethane	**<0.21**	ug/L	1.0	0.21	1		07/21/16 14:38	75-43-4	
1,2-Dichloropropane	**<0.22**	ug/L	4.0	0.22	1		07/21/16 14:38	78-87-5	
1,3-Dichloropropane	**<0.096**	ug/L	1.0	0.096	1		07/21/16 14:38	142-28-9	
2,2-Dichloropropane	**<0.13**	ug/L	4.0	0.13	1		07/21/16 14:38	594-20-7	
1,1-Dichloropropene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 14:38	563-58-6	
cis-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 14:38	10061-01-5	
trans-1,3-Dichloropropene	**<0.15**	ug/L	4.0	0.15	1		07/21/16 14:38	10061-02-6	
Diethyl ether (Ethyl ether)	**<0.19**	ug/L	4.0	0.19	1		07/21/16 14:38	60-29-7	
Ethylbenzene	**<0.15**	ug/L	1.0	0.15	1		07/21/16 14:38	100-41-4	
Hexachloro-1,3-butadiene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 14:38	87-68-3	
Isopropylbenzene (Cumene)	**<0.25**	ug/L	1.0	0.25	1		07/21/16 14:38	98-82-8	
p-Isopropyltoluene	**<0.19**	ug/L	1.0	0.19	1		07/21/16 14:38	99-87-6	
Methylene Chloride	**0.37J**	ug/L	4.0	0.29	1		07/21/16 14:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	**<0.43**	ug/L	5.0	0.43	1		07/21/16 14:38	108-10-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Sample: HCL TRIP BLANK **Lab ID: 10356146006** Collected: 07/19/16 14:00 Received: 07/20/16 18:15 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260B VOC	Analytical Method: EPA 8260B								
Methyl-tert-butyl ether	**<0.15**	ug/L	1.0	0.15	1		07/21/16 14:38	1634-04-4	
Naphthalene	**<0.20**	ug/L	4.0	0.20	1		07/21/16 14:38	91-20-3	
n-Propylbenzene	**<0.23**	ug/L	1.0	0.23	1		07/21/16 14:38	103-65-1	
Styrene	**<0.29**	ug/L	1.0	0.29	1		07/21/16 14:38	100-42-5	
1,1,1,2-Tetrachloroethane	**<0.17**	ug/L	4.0	0.17	1		07/21/16 14:38	630-20-6	
1,1,2,2-Tetrachloroethane	**<0.22**	ug/L	1.0	0.22	1		07/21/16 14:38	79-34-5	
Tetrachloroethene	**<0.25**	ug/L	1.0	0.25	1		07/21/16 14:38	127-18-4	
Tetrahydrofuran	**<1.5**	ug/L	10.0	1.5	1		07/21/16 14:38	109-99-9	
Toluene	**<0.14**	ug/L	1.0	0.14	1		07/21/16 14:38	108-88-3	
1,2,3-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 14:38	87-61-6	
1,2,4-Trichlorobenzene	**<0.21**	ug/L	1.0	0.21	1		07/21/16 14:38	120-82-1	
1,1,1-Trichloroethane	**<0.17**	ug/L	1.0	0.17	1		07/21/16 14:38	71-55-6	
1,1,2-Trichloroethane	**<0.15**	ug/L	1.0	0.15	1		07/21/16 14:38	79-00-5	
Trichloroethene	**<0.20**	ug/L	0.40	0.20	1		07/21/16 14:38	79-01-6	
Trichlorofluoromethane	**<0.33**	ug/L	1.0	0.33	1		07/21/16 14:38	75-69-4	
1,2,3-Trichloropropane	**<0.28**	ug/L	4.0	0.28	1		07/21/16 14:38	96-18-4	
1,1,2-Trichlorotrifluoroethane	**<0.32**	ug/L	1.0	0.32	1		07/21/16 14:38	76-13-1	
1,2,4-Trimethylbenzene	**<0.18**	ug/L	1.0	0.18	1		07/21/16 14:38	95-63-6	
1,3,5-Trimethylbenzene	**<0.27**	ug/L	1.0	0.27	1		07/21/16 14:38	108-67-8	
Vinyl chloride	**<0.29**	ug/L	0.40	0.29	1		07/21/16 14:38	75-01-4	
Xylene (Total)	**<0.32**	ug/L	3.0	0.32	1		07/21/16 14:38	1330-20-7	
Surrogates									
1,2-Dichloroethane-d4 (S)	97	%.	75-125		1		07/21/16 14:38	17060-07-0	
Toluene-d8 (S)	89	%.	75-125		1		07/21/16 14:38	2037-26-5	
4-Bromofluorobenzene (S)	93	%.	75-125		1		07/21/16 14:38	460-00-4	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
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QUALITY CONTROL DATA

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

QC Batch: 426455 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260B MSV 465 W
Associated Lab Samples: 10356146001, 10356146002, 10356146003, 10356146004, 10356146005, 10356146006

METHOD BLANK: 2321999 Matrix: Water
Associated Lab Samples: 10356146001, 10356146002, 10356146003, 10356146004, 10356146005, 10356146006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.17	4.0	07/21/16 10:33	
1,1,1-Trichloroethane	ug/L	<0.17	1.0	07/21/16 10:33	
1,1,2,2-Tetrachloroethane	ug/L	<0.22	1.0	07/21/16 10:33	
1,1,2-Trichloroethane	ug/L	<0.15	1.0	07/21/16 10:33	
1,1,2-Trichlorotrifluoroethane	ug/L	<0.32	1.0	07/21/16 10:33	
1,1-Dichloroethane	ug/L	<0.17	1.0	07/21/16 10:33	
1,1-Dichloroethene	ug/L	<0.28	1.0	07/21/16 10:33	
1,1-Dichloropropene	ug/L	<0.23	1.0	07/21/16 10:33	
1,2,3-Trichlorobenzene	ug/L	<0.21	1.0	07/21/16 10:33	
1,2,3-Trichloropropane	ug/L	<0.28	4.0	07/21/16 10:33	
1,2,4-Trichlorobenzene	ug/L	<0.21	1.0	07/21/16 10:33	
1,2,4-Trimethylbenzene	ug/L	<0.18	1.0	07/21/16 10:33	
1,2-Dibromo-3-chloropropane	ug/L	<0.60	10.0	07/21/16 10:33	
1,2-Dibromoethane (EDB)	ug/L	<0.20	1.0	07/21/16 10:33	
1,2-Dichlorobenzene	ug/L	<0.17	1.0	07/21/16 10:33	
1,2-Dichloroethane	ug/L	<0.17	1.0	07/21/16 10:33	
1,2-Dichloropropane	ug/L	<0.22	4.0	07/21/16 10:33	
1,3,5-Trimethylbenzene	ug/L	<0.27	1.0	07/21/16 10:33	
1,3-Dichlorobenzene	ug/L	<0.12	1.0	07/21/16 10:33	
1,3-Dichloropropane	ug/L	<0.096	1.0	07/21/16 10:33	
1,4-Dichlorobenzene	ug/L	<0.21	1.0	07/21/16 10:33	
2,2-Dichloropropane	ug/L	<0.13	4.0	07/21/16 10:33	
2-Butanone (MEK)	ug/L	<1.1	5.0	07/21/16 10:33	
2-Chlorotoluene	ug/L	<0.30	1.0	07/21/16 10:33	
4-Chlorotoluene	ug/L	<0.26	1.0	07/21/16 10:33	
4-Methyl-2-pentanone (MIBK)	ug/L	<0.43	5.0	07/21/16 10:33	
Acetone	ug/L	<0.64	20.0	07/21/16 10:33	
Allyl chloride	ug/L	<0.25	4.0	07/21/16 10:33	
Benzene	ug/L	<0.16	1.0	07/21/16 10:33	
Bromobenzene	ug/L	<0.34	1.0	07/21/16 10:33	
Bromochloromethane	ug/L	<0.19	1.0	07/21/16 10:33	
Bromodichloromethane	ug/L	<0.24	1.0	07/21/16 10:33	
Bromoform	ug/L	<0.27	4.0	07/21/16 10:33	
Bromomethane	ug/L	<0.44	4.0	07/21/16 10:33	
Carbon tetrachloride	ug/L	<0.20	4.0	07/21/16 10:33	
Chlorobenzene	ug/L	<0.11	1.0	07/21/16 10:33	
Chloroethane	ug/L	<0.34	1.0	07/21/16 10:33	
Chloroform	ug/L	<0.21	1.0	07/21/16 10:33	
Chloromethane	ug/L	<0.25	4.0	07/21/16 10:33	
cis-1,2-Dichloroethene	ug/L	<0.12	1.0	07/21/16 10:33	
cis-1,3-Dichloropropene	ug/L	<0.15	4.0	07/21/16 10:33	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

METHOD BLANK: 2321999 Matrix: Water
Associated Lab Samples: 10356146001, 10356146002, 10356146003, 10356146004, 10356146005, 10356146006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	<0.16	4.0	07/21/16 10:33	
Dibromomethane	ug/L	<0.19	4.0	07/21/16 10:33	
Dichlorodifluoromethane	ug/L	<0.23	1.0	07/21/16 10:33	
Dichlorofluoromethane	ug/L	<0.21	1.0	07/21/16 10:33	
Diethyl ether (Ethyl ether)	ug/L	<0.19	4.0	07/21/16 10:33	
Ethylbenzene	ug/L	<0.15	1.0	07/21/16 10:33	
Hexachloro-1,3-butadiene	ug/L	<0.18	1.0	07/21/16 10:33	
Isopropylbenzene (Cumene)	ug/L	<0.25	1.0	07/21/16 10:33	
Methyl-tert-butyl ether	ug/L	<0.15	1.0	07/21/16 10:33	
Methylene Chloride	ug/L	<0.29	4.0	07/21/16 10:33	
n-Butylbenzene	ug/L	<0.16	1.0	07/21/16 10:33	
n-Propylbenzene	ug/L	<0.23	1.0	07/21/16 10:33	
Naphthalene	ug/L	<0.20	4.0	07/21/16 10:33	
p-Isopropyltoluene	ug/L	<0.19	1.0	07/21/16 10:33	
sec-Butylbenzene	ug/L	<0.19	1.0	07/21/16 10:33	
Styrene	ug/L	<0.29	1.0	07/21/16 10:33	
tert-Butylbenzene	ug/L	<0.22	1.0	07/21/16 10:33	
Tetrachloroethene	ug/L	<0.25	1.0	07/21/16 10:33	
Tetrahydrofuran	ug/L	<1.5	10.0	07/21/16 10:33	
Toluene	ug/L	<0.14	1.0	07/21/16 10:33	
trans-1,2-Dichloroethene	ug/L	<0.16	1.0	07/21/16 10:33	
trans-1,3-Dichloropropene	ug/L	<0.15	4.0	07/21/16 10:33	
Trichloroethene	ug/L	<0.20	0.40	07/21/16 10:33	
Trichlorofluoromethane	ug/L	<0.33	1.0	07/21/16 10:33	
Vinyl chloride	ug/L	<0.29	0.40	07/21/16 10:33	
Xylene (Total)	ug/L	<0.32	3.0	07/21/16 10:33	
1,2-Dichloroethane-d4 (S)	%.	110	75-125	07/21/16 10:33	
4-Bromofluorobenzene (S)	%.	99	75-125	07/21/16 10:33	
Toluene-d8 (S)	%.	93	75-125	07/21/16 10:33	

LABORATORY CONTROL SAMPLE: 2322000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.2	106	75-125	
1,1,1-Trichloroethane	ug/L	20	22.1	111	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	20.6	103	75-128	
1,1,2-Trichloroethane	ug/L	20	20.6	103	75-129	
1,1,2-Trichlorotrifluoroethane	ug/L	20	23.0	115	69-125	
1,1-Dichloroethane	ug/L	20	24.6	123	75-131	
1,1-Dichloroethene	ug/L	20	22.4	112	72-125	
1,1-Dichloropropene	ug/L	20	22.0	110	74-125	
1,2,3-Trichlorobenzene	ug/L	20	18.8	94	68-127	
1,2,3-Trichloropropane	ug/L	20	19.7	99	75-125	
1,2,4-Trichlorobenzene	ug/L	20	19.1	96	70-125	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

LABORATORY CONTROL SAMPLE: 2322000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.7	99	75-130	
1,2-Dibromo-3-chloropropane	ug/L	50	44.9	90	74-125	
1,2-Dibromoethane (EDB)	ug/L	20	19.7	99	75-125	
1,2-Dichlorobenzene	ug/L	20	20.7	103	75-125	
1,2-Dichloroethane	ug/L	20	23.8	119	72-129	
1,2-Dichloropropane	ug/L	20	22.5	113	71-129	
1,3,5-Trimethylbenzene	ug/L	20	19.7	99	75-127	
1,3-Dichlorobenzene	ug/L	20	19.9	100	75-125	
1,3-Dichloropropane	ug/L	20	21.2	106	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	103	75-125	
2,2-Dichloropropane	ug/L	20	22.4	112	71-125	
2-Butanone (MEK)	ug/L	100	123	123	58-150	
2-Chlorotoluene	ug/L	20	19.9	100	75-125	
4-Chlorotoluene	ug/L	20	20.2	101	75-130	
4-Methyl-2-pentanone (MIBK)	ug/L	100	117	117	72-140	
Acetone	ug/L	100	88.7	89	69-137	
Allyl chloride	ug/L	20	24.5	123	68-132	
Benzene	ug/L	20	21.0	105	75-125	
Bromobenzene	ug/L	20	19.3	97	75-125	
Bromochloromethane	ug/L	20	22.6	113	75-125	
Bromodichloromethane	ug/L	20	22.1	111	69-128	
Bromoform	ug/L	20	17.0	85	75-125	
Bromomethane	ug/L	20	12.1	61	30-150	
Carbon tetrachloride	ug/L	20	22.8	114	74-125	
Chlorobenzene	ug/L	20	20.6	103	75-125	
Chloroethane	ug/L	20	26.5	132	60-150	
Chloroform	ug/L	20	22.3	111	75-126	
Chloromethane	ug/L	20	20.6	103	46-150	
cis-1,2-Dichloroethene	ug/L	20	21.6	108	75-126	
cis-1,3-Dichloropropene	ug/L	20	21.6	108	75-125	
Dibromochloromethane	ug/L	20	18.4	92	75-125	
Dibromomethane	ug/L	20	21.3	107	72-127	
Dichlorodifluoromethane	ug/L	20	22.9	114	58-135	
Dichlorofluoromethane	ug/L	20	23.4	117	68-149	
Diethyl ether (Ethyl ether)	ug/L	20	24.7	123	66-144	
Ethylbenzene	ug/L	20	20.6	103	75-125	
Hexachloro-1,3-butadiene	ug/L	20	17.6	88	73-125	
Isopropylbenzene (Cumene)	ug/L	20	19.7	98	69-140	
Methyl-tert-butyl ether	ug/L	20	22.0	110	75-126	
Methylene Chloride	ug/L	20	21.9	109	71-130	
n-Butylbenzene	ug/L	20	19.7	99	71-129	
n-Propylbenzene	ug/L	20	20.0	100	71-133	
Naphthalene	ug/L	20	17.3	86	59-137	
p-Isopropyltoluene	ug/L	20	19.2	96	74-127	
sec-Butylbenzene	ug/L	20	19.2	96	66-140	
Styrene	ug/L	20	19.6	98	75-125	
tert-Butylbenzene	ug/L	20	18.7	94	73-129	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

LABORATORY CONTROL SAMPLE: 2322000

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	19.0	95	75-125	
Tetrahydrofuran	ug/L	200	175	88	71-129	
Toluene	ug/L	20	19.3	96	75-125	
trans-1,2-Dichloroethene	ug/L	20	22.7	114	75-125	
trans-1,3-Dichloropropene	ug/L	20	19.3	97	75-125	
Trichloroethene	ug/L	20	22.8	114	75-125	
Trichlorofluoromethane	ug/L	20	24.6	123	74-128	
Vinyl chloride	ug/L	20	21.9	110	71-131	
Xylene (Total)	ug/L	60	58.9	98	75-125	
1,2-Dichloroethane-d4 (S)	%.			110	75-125	
4-Bromofluorobenzene (S)	%.			96	75-125	
Toluene-d8 (S)	%.			96	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2322046 2322047

Parameter	Units	1270844001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	19.1	21.4	95	107	75-125	11	30	
1,1,1-Trichloroethane	ug/L	ND	20	20	20.8	22.3	104	111	71-144	7	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	19.4	21.4	97	107	75-131	10	30	
1,1,2-Trichloroethane	ug/L	ND	20	20	19.0	21.1	95	106	75-125	11	30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	25.2	26.0	126	130	75-150	3	30	
1,1-Dichloroethane	ug/L	ND	20	20	21.1	22.6	106	113	64-150	7	30	
1,1-Dichloroethene	ug/L	ND	20	20	21.3	23.1	106	115	68-150	8	30	
1,1-Dichloropropene	ug/L	ND	20	20	20.9	22.1	105	111	68-145	6	30	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	19.7	20.9	98	105	57-142	6	30	
1,2,3-Trichloropropane	ug/L	ND	20	20	18.0	20.5	90	102	75-125	13	30	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	19.9	21.6	99	108	60-135	8	30	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	19.0	20.8	95	104	67-148	9	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	39.8	47.9	80	96	32-137	18	30	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	17.9	20.5	90	103	75-125	14	30	
1,2-Dichlorobenzene	ug/L	ND	20	20	19.0	21.3	95	107	75-125	11	30	
1,2-Dichloroethane	ug/L	ND	20	20	20.1	22.0	100	110	62-138	9	30	
1,2-Dichloropropane	ug/L	ND	20	20	19.7	22.7	98	114	62-144	14	30	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	18.9	20.7	95	104	67-148	9	30	
1,3-Dichlorobenzene	ug/L	ND	20	20	18.5	20.7	93	104	74-131	11	30	
1,3-Dichloropropane	ug/L	ND	20	20	19.0	21.2	95	106	75-127	11	30	
1,4-Dichlorobenzene	ug/L	ND	20	20	18.9	21.2	95	106	74-126	11	30	
2,2-Dichloropropane	ug/L	ND	20	20	20.4	22.5	102	112	56-146	9	30	
2-Butanone (MEK)	ug/L	ND	100	100	98.9	109	99	109	47-150	10	30	
2-Chlorotoluene	ug/L	ND	20	20	18.7	21.4	94	107	74-137	13	30	
4-Chlorotoluene	ug/L	ND	20	20	18.8	21.1	94	106	72-138	12	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	102	115	102	115	60-147	12	30	
Acetone	ug/L	ND	100	100	85.9	99.9	86	100	61-150	15	30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 2322046 2322047

Parameter	Units	1270844001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Allyl chloride	ug/L	ND	20	20	22.4	23.9	112	119	53-150	6	30	
Benzene	ug/L	ND	20	20	18.3	20.9	92	105	52-147	13	30	
Bromobenzene	ug/L	ND	20	20	18.3	20.5	91	102	75-129	11	30	
Bromochloromethane	ug/L	ND	20	20	18.9	20.6	95	103	72-128	8	30	
Bromodichloromethane	ug/L	ND	20	20	19.2	22.1	96	110	65-137	14	30	
Bromoform	ug/L	ND	20	20	15.8	17.9	79	89	59-133	12	30	
Bromomethane	ug/L	ND	20	20	15.0	17.5	75	88	30-150	16	30	
Carbon tetrachloride	ug/L	ND	20	20	22.1	23.3	110	117	73-144	6	30	
Chlorobenzene	ug/L	ND	20	20	18.6	21.1	93	105	75-126	13	30	
Chloroethane	ug/L	ND	20	20	24.6	25.2	123	126	55-150	2	30	
Chloroform	ug/L	ND	20	20	19.5	20.9	97	104	66-143	7	30	
Chloromethane	ug/L	ND	20	20	19.2	18.6	96	93	42-150	3	30	
cis-1,2-Dichloroethene	ug/L	ND	20	20	18.7	20.0	93	100	65-143	7	30	
cis-1,3-Dichloropropene	ug/L	ND	20	20	18.8	21.1	94	106	75-125	11	30	
Dibromochloromethane	ug/L	ND	20	20	16.9	19.5	85	97	75-125	14	30	
Dibromomethane	ug/L	ND	20	20	18.6	21.1	93	106	66-133	13	30	
Dichlorodifluoromethane	ug/L	ND	20	20	26.5	27.5	133	137	74-150	3	30	
Dichlorofluoromethane	ug/L	ND	20	20	22.2	22.8	111	114	68-150	3	30	
Diethyl ether (Ethyl ether)	ug/L	ND	20	20	20.5	22.5	103	112	57-148	9	30	
Ethylbenzene	ug/L	ND	20	20	18.9	21.3	94	107	67-149	12	30	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	21.5	22.3	107	112	65-143	4	30	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	18.2	20.4	91	102	64-150	12	30	
Methyl-tert-butyl ether	ug/L	ND	20	20	18.1	19.7	91	99	71-130	8	30	
Methylene Chloride	ug/L	ND	20	20	18.2	19.5	91	98	67-137	7	30	
n-Butylbenzene	ug/L	ND	20	20	21.4	23.0	107	115	70-138	7	30	
n-Propylbenzene	ug/L	ND	20	20	20.0	21.7	100	109	70-148	8	30	
Naphthalene	ug/L	ND	20	20	16.2	18.5	81	93	39-150	13	30	
p-Isopropyltoluene	ug/L	ND	20	20	19.8	21.4	99	107	74-138	8	30	
sec-Butylbenzene	ug/L	ND	20	20	19.4	21.6	97	108	64-150	10	30	
Styrene	ug/L	ND	20	20	17.7	20.1	88	101	75-132	13	30	
tert-Butylbenzene	ug/L	ND	20	20	18.8	20.5	94	102	75-138	9	30	
Tetrachloroethene	ug/L	ND	20	20	18.1	20.6	91	103	73-136	13	30	
Tetrahydrofuran	ug/L	ND	200	200	165	186	82	93	68-142	12	30	
Toluene	ug/L	ND	20	20	18.1	20.7	91	103	69-139	13	30	
trans-1,2-Dichloroethene	ug/L	ND	20	20	20.5	21.8	102	109	75-135	6	30	
trans-1,3-Dichloropropene	ug/L	ND	20	20	17.4	20.0	87	100	66-136	14	30	
Trichloroethene	ug/L	ND	20	20	20.8	23.2	104	116	74-135	11	30	
Trichlorofluoromethane	ug/L	ND	20	20	27.2	27.9	136	139	75-150	2	30	
Vinyl chloride	ug/L	ND	20	20	23.2	23.8	116	119	69-150	3	30	
Xylene (Total)	ug/L	ND	60	60	53.5	61.1	89	102	70-147	13	30	
1,2-Dichloroethane-d4 (S)	%.						105	101	75-125			
4-Bromofluorobenzene (S)	%.						102	101	75-125			
Toluene-d8 (S)	%.						96	95	75-125			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

QC Batch: 426700 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10356146001, 10356146002, 10356146003, 10356146004, 10356146005

METHOD BLANK: 2323058 Matrix: Water
Associated Lab Samples: 10356146001, 10356146002, 10356146003, 10356146004, 10356146005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0037	0.011	07/25/16 15:17	
Acenaphthylene	ug/L	<0.0073	0.013	07/25/16 15:17	
Anthracene	ug/L	<0.0043	0.015	07/25/16 15:17	
Benzo(a)anthracene	ug/L	0.0071J	0.0099	07/25/16 15:17	
Benzo(a)pyrene	ug/L	<0.0052	0.010	07/25/16 15:17	
Benzo(b)fluoranthene	ug/L	<0.0045	0.025	07/25/16 15:17	
Benzo(g,h,i)perylene	ug/L	<0.0036	0.018	07/25/16 15:17	
Benzo(k)fluoranthene	ug/L	<0.0040	0.013	07/25/16 15:17	
Chrysene	ug/L	<0.0038	0.018	07/25/16 15:17	
Dibenz(a,h)anthracene	ug/L	<0.0038	0.032	07/25/16 15:17	
Fluoranthene	ug/L	0.0064J	0.019	07/25/16 15:17	
Fluorene	ug/L	<0.0044	0.019	07/25/16 15:17	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0039	0.018	07/25/16 15:17	
Naphthalene	ug/L	<0.0048	0.030	07/25/16 15:17	
Phenanthrene	ug/L	0.011J	0.041	07/25/16 15:17	
Pyrene	ug/L	<0.0053	0.021	07/25/16 15:17	
2-Fluorobiphenyl (S)	%.	69	53-125	07/25/16 15:17	
p-Terphenyl-d14 (S)	%.	99	57-125	07/25/16 15:17	

LABORATORY CONTROL SAMPLE & LCSD: 2323059 2323060

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.59	0.68	59	68	55-125	14	20	
Acenaphthylene	ug/L	1	0.56	0.66	56	66	55-125	15	20	
Anthracene	ug/L	1	0.71	0.82	71	82	66-125	14	20	
Benzo(a)anthracene	ug/L	1	0.76	0.84	76	84	66-125	11	20	
Benzo(a)pyrene	ug/L	1	0.79	0.90	79	90	74-125	13	20	
Benzo(b)fluoranthene	ug/L	1	0.82	0.94	82	94	65-125	14	20	
Benzo(g,h,i)perylene	ug/L	1	0.78	0.78	78	78	68-125	0	20	
Benzo(k)fluoranthene	ug/L	1	0.75	0.86	75	86	72-125	13	20	
Chrysene	ug/L	1	0.75	0.82	75	82	69-125	9	20	
Dibenz(a,h)anthracene	ug/L	1	0.71	0.69	71	69	61-125	2	20	
Fluoranthene	ug/L	1	0.80	0.89	80	89	75-125	11	20	
Fluorene	ug/L	1	0.70	0.79	70	79	63-125	12	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.76	0.82	76	82	66-125	8	20	
Naphthalene	ug/L	1	0.55	0.67	55	67	51-125	19	20	
Phenanthrene	ug/L	1	0.68	0.79	68	79	64-125	14	20	
Pyrene	ug/L	1	0.79	0.89	79	89	72-125	12	20	
2-Fluorobiphenyl (S)	%.				54	64	53-125			
p-Terphenyl-d14 (S)	%.				82	91	57-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 427059

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 FRASER SHIP YARD
Pace Project No.: 10356146

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10356146001	**PS MW -2**	EPA 3510C	426700	EPA 8270D by SIM	427059
10356146002	**PS MW -1**	EPA 3510C	426700	EPA 8270D by SIM	427059
10356146003	**PS MW -3**	EPA 3510C	426700	EPA 8270D by SIM	427059
10356146004	**PS MW -3.1**	EPA 3510C	426700	EPA 8270D by SIM	427059
10356146005	**PS MW -4**	EPA 3510C	426700	EPA 8270D by SIM	427059
10356146001	**PS MW -2**	EPA 8260B	426455		
10356146002	**PS MW -1**	EPA 8260B	426455		
10356146003	**PS MW -3**	EPA 8260B	426455		
10356146004	**PS MW -3.1**	EPA 8260B	426455		
10356146005	**PS MW -4**	EPA 8260B	426455		
10356146006	**HCL TRIP BLANK**	EPA 8260B	426455		

Pace Analytical®
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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10356146

Page: 1 of 1

2039756

Section A Required Client Information:

Company: Environmental Troubleshooters
Address: 3825 Grand Ave
Duluth MN 55807
Email To: Jmccarthy@etsmn.com
Phone: 2187226013 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: John McCarthy
Copy To:
Purchase Order No.:
Project Name: Fraser Shipyard
Project Number: 14-1004

Section C Invoice Information:

Attention: Same as report to
Company Name:
Address:
Pace Quote Reference: ET2016
Pace Project Manager: Lori Castile
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER

Site Location STATE: WI

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes — MATRIX / CODE: Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Requested Analysis Filtered (Y/N) Y/N	Analysis Test: PAH	VOC	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PS MW-2	WT	G			7/19	930		5	2			1						X	X		001
2	PS MW-1						1015		5	2			1						X	X		002
3	PS MW-3						1210		5	2			1						X	X		003
4	PS MW-3.1						1215		5	2			1						X	X		004
5	PS MW-4						1345		5	2			1						X	X		005
6	HCl Trip Blank						1400		2				2							X		006
7																						
8																						
9																						
10																						
11																						
12																						

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
		7/19	1455	Kristina Polson	7/19/16	1455 1555	0.2	Y	N	Y
	Kristina Polson	7/20/16	1340	Gabe Shaffer/Pace	7/20/16	7/19/16 1815	3.6	Y	Y	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Nicole Ferguson
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 07/19/16

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 04Apr2016 Page 1 of 1
	Document No.: **F-MN-L-213-rev.16**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Environmental Troubleshooters

Project #: WO# : 10356146

10356146

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ SpeeDee ☐ Other:_____

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No **Optional:** Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other:_____ **Temp Blank?** ☑ Yes ☐ No

Thermometer Used: ☐ 151401163 ☐ 151401164 ☑ B88A912167504 ☐ B88A0143310098 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 3.6 **Cooler Temp Corrected (°C):** 3.6 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.0 **Date and Initials of Person Examining Contents:** GS 7/20/16

USDA Regulated Soil (☑ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, AZ, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☐ No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☐ No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: WT	☑ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl Sample #
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☐ No	☑ N/A	Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	☐ Yes	☑ No	☐ N/A	14.
Trip Blank Present?	☑ Yes	☐ No	☐ N/A	15.
Trip Blank Custody Seals Present?	☑ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (if purchased): 10215-332A				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Kaloa Xiong **Date:** 7/21/16

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

February 17, 2017

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on January 11, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

This report was revised on February 13, 2017 to add the case narrative.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kristin A Hanson for
Lori Castille
lori.castille@pacelabs.com
Project Manager

Enclosures

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
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CERTIFICATIONS

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
525 N 8th Street, Salina, KS 67401
Alaska Certification UST-107
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: 8TMS-L
Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
Washington Certification #: C486
West Virginia Certification #: 382
West Virginia DHHR #:9952C
Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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SAMPLE SUMMARY

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10375631001	**PS-MW-3**	Water	01/10/17 10:00	01/11/17 18:30
10375631002	**PS-MW-3-1**	Water	01/10/17 10:05	01/11/17 18:30
10375631003	**PS-MW-2**	Water	01/10/17 11:35	01/11/17 18:30
10375631004	**PS-MW-1**	Water	01/10/17 12:45	01/11/17 18:30
10375631005	**PS-MW-4**	Water	01/10/17 14:20	01/11/17 18:30

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SAMPLE ANALYTE COUNT

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10375631001	**PS-MW-3**	EPA 8270D by SIM	JLR	18
10375631002	**PS-MW-3-1**	EPA 8270D by SIM	JLR	18
10375631003	**PS-MW-2**	EPA 8270D by SIM	AS1	18
10375631004	**PS-MW-1**	EPA 8270D by SIM	AS1	18
10375631005	**PS-MW-4**	EPA 8270D by SIM	AS1	18

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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PROJECT NARRATIVE

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Date: February 17, 2017

Case Narrative:

Method 8270 PAH - The samples were originally prepared on January 12, 2017. Samples 001 and 003 were field duplicates of each other. The reported values for the target compounds and the associated surrogates were significantly lower in sample 002. Surrogate recoveries were below laboratory limits. The sample was flagged as forming an emulsion during the extraction process. Emulsions can make analyte recovery difficult as this indicates that the solvent containing the target compounds is not separting well with the water.

The samples were re-extracted February 1, 2017 for comparison. The surrogates were all within control limits, however the concentrations of the target compounds were still lower in sample 002 than in 001. The lab prep-log notes do indicate that emulsions were formed in both samples during the extraction process. The target compounds in sample 001 are similar in concentration in both extractions and the target compounds in sample 002 were higher in the second extraction.

It is very likely that the chemistry of these samples that causes the emulsions are likely the reason for the resluts being different.

The re-extracted data past the recommended holding time was reported at the client's request.

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Sample: PS-MW-3 **Lab ID: 10375631001** Collected: 01/10/17 10:00 Received: 01/11/17 18:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**1.6**	ug/L	0.013	0.0038	1	02/01/17 11:08	02/03/17 15:32	83-32-9	H2
Acenaphthylene	**0.033**	ug/L	0.025	0.0075	1	02/01/17 11:08	02/03/17 15:32	208-96-8	H2
Anthracene	**0.15**	ug/L	0.015	0.0044	1	02/01/17 11:08	02/03/17 15:32	120-12-7	H2
Benzo(a)anthracene	**0.094**	ug/L	0.013	0.0039	1	02/01/17 11:08	02/03/17 15:32	56-55-3	H2
Benzo(a)pyrene	**0.12**	ug/L	0.018	0.0054	1	02/01/17 11:08	02/03/17 15:32	50-32-8	H2
Benzo(b)fluoranthene	**0.13**	ug/L	0.015	0.0046	1	02/01/17 11:08	02/03/17 15:32	205-99-2	H2
Benzo(g,h,i)perylene	**0.079**	ug/L	0.013	0.0038	1	02/01/17 11:08	02/03/17 15:32	191-24-2	H2
Benzo(k)fluoranthene	**0.055**	ug/L	0.014	0.0041	1	02/01/17 11:08	02/03/17 15:32	207-08-9	H2
Chrysene	**0.12**	ug/L	0.013	0.0039	1	02/01/17 11:08	02/03/17 15:32	218-01-9	H2
Dibenz(a,h)anthracene	**0.018**	ug/L	0.013	0.0039	1	02/01/17 11:08	02/03/17 15:32	53-70-3	H2
Fluoranthene	**0.38**	ug/L	0.020	0.0060	1	02/01/17 11:08	02/03/17 15:32	206-44-0	H2
Fluorene	**0.48**	ug/L	0.015	0.0046	1	02/01/17 11:08	02/03/17 15:32	86-73-7	H2
Indeno(1,2,3-cd)pyrene	**0.063**	ug/L	0.013	0.0040	1	02/01/17 11:08	02/03/17 15:32	193-39-5	H2
Naphthalene	**0.61**	ug/L	0.017	0.0050	1	02/01/17 11:08	02/03/17 15:32	91-20-3	H2
Phenanthrene	**1.2**	ug/L	0.022	0.0065	1	02/01/17 11:08	02/03/17 15:32	85-01-8	H2
Pyrene	**0.31**	ug/L	0.018	0.0055	1	02/01/17 11:08	02/03/17 15:32	129-00-0	H2
Surrogates									
2-Fluorobiphenyl (S)	80	%.	53-125		1	02/01/17 11:08	02/03/17 15:32	321-60-8	
p-Terphenyl-d14 (S)	72	%.	57-125		1	02/01/17 11:08	02/03/17 15:32	1718-51-0	

Sample: PS-MW-3-1 **Lab ID: 10375631002** Collected: 01/10/17 10:05 Received: 01/11/17 18:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**1.4**	ug/L	0.013	0.0038	1	02/01/17 11:08	02/03/17 15:54	83-32-9	H2
Acenaphthylene	**0.014J**	ug/L	0.025	0.0075	1	02/01/17 11:08	02/03/17 15:54	208-96-8	H2
Anthracene	**0.11**	ug/L	0.015	0.0044	1	02/01/17 11:08	02/03/17 15:54	120-12-7	H2
Benzo(a)anthracene	**0.021**	ug/L	0.013	0.0039	1	02/01/17 11:08	02/03/17 15:54	56-55-3	H2
Benzo(a)pyrene	**0.020**	ug/L	0.018	0.0054	1	02/01/17 11:08	02/03/17 15:54	50-32-8	H2
Benzo(b)fluoranthene	**0.022**	ug/L	0.015	0.0046	1	02/01/17 11:08	02/03/17 15:54	205-99-2	H2
Benzo(g,h,i)perylene	**0.013**	ug/L	0.013	0.0038	1	02/01/17 11:08	02/03/17 15:54	191-24-2	H2
Benzo(k)fluoranthene	**0.0077J**	ug/L	0.014	0.0041	1	02/01/17 11:08	02/03/17 15:54	207-08-9	H2
Chrysene	**0.020**	ug/L	0.013	0.0039	1	02/01/17 11:08	02/03/17 15:54	218-01-9	H2
Dibenz(a,h)anthracene	**<0.0039**	ug/L	0.013	0.0039	1	02/01/17 11:08	02/03/17 15:54	53-70-3	H2
Fluoranthene	**0.13**	ug/L	0.020	0.0060	1	02/01/17 11:08	02/03/17 15:54	206-44-0	H2
Fluorene	**0.43**	ug/L	0.015	0.0046	1	02/01/17 11:08	02/03/17 15:54	86-73-7	H2
Indeno(1,2,3-cd)pyrene	**0.010J**	ug/L	0.013	0.0040	1	02/01/17 11:08	02/03/17 15:54	193-39-5	H2
Naphthalene	**0.50**	ug/L	0.017	0.0050	1	02/01/17 11:08	02/03/17 15:54	91-20-3	H2
Phenanthrene	**0.93**	ug/L	0.022	0.0065	1	02/01/17 11:08	02/03/17 15:54	85-01-8	H2
Pyrene	**0.091**	ug/L	0.018	0.0055	1	02/01/17 11:08	02/03/17 15:54	129-00-0	H2
Surrogates									
2-Fluorobiphenyl (S)	75	%.	53-125		1	02/01/17 11:08	02/03/17 15:54	321-60-8	
p-Terphenyl-d14 (S)	78	%.	57-125		1	02/01/17 11:08	02/03/17 15:54	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Sample: PS-MW-2 **Lab ID: 10375631003** Collected: 01/10/17 11:35 Received: 01/11/17 18:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**<0.0064**	ug/L	0.021	0.0064	1	01/12/17 13:34	01/15/17 22:16	83-32-9	
Acenaphthylene	**<0.013**	ug/L	0.042	0.013	1	01/12/17 13:34	01/15/17 22:16	208-96-8	
Anthracene	**0.010J**	ug/L	0.025	0.0075	1	01/12/17 13:34	01/15/17 22:16	120-12-7	
Benzo(a)anthracene	**0.028**	ug/L	0.022	0.0067	1	01/12/17 13:34	01/15/17 22:16	56-55-3	
Benzo(a)pyrene	**0.021J**	ug/L	0.030	0.0090	1	01/12/17 13:34	01/15/17 22:16	50-32-8	
Benzo(b)fluoranthene	**0.028**	ug/L	0.026	0.0078	1	01/12/17 13:34	01/15/17 22:16	205-99-2	
Benzo(g,h,i)perylene	**0.020J**	ug/L	0.021	0.0063	1	01/12/17 13:34	01/15/17 22:16	191-24-2	
Benzo(k)fluoranthene	**0.014J**	ug/L	0.023	0.0070	1	01/12/17 13:34	01/15/17 22:16	207-08-9	
Chrysene	**0.022J**	ug/L	0.022	0.0066	1	01/12/17 13:34	01/15/17 22:16	218-01-9	
Dibenz(a,h)anthracene	**0.011J**	ug/L	0.022	0.0065	1	01/12/17 13:34	01/15/17 22:16	53-70-3	
Fluoranthene	**0.047**	ug/L	0.034	0.010	1	01/12/17 13:34	01/15/17 22:16	206-44-0	B
Fluorene	**0.011J**	ug/L	0.026	0.0077	1	01/12/17 13:34	01/15/17 22:16	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.018J**	ug/L	0.023	0.0068	1	01/12/17 13:34	01/15/17 22:16	193-39-5	
Naphthalene	**0.022J**	ug/L	0.028	0.0084	1	01/12/17 13:34	01/15/17 22:16	91-20-3	
Phenanthrene	**0.042**	ug/L	0.036	0.011	1	01/12/17 13:34	01/15/17 22:16	85-01-8	B
Pyrene	**0.037**	ug/L	0.031	0.0092	1	01/12/17 13:34	01/15/17 22:16	129-00-0	B
Surrogates									
2-Fluorobiphenyl (S)	78	%.	53-125		1	01/12/17 13:34	01/15/17 22:16	321-60-8	
p-Terphenyl-d14 (S)	76	%.	57-125		1	01/12/17 13:34	01/15/17 22:16	1718-51-0	

Sample: PS-MW-1 **Lab ID: 10375631004** Collected: 01/10/17 12:45 Received: 01/11/17 18:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**0.21**	ug/L	0.013	0.0040	1	01/12/17 13:34	01/15/17 22:38	83-32-9	
Acenaphthylene	**0.042**	ug/L	0.027	0.0080	1	01/12/17 13:34	01/15/17 22:38	208-96-8	
Anthracene	**0.13**	ug/L	0.016	0.0047	1	01/12/17 13:34	01/15/17 22:38	120-12-7	
Benzo(a)anthracene	**0.015**	ug/L	0.014	0.0042	1	01/12/17 13:34	01/15/17 22:38	56-55-3	B
Benzo(a)pyrene	**0.0091J**	ug/L	0.019	0.0057	1	01/12/17 13:34	01/15/17 22:38	50-32-8	
Benzo(b)fluoranthene	**0.017**	ug/L	0.016	0.0049	1	01/12/17 13:34	01/15/17 22:38	205-99-2	
Benzo(g,h,i)perylene	**0.011J**	ug/L	0.013	0.0040	1	01/12/17 13:34	01/15/17 22:38	191-24-2	
Benzo(k)fluoranthene	**0.0078J**	ug/L	0.015	0.0044	1	01/12/17 13:34	01/15/17 22:38	207-08-9	
Chrysene	**0.018**	ug/L	0.014	0.0042	1	01/12/17 13:34	01/15/17 22:38	218-01-9	
Dibenz(a,h)anthracene	**0.0071J**	ug/L	0.014	0.0041	1	01/12/17 13:34	01/15/17 22:38	53-70-3	
Fluoranthene	**0.045**	ug/L	0.021	0.0064	1	01/12/17 13:34	01/15/17 22:38	206-44-0	B
Fluorene	**0.075**	ug/L	0.016	0.0049	1	01/12/17 13:34	01/15/17 22:38	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.010J**	ug/L	0.014	0.0043	1	01/12/17 13:34	01/15/17 22:38	193-39-5	
Naphthalene	**0.44**	ug/L	0.018	0.0053	1	01/12/17 13:34	01/15/17 22:38	91-20-3	
Phenanthrene	**0.066**	ug/L	0.023	0.0069	1	01/12/17 13:34	01/15/17 22:38	85-01-8	B
Pyrene	**0.031**	ug/L	0.019	0.0058	1	01/12/17 13:34	01/15/17 22:38	129-00-0	B
Surrogates									
2-Fluorobiphenyl (S)	88	%.	53-125		1	01/12/17 13:34	01/15/17 22:38	321-60-8	
p-Terphenyl-d14 (S)	75	%.	57-125		1	01/12/17 13:34	01/15/17 22:38	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Sample: PS-MW-4 **Lab ID: 10375631005** Collected: 01/10/17 14:20 Received: 01/11/17 18:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**0.037**	ug/L	0.014	0.0041	1	01/12/17 13:34	01/15/17 23:00	83-32-9	
Acenaphthylene	**0.071**	ug/L	0.027	0.0081	1	01/12/17 13:34	01/15/17 23:00	208-96-8	
Anthracene	**0.14**	ug/L	0.016	0.0048	1	01/12/17 13:34	01/15/17 23:00	120-12-7	
Benzo(a)anthracene	**0.48**	ug/L	0.014	0.0043	1	01/12/17 13:34	01/15/17 23:00	56-55-3	
Benzo(a)pyrene	**0.56**	ug/L	0.019	0.0058	1	01/12/17 13:34	01/15/17 23:00	50-32-8	
Benzo(b)fluoranthene	**0.69**	ug/L	0.017	0.0050	1	01/12/17 13:34	01/15/17 23:00	205-99-2	
Benzo(g,h,i)perylene	**0.42**	ug/L	0.014	0.0041	1	01/12/17 13:34	01/15/17 23:00	191-24-2	
Benzo(k)fluoranthene	**0.28**	ug/L	0.015	0.0044	1	01/12/17 13:34	01/15/17 23:00	207-08-9	
Chrysene	**0.53**	ug/L	0.014	0.0042	1	01/12/17 13:34	01/15/17 23:00	218-01-9	
Dibenz(a,h)anthracene	**0.099**	ug/L	0.014	0.0042	1	01/12/17 13:34	01/15/17 23:00	53-70-3	
Fluoranthene	**1.3**	ug/L	0.022	0.0065	1	01/12/17 13:34	01/15/17 23:00	206-44-0	
Fluorene	**0.048**	ug/L	0.016	0.0049	1	01/12/17 13:34	01/15/17 23:00	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.36**	ug/L	0.014	0.0043	1	01/12/17 13:34	01/15/17 23:00	193-39-5	
Naphthalene	**0.075**	ug/L	0.018	0.0054	1	01/12/17 13:34	01/15/17 23:00	91-20-3	
Phenanthrene	**0.65**	ug/L	0.023	0.0070	1	01/12/17 13:34	01/15/17 23:00	85-01-8	
Pyrene	**0.99**	ug/L	0.020	0.0059	1	01/12/17 13:34	01/15/17 23:00	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	82	%.	53-125		1	01/12/17 13:34	01/15/17 23:00	321-60-8	
p-Terphenyl-d14 (S)	75	%.	57-125		1	01/12/17 13:34	01/15/17 23:00	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

QC Batch: 455456 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10375631003, 10375631004, 10375631005

METHOD BLANK: 2492628 Matrix: Water
Associated Lab Samples: 10375631003, 10375631004, 10375631005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0037	0.012	01/15/17 18:56	
Acenaphthylene	ug/L	<0.0073	0.024	01/15/17 18:56	
Anthracene	ug/L	<0.0043	0.014	01/15/17 18:56	
Benzo(a)anthracene	ug/L	0.0063J	0.013	01/15/17 18:56	
Benzo(a)pyrene	ug/L	<0.0052	0.017	01/15/17 18:56	
Benzo(b)fluoranthene	ug/L	<0.0045	0.015	01/15/17 18:56	
Benzo(g,h,i)perylene	ug/L	<0.0036	0.012	01/15/17 18:56	
Benzo(k)fluoranthene	ug/L	<0.0040	0.013	01/15/17 18:56	
Chrysene	ug/L	<0.0038	0.013	01/15/17 18:56	
Dibenz(a,h)anthracene	ug/L	<0.0038	0.012	01/15/17 18:56	
Fluoranthene	ug/L	0.029	0.019	01/15/17 18:56	
Fluorene	ug/L	<0.0044	0.015	01/15/17 18:56	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0039	0.013	01/15/17 18:56	
Naphthalene	ug/L	0.0058J	0.016	01/15/17 18:56	
Phenanthrene	ug/L	0.031	0.021	01/15/17 18:56	
Pyrene	ug/L	0.021	0.018	01/15/17 18:56	
2-Fluorobiphenyl (S)	%.	69	53-125	01/15/17 18:56	
p-Terphenyl-d14 (S)	%.	70	57-125	01/15/17 18:56	

LABORATORY CONTROL SAMPLE & LCSD: 2492629 2492630

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.86	0.84	86	84	55-125	2	20	
Acenaphthylene	ug/L	1	0.94	0.93	94	93	55-125	2	20	
Anthracene	ug/L	1	1.0	1.0	104	104	66-125	0	20	
Benzo(a)anthracene	ug/L	1	0.98	1.0	98	100	66-125	1	20	
Benzo(a)pyrene	ug/L	1	0.97	1.0	97	101	74-125	3	20	
Benzo(b)fluoranthene	ug/L	1	0.98	1.0	98	100	65-125	2	20	
Benzo(g,h,i)perylene	ug/L	1	0.95	0.94	95	94	68-125	1	20	
Benzo(k)fluoranthene	ug/L	1	0.93	0.98	93	98	72-125	5	20	
Chrysene	ug/L	1	0.91	0.93	91	93	69-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.87	0.89	87	89	61-125	2	20	
Fluoranthene	ug/L	1	1.1	1.0	105	104	75-125	1	20	
Fluorene	ug/L	1	0.90	0.89	90	89	63-125	1	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.97	1.0	97	100	66-125	3	20	
Naphthalene	ug/L	1	0.88	0.87	88	87	51-125	1	20	
Phenanthrene	ug/L	1	1.0	1.0	101	103	64-125	2	20	
Pyrene	ug/L	1	0.95	0.96	95	96	72-125	1	20	
2-Fluorobiphenyl (S)	%.				88	86	53-125			
p-Terphenyl-d14 (S)	%.				84	83	57-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

QC Batch: 458227 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10375631001, 10375631002

METHOD BLANK: 2507996 Matrix: Water
Associated Lab Samples: 10375631001, 10375631002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	<0.0037	0.012	02/03/17 11:05	
Acenaphthylene	ug/L	<0.0073	0.024	02/03/17 11:05	
Anthracene	ug/L	<0.0043	0.014	02/03/17 11:05	
Benzo(a)anthracene	ug/L	<0.0038	0.013	02/03/17 11:05	
Benzo(a)pyrene	ug/L	<0.0052	0.017	02/03/17 11:05	
Benzo(b)fluoranthene	ug/L	<0.0045	0.015	02/03/17 11:05	
Benzo(g,h,i)perylene	ug/L	<0.0036	0.012	02/03/17 11:05	
Benzo(k)fluoranthene	ug/L	<0.0040	0.013	02/03/17 11:05	
Chrysene	ug/L	<0.0038	0.013	02/03/17 11:05	
Dibenz(a,h)anthracene	ug/L	<0.0038	0.012	02/03/17 11:05	
Fluoranthene	ug/L	<0.0058	0.019	02/03/17 11:05	
Fluorene	ug/L	<0.0044	0.015	02/03/17 11:05	
Indeno(1,2,3-cd)pyrene	ug/L	<0.0039	0.013	02/03/17 11:05	
Naphthalene	ug/L	<0.0048	0.016	02/03/17 11:05	
Phenanthrene	ug/L	<0.0063	0.021	02/03/17 11:05	
Pyrene	ug/L	<0.0053	0.018	02/03/17 11:05	
2-Fluorobiphenyl (S)	%.	70	53-125	02/03/17 11:05	
p-Terphenyl-d14 (S)	%.	81	57-125	02/03/17 11:05	

LABORATORY CONTROL SAMPLE & LCSD: 2507997 2507998

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Acenaphthene	ug/L	1	0.74	0.74	74	74	55-125	0	20	
Acenaphthylene	ug/L	1	0.72	0.71	72	71	55-125	1	20	
Anthracene	ug/L	1	0.91	0.96	91	96	66-125	5	20	
Benzo(a)anthracene	ug/L	1	0.88	0.91	88	91	66-125	3	20	
Benzo(a)pyrene	ug/L	1	0.94	0.96	94	96	74-125	1	20	
Benzo(b)fluoranthene	ug/L	1	0.99	1.0	99	103	65-125	4	20	
Benzo(g,h,i)perylene	ug/L	1	0.97	0.99	97	99	68-125	2	20	
Benzo(k)fluoranthene	ug/L	1	0.95	1.0	95	100	72-125	5	20	
Chrysene	ug/L	1	0.94	0.96	94	96	69-125	2	20	
Dibenz(a,h)anthracene	ug/L	1	0.95	0.97	95	97	61-125	1	20	
Fluoranthene	ug/L	1	0.98	1.0	98	101	75-125	3	20	
Fluorene	ug/L	1	0.78	0.81	78	81	63-125	4	20	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.99	1.0	99	101	66-125	2	20	
Naphthalene	ug/L	1	0.77	0.77	77	77	51-125	0	20	
Phenanthrene	ug/L	1	0.95	1.0	95	100	64-125	5	20	
Pyrene	ug/L	1	0.91	0.94	91	94	72-125	3	20	
2-Fluorobiphenyl (S)	%.				74	75	53-125			
p-Terphenyl-d14 (S)	%.				80	83	57-125			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: 455786

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

Batch: 458601

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

B Analyte was detected in the associated method blank.

H2 Extraction or preparation was conducted outside of the recognized method holding time.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 Fraser Shipyard:REV
Pace Project No.: 10375631

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10375631001	**PS-MW-3**	EPA Mod. 3510C	458227	EPA 8270D by SIM	458601
10375631002	**PS-MW-3-1**	EPA Mod. 3510C	458227	EPA 8270D by SIM	458601
10375631003	**PS-MW-2**	EPA Mod. 3510C	455456	EPA 8270D by SIM	455786
10375631004	**PS-MW-1**	EPA Mod. 3510C	455456	EPA 8270D by SIM	455786
10375631005	**PS-MW-4**	EPA Mod. 3510C	455456	EPA 8270D by SIM	455786

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10375631

Page: 1 of 1

1728195

Section A Required Client Information:

Company:	Environmental Troubleshooters
Address:	3825 Grand Avenue
Email To:	Jmccarthy@ets-m.com
Phone: 218-722-6013	Fax:
Requested Due Date/TAT:	Standard

Section B Required Project Information:

Report To:	John McCarthy
Copy To:	
Purchase Order No.:	
Project Name:	Fraser shipyard
Project Number:	14-1004

Section C Invoice Information:

Attention:	Same as Report to:
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Lori Castille
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER _____

Site Location STATE: WI

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Y/N	Analysis Test: PAH	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	PS-MW-3	WT	G			1/10/17	1000		2	2									X		001
2	PS-MW-3.1						1005		2	2									X		002
3	PS-MW-2						1135		2	2									X		003
4	PS-MW-1						1245		2	2									X		004
5	PS-MW-4						1420		2	2									X		005
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
COC for 1 cooler.	Brice Wizner	1/11/17	1035	Peggy Monahan	1/11/17	1035	-0.5	Y	N	Y
		1-11-17	1550		1/11/17	1550				
		1/11/17	1830		1/11/17	1830	0.4	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brice Wizner

SIGNATURE of SAMPLER: Brice Wizner

DATE Signed (MM/DD/YY): 01/11/17

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 19Dec2016 Page 1 of 2
	Document No.: **F-MN-L-213-rev.20**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: CMV Troubleshooter

Project #: WO#: 10375631

10375631

Courier: ☐Fed Ex ☐UPS ☐USPS ☐Client ☐Commercial ☐Pace ☐SpeeDee ☐Other:_____

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☒Yes ☐No **Seals Intact?** ☒Yes ☐No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒Bubble Wrap ☒Bubble Bags ☐None ☐Other:_____ **Temp Blank?** ☒Yes ☐No

Thermometer Used: ☒151401163 ☐151401164

Type of Ice: ☒Wet ☐Blue ☐None ☐Samples on ice, cooling process has begun

Cooler Temp Read (°C): 2.5 **Cooler Temp Corrected (°C):** 2.4

Temp should be above freezing to 6°C **Correction Factor:** -0.1 **Date and Initials of Person Examining Contents:** CMT 1/11/17

Biological Tissue Frozen? ☐Yes ☒No ☐N/A

USDA Regulated Soil (☒ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA. MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐Yes ☐No

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐Yes ☐No

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☒Yes	☐No		1.
Chain of Custody Filled Out?	☒Yes	☐No		2.
Chain of Custody Relinquished?	☒Yes	☐No		3.
Sampler Name and/or Signature on COC?	☒Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time?	☒Yes	☐No		5.
Short Hold Time Analysis (<72 hr)?	☐Yes	☒No		6.
Rush Turn Around Time Requested?	☐Yes	☒No		7.
Sufficient Volume?	☒Yes	☐No		8.
Correct Containers Used?	☒Yes	☐No		9.
-Pace Containers Used?	☒Yes	☐No		
Containers Intact?	☒Yes	☐No		10.
Filtered Volume Received for Dissolved Tests?	☐Yes	☐No	☒N/A	11. Note if sediment is visible in the dissolved container
Sample Labels Match COC?	☒Yes	☐No		12.
-Includes Date/Time/ID/Analysis Matrix: WT				
All containers needing acid/base preservation have been checked?	~~☐Yes~~	☐No	☒N/A	13. ☐HNO_3 ☐H_2SO_4 ☐NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐Yes	☐No	☒N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin.	☐Yes	☐No	☒N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐Yes	☐No	☒N/A	14.
Trip Blank Present?	☐Yes	☐No	☒N/A	15.
Trip Blank Custody Seals Present?	☐Yes	☐No	☒N/A	
Pace Trip Blank Lot # (if purchased):				

CMT 1/11/17

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐Yes ☐No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: Lori Cattanach **Date:** 1/12/17

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

September 06, 2018

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on August 24, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Shawn Davis
shawn.davis@pacelabs.com
612-607-6378
Project Manager

Enclosures

Pace Analytical Services, LLC
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CERTIFICATIONS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

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SAMPLE SUMMARY

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10444925001	**GP-15 (2-4)**	Solid	08/22/18 10:10	08/24/18 19:30
10444925002	**GP-16 (4-6)**	Solid	08/22/18 10:50	08/24/18 19:30
10444925003	**PS-MW-3**	Water	08/22/18 13:30	08/24/18 19:30
10444925004	**PS-MW-3.1**	Water	08/22/18 13:35	08/24/18 19:30
10444925005	**PS-MW-4**	Water	08/22/18 14:35	08/24/18 19:30
10444925006	**PS-MW-2**	Water	08/23/18 11:05	08/24/18 19:30
10444925007	**PS-MW-1**	Water	08/23/18 11:15	08/24/18 19:30
10444925008	**GP-17(2-4)**	Solid	08/24/18 09:20	08/24/18 19:30

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SAMPLE ANALYTE COUNT

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10444925001	**GP-15 (2-4)**	ASTM D2974	DCF	1
		EPA 8270D by SIM	STB	18
10444925002	**GP-16 (4-6)**	ASTM D2974	DCF	1
		EPA 8270D by SIM	STB	18
10444925003	**PS-MW-3**	EPA 8270D by SIM	STB	18
10444925004	**PS-MW-3.1**	EPA 8270D by SIM	STB	18
10444925005	**PS-MW-4**	EPA 8270D by SIM	STB	18
10444925006	**PS-MW-2**	EPA 8270D by SIM	STB	18
10444925007	**PS-MW-1**	EPA 8270D by SIM	STB	18
10444925008	**GP-17(2-4)**	ASTM D2974	JDL	1
		EPA 8270D by SIM	STB	18

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-15 (2-4) **Lab ID: 10444925001** Collected: 08/22/18 10:10 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**4.5**	%	0.10	0.10	1		08/27/18 13:54		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.4	0.43	1	08/28/18 08:34	09/05/18 01:48	83-32-9	
Acenaphthylene	ND	ug/kg	1.7	0.52	1	08/28/18 08:34	09/05/18 01:48	208-96-8	
Anthracene	**12.0**	ug/kg	1.6	0.49	1	08/28/18 08:34	09/05/18 01:48	120-12-7	
Benzo(a)anthracene	**31.1**	ug/kg	3.8	1.1	1	08/28/18 08:34	09/05/18 01:48	56-55-3	
Benzo(a)pyrene	**32.0**	ug/kg	2.4	0.72	1	08/28/18 08:34	09/05/18 01:48	50-32-8	
Benzo(b)fluoranthene	**41.9**	ug/kg	1.3	0.39	1	08/28/18 08:34	09/05/18 01:48	205-99-2	
Benzo(g,h,i)perylene	**22.7**	ug/kg	2.2	0.66	1	08/28/18 08:34	09/05/18 01:48	191-24-2	
Benzo(k)fluoranthene	**16.6**	ug/kg	2.9	0.88	1	08/28/18 08:34	09/05/18 01:48	207-08-9	
Chrysene	**30.9**	ug/kg	4.7	1.4	1	08/28/18 08:34	09/05/18 01:48	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	1.6	0.48	1	08/28/18 08:34	09/05/18 01:48	53-70-3	
Fluoranthene	**62.5**	ug/kg	1.5	0.45	1	08/28/18 08:34	09/05/18 01:48	206-44-0	
Fluorene	ND	ug/kg	1.1	0.33	1	08/28/18 08:34	09/05/18 01:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**17.8**	ug/kg	2.3	0.70	1	08/28/18 08:34	09/05/18 01:48	193-39-5	
Naphthalene	ND	ug/kg	2.7	0.81	1	08/28/18 08:34	09/05/18 01:48	91-20-3	
Phenanthrene	**39.4**	ug/kg	6.7	2.0	1	08/28/18 08:34	09/05/18 01:48	85-01-8	
Pyrene	**52.6**	ug/kg	5.3	1.6	1	08/28/18 08:34	09/05/18 01:48	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	42-125		1	08/28/18 08:34	09/05/18 01:48	321-60-8	
p-Terphenyl-d14 (S)	74	%.	57-125		1	08/28/18 08:34	09/05/18 01:48	1718-51-0	

Sample: GP-16 (4-6) **Lab ID: 10444925002** Collected: 08/22/18 10:50 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**25.9**	%	0.10	0.10	1		08/27/18 13:55		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.8	0.55	1	08/28/18 08:34	09/05/18 02:09	83-32-9	
Acenaphthylene	ND	ug/kg	2.2	0.67	1	08/28/18 08:34	09/05/18 02:09	208-96-8	
Anthracene	ND	ug/kg	2.1	0.63	1	08/28/18 08:34	09/05/18 02:09	120-12-7	
Benzo(a)anthracene	ND	ug/kg	4.8	1.5	1	08/28/18 08:34	09/05/18 02:09	56-55-3	
Benzo(a)pyrene	ND	ug/kg	3.1	0.92	1	08/28/18 08:34	09/05/18 02:09	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	1.7	0.50	1	08/28/18 08:34	09/05/18 02:09	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	2.8	0.85	1	08/28/18 08:34	09/05/18 02:09	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	3.8	1.1	1	08/28/18 08:34	09/05/18 02:09	207-08-9	
Chrysene	ND	ug/kg	6.1	1.8	1	08/28/18 08:34	09/05/18 02:09	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	2.1	0.62	1	08/28/18 08:34	09/05/18 02:09	53-70-3	
Fluoranthene	ND	ug/kg	1.9	0.58	1	08/28/18 08:34	09/05/18 02:09	206-44-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-16 (4-6) **Lab ID: 10444925002** Collected: 08/22/18 10:50 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Fluorene	ND	ug/kg	1.4	0.42	1	08/28/18 08:34	09/05/18 02:09	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	3.0	0.90	1	08/28/18 08:34	09/05/18 02:09	193-39-5	
Naphthalene	ND	ug/kg	3.5	1.0	1	08/28/18 08:34	09/05/18 02:09	91-20-3	
Phenanthrene	ND	ug/kg	8.6	2.6	1	08/28/18 08:34	09/05/18 02:09	85-01-8	
Pyrene	ND	ug/kg	6.8	2.1	1	08/28/18 08:34	09/05/18 02:09	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	77	%.	42-125		1	08/28/18 08:34	09/05/18 02:09	321-60-8	
p-Terphenyl-d14 (S)	81	%.	57-125		1	08/28/18 08:34	09/05/18 02:09	1718-51-0	

Sample: PS-MW-3 **Lab ID: 10444925003** Collected: 08/22/18 13:30 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**2.1**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 12:29	83-32-9	
Acenaphthylene	**0.16**	ug/L	0.016	0.0047	1	08/27/18 13:02	09/01/18 12:29	208-96-8	
Anthracene	**0.47**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 12:29	120-12-7	
Benzo(a)anthracene	**0.62**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 12:29	56-55-3	
Benzo(a)pyrene	**0.69**	ug/L	0.013	0.0041	1	08/27/18 13:02	09/01/18 12:29	50-32-8	
Benzo(b)fluoranthene	**0.90**	ug/L	0.043	0.013	1	08/27/18 13:02	09/01/18 12:29	205-99-2	
Benzo(g,h,i)perylene	**0.46**	ug/L	0.033	0.0099	1	08/27/18 13:02	09/01/18 12:29	191-24-2	
Benzo(k)fluoranthene	**0.32**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 12:29	207-08-9	
Chrysene	**0.62**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 12:29	218-01-9	
Dibenz(a,h)anthracene	**0.082**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 12:29	53-70-3	
Fluoranthene	**1.9**	ug/L	0.062	0.018	1	08/27/18 13:02	09/01/18 12:29	206-44-0	
Fluorene	**0.91**	ug/L	0.020	0.0060	1	08/27/18 13:02	09/01/18 12:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.37**	ug/L	0.045	0.013	1	08/27/18 13:02	09/01/18 12:29	193-39-5	
Naphthalene	**0.65**	ug/L	0.023	0.0069	1	08/27/18 13:02	09/01/18 12:29	91-20-3	
Phenanthrene	**3.0**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 12:29	85-01-8	
Pyrene	**1.9**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 12:29	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	30-145		1	08/27/18 13:02	09/01/18 12:29	321-60-8	
p-Terphenyl-d14 (S)	78	%.	30-149		1	08/27/18 13:02	09/01/18 12:29	1718-51-0	

Sample: PS-MW-3.1 **Lab ID: 10444925004** Collected: 08/22/18 13:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**2.4**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 12:50	83-32-9	
Acenaphthylene	**0.18**	ug/L	0.015	0.0046	1	08/27/18 13:02	09/01/18 12:50	208-96-8	
Anthracene	**0.61**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 12:50	120-12-7	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: PS-MW-3.1 **Lab ID: 10444925004** Collected: 08/22/18 13:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Benzo(a)anthracene	**0.84**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 12:50	56-55-3	
Benzo(a)pyrene	**0.95**	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 12:50	50-32-8	
Benzo(b)fluoranthene	**1.1**	ug/L	0.042	0.013	1	08/27/18 13:02	09/01/18 12:50	205-99-2	
Benzo(g,h,i)perylene	**0.59**	ug/L	0.033	0.0098	1	08/27/18 13:02	09/01/18 12:50	191-24-2	
Benzo(k)fluoranthene	**0.53**	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 12:50	207-08-9	
Chrysene	**0.83**	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 12:50	218-01-9	
Dibenz(a,h)anthracene	**0.10**	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 12:50	53-70-3	
Fluoranthene	**2.5**	ug/L	0.061	0.018	1	08/27/18 13:02	09/01/18 12:50	206-44-0	
Fluorene	**1.1**	ug/L	0.020	0.0059	1	08/27/18 13:02	09/01/18 12:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.48**	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 12:50	193-39-5	
Naphthalene	**0.74**	ug/L	0.023	0.0068	1	08/27/18 13:02	09/01/18 12:50	91-20-3	
Phenanthrene	**3.7**	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 12:50	85-01-8	
Pyrene	**2.6**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 12:50	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	79	%.	30-145		1	08/27/18 13:02	09/01/18 12:50	321-60-8	
p-Terphenyl-d14 (S)	86	%.	30-149		1	08/27/18 13:02	09/01/18 12:50	1718-51-0	

Sample: PS-MW-4 **Lab ID: 10444925005** Collected: 08/22/18 14:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**0.041**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 13:11	83-32-9	
Acenaphthylene	ND	ug/L	0.016	0.0047	1	08/27/18 13:02	09/01/18 13:11	208-96-8	
Anthracene	**0.10**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 13:11	120-12-7	
Benzo(a)anthracene	**0.32**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 13:11	56-55-3	
Benzo(a)pyrene	**0.36**	ug/L	0.013	0.0041	1	08/27/18 13:02	09/01/18 13:11	50-32-8	
Benzo(b)fluoranthene	**0.54**	ug/L	0.043	0.013	1	08/27/18 13:02	09/01/18 13:11	205-99-2	
Benzo(g,h,i)perylene	**0.28**	ug/L	0.033	0.0099	1	08/27/18 13:02	09/01/18 13:11	191-24-2	
Benzo(k)fluoranthene	**0.18**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 13:11	207-08-9	
Chrysene	**0.36**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 13:11	218-01-9	
Dibenz(a,h)anthracene	**0.047**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 13:11	53-70-3	
Fluoranthene	**0.82**	ug/L	0.062	0.018	1	08/27/18 13:02	09/01/18 13:11	206-44-0	
Fluorene	ND	ug/L	0.020	0.0060	1	08/27/18 13:02	09/01/18 13:11	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.22**	ug/L	0.045	0.013	1	08/27/18 13:02	09/01/18 13:11	193-39-5	
Naphthalene	ND	ug/L	0.023	0.0069	1	08/27/18 13:02	09/01/18 13:11	91-20-3	
Phenanthrene	**0.44**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 13:11	85-01-8	
Pyrene	**0.79**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 13:11	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	76	%.	30-145		1	08/27/18 13:02	09/01/18 13:11	321-60-8	
p-Terphenyl-d14 (S)	77	%.	30-149		1	08/27/18 13:02	09/01/18 13:11	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: PS-MW-2 **Lab ID: 10444925006** Collected: 08/23/18 11:05 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	ND	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 13:32	83-32-9	
Acenaphthylene	ND	ug/L	0.015	0.0046	1	08/27/18 13:02	09/01/18 13:32	208-96-8	
Anthracene	ND	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 13:32	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 13:32	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 13:32	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.042	0.013	1	08/27/18 13:02	09/01/18 13:32	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.033	0.0098	1	08/27/18 13:02	09/01/18 13:32	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 13:32	207-08-9	
Chrysene	ND	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 13:32	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 13:32	53-70-3	
Fluoranthene	ND	ug/L	0.061	0.018	1	08/27/18 13:02	09/01/18 13:32	206-44-0	
Fluorene	ND	ug/L	0.020	0.0059	1	08/27/18 13:02	09/01/18 13:32	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 13:32	193-39-5	
Naphthalene	ND	ug/L	0.023	0.0068	1	08/27/18 13:02	09/01/18 13:32	91-20-3	
Phenanthrene	ND	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 13:32	85-01-8	
Pyrene	ND	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 13:32	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	85	%.	30-145		1	08/27/18 13:02	09/01/18 13:32	321-60-8	
p-Terphenyl-d14 (S)	89	%.	30-149		1	08/27/18 13:02	09/01/18 13:32	1718-51-0	

Sample: PS-MW-1 **Lab ID: 10444925007** Collected: 08/23/18 11:15 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	ND	ug/L	0.011	0.0033	1	08/27/18 13:02	09/01/18 13:53	83-32-9	
Acenaphthylene	ND	ug/L	0.016	0.0048	1	08/27/18 13:02	09/01/18 13:53	208-96-8	
Anthracene	ND	ug/L	0.021	0.0064	1	08/27/18 13:02	09/01/18 13:53	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 13:53	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.014	0.0041	1	08/27/18 13:02	09/01/18 13:53	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 13:53	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.034	0.010	1	08/27/18 13:02	09/01/18 13:53	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.036	0.011	1	08/27/18 13:02	09/01/18 13:53	207-08-9	
Chrysene	ND	ug/L	0.032	0.0095	1	08/27/18 13:02	09/01/18 13:53	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.032	0.0095	1	08/27/18 13:02	09/01/18 13:53	53-70-3	
Fluoranthene	ND	ug/L	0.063	0.019	1	08/27/18 13:02	09/01/18 13:53	206-44-0	
Fluorene	ND	ug/L	0.020	0.0061	1	08/27/18 13:02	09/01/18 13:53	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.046	0.014	1	08/27/18 13:02	09/01/18 13:53	193-39-5	
Naphthalene	**0.043**	ug/L	0.023	0.0070	1	08/27/18 13:02	09/01/18 13:53	91-20-3	
Phenanthrene	ND	ug/L	0.036	0.011	1	08/27/18 13:02	09/01/18 13:53	85-01-8	
Pyrene	ND	ug/L	0.050	0.015	1	08/27/18 13:02	09/01/18 13:53	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%.	30-145		1	08/27/18 13:02	09/01/18 13:53	321-60-8	
p-Terphenyl-d14 (S)	74	%.	30-149		1	08/27/18 13:02	09/01/18 13:53	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-17(2-4) **Lab ID: 10444925008** Collected: 08/24/18 09:20 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**17.0**	%	0.10	0.10	1		08/28/18 13:32		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	**65.1**	ug/kg	1.6	0.49	1	08/28/18 08:34	09/05/18 02:30	83-32-9	
Acenaphthylene	**24.9**	ug/kg	2.0	0.60	1	08/28/18 08:34	09/05/18 02:30	208-96-8	
Anthracene	**163**	ug/kg	1.9	0.56	1	08/28/18 08:34	09/05/18 02:30	120-12-7	
Benzo(a)anthracene	**366**	ug/kg	4.3	1.3	1	08/28/18 08:34	09/05/18 02:30	56-55-3	
Benzo(a)pyrene	**357**	ug/kg	2.8	0.83	1	08/28/18 08:34	09/05/18 02:30	50-32-8	
Benzo(b)fluoranthene	**481**	ug/kg	7.5	2.2	5	08/28/18 08:34	09/05/18 13:46	205-99-2	
Benzo(g,h,i)perylene	**229**	ug/kg	2.5	0.76	1	08/28/18 08:34	09/05/18 02:30	191-24-2	
Benzo(k)fluoranthene	**165**	ug/kg	3.4	1.0	1	08/28/18 08:34	09/05/18 02:30	207-08-9	
Chrysene	**334**	ug/kg	5.4	1.6	1	08/28/18 08:34	09/05/18 02:30	218-01-9	
Dibenz(a,h)anthracene	**59.1**	ug/kg	1.8	0.55	1	08/28/18 08:34	09/05/18 02:30	53-70-3	
Fluoranthene	**836**	ug/kg	8.6	2.6	5	08/28/18 08:34	09/05/18 13:46	206-44-0	
Fluorene	**80.6**	ug/kg	1.3	0.38	1	08/28/18 08:34	09/05/18 02:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**182**	ug/kg	2.7	0.81	1	08/28/18 08:34	09/05/18 02:30	193-39-5	
Naphthalene	**79.8**	ug/kg	3.1	0.93	1	08/28/18 08:34	09/05/18 02:30	91-20-3	
Phenanthrene	**738**	ug/kg	38.4	11.5	5	08/28/18 08:34	09/05/18 13:46	85-01-8	
Pyrene	**770**	ug/kg	30.6	9.2	5	08/28/18 08:34	09/05/18 13:46	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%.	42-125		1	08/28/18 08:34	09/05/18 02:30	321-60-8	
p-Terphenyl-d14 (S)	85	%.	57-125		1	08/28/18 08:34	09/05/18 02:30	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559127 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight / %M by ASTM D2974
Associated Lab Samples: 10444925001, 10444925002

SAMPLE DUPLICATE: 3035887

Parameter	Units	10444914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.0	5.2	5	30	

SAMPLE DUPLICATE: 3035888

Parameter	Units	12114434003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	61.2	61.3	0	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559406
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight / %M by ASTM D2974
Associated Lab Samples: 10444925008

SAMPLE DUPLICATE: 3037265

Parameter	Units	10444849001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.8	11.0	2	30	

SAMPLE DUPLICATE: 3037266

Parameter	Units	10444849011 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.9	4.8	2	30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559367 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3550 Analysis Description: 8270D Solid PAH by SIM MSSV
Associated Lab Samples: 10444925001, 10444925002, 10444925008

METHOD BLANK: 3036724 Matrix: Solid
Associated Lab Samples: 10444925001, 10444925002, 10444925008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/kg	ND	1.4	09/04/18 17:47	
Acenaphthylene	ug/kg	ND	1.6	09/04/18 17:47	
Anthracene	ug/kg	ND	1.6	09/04/18 17:47	
Benzo(a)anthracene	ug/kg	ND	3.6	09/04/18 17:47	
Benzo(a)pyrene	ug/kg	ND	2.3	09/04/18 17:47	
Benzo(b)fluoranthene	ug/kg	ND	1.2	09/04/18 17:47	
Benzo(g,h,i)perylene	ug/kg	ND	2.1	09/04/18 17:47	
Benzo(k)fluoranthene	ug/kg	ND	2.8	09/04/18 17:47	
Chrysene	ug/kg	ND	4.5	09/04/18 17:47	
Dibenz(a,h)anthracene	ug/kg	ND	1.5	09/04/18 17:47	
Fluoranthene	ug/kg	ND	1.4	09/04/18 17:47	
Fluorene	ug/kg	ND	1.0	09/04/18 17:47	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	2.2	09/04/18 17:47	
Naphthalene	ug/kg	ND	2.6	09/04/18 17:47	
Phenanthrene	ug/kg	ND	6.4	09/04/18 17:47	
Pyrene	ug/kg	ND	5.1	09/04/18 17:47	
2-Fluorobiphenyl (S)	%.	63	42-125	09/04/18 17:47	
p-Terphenyl-d14 (S)	%.	70	57-125	09/04/18 17:47	

LABORATORY CONTROL SAMPLE: 3036725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/kg	33.3	20.1	60	52-125	
Acenaphthylene	ug/kg	33.3	20.2	61	50-125	
Anthracene	ug/kg	33.3	25.0	75	65-125	
Benzo(a)anthracene	ug/kg	33.3	24.2	73	60-125	
Benzo(a)pyrene	ug/kg	33.3	25.2	76	69-125	
Benzo(b)fluoranthene	ug/kg	33.3	26.0	78	61-125	
Benzo(g,h,i)perylene	ug/kg	33.3	26.8	80	60-125	
Benzo(k)fluoranthene	ug/kg	33.3	25.1	75	67-125	
Chrysene	ug/kg	33.3	23.5	70	67-125	
Dibenz(a,h)anthracene	ug/kg	33.3	26.7	80	63-125	
Fluoranthene	ug/kg	33.3	25.0	75	75-125	
Fluorene	ug/kg	33.3	21.3	64	54-125	
Indeno(1,2,3-cd)pyrene	ug/kg	33.3	27.2	81	63-125	
Naphthalene	ug/kg	33.3	21.8	65	49-125	
Phenanthrene	ug/kg	33.3	23.2	70	65-125	
Pyrene	ug/kg	33.3	24.1	72	64-125	
2-Fluorobiphenyl (S)	%.			65	42-125	
p-Terphenyl-d14 (S)	%.			70	57-125	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3036726 3036727

Parameter	Units	10444649001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/kg	2.2J	35.2	35.2	29.2	27.9	77	73	30-125	4	30	
Acenaphthylene	ug/kg	<0.52	35.2	35.2	26.5	25.7	75	73	30-133	3	30	
Anthracene	ug/kg	2.8J	35.2	35.2	32.3	32.2	84	84	30-150	0	30	
Benzo(a)anthracene	ug/kg	9.4J	35.2	35.2	41.8	39.1	92	84	30-150	7	30	
Benzo(a)pyrene	ug/kg	10.3J	35.2	35.2	40.8	37.1	87	76	30-150	9	30	
Benzo(b)fluoranthene	ug/kg	9.5J	35.2	35.2	37.8	38.8	80	83	30-150	3	30	
Benzo(g,h,i)perylene	ug/kg	12.5	35.2	35.2	42.2	39.0	84	75	30-150	8	30	
Benzo(k)fluoranthene	ug/kg	3.7J	35.2	35.2	30.6	29.7	77	74	30-150	3	30	
Chrysene	ug/kg	21.5	35.2	35.2	54.7	50.9	95	84	30-150	7	30	
Dibenz(a,h)anthracene	ug/kg	2.1J	35.2	35.2	31.7	30.9	84	82	30-131	2	30	
Fluoranthene	ug/kg	11.9	35.2	35.2	42.4	40.8	87	82	30-150	4	30	
Fluorene	ug/kg	3.7J	35.2	35.2	32.3	32.8	81	83	30-147	2	30	
Indeno(1,2,3-cd)pyrene	ug/kg	4.3J	35.2	35.2	32.5	31.2	80	77	30-150	4	30	
Naphthalene	ug/kg	1.4J	35.2	35.2	26.5	25.1	71	67	30-131	5	30	
Phenanthrene	ug/kg	16.0	35.2	35.2	43.5	44.8	78	82	30-150	3	30	
Pyrene	ug/kg	31.7	35.2	35.2	60.2	57.8	81	74	30-150	4	30	
2-Fluorobiphenyl (S)	%.						82	80	42-125			
p-Terphenyl-d14 (S)	%.						79	77	57-125			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559221 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10444925003, 10444925004, 10444925005, 10444925006, 10444925007

METHOD BLANK: 3036187 Matrix: Water
Associated Lab Samples: 10444925003, 10444925004, 10444925005, 10444925006, 10444925007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.011	08/30/18 15:34	
Acenaphthylene	ug/L	ND	0.015	08/30/18 15:34	
Anthracene	ug/L	ND	0.021	08/30/18 15:34	
Benzo(a)anthracene	ug/L	ND	0.013	08/30/18 15:34	
Benzo(a)pyrene	ug/L	ND	0.013	08/30/18 15:34	
Benzo(b)fluoranthene	ug/L	ND	0.042	08/30/18 15:34	
Benzo(g,h,i)perylene	ug/L	ND	0.033	08/30/18 15:34	
Benzo(k)fluoranthene	ug/L	ND	0.035	08/30/18 15:34	
Chrysene	ug/L	ND	0.031	08/30/18 15:34	
Dibenz(a,h)anthracene	ug/L	ND	0.031	08/30/18 15:34	
Fluoranthene	ug/L	ND	0.061	08/30/18 15:34	
Fluorene	ug/L	ND	0.020	08/30/18 15:34	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.044	08/30/18 15:34	
Naphthalene	ug/L	ND	0.023	08/30/18 15:34	
Phenanthrene	ug/L	ND	0.035	08/30/18 15:34	
Pyrene	ug/L	ND	0.049	08/30/18 15:34	
2-Fluorobiphenyl (S)	%.	89	30-145	08/30/18 15:34	
p-Terphenyl-d14 (S)	%.	85	30-149	08/30/18 15:34	

LABORATORY CONTROL SAMPLE: 3036188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.75	75	50-125	
Acenaphthylene	ug/L	1	0.75	75	47-125	
Anthracene	ug/L	1	0.91	91	65-125	
Benzo(a)anthracene	ug/L	1	0.77	77	60-125	
Benzo(a)pyrene	ug/L	1	0.93	93	67-125	
Benzo(b)fluoranthene	ug/L	1	0.87	87	64-125	
Benzo(g,h,i)perylene	ug/L	1	0.94	94	53-125	
Benzo(k)fluoranthene	ug/L	1	0.87	87	61-125	
Chrysene	ug/L	1	0.90	90	68-125	
Dibenz(a,h)anthracene	ug/L	1	0.86	86	45-125	
Fluoranthene	ug/L	1	0.86	86	73-125	
Fluorene	ug/L	1	0.81	81	53-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.91	91	62-125	
Naphthalene	ug/L	1	0.70	70	46-125	
Phenanthrene	ug/L	1	0.81	81	66-125	
Pyrene	ug/L	1	0.91	91	65-125	
2-Fluorobiphenyl (S)	%.			76	30-145	
p-Terphenyl-d14 (S)	%.			90	30-149	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3036278 3036279

Parameter	Units	10445022001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	ND	3.3	3.3	2.7	2.6	82	78	53-125	4	30	
Acenaphthylene	ug/L	ND	3.3	3.3	2.8	2.7	85	80	48-125	7	30	
Anthracene	ug/L	ND	3.3	3.3	3.6	3.6	108	108	66-125	0	30	
Benzo(a)anthracene	ug/L	ND	3.3	3.3	2.9	2.8	87	85	57-125	2	30	
Benzo(a)pyrene	ug/L	ND	3.3	3.3	3.2	3.1	96	94	62-125	2	30	
Benzo(b)fluoranthene	ug/L	ND	3.3	3.3	3.2	3.1	96	93	50-125	3	30	
Benzo(g,h,i)perylene	ug/L	ND	3.3	3.3	3.2	3.1	97	94	34-125	3	30	
Benzo(k)fluoranthene	ug/L	ND	3.3	3.3	3.1	2.9	92	87	50-125	6	30	
Chrysene	ug/L	ND	3.3	3.3	3.1	3.0	92	89	65-125	3	30	
Dibenz(a,h)anthracene	ug/L	ND	3.3	3.3	3.0	2.9	90	88	31-127	2	30	
Fluoranthene	ug/L	ND	3.3	3.3	3.5	3.4	106	101	70-125	5	30	
Fluorene	ug/L	ND	3.3	3.3	3.1	3.0	92	90	53-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	3.3	3.3	3.1	3.1	93	93	45-125	1	30	
Naphthalene	ug/L	ND	3.3	3.3	2.7	2.7	80	81	34-125	1	30	
Phenanthrene	ug/L	ND	3.3	3.3	3.3	3.2	99	97	61-125	3	30	
Pyrene	ug/L	ND	3.3	3.3	3.4	3.2	101	96	60-125	5	30	
2-Fluorobiphenyl (S)	%.						89	85	30-145			
p-Terphenyl-d14 (S)	%.						93	90	30-149			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALIFIERS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10444925001	**GP-15 (2-4)**	ASTM D2974	559127		
10444925002	**GP-16 (4-6)**	ASTM D2974	559127		
10444925008	**GP-17(2-4)**	ASTM D2974	559406		
10444925001	**GP-15 (2-4)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925002	**GP-16 (4-6)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925008	**GP-17(2-4)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925003	**PS-MW-3**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925004	**PS-MW-3.1**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925005	**PS-MW-4**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925006	**PS-MW-2**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925007	**PS-MW-1**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986

Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed

WO# : 10444925

10444925

Section A — Required Client Information:

Company: Environmental Troubleshooters
Address: 3825 Grand Avenue
Email To: JmcCarthy@etsmn.com
Phone: 218-722-6013 Fax:
Requested Due Date/TAT: Standard

Section B — Required Project Information:

Report To: John McCarthy
Copy To:
Purchase Order No.:
Project Name: Fraser Shipyard
Project Number: 14-1004

Section C — Invoice Information:

Attention: Same as Report To:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Shawn Davis
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER

Site Location STATE: WI

Section D — Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE)

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: PAH	Dry wt.	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GP-15 (2-4)	SL	G			8/22	1010		3	3								X	X		W1
2	GP-16 (4-6)	SL	G			8/22	1050		3	3								X	X		W2
3	PS-MW-3	WT	G			8/22	1330		2	2								X			W3
4	PS-MW-3.1	WT	G			8/22	1335		2	2								X			W4
5	PS-MW-4	WT	G			8/22	1435		2	2								X			W5
6	PS-MW-2	WT	G			8/23	1105		2	2								X			W6
7	PS-MW-1	WT	G			8/23	1115		2	2								X			W7
8	GP-17 (2-4)	SL	G			8/24	920		3	3								X	X		W08
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	B. Wr	8/24/18	1145		8/24/18	11:45	0.3	Y	N	Y
		8/24/18	1630	RJ CL	8-24-18	1630	0.1	Y	N	Y
	RJ CL	8.24.18	1930	ON-PACE	8/24/18	19:30	0.1		(Y)	8/24/18 LT

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Brice Wizner
SIGNATURE of SAMPLER: B. Wr
DATE Signed (MM/DD/YY): 8/24/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 02May2018 Page 1 of 2
	Document No.: F-MN-L-213-rev.23	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Environmental

Project #: WO# : 10444925

PM: SRD Due Date: 08/29/18
CLIENT: ENV TROUBLE

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ SpeeDee ☐ Other:

Tracking Number:

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other: **Temp Blank?** ☑ Yes ☐ No

Thermometer Used: ☑ G87A9170600254 ☐ G87A9155100842 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 0.1 **Cooler Temp Corrected (°C):** 0.1 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** 8/24/18 LJ

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☑ No/wt

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No/wt

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No		1.
Chain of Custody Filled Out?	☑ Yes	☐ No		2.
Chain of Custody Relinquished?	☑ Yes	☐ No		3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		6.
Rush Turn Around Time Requested?	☐ Yes	☑ No		7.
Sufficient Volume?	☑ Yes	☐ No		8.
Correct Containers Used?	☑ Yes	☐ No		9.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: SL/wt	☑ Yes	☐ No		12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: Date/Time:

Comments/Resolution:

Project Manager Review: [signature] **Date:** 08/27/2018

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Attachment 5
Excerpts from SEH AOC#8 Reports

Summary of Closure AOCs #5, #8, and #11

Fraser Shipyards, Inc.

Superior, Wisconsin

SEH No. FRASE9401.00

November 2000

SHORT ELLIOTT HENDRICKSON INC
Multidisciplined.
Single Source.

FRASER
SHIPYARDS, INC.
P. O. BOX 997
SUPERIOR, WISCONSIN
54880
DIAL (715) 394-7787
FAX (715) 394-2807

November 15, 2000

RE: Fraser Shipyards, Inc.
Summary of Closure
AOCs #5, #8, and #11
Superior, Wisconsin
SEH No. FRASE9401.00

Mr. Steven LaValley, Hazardous Waste Specialist
Wisconsin Department of Natural Resources
1401 Tower Avenue
Superior, WI 54880

Dear Mr. LaValley:

Fraser Shipyards, Inc. (Fraser) (Fraser) is submitting this report which includes a summary of the documentation of closure for areas of concern (AOC) #5 - Paint Waste Staging Area, #8 - Paint Room Storage Pad, and #11 - Dry Dock #1 Base This report was prepared on behalf of Fraser by our consultant, Short Elliott Hendrickson Inc. (SEH). The document describes investigation and closure activities which were performed to meet the requirements for closure of an unlicensed hazardous waste facility as outlined in ch. NR 685 Wisconsin Administrative Code. The Fraser facility is located in Superior, Wisconsin.

This document is submitted to fulfill Fraser's obligation under paragraph #9 of the January 9, 1998 Stipulation and Order for Judgment. If you have any questions regarding this document, please call me at (715) 394-7787 or Cy Ingraham at (715) 720-6231.

Sincerely,
Fraser Shipyards, Inc.

Ronald Peterson
Yard Superintendent

GGC/ls/CWI/JEG
\\sehcf1\wp\proj\frase\9401\rep\summary 5,8,11-rep.doc

TRANSMITTAL

421 Frenette Drive, Chippewa Falls, WI 54729-3374 715.720.6200 800.472.5881 715.720.6300 FAX

TO: Ron Peterson

Fraser Shipyards, Inc

Superior , WI

November 15, 2000
Date

File Number and Location
AFRASE9401
Client Number

RE: Final Report

We are

☒ *Enclosing* ☐ *Sending Under Separate Cover* ☐ *As Requested*

Six Copies - Summary of Closure AOCs #5, 8, and 11

For your

☐ *Information/Records* ☒ *Review* ☐ *Approval*

☐ *Action* ☒ *Distribution* ☐ *Revision and resubmittal*

REMARKS:

Ron - Enclosed are 6 copies of the final report for AOCs # 5, 8, and 11. Submittal of these documents to the WDNR should fulfill the requirements of Fraser's Stipulated Agreement with the State. Please review and, if satisfactory, sign the cover letter of all six documents.Forward two (2) copies to Steve LaValley at the WDNR. Please send 2 copies back to me for my files and retain the last 2 for your facility. IF you have review comments which must be addressed by SEH, mark up one copy and send all the copies back to me for revision.

Once the WDNR receives these documents, they will begin a 30 day public notice period. After that time period, the site should be officially closed. Thanks again for the opportunity of working with you and the other folks at Fraser on this project.

BY: Cy Ingraham

c:

Summary of Closure
AOCs #5, #8, and #11

Fraser Shipyards, Inc.
Superior, Wisconsin

Prepared for:
Fraser Shipyards, Inc.
Superior, Wisconsin

Prepared by:
Short Elliott Hendrickson Inc.
421 Frenette Drive
Chippewa Falls, WI 54729-3374
715.720.6200

I, Gloria Chojnacki, hereby certify that I am a scientist as that term is defined in s. NR 712.03(3), Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

Gloria Chojnacki — 11-14-00

Gloria Chojnacki, CHMM — Date
Environmental Scientist

I, John E. Guhl, hereby certify that I am a Hydrogeologist as that term is defined in s. NR 712.03(1) Wis. Adm. Code, and that, to the best of my knowledge, all of the information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

John E. Guhl — #120 — 11/14/2000

John E. Guhl, P.G. — P.G. Number — Date
Hydrogeologist

I, Cyrus W. Ingraham, hereby certify that I am a registered professional engineer in the State of Wisconsin, registered in accordance with the requirements of ch. A-E 4, Wis. Adm. Code; that this document has been prepared in accordance with the Rules of Professional Conduct in ch. A-E 8, Wis. Adm. Code; and that, to the best of my knowledge, all information contained in this document is correct and the document was prepared in compliance with all applicable requirements in chs. NR 700 to 726, Wis. Adm. Code.

E-24690 — 11/14/00

Cyrus W. Ingraham, P.E. — P.E. Number — Date
Sr. Project Manager

Distribution List

No. of Copies	Sent to
2	Steven LaValley, Hazardous Waste Specialist Wisconsin Department of Natural Resources 1401 Tower Avenue Superior, WI 54880
2	Ron Peterson, Superintendent Fraser Shipyards, Inc. Third Street and Clough Avenue Superior, WI 54880
2	Cyrus W. Ingraham, P.E. Short Elliott Hendrickson Inc. 421 Frenette Drive Chippewa Falls, WI 54729

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Summary of Closure AOCs #5, #8, and #11

Fraser Shipyards, Inc.

Prepared for Fraser Shipyards, Inc.

1.0 Introduction

On behalf of Fraser Shipyards, Inc. (Fraser), Short Elliott Hendrickson Inc.® (SEH) has prepared this Summary of Closure for Areas of Concern (AOCs) #5 - Paint Waste Staging Area, #8 - Paint Room Storage Pad, and #11 - Dry Dock #1 Base. This report describes investigation and closure activities conducted in order to meet the requirements for closure of an unlicensed hazardous waste facility as outlined in ch. NR 685 Wisconsin Administrative Code (WAC). In addition, this report is submitted to fulfill Fraser's obligation under paragraph #9 of the January 9, 1998 Stipulation and Order for Judgment.

1.1 Project Contacts

1. Ron Peterson, Superintendent
   Fraser Shipyards, Inc.
   Third Street and Clough Avenue
   Superior, WI 54880
   (715) 394-7787

2. Steve LaValley
   Hazardous Waste Specialist
   Wisconsin Department of Natural Resources
   1401 Tower Avenue
   Superior, WI 54880
   (715) 392-7988

3. Cyrus Ingraham, P.E., Sr. Project Manager
   Short Elliott Hendrickson Inc.
   421 Frenette Drive
   Chippewa Falls, WI 54729
   (715) 720-6231

2.0 Background Information

2.1 Site Location and Setting

The Fraser facility is located at Third Street and Clough Avenue in Superior, Wisconsin as depicted on Figure 1, "Site Location." The site is located on Howard's Bay in Section 11, T49N, R14W, Douglas County, Wisconsin.

Based on plat maps obtained from Douglas County, the site is bounded by industrial, residential, and waterfront properties. According to a zoning map obtained from the City of Superior, the site is zoned W1, Waterfront.

According to the U.S. Department of Housing and Urban Development "Flood Insurance Study," the site is not located within the Zone A or A1 100 year floodplain of Lake Superior. No other significant water bodies appear to exist within an approximate 0.5 mile radius of the site.

According to the Wisconsin Department of Natural Resources (WDNR) Wisconsin Wetland Inventory Map (WWIM) for the vicinity, there are five identified wetland areas within a 0.5 mile radius of the site. The closest wetland is located adjacent to the western fence line of the site. No wetlands were identified on the Fraser property based on the WWIM.

The only parkland known to exist within a 0.5 mile radius of the site is Kelly Park to the south on 7th Street and Baxter Avenue. No schools are currently located within a 0.5 mile radius of the site.

2.2 Site Description

The Fraser property (also referred to as the site) is approximately 65 acres in area with over 50,000 square feet of shops, office, and warehouse space. The site is located with over 13,000 linear feet of frontage on Howards Bay, an enbayment of the Superior, Wisconsin Harbor. The site features are shown on Figure 2, "Site Plan."

Two graving-type dry docks for ship repair are located in the eastern portion of the site. Dry Dock #1, the easternmost dock, can accommodate ships with up to a 620 foot length and 60 foot beam. Dry Dock #2, is located approximately 100 feet west of Dry Dock #1 and can accommodate ships with up to a 820 foot length and 80 foot beam. A smaller graving-type wet building dock which is used for pre-

fabrication of ship sections is located in the western portion of the site. A 540 foot wet slip is also located in the western portion of the site. Berthing is available for up to 15 ships in the bay area.

Structures on the property consist of a main office building; a fabrication shop and machine shop building; a joiner's shop and mold loft building; lunch room building; power house; hose house; rivet shack and tool repair building; and a store room. A railroad spur enters the site near the southwest corner and travels north approximately 900 feet. An area used for dry storage of the company's repair vessels is located in the southeastern portion of the site.

As the result of the site visits by SEH and a hazardous waste management inspection conducted by the WDNR, 14 areas of concern (AOCs) were identified. All the AOCs have met the requirements for closure under ch. NR 720 WAC. Three AOCs (#5, #8, #11) also require closure under ch. NR 600 WAC. Preparation of this report fulfills the requirements for closure of AOCs #5, #8, and #11 under ch. NR 685 WAC. The locations of AOCs #5, #8, and #11 are shown on Figure 2.

2.3 Site Topography and Drainage

The general topography of the site slopes slightly from north to south on the southern one-half of the property and south to north on the northern one-half of the property. Elevations range from 605 to 610 feet National Geodetic Vertical Datum (NGVD). Howards Bay (Lake Superior) lies immediately north of the property with an approximate mean water surface elevation recorded at 602 NGVD according to the Superior, Wisconsin 7.5 Minute USGS Topographic Quadrangle Map (dated 1954 and photorevised in 1983). Area topography is shown on Figure 1.

Surface drainage at the site is primarily dictated by topography. The northern yard area, in the vicinity of the dry docks and administrative buildings drains towards Howards Bay. The southern yard area drains to a wetland area south of the property. This wetland is bounded on the north by the Fraser Shipyard property and on the south by the Burlington Northern Railroad grade.

Two City of Superior municipal storm sewers cross the property and discharge into Howards Bay. One storm sewer discharge occurs at the easternmost terminus of Howards Bay and the other occurs at the southern end of the 540 foot wet slip. The locations of the storm sewer drains are shown on Figure 2.

2.4 General Physiography and Regional Hydrogeology

Preliminary soil survey information was provided by the USDA Soil Conservation Service located in Ashland, Wisconsin. Soils on the Fraser Shipyard property are classified as Udorthents, which form 1 to 6 percent slopes. Udorthents occur in areas where the original soil profile has been altered by the addition or removal of more than about a foot of soil materials.

Soils adjacent to the south side of the property area classified within the Ontonagon-Rudyard complex. This soil type occurs as an intermix of moderately well drained Ontonagon soil and somewhat poorly drained Rudyard soil. Rudyard soils form in clayey lacustrine deposits.

Ontonagon silty clay loams occur adjacent to the southeast corner of the property. These are well drained, highly erodible soils, which occur on 6 to 12 percent slopes and form in clayey lacustrine deposits.

Groundwater in the Ontonagon-Rudyard soil series is generally found at depths less than six feet from the surface and can be perched. Depth to groundwater in the Ontonagon silty clay loams is typically greater than six feet from surface.

Underlying the surface soils in the vicinity of the site are glacial till deposits belonging to the Douglas Member of the Miller Creek Formation. The Douglas till is comprised of fine textured glacial till averaging 10 percent sand, 26 percent silt, and 64 percent clay in the less-than-2 mm fraction. It is typically reddish-brown in color and averages 54 percent illite in the less-than-2 mm fraction. The Douglas Member is generally the surface unit throughout most of the Lake Superior bluffs, but in a few places is overlain by fluvial or lacustrine sand and gravel deposits or offshore silt and clay deposits of the Miller Creek Formation or younger fluvial, lacustrine, and organic deposits. Most of the Douglas Member is till deposited by ice of the Superior Lobe.

According to a well constructor's report for a private well located near the Fraser property, the glacial till is approximately 270 feet thick. This till consisted of red clay, silt, and sandy silt according to the driller's log.

The uppermost bedrock in the vicinity of the site is PreCambrian-aged Keweenawan sandstone. This sandstone was encountered at approximately 270 feet in the nearby private well and extends to at least a 600 foot depth based on the driller's log.

Two major aquifers are located in the vicinity of the site, the waterbearing sandstone of PreCambrian-age and the Pleistocene glacial deposits of varying productivity. Permeabilities of the sandstone are moderate to low. The sandstone aquifer yields a

sufficient amount of water for domestic wells (10 to 100 gpm) and can produce up to 500 gpm in some areas.

The Pleistocene glacial deposits consist of till, lake sand and silt, and fluvial sand and gravel. Sandy till aquifers typically yield small amounts of water (5 to 10 gpm). Yields from sand and gravel lenses do not commonly exceed 100 gpm.

Recharge to the aquifers is impeded by the low permeability red clay and silt glacial deposits. The greatest potential for recharge is through the sand and gravel layers.

Regional ground water movement is to the north into Lake Superior. Groundwater flow at the site is likely at a low horizontal hydraulic gradient towards Howards Bay.

The City of Superior obtains approximately 95 percent of its drinking water from a well field located on Minnesota Point, approximately 5500 feet northeast of the site. The well field contains approximately 83 vertical and horizontal wells which produce approximately 2.5 mgd. An additional 500,000 gpd is obtained from the City of Cloquet intake pipe, which extends out into Lake Superior from the well field location.

2.5 History of Facility

Fraser operates one of the oldest steel shipbuilding and repair facilities on the Great Lakes. The shipyard was founded in 1889 as American Steel Barge Co. Since then, the yard has been a shipbuilding and repair facility under various owners including Fraser-Nelson Shipbuilding and Dry Dock Co., Inc. In 1977, the shipyard was acquired as a subsidiary of Reuben Johnson and Son, Inc., a Superior, Wisconsin general contractor. The yard continues to operate today under the name of Fraser Shipyards, Inc.

Fabrication of heavy structural steel comprises 90 percent of Fraser's business. Most of the steel fabrication is for use on Great Lakes bulk carrying vessels, however, some steel is fabricated for structures such as grain elevators. The facility is equipped for all types of hull, engine, boiler, electrical, machine, joiner, loft, and other ship work which includes sandblasting and repainting processes. Repair, overhaul or remodeling work can be done in dry dock or "outside" while vessels are loading or unloading.

3.0 AOC #5 – Paint Waste Staging Area

Fraser accumulated wastes from their painting operations in two portable aboveground storage tanks located in the west-central yard area. A number of tanks of varying sizes were also stored in this area to provide emergency storage capacity for oily wastes from ships. The

wastes staged in this AOC included paint wastes potentially mixed with dirty solvents. Wastes staged in these tanks were disposed at Waste Research and Reclamation on July 2, 1993. Many of the tanks initially located at AOC #5 were cut up and removed for salvage. The location of AOC #5 is indicated on Figure 2.

3.1 Soil Samples

Initial soil samples were collected from AOC #5 on January 11, 1994 at the surface and at the 2.0 to 2.5 foot depth interval. A grab sample from boring B-9 (2 - 2.5 feet) indicated a total lead concentration of 685 mg/kg and B-10 (2 - 2.5 feet) indicated a total chromium concentration of 274 mg/kg. Both of these analytical results exceeded the ch. NR 720 Wisconsin Administrative Code Residual Contaminant Levels (RCL) based on human health risk from direct contact of 500 mg/kg for lead and 200 mg/kg for hexavalent chromium (industrial standard.)

A Toxicity Characteristic Leaching Procedure (TCLP) as well as an ASTM water leach procedure was performed on the soil sample from B-9, the soil sample with the highest total lead concentration. A TCLP was also performed on B-10, the soil sample with the highest chromium concentration. No detectable concentrations of lead or chromium were noted in either of the leach procedures indicating that the lead and chromium in the subsurface are not significantly leachable.

Additional surface soil samples were collected on August 16, 1997 in order to determine if surface soil concentrations of select heavy metals pose a significant threat. Laboratory results of the surface samples (B-11, HA-1, HA-2, HA-3) ranged from 20.4 mg/kg to 66.1 mg/kg for total lead and 14.9 mg/kg to 22.2 mg/kg for total chromium. Neither lead nor chromium surface soil concentrations exceed the ch. NR 720 industrial RCL standards. Soil analytical results are summarized on Table 1, "Soil Analytical Results." Site investigation detail is presented on Figure 3, "AOC #5 Detail."

3.2 Groundwater Samples

Groundwater monitoring well MW-2 was installed on August 16, 1996. Two rounds of groundwater samples were collected using a bailer, filtered and submitted on August 26, 1996 and November 21, 1996 for laboratory analysis of dissolved lead and chromium. Subsequently, four rounds of groundwater samples were collected from MW-2 using a peristaltic pump, filtered and submitted for dissolved lead analysis. In addition, unfiltered groundwater samples were also collected and submitted for total lead analysis during the last three sampling events.

Results of the initial rounds of sampling indicated no concentrations of chromium above the laboratory detection limit. Initial samples collected with a bailer indicated lead concentrations of 48.8 µg/l and 34.2 µg/l, exceeding the ch. NR 140 Enforcement Standard (ES) of 15 µg/l for lead. Four additional rounds of groundwater samples collected with a peristaltic pump from MW-2 indicated no detection of lead above the ch. NR 140 ES for lead. The dissolved lead concentration at one sampling event was 3.08 µg/l which exceeded the ch. NR 140 Preventive Action Limit (PAL) for lead of 1.5 µg/l.

In an effort to further investigate the potential of dissolved lead contamination in groundwater at AOC #5, six hydraulic probe groundwater samples were collected on October 1, 1997. Groundwater samples were brought to the surface with a peristaltic pump, filtered and submitted for laboratory analysis of dissolved lead. Results indicate dissolved lead concentrations ranging from none detected above laboratory detection limits to 1.06 µg/l, in compliance with the ch. NR 140 Groundwater Quality Standards. Groundwater analytical results are summarized in Table 2, "Groundwater Analytical Results." Site investigation detail is presented on Figure 3.

Discrepancies between lead concentrations in the initial rounds of groundwater monitoring and the final rounds are most likely due to the methods of collection. The vigorous action of a bailer allowed for extraction of a greater concentration of fine soil particles to which lead is adsorbed. Some of these particles likely passed through the filter, accounting for increased dissolved lead results. The final rounds of groundwater monitoring indicates that lead does not exceed the ch. NR 140 ES demonstrating that groundwater has not been adversely impacted by lead concentrations in the soil at AOC #5.

3.3 Soil Excavation

A remedial excavation was performed at AOC #5 to address lead and chromium contaminated soils. Approximately 18 cubic yards of contaminated soil was removed from the AOC on April 18, 2000. The excavation limits measured 10 feet wide by 20 feet long by 3 feet deep in the area shown on Figure 3

A total of five samples were collected from the soil excavation side walls at 2 feet below grade and the excavation bottom at 3 feet below grade. The soil samples were analyzed for lead and chromium. Results of the soil analysis indicated lead concentrations ranging from 15.8 mg/kg to 370 mg/kg. Soil chromium concentrations ranged from 4.21 mg/kg to 52.8 mg/kg.

Confirmatory laboratory analysis results following remedial excavation at AOC #5 did not indicate exceedances of ch. NR 720 Residual Contaminant Levels (RCLs) for industrial sites (industrial RCL for lead = 500 mg/kg; industrial RCL for hexavalent chromium = 200 mg/kg). Four successive quarterly rounds of groundwater were collected that demonstrated compliance with the requirements of ch. NR 140 (lead concentrations less than ES of 15 µg/l) and s. NR 726.05(3). Notice of conditional closure by the WDNR was dated August 17, 2000.

4.0 AOC #8 – Paint Room Storage Pad

Fraser temporarily stores flammable liquids in a paint room located indoors in the Fabrication Shop. A small storage pad is located south of the paint room where partially used containers of paint and solvent are staged. This storage pad had a crushed stone base, which has subsequently been covered with concrete to facilitate protection of the soils from potential future releases. The concrete pad was constructed in July 1994. The partially used materials associated with this AOC include paint and solvents. Scrap metal and solid wastes (paper, rags, etc.) were also staged in this area. The location of AOC #8 is indicated on Figure 2.

4.1 Soil Samples

AOC #8 was initially investigated for the presence or absence of contaminated soils associated with potential release from materials staged at the AOC. The investigation consisted of two soil samples (B-20 and B-21) obtained from a shallow test pit from the 0 to 1 foot (B-20) and 2 to 2.5 foot (B-21) depth interval on January 25, 1994. Two soil samples were collected from the shop floor adjacent to the storage pad with a hand auger on August 23, 1995 (HAX-1 and HAX-2) from the 8 to 12 inch depth interval to define the extent of contamination.

Laboratory testing indicated benzene and toluene at concentrations of 0.0058 µg/g and 0.15 µg/g, respectively, were detected closer to the surface (B-20), while no VOCs above laboratory detection limits were found at the 2 to 2.5 foot depth interval (B-21). Low level concentrations of various hydrocarbon compounds which appear to be petroleum and manufacturing related were detected at the surface of the shop floor in the area adjacent to the AOC. The total VOC concentration at HAX-2 was 24 µg/g.

Additional soil sampling at AOC #8 was conducted to further define the degree and extent of VOC contamination. Four additional hand auger soil samples (HAX-3, HAX-4, HAX-5, HAX-6) were obtained on August 15, 1996. The samples were collected at a depth of approximately 18 inches. These additional floor samples indicated

very low concentrations of naphthalene (0.033 µg/g) at HAX-3, chloromethane (0.028 µg/g) at HAX-4, and o-xylene and styrene (0.035 µg/g to 0.138 µg/g) at HAX-3, HAX-4, HAX-5 and HAX-6. The concentrations are below proposed or final generic soil cleanup levels based on protection of groundwater or human health from direct contact. Total lead and chromium at the four additional hand auger locations (HAX-3, HAX-4, HAX-5, HAX-6) are either not detectable or below the ch. NR 720 RCLs Table 1 values for non-industrial sites. Soil analytical results are summarized on Table 1. Site investigation detail is presented on Figure 4, "AOC #8 Detail."

Fraser constructed a concrete floor over the unpaved area at AOC #8 inside of the shop to prevent downward migration of any surficial contaminants in the building. Following those investigative and remedial actions, Fraser requested formal closure of AOC #8. Documentation submitted to the WDNR was reviewed and notice of "No further action required" was provided in July 16, 1997.

5.0 AOC #11 – Dry Dock #1 Base

Dry Dock #1 was originally constructed with a concrete base in the southern third of the dock and a stone and wooden base in the remaining northern section. As ships were repaired within the dock, wastes could have potentially fallen onto the stone base and become difficult to remove. Potential wastes which may be generated at AOC #11 consist of sandblasting grit wastes and solid wastes.

In order to prevent migration of potential contaminants into the stone base, Fraser poured concrete over the northern two thirds section of Dry Dock #1 during July and August 1994. Approximately two feet of crushed stone was placed directly below the concrete over a floor of natural red clay. Prior to placement of the stone and concrete, seven soil samples were collected from the dry dock base at depths ranging from zero to 10 inches below top of clay, and submitted for laboratory analysis of lead.

Laboratory results indicated the presence of lead concentrations ranging from 30.1 mg/kg to 272 mg/kg at a depth of six to 10 inches into the red clay floor. Lead concentrations at the clay surface ranged from 832 mg/kg to 958 mg/kg.

Additional investigation of AOC #11 was conducted on August 12, 1996 with the installation of a seepage lysimeter. The purpose of the lysimeter was to document that groundwater contamination had not occurred below the dry dock floor. Two soil samples submitted for laboratory analysis of lead collected at the time of the lysimeter installation indicated no detectable concentrations of lead at the 0 to 0.5 foot and 2.0 to 2.5 foot depth intervals. These samples were collected in close proximity to sample T2 which had a surface lead

concentration of 832 mg/kg. Soil analytical results are summarized on Table 1.

The first round of groundwater sampled from the seepage lysimeter indicated a dissolved lead concentration of 6.94 µg/l which is below the ch. NR 140 ES of 15 µg/l but above the PAL of 1.5 µg/l. The second round of sampling indicated no detectable concentrations of dissolved lead. Groundwater analytical results are summarized on Table 2. Site investigation detail is presented on Figure 5, "AOC #11 Detail."

Dry Dock #1 construction, gate detail and placement of concrete over AOC #11 have effectively confined residual lead, which may be present, to the clay surface under the concrete dry dock base. This has been demonstrated in both soil and groundwater samples collected from the seepage lysimeter. Soil samples as well as groundwater samples do not indicate that they are impacted by lead. Dry Dock #1 construction and gate detail are shown in Figure 6, "Dry Dock #1 Cross Section and Figure 7, "Gate Detail."

In addition to the soil and groundwater samples, the bay water both inside and outside the dry dock was analyzed. Representative samples of the water column were collected in order to demonstrate that water being pumped from AOC #11 is not impacted with heavy metals. Dissolved lead was detected inside the dock (5 feet from the bottom) at a concentration of 7.57 µg/l and outside the dock (10 feet from the surface) at 6.83 µg/l. The variation indicated between these results are not significant given the accuracy limits of the analytical methods. Bay Water analytical results are summarized on Table 3, "Bay Water Analytical Results."

Additional information including the LYS-1 Construction Log and cross-section drawings of Dry Dock #1 demonstrating the lysimeter placement with relation to geologic formations and dock structure were submitted to the WDNR on June 30, 1997 and August 8, 1997, respectively. A maintenance inspection was conducted on Dry Dock #1 and an Operation and Maintenance Plan was submitted to the WDNR on August 23, 2000. This information was requested by the WDNR as conditions for closure of this AOC.

6.0 Standard of Care

The conclusions and recommendations contained in this report were arrived at in accordance with generally accepted professional engineering practice at this time and location. Other than this, no warranty is implied or intended.

GGC/ls/CWI/JEG

7.0 References and Resources

The following reports and correspondence have been submitted by SEH in support of the Closure of AOCs #5, #8, and #11.

Work Plan for Grit Stockpile Sampling	August 10, 1993
Amended Work plan – Grit Stockpile Sampling	August 25, 1993
Site Investigation Work Plan	November 1993
Site Investigation Work Plan Revisions	December 15, 1993
Site Investigation Report and Closure Plan	May 1994
Partial Closure Documentation Report	April 1995
Additional Investigation Work Plan	March 1996
Amendment to March 1996- Additional Investigation Work Plan	July 29, 1996
Partial Closure Documentation Report - AOCs #8 and #12	October 1996
Partial Closure Documentation Report - AOCs #1 and #11	February 1997
Case Summary and Close-out Forms AOC #11	March 5, 1997
Investigation Data – AOC #5	March 25, 1997
Transmittal – Requested Information	June 30, 1997
Correspondence – AOC #11 Detail	August 8, 1997
Additional Investigation Work Plan – AOC #5	August 1997
Case Summary and Close-out Forms - AOC #5	November 26, 1997
Additional Investigation Work Plan - Monitoring Well MW-5 and AOC #5	March 1998
Correspondence – AOC #5	February 17, 2000
Case Summary and Close-out Forms - AOC #5	February 24, 1999
Remedial Excavation Work Plan – AOC #5	March 30, 2000
Case Closure Request AOC #5	June 1, 2000
Operation and Maintenance Plan for Dry Dock #1	August 23, 2000

Tables

Tab
Soil Analyt

Analytical Parameters	ch. NR 720 Soil RCL	AOC #5								
		B-9	B-10		B-11	B-12		HA-1	HA-2	
		2-2.5	0-0.6	2-2.5	0-0.5	0-0.5	2-2.5	0-0.5	0-0.5	
		1/11/94						8/16/9		
FID (units)	NSE	1000+	0	--	0	1.4	1000+	--	--	
PID (units)	NSE	42	36	--	34	34	50	--	--	
VOCs (8010/8020 or 8021) (mg/kg)	Various	BDL	--	BDL	--	--	BDL	--	--	
Benzene	5.5									
Toluene	1500									
Butylbenzenes	NSE									
Isopropyltoluene	NSE									
Ethylbenzene	2900									
Naphthalene	NSE									
Trimethylbenzenes	NSE									
m- & p- Xylenes	4100									
o-Xylene & Styrene	NSE									
Chloromethane	NSE									
n-Propylbenzene	NSE									
Metals (mg/kg)										
Lead	500	**685***	--	270	66.1	--	177	38.5	20.4	
Cadmium	510	0.18	--	0.28	0.64	--	0.38	--	--	
Chromium	200	22.7	--	**274****	22.2	--	23.1	16.1	14.9	
Mercury	NSE	0.083	--	0.25	BDL	--	BDL	--	--	

Analytical Parameters	ch. NR 720 Soil RCL	AOC #/Boring No./Depth (ft)/Date							
		AOC #11							LYS-
		DD001	DD002	DD003	T1	T2	T3	T4	
		0.5	0.5	0.5-0.8	0	0	0	0	0-0.5
		7/7/94		8/4/94	8/17/94				8/12/96
FID (units)	NSE	--	--	--	--	--	--	--	--
PID (units)	NSE	--	--	--	--	--	--	--	--
VOCs (8010/8020 or 8021) (mg/kg)	Various	--	--	--	--	--	--	--	--
Benzene	5.5								
Toluene	1500								
Butylbenzenes	NSE								
Isopropyltoluene	NSE								
Ethylbenzene	2900								
Naphthalene	NSE								
Trimethylbenzenes	NSE								
m- & p- Xylenes	4100								
o-Xylene & Styrene	NSE								
Chloromethane	NSE								
n-Propylbenzene	NSE								
Metals (mg/kg)									
Lead	500	272	30.1	34.1	**927**	**832**	**958**	**855**	BDL
Cadmium	510	--	--	--	--	--	--	--	--
Chromium	200	--	--	--	--	--	--	--	--
Mercury	NSE	--	--	--	--	--	--	--	--

NSE = No standard established
BDL = Below laboratory detection limit
-- = Not analyzed for
0.24 = Exceeds ch. NR 720 soil cleanup standards
* = TCLP - Lead, B-9 = BDL; ASTM - Lead, B-9 = BDL
** = TCLP - Chromum, B-10 (2-2.5') = BDL
Compiled by: GGC Checked by: JJT

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Summary of Closure

le 1
cal Results

AOC #/Boring No./Depth (ft)/Date													
						AOC #8							
HA-3	NS-1	SS-1	ES-1	WS-1	B-1	B-20	B-21	HAX-1	HAX-2	HAX-3	HAX-4	HAX-5	HAX-6
0-0.5	2	2	2	2	2	0-1.0	2-2.5	0.66	1	1.5	1.5	1.5	1.5
6		4/18/00				1/25/94		8/23/95		8/15/96			
--	--	--	--	--	--	1	1	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	0.0058 0.15	BDL	0.104 0.24 0.0665 0.194 0.131	4.707 0.469 1.24 5.11 2.706 6.45 3.02 0.658	0.033 0.046	0.035 0.028	0.138	0.122
48.3	15.8	122	370	137	112	167	BDL	--	--	33.3	BDL	BDL	BDL
--	--	--	--	--	--	0.218	BDL	--	--	--	--	--	--
17.4	4.21	23.9	52.8	24.7	31.3	7.53	4.94	--	--	10.5	3.35	2.92	2.8
--	--	--	--	--	--	0.0509	BDL	--	--	--	--	--	--

Naphthalene

2-2.5

BDL

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Groundwater A

Analytical Parameters	NR 140 Standards		MW-2				
	ES	PAL	8/29/96	11/21/96	10/1/97	8/25/98	10/20/98
Total Dissolved Metals (µg/l)							
Chromium	100	10	BDL	BDL	--	--	--
Cadmium	5.0	0.5	--	--	--	--	--
Lead	15	1.5	**48.8**	**34.2**	BDL	BDL	3.08
Total Metals (µg/l)							
Lead	NSE	NSE	--	--	--	BDL	8.38
PAHs[1] (µg/l)							
Acenaphthene	NSE	NSE	--	--	--	--	--
Anthracene	3,000	600	--	--	--	--	--
Benzo(a)Anthracene	NSE	NSE	--	--	--	--	--
Benzo(a)Pyrene	0.2	0.02	--	--	--	--	--
Benzo(b)Fluoranthene	NSE	NSE	--	--	--	--	--
Benzo(k)Fluoranthene	NSE	NSE	--	--	--	--	--
Benzo(g,h,i)Perylene	NSE	NSE	--	--	--	--	--
Chrysene	0.2	0.02	--	--	--	--	--
Dibenzo(a,h)Anthracene	NSE	NSE	--	--	--	--	--
Fluoranthene	400	80	--	--	--	--	--
Fluorene	400	80	--	--	--	--	--
Indeno(1,2,3-cd)Pyrene	NSE	NSE	--	--	--	--	--
1-Methyl Naphthalene	NSE	NSE	--	--	--	--	--
2-Methyl Naphthalene	NSE	NSE	--	--	--	--	--
Naphthalene	40	8.0	--	--	--	--	--
Phenanthrene	NSE	NSE	--	--	--	--	--
Pyrene	250	50	--	--	--	--	--

NSE = No standard established
BDL = Below laboratory detection limit
-- = Not analyzed for
48.8 = Exceeds ch. NR 140 Enforcement Standard (ES)
3.08 = Exceeds ch. NR 140 Preventive Action Limit (PAL)
[1] = PAH list is not complete; PAHs not listed are BDL
Compiled by: GGC Checked by: JEG

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e 2
lytical Results

	Well No./Sampling Date							
	HP-1	HP-2	HP-3	HP-4	HP-5	HP-6	LYS-1	
1/19/99	10/1/97	10/1/97	10/1/97	10/1/97	10/1/97	10/1/97	8/29/96	11/21/96
--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--
BDL	BDL	1.06	BDL	BDL	BDL	BDL	6.94	BDL
1.49	--	--	--	--	--	--	--	--
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Table 3
Bay Water Analytical Results

Analytical Parameters	AOC #/Location/Date	
	AOC #11	
	Inside Dry Dock #1 5' from Bottom	Outside Dry Dock #1 10' from Surface
	10/21/96	10/21/96
Total Dissolved Metals (μg/l)		
Lead	7.57	6.83

Compiled by: GGC Checked by: JEG

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Figures

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USGS SUPERIOR QUADRANGLE

WISCONSIN - DOUGLAS CO. 7.5 MINUTE SERIES

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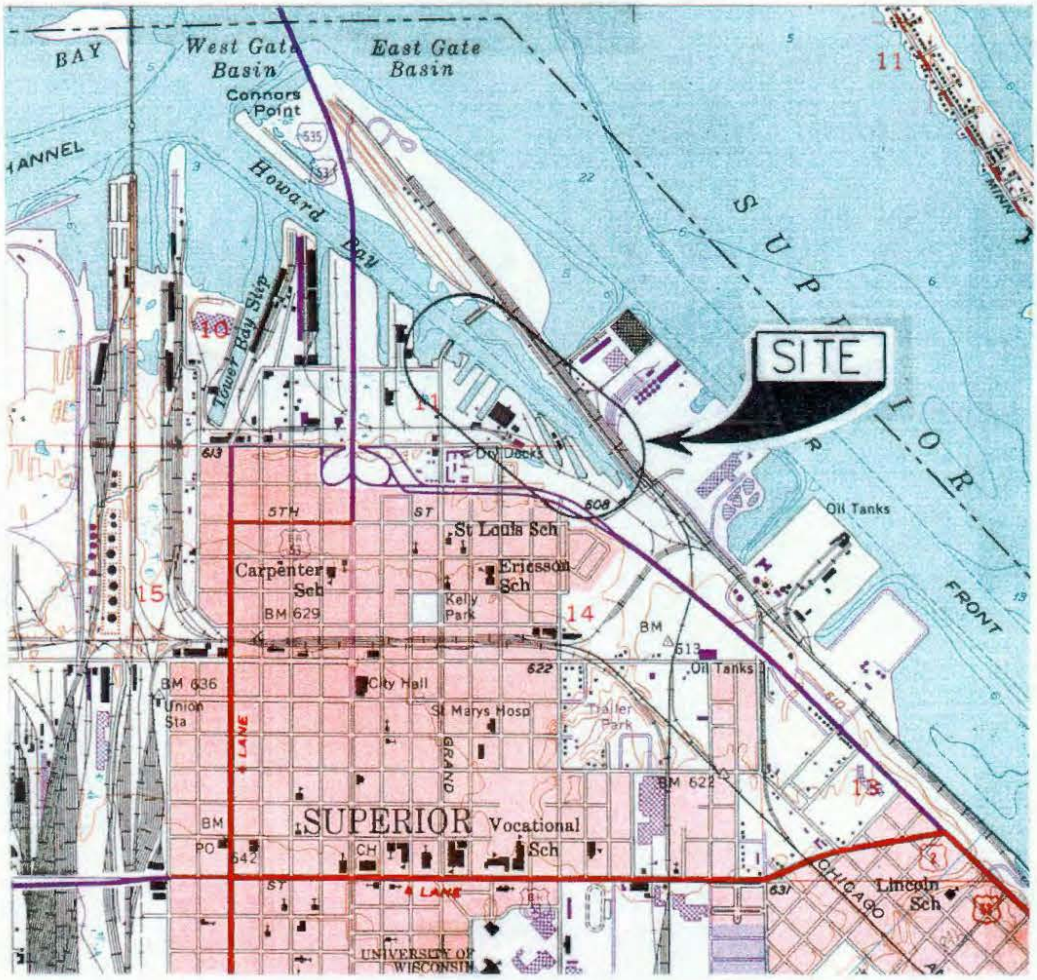
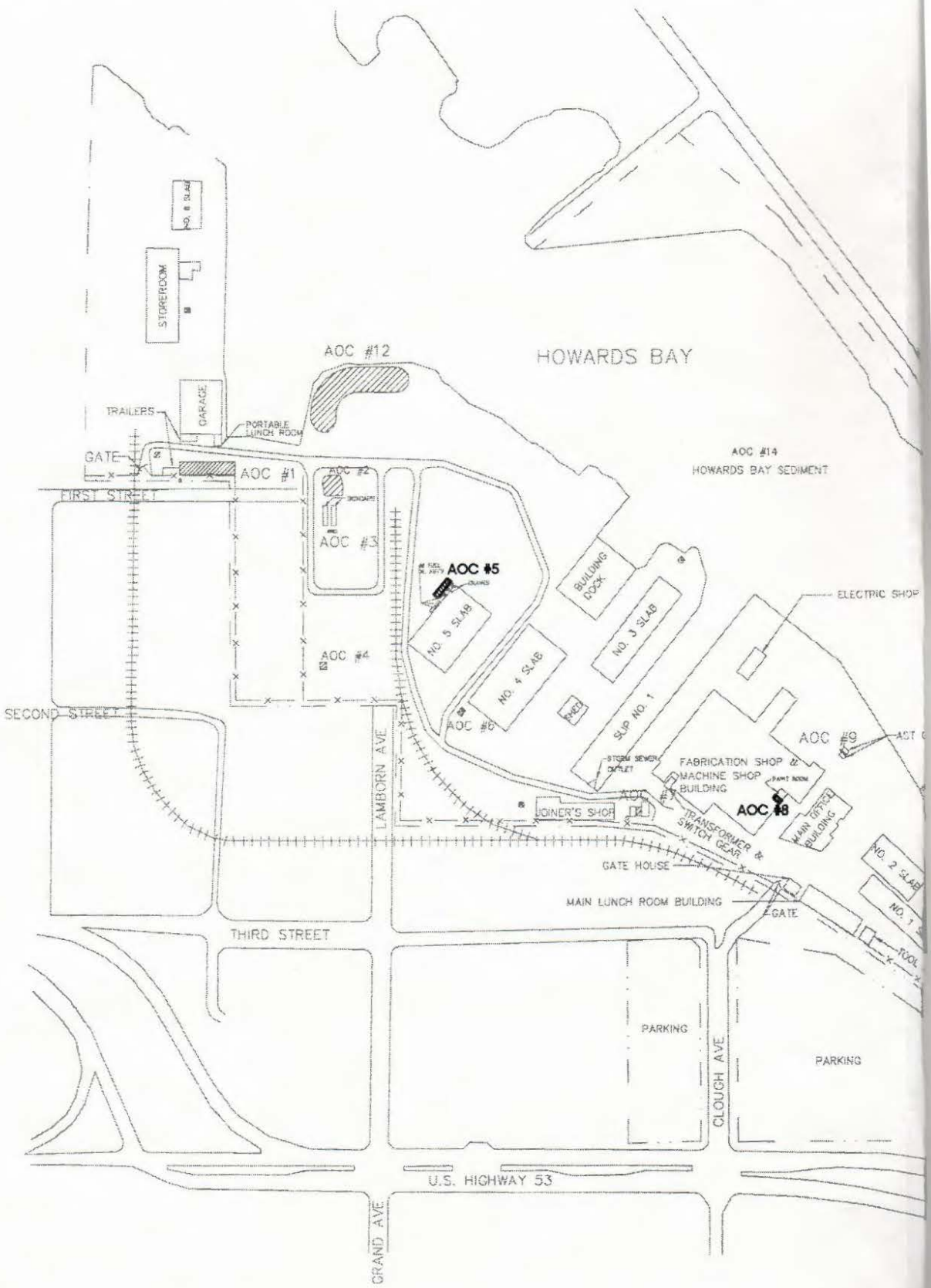
SCALE: 1"=2,000'



ENGINEERS ■ ARCHITECTS ■ PLANNERS	DRAWN BY: KEA 10/18/93 CHECKED BY:	FIGURE 1 FRASER SHIPYARDS, INC. SUPERIOR, WISCONSIN	FILE NO. FRASE9401 DRG. NO. 9401FZA1



NO.	DATE	ISSUE/REVISIONS	DRAWN BY		DESIGN		FIELD REVIEW		QC CHECK		
1	03/03/97	--------	RJH	10/00	JEG	03/97					

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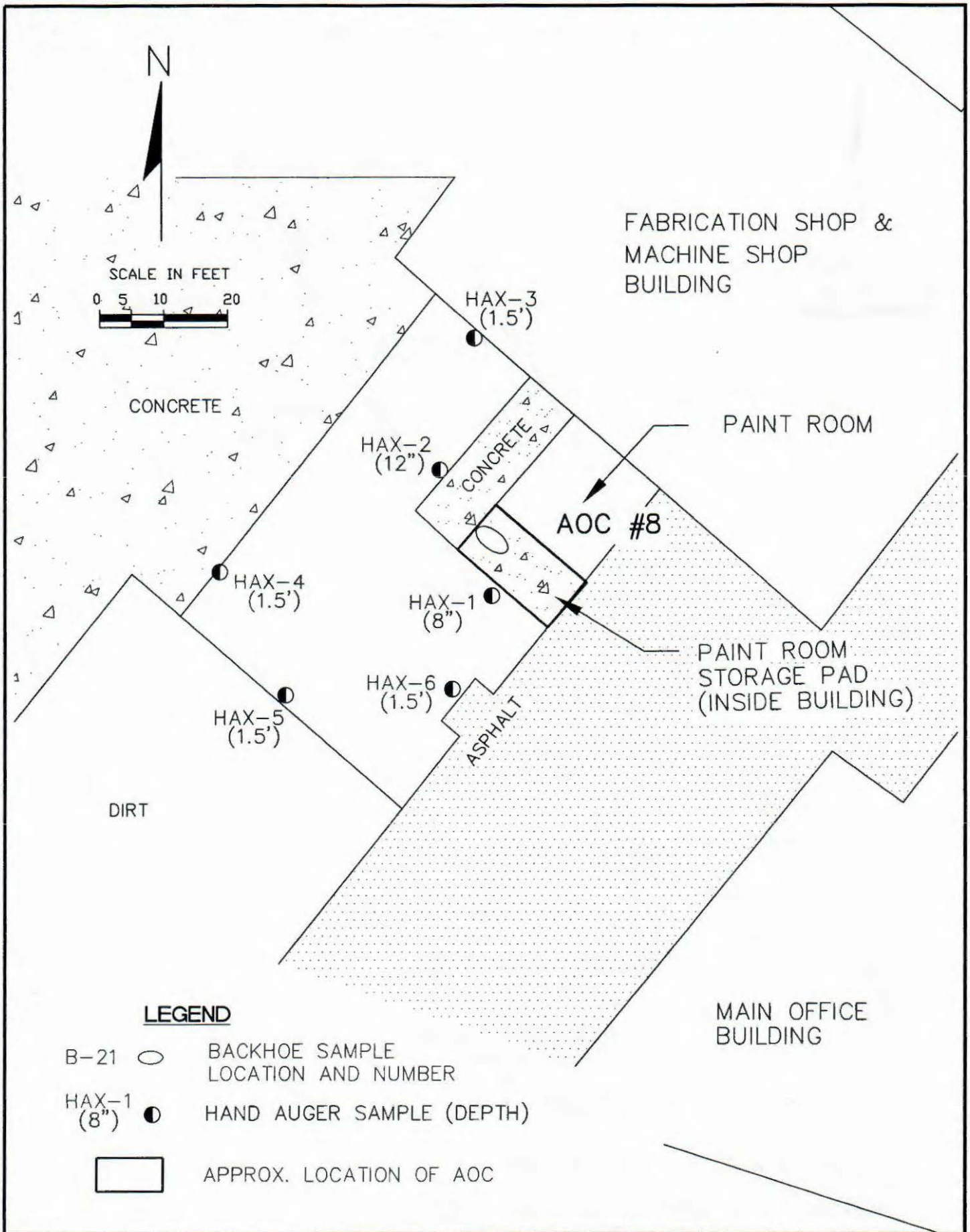

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1	03/12/96		RJH 10/00	CWI 10/96		

SEH ENGINEERS ■ ARCHITECTS ■ PLANNERS

FRASER SHIPYARDS, INC.

FIGURE 4
AOC #8 DETAIL

PROJ. NO. FRAS9401
DATE 10/03/96

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Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

September 06, 2018

Mr. John McCarthy
Environmental Troubleshooters
3825 Grand Avenue
Duluth, MN 55807

RE: Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Dear Mr. McCarthy:
Enclosed are the analytical results for sample(s) received by the laboratory on August 24, 2018. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Shawn Davis
shawn.davis@pacelabs.com
612-607-6378
Project Manager

Enclosures

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Minnesota Certification IDs

1700 Elm Street SE, Minneapolis, MN 55414-2485
A2LA Certification #: 2926.01
Alabama Certification #: 40770
Alaska Contaminated Sites Certification #: 17-009
Alaska DW Certification #: MN00064
Arizona Certification #: AZ0014
Arkansas DW Certification #: MN00064
Arkansas WW Certification #: 88-0680
California Certification #: 2929
CNMI Saipan Certification #: MP0003
Colorado Certification #: MN00064
Connecticut Certification #: PH-0256
EPA Region 8+Wyoming DW Certification #: via MN 027-053-137
Florida Certification #: E87605
Georgia Certification #: 959
Guam EPA Certification #: MN00064
Hawaii Certification #: MN00064
Idaho Certification #: MN00064
Illinois Certification #: 200011
Indiana Certification #: C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky DW Certification #: 90062
Kentucky WW Certification #: 90062
Louisiana DEQ Certification #: 03086
Louisiana DW Certification #: MN00064
Maine Certification #: MN00064
Maryland Certification #: 322
Massachusetts Certification #: M-MN064
Michigan Certification #: 9909
Minnesota Certification #: 027-053-137
Minnesota Dept of Ag Certifcation #: via MN 027-053-137
Minnesota Petrofund Certification #: 1240
Mississippi Certification #: MN00064
Montana Certification #: CERT0092
Nebraska Certification #: NE-OS-18-06
Nevada Certification #: MN00064
New Hampshire Certification #: 2081
New Jersey Certification #: MN002
New York Certification #: 11647
North Carolina DW Certification #: 27700
North Carolina WW Certification #: 530
North Dakota Certification #: R-036
Ohio DW Certification #: 41244
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon NwTPH Certification #: MN300001
Oregon Secondary Certification #: MN200001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification #: MN00064
South Carolina Certification #:74003001
Tennessee Certification #: TN02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia Certification #: 460163
Washington Certification #: C486
West Virginia DW Certification #: 9952 C
West Virginia DEP Certification #: 382
Wisconsin Certification #: 999407970
Wyoming UST Certification #: via A2LA 2926.01

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10444925001	**GP-15 (2-4)**	Solid	08/22/18 10:10	08/24/18 19:30
10444925002	**GP-16 (4-6)**	Solid	08/22/18 10:50	08/24/18 19:30
10444925003	**PS-MW-3**	Water	08/22/18 13:30	08/24/18 19:30
10444925004	**PS-MW-3.1**	Water	08/22/18 13:35	08/24/18 19:30
10444925005	**PS-MW-4**	Water	08/22/18 14:35	08/24/18 19:30
10444925006	**PS-MW-2**	Water	08/23/18 11:05	08/24/18 19:30
10444925007	**PS-MW-1**	Water	08/23/18 11:15	08/24/18 19:30
10444925008	**GP-17(2-4)**	Solid	08/24/18 09:20	08/24/18 19:30

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SAMPLE ANALYTE COUNT

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10444925001	**GP-15 (2-4)**	ASTM D2974	DCF	1
		EPA 8270D by SIM	STB	18
10444925002	**GP-16 (4-6)**	ASTM D2974	DCF	1
		EPA 8270D by SIM	STB	18
10444925003	**PS-MW-3**	EPA 8270D by SIM	STB	18
10444925004	**PS-MW-3.1**	EPA 8270D by SIM	STB	18
10444925005	**PS-MW-4**	EPA 8270D by SIM	STB	18
10444925006	**PS-MW-2**	EPA 8270D by SIM	STB	18
10444925007	**PS-MW-1**	EPA 8270D by SIM	STB	18
10444925008	**GP-17(2-4)**	ASTM D2974	JDL	1
		EPA 8270D by SIM	STB	18

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-15 (2-4) **Lab ID: 10444925001** Collected: 08/22/18 10:10 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**4.5**	%	0.10	0.10	1		08/27/18 13:54		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.4	0.43	1	08/28/18 08:34	09/05/18 01:48	83-32-9	
Acenaphthylene	ND	ug/kg	1.7	0.52	1	08/28/18 08:34	09/05/18 01:48	208-96-8	
Anthracene	**12.0**	ug/kg	1.6	0.49	1	08/28/18 08:34	09/05/18 01:48	120-12-7	
Benzo(a)anthracene	**31.1**	ug/kg	3.8	1.1	1	08/28/18 08:34	09/05/18 01:48	56-55-3	
Benzo(a)pyrene	**32.0**	ug/kg	2.4	0.72	1	08/28/18 08:34	09/05/18 01:48	50-32-8	
Benzo(b)fluoranthene	**41.9**	ug/kg	1.3	0.39	1	08/28/18 08:34	09/05/18 01:48	205-99-2	
Benzo(g,h,i)perylene	**22.7**	ug/kg	2.2	0.66	1	08/28/18 08:34	09/05/18 01:48	191-24-2	
Benzo(k)fluoranthene	**16.6**	ug/kg	2.9	0.88	1	08/28/18 08:34	09/05/18 01:48	207-08-9	
Chrysene	**30.9**	ug/kg	4.7	1.4	1	08/28/18 08:34	09/05/18 01:48	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	1.6	0.48	1	08/28/18 08:34	09/05/18 01:48	53-70-3	
Fluoranthene	**62.5**	ug/kg	1.5	0.45	1	08/28/18 08:34	09/05/18 01:48	206-44-0	
Fluorene	ND	ug/kg	1.1	0.33	1	08/28/18 08:34	09/05/18 01:48	86-73-7	
Indeno(1,2,3-cd)pyrene	**17.8**	ug/kg	2.3	0.70	1	08/28/18 08:34	09/05/18 01:48	193-39-5	
Naphthalene	ND	ug/kg	2.7	0.81	1	08/28/18 08:34	09/05/18 01:48	91-20-3	
Phenanthrene	**39.4**	ug/kg	6.7	2.0	1	08/28/18 08:34	09/05/18 01:48	85-01-8	
Pyrene	**52.6**	ug/kg	5.3	1.6	1	08/28/18 08:34	09/05/18 01:48	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	42-125		1	08/28/18 08:34	09/05/18 01:48	321-60-8	
p-Terphenyl-d14 (S)	74	%.	57-125		1	08/28/18 08:34	09/05/18 01:48	1718-51-0	

Sample: GP-16 (4-6) **Lab ID: 10444925002** Collected: 08/22/18 10:50 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**25.9**	%	0.10	0.10	1		08/27/18 13:55		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	ND	ug/kg	1.8	0.55	1	08/28/18 08:34	09/05/18 02:09	83-32-9	
Acenaphthylene	ND	ug/kg	2.2	0.67	1	08/28/18 08:34	09/05/18 02:09	208-96-8	
Anthracene	ND	ug/kg	2.1	0.63	1	08/28/18 08:34	09/05/18 02:09	120-12-7	
Benzo(a)anthracene	ND	ug/kg	4.8	1.5	1	08/28/18 08:34	09/05/18 02:09	56-55-3	
Benzo(a)pyrene	ND	ug/kg	3.1	0.92	1	08/28/18 08:34	09/05/18 02:09	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	1.7	0.50	1	08/28/18 08:34	09/05/18 02:09	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	2.8	0.85	1	08/28/18 08:34	09/05/18 02:09	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	3.8	1.1	1	08/28/18 08:34	09/05/18 02:09	207-08-9	
Chrysene	ND	ug/kg	6.1	1.8	1	08/28/18 08:34	09/05/18 02:09	218-01-9	
Dibenz(a,h)anthracene	ND	ug/kg	2.1	0.62	1	08/28/18 08:34	09/05/18 02:09	53-70-3	
Fluoranthene	ND	ug/kg	1.9	0.58	1	08/28/18 08:34	09/05/18 02:09	206-44-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-16 (4-6) **Lab ID: 10444925002** Collected: 08/22/18 10:50 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Fluorene	ND	ug/kg	1.4	0.42	1	08/28/18 08:34	09/05/18 02:09	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	3.0	0.90	1	08/28/18 08:34	09/05/18 02:09	193-39-5	
Naphthalene	ND	ug/kg	3.5	1.0	1	08/28/18 08:34	09/05/18 02:09	91-20-3	
Phenanthrene	ND	ug/kg	8.6	2.6	1	08/28/18 08:34	09/05/18 02:09	85-01-8	
Pyrene	ND	ug/kg	6.8	2.1	1	08/28/18 08:34	09/05/18 02:09	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	77	%.	42-125		1	08/28/18 08:34	09/05/18 02:09	321-60-8	
p-Terphenyl-d14 (S)	81	%.	57-125		1	08/28/18 08:34	09/05/18 02:09	1718-51-0	

Sample: PS-MW-3 **Lab ID: 10444925003** Collected: 08/22/18 13:30 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**2.1**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 12:29	83-32-9	
Acenaphthylene	**0.16**	ug/L	0.016	0.0047	1	08/27/18 13:02	09/01/18 12:29	208-96-8	
Anthracene	**0.47**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 12:29	120-12-7	
Benzo(a)anthracene	**0.62**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 12:29	56-55-3	
Benzo(a)pyrene	**0.69**	ug/L	0.013	0.0041	1	08/27/18 13:02	09/01/18 12:29	50-32-8	
Benzo(b)fluoranthene	**0.90**	ug/L	0.043	0.013	1	08/27/18 13:02	09/01/18 12:29	205-99-2	
Benzo(g,h,i)perylene	**0.46**	ug/L	0.033	0.0099	1	08/27/18 13:02	09/01/18 12:29	191-24-2	
Benzo(k)fluoranthene	**0.32**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 12:29	207-08-9	
Chrysene	**0.62**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 12:29	218-01-9	
Dibenz(a,h)anthracene	**0.082**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 12:29	53-70-3	
Fluoranthene	**1.9**	ug/L	0.062	0.018	1	08/27/18 13:02	09/01/18 12:29	206-44-0	
Fluorene	**0.91**	ug/L	0.020	0.0060	1	08/27/18 13:02	09/01/18 12:29	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.37**	ug/L	0.045	0.013	1	08/27/18 13:02	09/01/18 12:29	193-39-5	
Naphthalene	**0.65**	ug/L	0.023	0.0069	1	08/27/18 13:02	09/01/18 12:29	91-20-3	
Phenanthrene	**3.0**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 12:29	85-01-8	
Pyrene	**1.9**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 12:29	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	74	%.	30-145		1	08/27/18 13:02	09/01/18 12:29	321-60-8	
p-Terphenyl-d14 (S)	78	%.	30-149		1	08/27/18 13:02	09/01/18 12:29	1718-51-0	

Sample: PS-MW-3.1 **Lab ID: 10444925004** Collected: 08/22/18 13:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**2.4**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 12:50	83-32-9	
Acenaphthylene	**0.18**	ug/L	0.015	0.0046	1	08/27/18 13:02	09/01/18 12:50	208-96-8	
Anthracene	**0.61**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 12:50	120-12-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: PS-MW-3.1 **Lab ID: 10444925004** Collected: 08/22/18 13:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Benzo(a)anthracene	**0.84**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 12:50	56-55-3	
Benzo(a)pyrene	**0.95**	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 12:50	50-32-8	
Benzo(b)fluoranthene	**1.1**	ug/L	0.042	0.013	1	08/27/18 13:02	09/01/18 12:50	205-99-2	
Benzo(g,h,i)perylene	**0.59**	ug/L	0.033	0.0098	1	08/27/18 13:02	09/01/18 12:50	191-24-2	
Benzo(k)fluoranthene	**0.53**	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 12:50	207-08-9	
Chrysene	**0.83**	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 12:50	218-01-9	
Dibenz(a,h)anthracene	**0.10**	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 12:50	53-70-3	
Fluoranthene	**2.5**	ug/L	0.061	0.018	1	08/27/18 13:02	09/01/18 12:50	206-44-0	
Fluorene	**1.1**	ug/L	0.020	0.0059	1	08/27/18 13:02	09/01/18 12:50	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.48**	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 12:50	193-39-5	
Naphthalene	**0.74**	ug/L	0.023	0.0068	1	08/27/18 13:02	09/01/18 12:50	91-20-3	
Phenanthrene	**3.7**	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 12:50	85-01-8	
Pyrene	**2.6**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 12:50	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	79	%.	30-145		1	08/27/18 13:02	09/01/18 12:50	321-60-8	
p-Terphenyl-d14 (S)	86	%.	30-149		1	08/27/18 13:02	09/01/18 12:50	1718-51-0	

Sample: PS-MW-4 **Lab ID: 10444925005** Collected: 08/22/18 14:35 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	**0.041**	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 13:11	83-32-9	
Acenaphthylene	ND	ug/L	0.016	0.0047	1	08/27/18 13:02	09/01/18 13:11	208-96-8	
Anthracene	**0.10**	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 13:11	120-12-7	
Benzo(a)anthracene	**0.32**	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 13:11	56-55-3	
Benzo(a)pyrene	**0.36**	ug/L	0.013	0.0041	1	08/27/18 13:02	09/01/18 13:11	50-32-8	
Benzo(b)fluoranthene	**0.54**	ug/L	0.043	0.013	1	08/27/18 13:02	09/01/18 13:11	205-99-2	
Benzo(g,h,i)perylene	**0.28**	ug/L	0.033	0.0099	1	08/27/18 13:02	09/01/18 13:11	191-24-2	
Benzo(k)fluoranthene	**0.18**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 13:11	207-08-9	
Chrysene	**0.36**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 13:11	218-01-9	
Dibenz(a,h)anthracene	**0.047**	ug/L	0.031	0.0093	1	08/27/18 13:02	09/01/18 13:11	53-70-3	
Fluoranthene	**0.82**	ug/L	0.062	0.018	1	08/27/18 13:02	09/01/18 13:11	206-44-0	
Fluorene	ND	ug/L	0.020	0.0060	1	08/27/18 13:02	09/01/18 13:11	86-73-7	
Indeno(1,2,3-cd)pyrene	**0.22**	ug/L	0.045	0.013	1	08/27/18 13:02	09/01/18 13:11	193-39-5	
Naphthalene	ND	ug/L	0.023	0.0069	1	08/27/18 13:02	09/01/18 13:11	91-20-3	
Phenanthrene	**0.44**	ug/L	0.035	0.011	1	08/27/18 13:02	09/01/18 13:11	85-01-8	
Pyrene	**0.79**	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 13:11	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	76	%.	30-145		1	08/27/18 13:02	09/01/18 13:11	321-60-8	
p-Terphenyl-d14 (S)	77	%.	30-149		1	08/27/18 13:02	09/01/18 13:11	1718-51-0	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: PS-MW-2 **Lab ID: 10444925006** Collected: 08/23/18 11:05 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	ND	ug/L	0.011	0.0032	1	08/27/18 13:02	09/01/18 13:32	83-32-9	
Acenaphthylene	ND	ug/L	0.015	0.0046	1	08/27/18 13:02	09/01/18 13:32	208-96-8	
Anthracene	ND	ug/L	0.021	0.0062	1	08/27/18 13:02	09/01/18 13:32	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.013	0.0039	1	08/27/18 13:02	09/01/18 13:32	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 13:32	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.042	0.013	1	08/27/18 13:02	09/01/18 13:32	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.033	0.0098	1	08/27/18 13:02	09/01/18 13:32	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 13:32	207-08-9	
Chrysene	ND	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 13:32	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.031	0.0092	1	08/27/18 13:02	09/01/18 13:32	53-70-3	
Fluoranthene	ND	ug/L	0.061	0.018	1	08/27/18 13:02	09/01/18 13:32	206-44-0	
Fluorene	ND	ug/L	0.020	0.0059	1	08/27/18 13:02	09/01/18 13:32	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 13:32	193-39-5	
Naphthalene	ND	ug/L	0.023	0.0068	1	08/27/18 13:02	09/01/18 13:32	91-20-3	
Phenanthrene	ND	ug/L	0.035	0.010	1	08/27/18 13:02	09/01/18 13:32	85-01-8	
Pyrene	ND	ug/L	0.049	0.015	1	08/27/18 13:02	09/01/18 13:32	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	85	%.	30-145		1	08/27/18 13:02	09/01/18 13:32	321-60-8	
p-Terphenyl-d14 (S)	89	%.	30-149		1	08/27/18 13:02	09/01/18 13:32	1718-51-0	

Sample: PS-MW-1 **Lab ID: 10444925007** Collected: 08/23/18 11:15 Received: 08/24/18 19:30 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA Mod. 3510C								
Acenaphthene	ND	ug/L	0.011	0.0033	1	08/27/18 13:02	09/01/18 13:53	83-32-9	
Acenaphthylene	ND	ug/L	0.016	0.0048	1	08/27/18 13:02	09/01/18 13:53	208-96-8	
Anthracene	ND	ug/L	0.021	0.0064	1	08/27/18 13:02	09/01/18 13:53	120-12-7	
Benzo(a)anthracene	ND	ug/L	0.013	0.0040	1	08/27/18 13:02	09/01/18 13:53	56-55-3	
Benzo(a)pyrene	ND	ug/L	0.014	0.0041	1	08/27/18 13:02	09/01/18 13:53	50-32-8	
Benzo(b)fluoranthene	ND	ug/L	0.044	0.013	1	08/27/18 13:02	09/01/18 13:53	205-99-2	
Benzo(g,h,i)perylene	ND	ug/L	0.034	0.010	1	08/27/18 13:02	09/01/18 13:53	191-24-2	
Benzo(k)fluoranthene	ND	ug/L	0.036	0.011	1	08/27/18 13:02	09/01/18 13:53	207-08-9	
Chrysene	ND	ug/L	0.032	0.0095	1	08/27/18 13:02	09/01/18 13:53	218-01-9	
Dibenz(a,h)anthracene	ND	ug/L	0.032	0.0095	1	08/27/18 13:02	09/01/18 13:53	53-70-3	
Fluoranthene	ND	ug/L	0.063	0.019	1	08/27/18 13:02	09/01/18 13:53	206-44-0	
Fluorene	ND	ug/L	0.020	0.0061	1	08/27/18 13:02	09/01/18 13:53	86-73-7	
Indeno(1,2,3-cd)pyrene	ND	ug/L	0.046	0.014	1	08/27/18 13:02	09/01/18 13:53	193-39-5	
Naphthalene	**0.043**	ug/L	0.023	0.0070	1	08/27/18 13:02	09/01/18 13:53	91-20-3	
Phenanthrene	ND	ug/L	0.036	0.011	1	08/27/18 13:02	09/01/18 13:53	85-01-8	
Pyrene	ND	ug/L	0.050	0.015	1	08/27/18 13:02	09/01/18 13:53	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%.	30-145		1	08/27/18 13:02	09/01/18 13:53	321-60-8	
p-Terphenyl-d14 (S)	74	%.	30-149		1	08/27/18 13:02	09/01/18 13:53	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

ANALYTICAL RESULTS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Sample: GP-17(2-4) **Lab ID: 10444925008** Collected: 08/24/18 09:20 Received: 08/24/18 19:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
Dry Weight / %M by ASTM D2974	Analytical Method: ASTM D2974								
Percent Moisture	**17.0**	%	0.10	0.10	1		08/28/18 13:32		
8270D MSSV PAH by SIM	Analytical Method: EPA 8270D by SIM Preparation Method: EPA 3550								
Acenaphthene	**65.1**	ug/kg	1.6	0.49	1	08/28/18 08:34	09/05/18 02:30	83-32-9	
Acenaphthylene	**24.9**	ug/kg	2.0	0.60	1	08/28/18 08:34	09/05/18 02:30	208-96-8	
Anthracene	**163**	ug/kg	1.9	0.56	1	08/28/18 08:34	09/05/18 02:30	120-12-7	
Benzo(a)anthracene	**366**	ug/kg	4.3	1.3	1	08/28/18 08:34	09/05/18 02:30	56-55-3	
Benzo(a)pyrene	**357**	ug/kg	2.8	0.83	1	08/28/18 08:34	09/05/18 02:30	50-32-8	
Benzo(b)fluoranthene	**481**	ug/kg	7.5	2.2	5	08/28/18 08:34	09/05/18 13:46	205-99-2	
Benzo(g,h,i)perylene	**229**	ug/kg	2.5	0.76	1	08/28/18 08:34	09/05/18 02:30	191-24-2	
Benzo(k)fluoranthene	**165**	ug/kg	3.4	1.0	1	08/28/18 08:34	09/05/18 02:30	207-08-9	
Chrysene	**334**	ug/kg	5.4	1.6	1	08/28/18 08:34	09/05/18 02:30	218-01-9	
Dibenz(a,h)anthracene	**59.1**	ug/kg	1.8	0.55	1	08/28/18 08:34	09/05/18 02:30	53-70-3	
Fluoranthene	**836**	ug/kg	8.6	2.6	5	08/28/18 08:34	09/05/18 13:46	206-44-0	
Fluorene	**80.6**	ug/kg	1.3	0.38	1	08/28/18 08:34	09/05/18 02:30	86-73-7	
Indeno(1,2,3-cd)pyrene	**182**	ug/kg	2.7	0.81	1	08/28/18 08:34	09/05/18 02:30	193-39-5	
Naphthalene	**79.8**	ug/kg	3.1	0.93	1	08/28/18 08:34	09/05/18 02:30	91-20-3	
Phenanthrene	**738**	ug/kg	38.4	11.5	5	08/28/18 08:34	09/05/18 13:46	85-01-8	
Pyrene	**770**	ug/kg	30.6	9.2	5	08/28/18 08:34	09/05/18 13:46	129-00-0	
Surrogates									
2-Fluorobiphenyl (S)	80	%.	42-125		1	08/28/18 08:34	09/05/18 02:30	321-60-8	
p-Terphenyl-d14 (S)	85	%.	57-125		1	08/28/18 08:34	09/05/18 02:30	1718-51-0	

REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559127 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight / %M by ASTM D2974
Associated Lab Samples: 10444925001, 10444925002

SAMPLE DUPLICATE: 3035887

Parameter	Units	10444914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	5.0	5.2	5	30	

SAMPLE DUPLICATE: 3035888

Parameter	Units	12114434003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	61.2	61.3	0	30	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559406
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight / %M by ASTM D2974
Associated Lab Samples: 10444925008

SAMPLE DUPLICATE: 3037265

Parameter	Units	10444849001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.8	11.0	2	30	

SAMPLE DUPLICATE: 3037266

Parameter	Units	10444849011 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.9	4.8	2	30	

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559367 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA 3550 Analysis Description: 8270D Solid PAH by SIM MSSV
Associated Lab Samples: 10444925001, 10444925002, 10444925008

METHOD BLANK: 3036724 Matrix: Solid
Associated Lab Samples: 10444925001, 10444925002, 10444925008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/kg	ND	1.4	09/04/18 17:47	
Acenaphthylene	ug/kg	ND	1.6	09/04/18 17:47	
Anthracene	ug/kg	ND	1.6	09/04/18 17:47	
Benzo(a)anthracene	ug/kg	ND	3.6	09/04/18 17:47	
Benzo(a)pyrene	ug/kg	ND	2.3	09/04/18 17:47	
Benzo(b)fluoranthene	ug/kg	ND	1.2	09/04/18 17:47	
Benzo(g,h,i)perylene	ug/kg	ND	2.1	09/04/18 17:47	
Benzo(k)fluoranthene	ug/kg	ND	2.8	09/04/18 17:47	
Chrysene	ug/kg	ND	4.5	09/04/18 17:47	
Dibenz(a,h)anthracene	ug/kg	ND	1.5	09/04/18 17:47	
Fluoranthene	ug/kg	ND	1.4	09/04/18 17:47	
Fluorene	ug/kg	ND	1.0	09/04/18 17:47	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	2.2	09/04/18 17:47	
Naphthalene	ug/kg	ND	2.6	09/04/18 17:47	
Phenanthrene	ug/kg	ND	6.4	09/04/18 17:47	
Pyrene	ug/kg	ND	5.1	09/04/18 17:47	
2-Fluorobiphenyl (S)	%.	63	42-125	09/04/18 17:47	
p-Terphenyl-d14 (S)	%.	70	57-125	09/04/18 17:47	

LABORATORY CONTROL SAMPLE: 3036725

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/kg	33.3	20.1	60	52-125	
Acenaphthylene	ug/kg	33.3	20.2	61	50-125	
Anthracene	ug/kg	33.3	25.0	75	65-125	
Benzo(a)anthracene	ug/kg	33.3	24.2	73	60-125	
Benzo(a)pyrene	ug/kg	33.3	25.2	76	69-125	
Benzo(b)fluoranthene	ug/kg	33.3	26.0	78	61-125	
Benzo(g,h,i)perylene	ug/kg	33.3	26.8	80	60-125	
Benzo(k)fluoranthene	ug/kg	33.3	25.1	75	67-125	
Chrysene	ug/kg	33.3	23.5	70	67-125	
Dibenz(a,h)anthracene	ug/kg	33.3	26.7	80	63-125	
Fluoranthene	ug/kg	33.3	25.0	75	75-125	
Fluorene	ug/kg	33.3	21.3	64	54-125	
Indeno(1,2,3-cd)pyrene	ug/kg	33.3	27.2	81	63-125	
Naphthalene	ug/kg	33.3	21.8	65	49-125	
Phenanthrene	ug/kg	33.3	23.2	70	65-125	
Pyrene	ug/kg	33.3	24.1	72	64-125	
2-Fluorobiphenyl (S)	%.			65	42-125	
p-Terphenyl-d14 (S)	%.			70	57-125	

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REPORT OF LABORATORY ANALYSIS

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Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3036726 3036727

Parameter	Units	10444649001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/kg	2.2J	35.2	35.2	29.2	27.9	77	73	30-125	4	30	
Acenaphthylene	ug/kg	<0.52	35.2	35.2	26.5	25.7	75	73	30-133	3	30	
Anthracene	ug/kg	2.8J	35.2	35.2	32.3	32.2	84	84	30-150	0	30	
Benzo(a)anthracene	ug/kg	9.4J	35.2	35.2	41.8	39.1	92	84	30-150	7	30	
Benzo(a)pyrene	ug/kg	10.3J	35.2	35.2	40.8	37.1	87	76	30-150	9	30	
Benzo(b)fluoranthene	ug/kg	9.5J	35.2	35.2	37.8	38.8	80	83	30-150	3	30	
Benzo(g,h,i)perylene	ug/kg	12.5	35.2	35.2	42.2	39.0	84	75	30-150	8	30	
Benzo(k)fluoranthene	ug/kg	3.7J	35.2	35.2	30.6	29.7	77	74	30-150	3	30	
Chrysene	ug/kg	21.5	35.2	35.2	54.7	50.9	95	84	30-150	7	30	
Dibenz(a,h)anthracene	ug/kg	2.1J	35.2	35.2	31.7	30.9	84	82	30-131	2	30	
Fluoranthene	ug/kg	11.9	35.2	35.2	42.4	40.8	87	82	30-150	4	30	
Fluorene	ug/kg	3.7J	35.2	35.2	32.3	32.8	81	83	30-147	2	30	
Indeno(1,2,3-cd)pyrene	ug/kg	4.3J	35.2	35.2	32.5	31.2	80	77	30-150	4	30	
Naphthalene	ug/kg	1.4J	35.2	35.2	26.5	25.1	71	67	30-131	5	30	
Phenanthrene	ug/kg	16.0	35.2	35.2	43.5	44.8	78	82	30-150	3	30	
Pyrene	ug/kg	31.7	35.2	35.2	60.2	57.8	81	74	30-150	4	30	
2-Fluorobiphenyl (S)	%.						82	80	42-125			
p-Terphenyl-d14 (S)	%.						79	77	57-125			

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REPORT OF LABORATORY ANALYSIS

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(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

QC Batch: 559221 Analysis Method: EPA 8270D by SIM
QC Batch Method: EPA Mod. 3510C Analysis Description: 8270D PAH by SIM MSSV
Associated Lab Samples: 10444925003, 10444925004, 10444925005, 10444925006, 10444925007

METHOD BLANK: 3036187 Matrix: Water
Associated Lab Samples: 10444925003, 10444925004, 10444925005, 10444925006, 10444925007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acenaphthene	ug/L	ND	0.011	08/30/18 15:34	
Acenaphthylene	ug/L	ND	0.015	08/30/18 15:34	
Anthracene	ug/L	ND	0.021	08/30/18 15:34	
Benzo(a)anthracene	ug/L	ND	0.013	08/30/18 15:34	
Benzo(a)pyrene	ug/L	ND	0.013	08/30/18 15:34	
Benzo(b)fluoranthene	ug/L	ND	0.042	08/30/18 15:34	
Benzo(g,h,i)perylene	ug/L	ND	0.033	08/30/18 15:34	
Benzo(k)fluoranthene	ug/L	ND	0.035	08/30/18 15:34	
Chrysene	ug/L	ND	0.031	08/30/18 15:34	
Dibenz(a,h)anthracene	ug/L	ND	0.031	08/30/18 15:34	
Fluoranthene	ug/L	ND	0.061	08/30/18 15:34	
Fluorene	ug/L	ND	0.020	08/30/18 15:34	
Indeno(1,2,3-cd)pyrene	ug/L	ND	0.044	08/30/18 15:34	
Naphthalene	ug/L	ND	0.023	08/30/18 15:34	
Phenanthrene	ug/L	ND	0.035	08/30/18 15:34	
Pyrene	ug/L	ND	0.049	08/30/18 15:34	
2-Fluorobiphenyl (S)	%.	89	30-145	08/30/18 15:34	
p-Terphenyl-d14 (S)	%.	85	30-149	08/30/18 15:34	

LABORATORY CONTROL SAMPLE: 3036188

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acenaphthene	ug/L	1	0.75	75	50-125	
Acenaphthylene	ug/L	1	0.75	75	47-125	
Anthracene	ug/L	1	0.91	91	65-125	
Benzo(a)anthracene	ug/L	1	0.77	77	60-125	
Benzo(a)pyrene	ug/L	1	0.93	93	67-125	
Benzo(b)fluoranthene	ug/L	1	0.87	87	64-125	
Benzo(g,h,i)perylene	ug/L	1	0.94	94	53-125	
Benzo(k)fluoranthene	ug/L	1	0.87	87	61-125	
Chrysene	ug/L	1	0.90	90	68-125	
Dibenz(a,h)anthracene	ug/L	1	0.86	86	45-125	
Fluoranthene	ug/L	1	0.86	86	73-125	
Fluorene	ug/L	1	0.81	81	53-125	
Indeno(1,2,3-cd)pyrene	ug/L	1	0.91	91	62-125	
Naphthalene	ug/L	1	0.70	70	46-125	
Phenanthrene	ug/L	1	0.81	81	66-125	
Pyrene	ug/L	1	0.91	91	65-125	
2-Fluorobiphenyl (S)	%.			76	30-145	
p-Terphenyl-d14 (S)	%.			90	30-149	

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
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(612)607-1700

QUALITY CONTROL DATA

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 3036278 3036279

Parameter	Units	10445022001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Acenaphthene	ug/L	ND	3.3	3.3	2.7	2.6	82	78	53-125	4	30	
Acenaphthylene	ug/L	ND	3.3	3.3	2.8	2.7	85	80	48-125	7	30	
Anthracene	ug/L	ND	3.3	3.3	3.6	3.6	108	108	66-125	0	30	
Benzo(a)anthracene	ug/L	ND	3.3	3.3	2.9	2.8	87	85	57-125	2	30	
Benzo(a)pyrene	ug/L	ND	3.3	3.3	3.2	3.1	96	94	62-125	2	30	
Benzo(b)fluoranthene	ug/L	ND	3.3	3.3	3.2	3.1	96	93	50-125	3	30	
Benzo(g,h,i)perylene	ug/L	ND	3.3	3.3	3.2	3.1	97	94	34-125	3	30	
Benzo(k)fluoranthene	ug/L	ND	3.3	3.3	3.1	2.9	92	87	50-125	6	30	
Chrysene	ug/L	ND	3.3	3.3	3.1	3.0	92	89	65-125	3	30	
Dibenz(a,h)anthracene	ug/L	ND	3.3	3.3	3.0	2.9	90	88	31-127	2	30	
Fluoranthene	ug/L	ND	3.3	3.3	3.5	3.4	106	101	70-125	5	30	
Fluorene	ug/L	ND	3.3	3.3	3.1	3.0	92	90	53-125	1	30	
Indeno(1,2,3-cd)pyrene	ug/L	ND	3.3	3.3	3.1	3.1	93	93	45-125	1	30	
Naphthalene	ug/L	ND	3.3	3.3	2.7	2.7	80	81	34-125	1	30	
Phenanthrene	ug/L	ND	3.3	3.3	3.3	3.2	99	97	61-125	3	30	
Pyrene	ug/L	ND	3.3	3.3	3.4	3.2	101	96	60-125	5	30	
2-Fluorobiphenyl (S)	%.						89	85	30-145			
p-Terphenyl-d14 (S)	%.						93	90	30-149			

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REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1700 Elm Street - Suite 200
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(612)607-1700

QUALIFIERS

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

Pace Analytical Services, LLC
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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 14-1004 Fraser Shipyard
Pace Project No.: 10444925

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10444925001	**GP-15 (2-4)**	ASTM D2974	559127		
10444925002	**GP-16 (4-6)**	ASTM D2974	559127		
10444925008	**GP-17(2-4)**	ASTM D2974	559406		
10444925001	**GP-15 (2-4)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925002	**GP-16 (4-6)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925008	**GP-17(2-4)**	EPA 3550	559367	EPA 8270D by SIM	560719
10444925003	**PS-MW-3**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925004	**PS-MW-3.1**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925005	**PS-MW-4**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925006	**PS-MW-2**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986
10444925007	**PS-MW-1**	EPA Mod. 3510C	559221	EPA 8270D by SIM	559986

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed

WO# : 10444925

10444925

Section A Required Client Information:

Company: Environmental Troubleshooters
Address: 3825 Grand Avenue
Email To: JmcCarthy@etsmn.com
Phone: 218-722-6013 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: John McCarthy
Copy To:
Purchase Order No.:
Project Name: Fraser Shipyard
Project Number: 14-1004

Section C Invoice Information:

Attention: Same as Report To:
Company Name:
Address:
Pace Quote Reference:
Pace Project Manager: Shawn Davis
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☒ RCRA ☐ OTHER

Site Location STATE: WI

Section D Required Client Information

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COMPOSITE START TIME	COMPOSITE END/GRAB DATE	COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: PAH	Dry wt.	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GP-15 (2-4)	SL	G			8/22	1010		3	3								X	X		W1
2	GP-16 (4-6)	SL	G			8/22	1050		3	3								X	X		W2
3	PS-MW-3	WT	G			8/22	1330		2	2								X			W3
4	PS-MW-3.1	WT	G			8/22	1335		2	2								X			W4
5	PS-MW-4	WT	G			8/22	1435		2	2								X			W5
6	PS-MW-2	WT	G			8/23	1105		2	2								X			W6
7	PS-MW-1	WT	G			8/23	1115		2	2								X			W7
8	GP-17 (2-4)	SL	G			8/24	920		3	3								X	X		W8
9																					
10																					
11																					
12																					

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
	B. Wr	8/24/18	1145		8/24/18	11:45	0.3	Y	N	Y
		8/24/18	1630	RJ CL	8-24-18	1635	0.1	Y	N	Y
	RJ CL	8.24.18	1930	ON-PACE	8/24/18	19:30	0.1		(Y)	8/24/18 LT

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Brice Wizner
SIGNATURE of SAMPLER: B. Wr
DATE Signed (MM/DD/YY): 8/24/18

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Pace Analytical	Document Name: Sample Condition Upon Receipt Form	Document Revised: 02May2018 Page 1 of 2
	Document No.: F-MN-L-213-rev.23	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Environmental

Project #: WO# : 10444925

PM: SRD Due Date: 08/29/18

CLIENT: ENV TROUBLE

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☑ Pace ☐ SpeeDee ☐ Other:_____

Tracking Number: _____

Custody Seal on Cooler/Box Present? ☑ Yes ☐ No **Seals Intact?** ☑ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☑ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other:_____ **Temp Blank?** ☑ Yes ☐ No

Thermometer Used: ☑ G87A9170600254 ☐ G87A9155100842 **Type of Ice:** ☑ Wet ☐ Blue ☐ None ☐ Dry ☐ Melted

Cooler Temp Read (°C): 0.1 **Cooler Temp Corrected (°C):** 0.1 **Biological Tissue Frozen?** ☐ Yes ☐ No ☑ N/A

Temp should be above freezing to 6°C **Correction Factor:** True **Date and Initials of Person Examining Contents:** 8/24/18 LJ

USDA Regulated Soil (☐ N/A, water sample)

Did samples originate in a quarantine zone within the United States: AL, AR, CA, FL, GA, ID, LA, MS, NC, NM, NY, OK, OR, SC, TN, TX or VA (check maps)? ☐ Yes ☑ No/wt

Did samples originate from a foreign source (internationally, including Hawaii and Puerto Rico)? ☐ Yes ☑ No/wt

If Yes to either question, fill out a Regulated Soil Checklist (F-MN-Q-338) and include with SCUR/COC paperwork.

				COMMENTS:
Chain of Custody Present?	☑ Yes	☐ No		1.
Chain of Custody Filled Out?	☑ Yes	☐ No		2.
Chain of Custody Relinquished?	☑ Yes	☐ No		3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No		5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No		6.
Rush Turn Around Time Requested?	☐ Yes	☑ No		7.
Sufficient Volume?	☑ Yes	☐ No		8.
Correct Containers Used?	☑ Yes	☐ No		9.
-Pace Containers Used?	☑ Yes	☐ No		
Containers Intact?	☑ Yes	☐ No		10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☑ N/A	11. Note if sediment is visible in the dissolved container
Is sufficient information available to reconcile the samples to the COC? Matrix: SL/wt	☑ Yes	☐ No		12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☑ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH Positive for Res. Chlorine? Y N
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, <2pH, NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☑ N/A	Sample #
Exceptions: VOA, Coliform, TOC/DOC Oil and Grease, DRO/8015 (water) and Dioxin/PFAS	☐ Yes	☐ No	☑ N/A	Initial when completed: Lot # of added preservative:
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☑ N/A	14.
Trip Blank Present?	☐ Yes	☐ No	☑ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes	☐ No	☑ N/A	
Pace Trip Blank Lot # (if purchased):				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 08/27/2018

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers).

Section 7. Certification by the Person who completed this form

☒ I am the person submitting this request (requester)

☐ I prepared this request for: _____
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Sean R Smith
Signature

11/28/18
Date Signed

Project Technical Specialist
Title

715-394-4211
Telephone Number (include area code)

State of Wisconsin
Department of Natural Resources
PO Box 7921, Madison WI 53707-7921
dnr.wi.gov

Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request

Form 4400-237 (R 9/15)

Notice: Use this form to request **a written response (on agency letterhead)** from the Department of Natural Resources (DNR) regarding technical assistance, a post-closure change to a site, a specialized agreement or liability clarification for Property with known or suspected environmental contamination. A fee will be required as is authorized by s. 292.55, Wis. Stats., and NR 749, Wis. Adm. Code., unless noted in the instructions below. Personal information collected will be used for administrative purposes and may be provided to requesters to the extent required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].

Definitions

"Property" refers to the subject Property that is perceived to have been or has been impacted by the discharge of hazardous substances.

"Liability Clarification" refers to a written determination by the Department provided in response to a request made on this form. The response clarifies whether a person is or may become liable for the environmental contamination of a Property, as provided in s. 292.55, Wis. Stats.

"Technical Assistance" refers to the Department's assistance or comments on the planning and implementation of an environmental investigation or environmental cleanup on a Property in response to a request made on this form as provided in s. 292.55, Wis. Stats.

"Post-closure modification" refers to changes to Property boundaries and/or continuing obligations for Properties or sites that received closure letters for which continuing obligations have been applied or where contamination remains. Many, but not all, of these sites are included on the GIS Registry layer of RR Sites Map to provide public notice of residual contamination and continuing obligations.

Select the Correct Form

This from should be used to request the following from the DNR:

- Technical Assistance
- Liability Clarification
- Post-Closure Modifications
- Specialized Agreements (tax cancellation, negotiated agreements, etc.)

Do not use this form if one of the following applies:

- Request for an **off-site liability exemption or clarification** for Property that has been or is perceived to be contaminated by one or more hazardous substances that originated on another Property containing the source of the contamination. Use DNR's Off-Site Liability Exemption and Liability Clarification Application Form 4400-201.
- Submittal of an Environmental Assessment for the **Lender Liability Exemption**, s 292.21, Wis. Stats., **if no response or review by DNR is requested**. Use the Lender Liability Exemption Environmental Assessment Tracking Form 4400-196.
- Request for an **exemption to develop on a historic fill site** or licensed landfill. Use DNR's Form 4400-226 or 4400-226A.
- **Request for closure** for Property where the investigation and cleanup actions are completed. Use DNR's Case Closure - GIS Registry Form 4400-202.

All forms, publications and additional information are available on the internet at: dnr.wi.gov/topic/Brownfields/Pubs.html.

Instructions

1. Complete sections 1, 2, 6 and 7 for all requests. Be sure to provide adequate and complete information.
2. Select the type of assistance requested: Section 3 for technical assistance or post-closure modifications, Section 4 for a written determination or clarification of environmental liabilities; or Section 5 for a specialized agreement.
3. Include the fee payment that is listed in Section 3, 4, or 5, unless you are a "Voluntary Party" enrolled in the Voluntary Party Liability Exemption Program **and** the questions in Section 2 direct otherwise. Information on to whom and where to send the fee is found in Section 8 of this form.
4. Send the completed request, supporting materials and the fee to the appropriate DNR regional office where the Property is located. See the map on the last page of this form. A paper copy of the signed form and all reports and supporting materials shall be sent with an electronic copy of the form and supporting materials on a compact disk. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf"

The time required for DNR's determination varies depending on the complexity of the site, and the clarity and completeness of the request and supporting documentation.

Section 1. Contact and Recipient Information

Requester Information

This is the person requesting technical assistance or a post-closure modification review, that his or her liability be clarified or a specialized agreement and is identified as the requester in Section 7. DNR will address its response letter to this person.

Last Name	First	MI	Organization/ Business Name		
Farkas	James		Fraser Shipyard, Inc.		
Mailing Address			City	State	ZIP Code
1 Clough Avenue			Superior	WI	54880
Phone # (include area code)	Fax # (include area code)		Email		
(715) 394-7787			jfarkas@fraserindustries.com		

The requester listed above: (select all that apply)

- ☒ Is currently the owner
- ☐ Is considering selling the Property
- ☐ Is renting or leasing the Property
- ☐ Is considering acquiring the Property
- ☐ Is a lender with a mortgagee interest in the Property
- ☐ Other. Explain the status of the Property with respect to the applicant:

Contact Information (to be contacted with questions about this request)

☒ Select if same as requester

Contact Last Name	First	MI	Organization/ Business Name		
Sean	Smith		Fraser Shipyard, Inc.		
Mailing Address			City	State	ZIP Code
1 Clough Avenue			Superior	WI	54880
Phone # (include area code)	Fax # (include area code)		Email		
(715) 394-7787			ssmith@noengwks.com		

Environmental Consultant (if applicable)

Contact Last Name	First	MI	Organization/ Business Name		
McCarthy	John		Environmental Troubleshooters		
Mailing Address			City	State	ZIP Code
3825 Grand Avenue			Duluth	MN	55807
Phone # (include area code)	Fax # (include area code)		Email		
(218) 722-6013	(218) 722-6319		jmccarthy@etsmn.com		

Section 2. Property Information

Property Name		FID No. (if known)	
Fraser Shipyards Punch Shed Addition			
BRRTS No. (if known)		Parcel Identification Number	
02-16-562599		03-803-02127-00	
Street Address		City	State / ZIP Code
1 Clough Drive		Superior	WI 54880

County	Municipality where the Property is located	Property is composed of:	Property Size Acres
Douglas	◉ City ○ Town ○ Village of Superior	◉ Single tax parcel ○ Multiple tax parcels	17

1. Is a response needed by a specific date? (e.g., Property closing date) Note: Most requests are completed within 60 days. Please plan accordingly.

◉ No ○ Yes

Date requested by: _____

Reason:

_____

2. Is the "Requester" enrolled as a Voluntary Party in the Voluntary Party Liability Exemption (VPLE) program?

◉ No. **Include the fee that is required for your request in Section 3, 4 or 5.**

○ Yes. **Do not include a separate fee.** This request will be billed separately through the VPLE Program.

Fill out the information in Section 3, 4 or 5 which corresponds with the type of request:
Section 3. Technical Assistance or Post-Closure Modifications;
Section 4. Liability Clarification; or Section 5. Specialized Agreement.

Section 3. Request for Technical Assistance or Post-Closure Modification

Select the type of technical assistance requested: [**Numbers in brackets are for WI DNR Use]**

☐ No Further Action Letter (NFA) (Immediate Actions) - NR 708.09, [183] - **Include a fee of $350.** Use for a written response to an immediate action after a discharge of a hazardous substance occurs. Generally, these are for a one-time spill event.

☐ Review of Site Investigation Work Plan - NR 716.09, [135] - **Include a fee of $700.**

☐ Review of Site Investigation Report - NR 716.15, [137] - **Include a fee of $1050.**

☐ Approval of a Site-Specific Soil Cleanup Standard - NR 720.10 or 12, [67] - **Include a fee of $1050.**

☐ Review of a Remedial Action Options Report - NR 722.13, [143] - **Include a fee of $1050.**

☐ Review of a Remedial Action Design Report - NR 724.09, [148] - **Include a fee of $1050.**

☐ Review of a Remedial Action Documentation Report - NR 724.15, [152] - **Include a fee of $350**

☐ Review of a Long-term Monitoring Plan - NR 724.17, [25] - **Include a fee of $425.**

☐ Review of an Operation and Maintenance Plan - NR 724.13, [192] - **Include a fee of $425.**

Other Technical Assistance - s. 292.55, Wis. Stats. [97] (For request to build on an abandoned landfill use Form 4400-226)

☐ Schedule a Technical Assistance Meeting - **Include a fee of $700.**

☐ Hazardous Waste Determination - **Include a fee of $700.**

☒ Other Technical Assistance - **Include a fee of $700.** Explain your request in an attachment.

Post-Closure Modifications - NR 727, [181]

☐ Post-Closure Modifications: Modification to Property boundaries and/or continuing obligations of a closed site or Property; sites may be on the GIS Registry. This also includes removal of a site or Property from the GIS Registry. **Include a fee of $1050, and:**

☐ Include a fee of $300 for sites with residual soil contamination; and

☐ Include a fee of $350 for sites with residual groundwater contamination, monitoring wells or for vapor intrusion continuing obligations.

Attach a description of the changes you are proposing, and documentation as to why the changes are needed (if the change to a Property, site or continuing obligation will result in revised maps, maintenance plans or photographs, those documents may be submitted later in the approval process, on a case-by-case basis).

Skip Sections 4 and 5 if the technical assistance you are requesting is listed above and complete Sections 6 and 7 of this form.

Section 4. Request for Liability Clarification

Select the type of liability clarification requested. Use the available space given or attach information, explanations, or specific questions that you need answered in DNR's reply. Complete Sections 6 and 7 of this form. **[Numbers in brackets are for DNR Use]**

☐ "Lender" liability exemption clarification - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the real Property, and/or the personal Property and fixtures;

(2) an environmental assessment, in accordance with s. 292.21, Wis. Stats.;

(3) the date the environmental assessment was conducted by the lender;

(4) the date of the Property acquisition; for foreclosure actions, include a copy of the signed and dated court order confirming the sheriff's sale.

(5) documentation showing how the Property was acquired and the steps followed under the appropriate state statutes.

(6) a copy of the Property deed with the correct legal description; and,

(7) the Lender Liability Exemption Environmental Assessment Tracking Form (Form 4400-196).

(8) If no sampling was done, please provide reasoning as to why it was **not** conducted. Include this either in the accompanying environmental assessment or as an attachment to this form, and cite language in s. 292. 21(1)(c)2.,h.-i., Wis. Stats.:

h. The collection and analysis of representative samples of soil or other materials in the ground that are suspected of being contaminated based on observations made during a visual inspection of the real Property or based on aerial photographs, or other information available to the lender, including stained or discolored soil or other materials in the ground and including soil or materials in the ground in areas with dead or distressed vegetation. The collection and analysis shall identify contaminants in the soil or other materials in the ground and shall quantify concentrations.

i. The collection and analysis of representative samples of unknown wastes or potentially hazardous substances found on the real Property and the determination of concentrations of hazardous waste and hazardous substances found in tanks, drums or other containers or in piles or lagoons on the real Property.

☐ "Representative" liability exemption clarification (e.g. trustees, receivers, etc.) - s. 292.21, Wis. Stats. [686]

❖ **Include a fee of $700.**

Provide the following documentation:

(1) ownership status of the Property;

(2) the date of Property acquisition by the representative;

(3) the means by which the Property was acquired;

(4) documentation that the representative has no beneficial interest in any entity that owns, possesses, or controls the Property;

(5) documentation that the representative has not caused any discharge of a hazardous substance on the Property; and

(6) a copy of the Property deed with the correct legal description.

☐ Clarification of local governmental unit (LGU) liability exemption at sites with: (select all that apply)

☐ hazardous substances spills - s. 292.11(9)(e), Wis. Stats. [649];

☐ Perceived environmental contamination - [649];

☐ hazardous waste - s. 292.24 (2), Wis. Stats. [649]; and/or

☐ solid waste - s. 292.23 (2), Wis. Stats. [649].

❖ **Include a fee of $700, a summary of the environmental liability clarification being requested, and the following:**

(1) clear supporting documentation showing the acquisition method used, and the steps followed under the appropriate state statute(s).

(2) current and proposed ownership status of the Property;

(3) date and means by which the Property was acquired by the LGU, where applicable;

(4) a map and the ¼, ¼ section location of the Property;

(5) summary of current uses of the Property;

(6) intended or potential use(s) of the Property;

(7) descriptions of other investigations that have taken place on the Property; and

(8) (for solid waste clarifications) a summary of the license history of the facility.

Section 4. Request for Liability Clarification (cont.)

☐ Lease liability clarification - s. 292.55, Wis. Stats. [646]

- ❖ **Include a fee of $700 for a single Property, or $1400 for multiple Properties and the information listed below:**

(1) a copy of the proposed lease;

(2) the name of the current owner of the Property and the person who will lease the Property;

(3) a description of the lease holder's association with any persons who have possession, control, or caused a discharge of a hazardous substance on the Property;

(4) map(s) showing the Property location and any suspected or known sources of contamination detected on the Property;

(5) a description of the intended use of the Property by the lease holder, with reference to the maps to indicate which areas will be used. Explain how the use will not interfere with any future investigation or cleanup at the Property; and

(6) all reports or investigations (e.g. Phase I and Phase II Environmental Assessments and/or Site Investigation Reports conducted under s. NR 716, Wis. Adm. Code) that identify areas of the Property where a discharge has occurred.

General or other environmental liability clarification - s. 292.55, Wis. Stats. [682] - Explain your request below.

- ❖ **Include a fee of $700 and an adequate summary of relevant environmental work to date.**

☐ No Action Required (NAR) - NR 716.05, [682]

- ❖ **Include a fee of $700.**

Use where an environmental discharge has or has not occurred, and applicant wants a DNR determination that no further assessment or clean-up work is required. Usually this is requested after a Phase I and Phase II environmental assessment has been conducted; the assessment reports should be submitted with this form. This is not a closure letter.

☐ Clarify the liability associated with a "closed" Property - s. 292.55, Wis. Stats. [682]

- ❖ **Include a fee of $700.**

- Include a copy of any closure documents if a state agency other than DNR approved the closure.

Use this space or attach additional sheets to provide necessary information, explanations or specific questions to be answered by the DNR.

Section 5. Request for a Specialized Agreement

Select the type of agreement needed. Include the appropriate draft agreements and supporting materials. Complete Sections 6 and 7 of this form. More information and model draft agreements are available at: dnr.wi.gov/topic/Brownfields/lgu.html#tabx4.

☐ Tax cancellation agreement - s. 75.105(2)(d), Wis. Stats. [654]

- **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description; and,
(3) a draft 75.105 agreement based on the DNR's model (dnr.wi.gov/topic/brownfields/documents/mod75-105agrmt.pdf).

☐ Agreement for assignment of tax foreclosure judgement - s.75.106, Wis. Stats. [666]

- **Include a fee of $700, and the information listed below:**

(1) Phase I and II Environmental Site Assessment Reports,
(2) a copy of the Property deed with the correct legal description; and,
(3) a draft 75.105 agreement based on the DNR's model (dnr.wi.gov/topic/brownfields/documents/mod75-106agrmt.pdf).

☐ Negotiated agreement - Enforceable contract for non-emergency remediation - s. 292.11(7)(d) and (e), Wis. Stats. [630]

- **Include a fee of $1400, and the information listed below:**

(1) a draft schedule for remediation; and,
(2) the name, mailing address, phone and email for each party to the agreement.

Section 6. Other Information Submitted

Identify all materials that are included with this request.

Include one copy of any document from any state agency files that you want the Department to review as part of this request. The person submitting this request is responsible for contacting other state agencies to obtain appropriate reports or information.

☐ Phase I Environmental Site Assessment Report - Date: _____

☐ Phase II Environmental Site Assessment Report - Date: _____

☐ Legal Description of Property (required for all liability requests and specialized agreements)

☒ Map of the Property (required for all liability requests and specialized agreements)

Analytical results of the following sampled media: Select all that apply and include date of collection.

☒ Groundwater ☒ Soil ☐ Sediment ☐ Other medium - Describe: _____

Date of Collection: _____

☐ A copy of the closure letter and submittal materials

☐ Draft tax cancellation agreement

☐ Draft agreement for assignment of tax foreclosure judgment

☐ Other report(s) or information - Describe: _____

For Property with newly identified discharges of hazardous substances only: Has a notification of a discharge of a hazardous substance been sent to the DNR as required by s. NR 706.05(1)(b), Wis. Adm. Code?

◯ Yes - Date (if known): _____
◯ No

Note: The Notification for Hazardous Substance Discharge (non-emergency) form is available at: dnr.wi.gov/files/PDF/forms/4400/4400-225.pdf.

Section 7. Certification by the Person who completed this form

☒ I am the person submitting this request (requester)

☐ I prepared this request for: _____
Requester Name

I certify that I am familiar with the information submitted on this request, and that the information on and included with this request is true, accurate and complete to the best of my knowledge. I also certify I have the legal authority and the applicant's permission to make this request.

Signature	Date Signed
Title	Telephone Number (include area code)

Section 8. DNR Contacts and Addresses for Request Submittals

Send or deliver one paper copy and one electronic copy on a compact disk of the completed request, supporting materials, and fee to the region where the property is located to the address below. Contact a DNR regional brownfields specialist with any questions about this form or a specific situation involving a contaminated property. For electronic document submittal requirements see: http://dnr.wi.gov/files/PDF/pubs/rr/RR690.pdf.

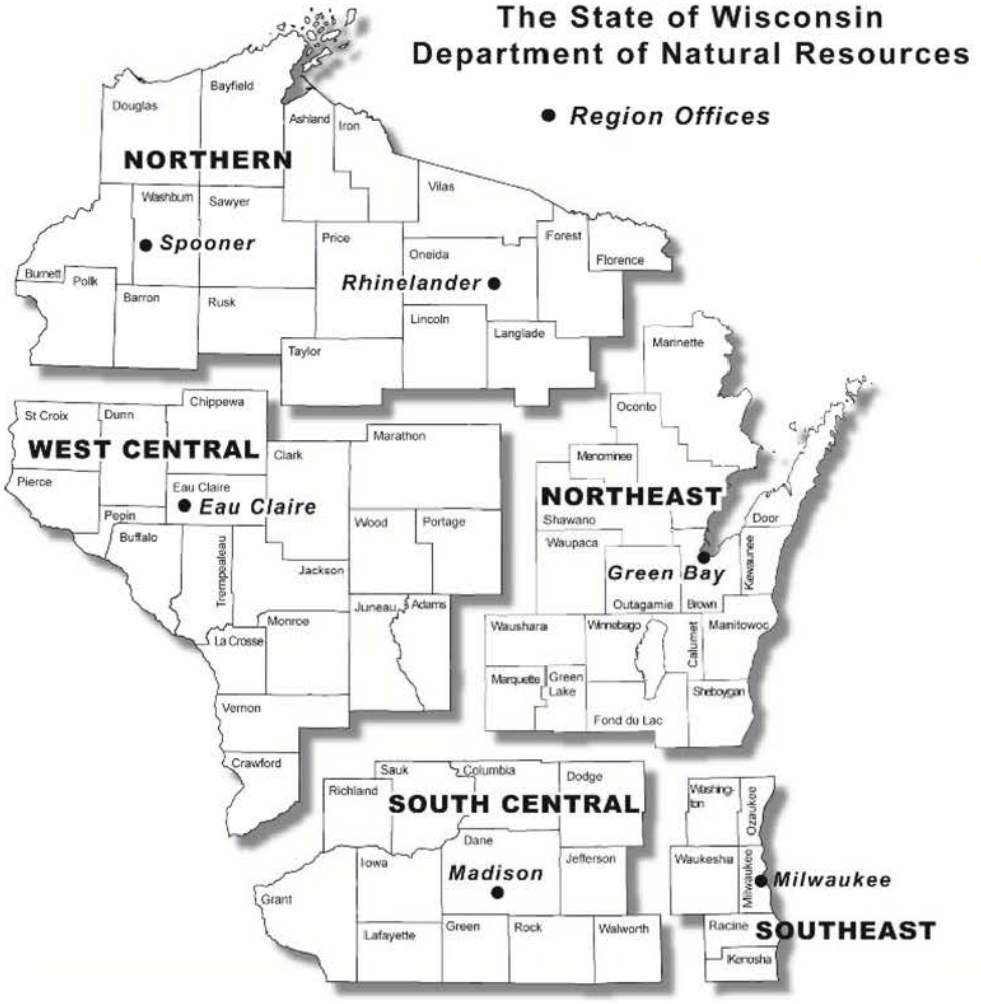
DNR NORTHERN REGION
Attn: RR Program Assistant
Department of Natural Resources
223 E Steinfest Rd Antigo, WI 54409

DNR NORTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2984 Shawano Avenue
Green Bay WI 54313

DNR SOUTH CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg WI 53711

DNR SOUTHEAST REGION
Attn: RR Program Assistant
Department of Natural Resources
2300 North Martin Luther King Drive
Milwaukee WI 53212

DNR WEST CENTRAL REGION
Attn: RR Program Assistant
Department of Natural Resources
1300 Clairemont Ave.
Eau Claire WI 54702



Note: These are the Remediation and Redevelopment Program's designated regions. Other DNR program regional boundaries may be different.

DNR Use Only			
Date Received	Date Assigned	BRRTS Activity Code	BRRTS No. (if used)
DNR Reviewer	Comments		
Fee Enclosed? ◯ Yes ◯ No	Fee Amount $	Date Additional Information Requested	Date Requested for DNR Response Letter
Date Approved	Final Determination		

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-1**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/24/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'		0' -	18" Black/brown sandy gravel fill, minor staining. 6" Brown fine sand, moderate moisture.		
	24"/24"	1' -		SW	2.3
2'-4'		2' -	Same as previous interval, saturated.		
	24"/24"	3' -		SW	0.6
4'-6'		4' -	No recovery		
	0"/24"	5' -			-
6'-8'		6' -	No recovery		
	0"/24"	7' -			-
8'-10'		8' -	No recovery		
	0"/24"	9' -			-
10'-12'		10' -	No recovery		
	0"/24"	11' -			-

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name:
Fraser Shipyard LSI

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief):
Environmental Troubleshooters, Inc.

Boring Number: **PSA GP-2**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/24/2015**

Depth of Boring (ft): **12**
Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**
Soil Sample Interval (ft): **2-4**
Water Table Depth (ft): **4**
Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	24"/24"	0' - 1' -	Brown sandy gravel with black staining at 18"-24", moderate moisture.	GW	5.4
2'-4'	24"/24"	2' - 3' -	Brown fine sand, saturated at 3 - 4'.	SP	9.3
4'-6'	24"/24"	4' - 5' -	6" Same as previous interval (saturated); 18" Fatty red clay, high plasticity, low density, moist	SP CH	5.3
6'-8'	24"/24"	6' - 7' -	Same as previous interval	CH	7.0
8'-10'	24"/24"	8' - 9' -	6" Fine sand with gravel; saturated. 6" Reddish brown silt, dense, low plasticity. Grades to dense, low plasticity clay to 12'.	SP ML/CL	4.7
10'-12'	24"/24"	10' - 11' -	See above interval	CL	6.6

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-3**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/24/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'		0'	6" Brown sandy gravel		
	24"/24"	- 1' -	18" Brown fine sand, unconsolidated, intermittent black staining. Moderate moisture.	SW SP	5.1
2'-4'		2'	Same as previous interval		
	24"/24"	- 3' -		SP	4.6
4'-6'		4'	12" same as previous interval, 4" dimensional lumber,		
	24"/24"	- 5' -	8" same as previous interval	SP	4.3
6'-8'		6'	Same as previous interval		
	24"/24"	- 7' -		SP	4.1
8'-10'		8'	3" Black / brown peat.		
	24"/24"	- 9' -	3" Grayish brown silt, dense 18" Red clay with reduction spots	PT ML CL	5.4
10'-12'		10'	Same as last 18" in previous interval		
	24"/24"	- 11' -		CL	4.1

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-4**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/24/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'		0' -	6" Reddish brown fine - medium sand. 6" Brown sandy gravel with black staining.	SP GW	
	24"/24"	1' -	12" Brown fine sand, moderate moisture	SP	3.8
2'-4'		2' -	15" Same as previous interval. 9" Black stained sand with gravel, unconsalidated,		
	24"/24"	3' -	saturated	GW	3.4
4'-6'		4' -	Red silty clay, dense, saturated		
	24"/24"	5' -		CL	1.3
6'-8'		6' -	6" Same as previous interval 2" Black peat	CL	
	24"/24"	7' -	16" Red silty clay, moderate dense and plasticity, moderate moisture	PT CL	3.2
8'-10'		8' -	Red silty clay increases in density and decreases in plasticity to 12'.		
	24"/24"	9' -		CL	3.4
10'-12'		10' -	See prior interval.		
	24"/24"	11' -		CL	1.7

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-5**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/25/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **4-8**

Water Table Depth (ft): **n/a**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'		0' -	6" Concrete 6" Tan brick and sand		
	12"/24"	1' -		SW	219
2'-4'		2' -	Red gravelly clay, dense, low plasticity		
	6"/24"	3' -		GC	556
4'-6'		4' -	Same as previous interval		
	24"/24"	5' -		GC	265
6'-8'		6' -	12" same as previous interval 5" peat, strong petroleum odor (degraded)	GC	
	24"/24"	7' -	7" red clay, moderate plasticity, low density	PT CL	468
8'-10'		8' -	Red clay increases in density and decreases in plasticity to 12'. Reduction spots present.		
	24"/24"	9' -		CL	3.6
10'-12'		10' -	See prior interval.		
	24"/24"	11' -		CL	14.3

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-6**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/24/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**

Soil Sample Interval (ft): **4-8**

Water Table Depth (ft): **4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	8"/24"	0' - 1' -	6" Concrete 2" Brown fine-course sand (sub-base material), low moisture.	Fill	8.2
2'-4'	8"/24"	2' - 3' -	4" Buff brick 4" Red brick, low moisture.	Fill	6.1
4'-6'	24"/24"	4' - 5' -	3" Black sand with gravel, petroleum odor (degraded) moderate moisture. 15" Red clay, dense, low plasticity, low moisture 6" Black peat, strong petroleum odor (degraded), moderate moisture	SP CL PT	395
6'-8'	24"/24"	6' - 7' -	20" Red clay, dense, low moisture. 4" Black sand, petroleum odor, unconsolidated, moderate moisture.	CL	386
8'-10'	24"/24"	8' - 9' -	Red clay, dense, low moisture	CL	3.2
10'-12'	24"/24"	10' - 11' -	Same as previous interval	CL	4.0

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-7**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **3/24/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	14"/24"	0' - 1' -	12" Brown gravelly sand fill, unconsolidated, includes black staining (8-12"). Saturated after 6" depth. 2" Brown fine sand.	GW SP	3.7
2'-4'	14"/24"	2' - 3' -	Brown fine sand.	SP	4.7
4'-6'	24"/24"	4' - 5' -	4" Same as previous interval. 20" Red silty clay, dense, low moisture.	SP CL	2.5
6'-8'	24"/24"	6' - 7' -	6" Blackish brown peat 3" Gray brown silt 15" Red clay, grading from high moist plastic to low moist dense, red, moderate moisture.	PT ML CL	4.7
8'-10'	24"/24"	8' - 9' -	Clay, red, dense, low plasticity, low moisture	CL	2.7
10'-12'	24"/24"	10' - 11' -	Same as prior interval.	CL	4.0

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-8**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **6/29/2015**

Depth of Boring (ft): **12**

Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	8" Brown gravelly sand fill, unconsolidated. 4" Dark brown sandy gravel, staining, low moisture	SW GW	5.2
2'-4'	12"/24"	2' - 3' -	4" Same as previous interval 8" Reddish brown fine - medium sand, moderate moisture.	GW SP	11.1
4'-6'	20"/24"	4' - 5' -	Brown fine - medium sand, very moist.	SP	7.7
6'-8'	20"/24"	6' - 7' -	Same as previous interval, saturated	SP	7.3
8'-10'	24"/24"	8' - 9' -	Same as previous interval	SP	6.6
10'-12'	24"/24"	10' - 11' -	12" Same as previous interval. 12" Brown silty fine sand, saturated.	SP SM	4.8

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name:
Fraser Shipyard LSI

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief):
Environmental Troubleshooters, Inc.

Boring Number: **PSA GP-9**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **6/29/2015**

Depth of Boring (ft): **12**
Screen Interval (ft): **1.5-11.5**

Boring Location:

Water Sample Depth (ft): **1.5-11.5**
Soil Sample Interval (ft): **2-4, 6-8**
Water Table Depth (ft): **4**
Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	12" Dark brown sandy gravel, staining, low moisture	SW GW	2.7
2'-4'	12"/24"	2' - 3' -	4" Same as previous interval 8" Reddish brown fine - medium sand, moderate moisture.	GW SP	7.0
4'-6'	20"/24"	4' - 5' -	Brown fine - medium sand, very moist.	SP	8.2
6'-8'	20"/24"	6' - 7' -	Same as previous interval, saturated	SP	11.1
8'-10'	24"/24"	8' - 9' -	Same as previous interval	SP	11.0
10'-12'	24"/24"	10' - 11' -	12" Same as previous interval. 12" Brown silty fine sand, saturated.	SP SM	7.7

End of Boring: 12.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: Fraser Shipyard LSI
Project Number: 14-1004
Boring Drilled By (Firm Name and crew Chief): Environmental Troubleshooters, Inc.
Boring Number: PSA GP-10
Well Number (If Applicable):
Chief Driller: Joe Fye
Scientist: John McCarthy
Drilling Method Used: Geoprobe

Date Drilling Occurred: 6/29/2015
Depth of Boring (ft): 12
Screen Interval (ft): n/a
Boring Location:
Water Sample Depth (ft): n/a
Soil Sample Interval (ft): 2-4
Water Table Depth (ft): 4
Boring Elevation: n/a

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	16"/24"	0' - 1' -	6" Brown sandy gravel. 6" Reddish brown fine - medium sand. 4" Black stained fine to medium sand, low moisture.	GW SP	2.2
2'-4'	16"/24"	2' - 3' -	Brown fine - medium sand, moderate moisture.	SP	1.4
4'-6'	16"/24"	4' - 5' -	Red fatty clay, medium dense, high plasticity, moderate moisture.	CH	2.7
6'-8'	16"/24"	6' - 7' -	Same as previous interval, moderate high moisture	CH	3.1
8'-10'	24"/24"	8' - 9' -	Same as previous interval, low moisture	CH	3.5
10'-12'	24"/24"	10' - 11' -	Same as previous interval	CH	No reading
12'-14	24"/24"	12' - 13' -	Same as previous interval	CH	No reading
14'-16'	24"/24"	14' - 15' -	Same as previous interval	CH	3.1

End of Boring: 16.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-11**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **John McCarthy**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **6/29/2015**

Depth of Boring (ft): **16**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **n/a**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	16"/24"	0' - 1' -	4" Black / dark brown sandy gravel. 4" Class V. 8" Black / dark brown fine to medium sand, low moisture.	GW SP	4.1
2'-4'	16"/24"	2' - 3' -	10" Red fine sand. 6" Light grayish brown fine sand, low moisture.	SP	7.0
4'-6'	24"/24"	4' - 5' -	Red clay, medium dense, high plasticity, low moisture	CH	4.7
6'-8'	24"/24"	6' - 7' -	20" same as previous interval. 4" Peat, low moisture.	CH PT	4.5
8'-10'	24"/24"	8' - 9' -	Reddish black, organic stained, silty clay, low moisture.	ML/CL	2.6
10'-12'	24"/24"	10' - 11' -	6" Same as previous interval. 18" Red fatty clay, low density, high plasticity, low moisture	CL CH	5.2
12'-14	24"/24"	12' - 13' -	Same as previous interval,	CH	No reading
14'-16'	24"/24"	14' - 15' -	Same as previous interval	CH	No reading

End of Boring: 16.0 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-12**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Nicole Torgerson**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **4/14/2016**

Depth of Boring (ft): **12**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **4-6**

Water Table Depth (ft): **~6**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	9" Dark brown sandy gravel. 3" Dark brown sandy silt with clay. Low plasticity. No odor. Low moisture.	GW ML	1.0
2'-4'	12"/24"	2' - 3' -	Same as previous interval.	ML	1.3
4'-6'	10"/24"	4' - 5' -	Angular coarse sand. Unconsolidated. Low odor. Moderate moisture.	GP	1.6
6'-8'	10"/24"	6' - 7' -	Same as previous interval, but saturated.	GP	1.0
8'-10'	24"/24"	8' - 9' -	Reddish brown fatty clay. Low density / high plasticity. Moderate moisture.	CH	0.4
10'-12'	24"/24"	10' - 11' -	Same as previous interval.	CH	0.6

End of Boring: 12 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-13**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Nicole Torgerson**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **4/14/2016**

Depth of Boring (ft): **12**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **0-2**

Water Table Depth (ft): **~2**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	8" Brown sandy gravel. Unconsolidated. No odor. 4" Rust colored coarse sand. Saturated.	GW SP	1.7
2'-4'	12"/24"	2' - 3' -	4": Same as previous interval. 8": Balck/Dark Brown fine - coarse sand, saturated.	SP	1.3
4'-6'	22"/24"	4' - 5' -	Red fatty clay. Medium dense. High plasticity. Saturated.	CH	0.9
6'-8'	22"/24"	6' - 7' -	Same as previous interval with decreasing moisture.	CH	0.6
8'-10'	5"/24"	8' - 9' -	Same as previous interval, low moisture	CH	0.7
10'-12'	5"/24"	10' - 11' -	Same as previous interval	CH	0.6

End of Boring: 12 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Boring Number: **PSA GP-14**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Nicole Torgerson**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **4/14/2016**

Depth of Boring (ft): **12**

Screen Interval (ft): **n/a**

Boring Location:

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **~4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	2": Black / dark brown sandy gravel. 10": Reddish brown fine sand. Low moisture.	GW SP	0.7
2'-4'	12"/24"	2' - 3' -	Same as previous interval.	SP	1.2
4'-6'	16"/24"	4' - 5' -	8": Dark brown silty sand. No plasticity. No odor. Saturated. 8": Reddish brown silty clay. Low density. High plasticity. No odor. Saturated.	CH	0.5
6'-8'	16"/24"	6' - 7' -	12": Same as previous interval. 4" Peat. Saturated.	CH PT	1.0
8'-10'	22"/24"	8' - 9' -	Red fatty clay, low density, high plasticity, low moisture.	CH	0.5
10'-12'	22"/24"	10' - 11' -	6" Same as previous interval. 18" Blackish orange/brown fatty clay, low density, high plasticity, low moisture	CH	0.5

End of Boring: 12 ft

SOIL BORING LOG INFORMATION

Facility/Project Name: **Fraser Shipyard LSI**

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief): **Environmental Troubleshooters, Inc.**

Chief Driller: **Joe Fye**

Scientist: **Brice Wizner**

Boring Number: **PSA GP-15**

Well Number (If Applicable):

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **8/22/2018**

Boring Location: **See map.**

Depth of Boring (ft): **8**

Screen Interval (ft): **n/a**

Water Sample Depth (ft): **n/a**

Soil Sample Interval (ft): **2-4**

Water Table Depth (ft): **~4**

Boring Elevation: **n/a**

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	2": Class V sandy gravel. 10": Light brown/grey gravel and sand, no odor or plasticity, low moisture.	GW	1.7
2'-4'	12"/24"	2' - 3' -	12": Dark brown gravelly sand, no odor or plasticity, very moist.	GW	1.8
4'-6'	20"/24"	4' - 5' -	10": Saturated dark brown gravelly sand. 10": Moist clay, no odor, medium plasticity.	GW, CL	1.5
6'-8'	20"/24"	6' - 7' -	20": Moist dark brown soft clay, medium plasticity, no odor.	CL	1.3

End of Boring: 8 ft

SOIL BORING LOG INFORMATION

Facility/Project Name:
Fraser Shipyard LSI

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief):
Environmental Troubleshooters, Inc.

Boring Number: **PSA GP-16**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Brice Wizner**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **8/22/2018**

Depth of Boring (ft): **8**
Screen Interval (ft): **n/a**
Water Sample Depth (ft): **n/a**
Soil Sample Interval (ft): **4-6**
Water Table Depth (ft): **~4**
Boring Elevation: **n/a**

Boring Location:
See map.

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	12"/24"	0' - 1' -	2": Class V gravel and sand. 10": Light brown sand lense, no odor or plasticity, low moisture.	GW	1.0
2'-4'	12"/24"	2' - 3' -	12": Dark brown silty sand, no odor or plasticity, low moisture.	SM	1.1
4'-6'	20"/24"	4' - 5' -	10": Dark brown silty sand, no odor or plasticity, low moisture. 10": Dark brown solf clay, no odor, medium pasticity, low moisture.	SM, CL	2.4
6'-8'	20"/24"	6' - 7' -	20": Soft clay, brown, no odor, medium plasticity, low moisture.	CL	1.6

End of Boring: 8 ft

SOIL BORING LOG INFORMATION

Facility/Project Name:
Fraser Shipyard LSI

Project Number: **14-1004**

Boring Drilled By (Firm Name and crew Chief):
Environmental Troubleshooters, Inc.

Boring Number: **PSA GP-17**

Well Number (If Applicable):

Chief Driller: **Joe Fye**

Scientist: **Brice Wizner**

Drilling Method Used: **Geoprobe**

Date Drilling Occurred: **8/22/2018**

Depth of Boring (ft): **8**
Screen Interval (ft): **n/a**
Water Sample Depth (ft): **n/a**
Soil Sample Interval (ft): **2-4**
Water Table Depth (ft): **~4**
Boring Elevation: **n/a**

Boring Location:
See map.

Interval	*Length Recovered and Attempted*	*Depth in Feet*	*Soil/Rock Description*	*USCS*	*PID (ppm)*
0'-2'	16"/24"	0' - 1' -	16": Class V followed by gravelly sand, dark brown, no odor or plasticity, low moisture.	GW	0.1
2'-4'	16"/24"	2' - 3' -	16": Brown silty sand with a mix of gravel, no odor or plasticity, medium moisture.	GW, SM	1.9
4'-6'	24"/24"	4' - 5' -	12": Moist silty sand. 12": Brown soft clay, no odor, medium plasticity, low moisture.	SM, CL	1.1
6'-8'	24"/24"	6' - 7' -	24": Brown soft clay, no odor, medium plasticity, low moisture.	CL	0.3

End of Boring: 8 ft

CONSTRUCTION PRACTICES TO MINIMIZE STORM WATER CONTAMINATION

TO PREVENT STORM WATER CONTAMINATION FROM OCCURRING, THE FOLLOWING BMPS WILL BE IMPLEMENTED:

1. ALL AREAS THAT ARE ROUGH GRADED MUST BE KEPT IN A SMOOTH CONDITION TO ALLOW SHEET FLOW OF STORM WATER WHEREVER PRACTICAL AND ALWAYS READY FOR SURFACE APPLICATION OF DEGRADABLE OR NON-DEGRADABLE BLANKETS, MULCH, OR OTHER PROTECTIVE COVERS.
2. ALL SOLID WASTE MATERIALS WILL BE COLLECTED AND STORED IN A SECURELY LIDDED METAL DUMPSTER OR OTHER APPROVED CONTAINMENT METHOD AT THE END OF EACH DAY. ANY ALTERNATIVE TO A METAL DUMPSTER MUST BE SUBMITTED IN WRITING FOR APPROVAL BY THE PROJECT ENGINEER. ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE WILL BE DEPOSITED IN THE DUMPSTER. THE DUMPSTER WILL BE EMPTIED AS NECESSARY TO FUNCTION AS INTENDED FOR DEBRIS COLLECTION. NO CONSTRUCTION MATERIALS WILL BE BURIED ON-SITE. THE CONTRACTOR'S EROSION CONTROL SUPERVISOR WILL INSTRUCT ALL PERSONNEL REGARDING THE CORRECT PROCEDURE FOR DISPOSAL.
3. RECYCLABLE MATERIALS MUST BE SEPARATED ON-SITE AND SEGREGATED IN DESIGNATED CONTAINERS.
4. A LICENSED SANITARY WASTE MANAGEMENT CONTRACTOR WILL COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS AT A RATE NECESSARY TO MAINTAIN DESIGNED FUNCTION.
5. ALL VEHICLES ON SITE WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE.
6. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS, WHICH ARE CLEARLY LABELED.
7. SPILL KITS WILL BE INCLUDED WITH ALL FUELING SOURCES AND MAINTENANCE ACTIVITIES. SECONDARY CONTAINMENT MEASURES WILL BE INSTALLED AND MAINTAINED BY THE CONTRACTOR.
8. ANY ASPHALT SUBSTANCES USED ON SITE WILL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
9. MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEAN-UP SHALL BE READILY AVAILABLE AND BE KEPT IN AN ENCLOSED TRAILER OR SHED ON SITE. EQUIPMENT WILL INCLUDE, BUT NOT LIMITED TO, BROOMS, MOPS, DUST PANS, RAGS, GLOVES, GOGGLES, ABSORBENT (KITTY LITTER, OIL ABSORBENT BOOMS AND DIAPERS) AND BUCKETS.
10. ALL SPILLS WILL BE CONTAINED AND CLEANED UP IMMEDIATELY UPON DISCOVERY. SPILLS LARGE ENOUGH TO REACH THE STORM WATER CONVEYANCE SYSTEM WILL BE REPORTED TO THE WISCONSIN DUTY OFFICER AT
11. CONCRETE TRUCKS WILL NOT BE ALLOWED TO WASH OUT OR DISCHARGE SURPLUS CONCRETE OR DRUM WASH WATER ON THE SITE UNLESS DONE IN AN ENGINEERED CONTAINMENT SYSTEM. THE ENGINEERED SYSTEM MUST INCLUDE SITE DRAWINGS FOR THE PROJECT FILE AND WRITTEN ASSURANCE THAT THE SYSTEM WILL WORK AS DESIGNED AND LEAVE NO DISCHARGE OF CONCRETE OR CONCRETE RESIDUE POTENTIAL TO ENTER WATERS OF THE STATE.
12. FORM RELEASE OIL USED FOR CONCRETE WORK MUST BE APPLIED OVER A PALLET CONTAINING ABSORBENT TO COLLECT EXCESS LIQUID. THE ABSORBENT MATERIAL WILL BE REPLACED AND PROPERLY DISPOSED OF WHEN SATURATED.

EROSION CONTROL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR EROSION CONTROL QUALITY CONTROL (WC) ON THIS PROJECT. CONTRACTOR SHALL PHASE/SEQUENCE THE PROJECT TO MINIMIZE EXPOSURE TO EROSION. CONTRACTOR SHALL PLACE OR OTHERWISE CONSTRUCT EROSION CONTROL AND SEDIMENT CONTAINMENT DEVICES TO MINIMIZE THE RUNOFF, TRACKING, AND SEDIMENT LOSS FROM DISTURBED AREAS OF THE PROJECT SITE.
2. AT MINIMUM, THE FOLLOWING CONTROLS WILL BE IMPLEMENTED AT THE CONSTRUCTION SITE:
   - 2.1. SEDIMENT ROLLS SHALL BE USED IN CONJUNCTION WITH OTHER EROSION BMPS
   - 2.2. STORM INLET AND OUTLET AREAS SHALL BE CONTINUOUSLY PROTECTED WITH APPROVED DEVICES/METHODS
   - 2.3. CONTROL ALL SITE SOLID WASTE, DEBRIS, MATERIAL STORAGE AND CONCRETE WASHOUT ON SITE. NO MIGRATION OFFSITE OR INTO DITCHES/STORM SYSTEMS PERMITTED
   - IF ANY STOCKPILE IS TO REMAIN IN PLACE FOR MORE THAN 3 DAYS SEDIMENT AND EROSION CONTROL DEVICES SHALL BE USED.
   - WATER PUMPED OR OTHERWISE DISCHARGED FROM THE SITE DURING CONSTRUCTION DE-WATERING SHALL BE DIRECTED THROUGH EFFECTIVE FILTERING DEVICE(S).FILTERING DEVICE MUST BE LOCATED NEAR A NATURAL DEPRESSION, OR CREATE A DEPRESSION, AS TO ALLOW WATER TO DRAIN TO DEPRESSION AND EVAPORATE.
   - THE CONTRACTOR SHALL TAKE ALL POSSIBLE PRECAUTIONS TO PREVENT APPRECIABLE SOIL TRACKING ONTO ROADWAYS, BY PLACING A TRACKING PAD AT ALL INGRESS AND EGRESS LOCATIONS.
   - THE CONTRACTOR QC PROGRAM SHALL ENSURE THAT A COMPETENT INDIVIDUAL SHALL INSPECT EROSION AND SEDIMENT CONTROL DEVICES WEEKLY AND AFTER EACH RAIN EVENT. ALL NONFUNCTIONAL DEVICES SHALL BE REPAIRED/REPLACED/CLEANED. MAINTAIN WRITTEN LOG OF ALL WEEKLY AND RAIN EVENT INSPECTIONS – INCLUDE THE CORRECTIVE ACTIONS THAT WERE TAKEN.

GENERAL NOTES:

1. PROPOSED GRADE TO SLOPE 2% FOR 10' AWAY FROM PROPOSED BUILDING
2. PROPOSED BUILDING IS LOCATED AT 1 CLOUGH AVE.
3. PARCEL ID 0180103304OO IS OWNED BY FSY R/E GROUP LLC, AND IS SURROUNDED BY OTHER PARCELS WITH SAME OWNER
4. HORIZONTAL AND VERTICAL CONTROL IS BASED ON DOUGLAS COUNTY COORDINATES.

REMOVAL CONTAMINATED SOIL

Summer 2015 removal.
20'x20' x 5ft excavation.
Sand backfill below 18" depth.
18" to 6" depth recycled concrete,
6" to finished grade is 3/4" dense material.
Sand from Pattison Park, Recycle concrete from Fraser Shipyard stock pile. 3/4" Dense from Mathey.

December 2014 removal.
Excavation depth varied from 36" to 8"
36" deep excavation at column pads and grade beams. 18" elsewhere.
24"-12" sand backfill under building slab with under slab ventilation system. Sand from Pattison Park pit.

EXISTING SANITARY LINE
PROPOSED SANITARY LINE
PROPOSED 8" PVC DRAIN PIPE
SEDIMENT LOG ROLL
EXISTING BUILDING
PROPOSED BUILDING
BUILDING PORTION TO BE REMOVED
EXISTING BOLLARD

3/7/2014 11:48 AM
Z:\2014\141177-25'5" Warehouse Replacement\Site\Proposed Site Plan.dwg

AMI CONSULTING ENGINEERS P.A.
91 Main Street
Superior, WI 54880
PH 715.718.2193 Fax 877.761.7058

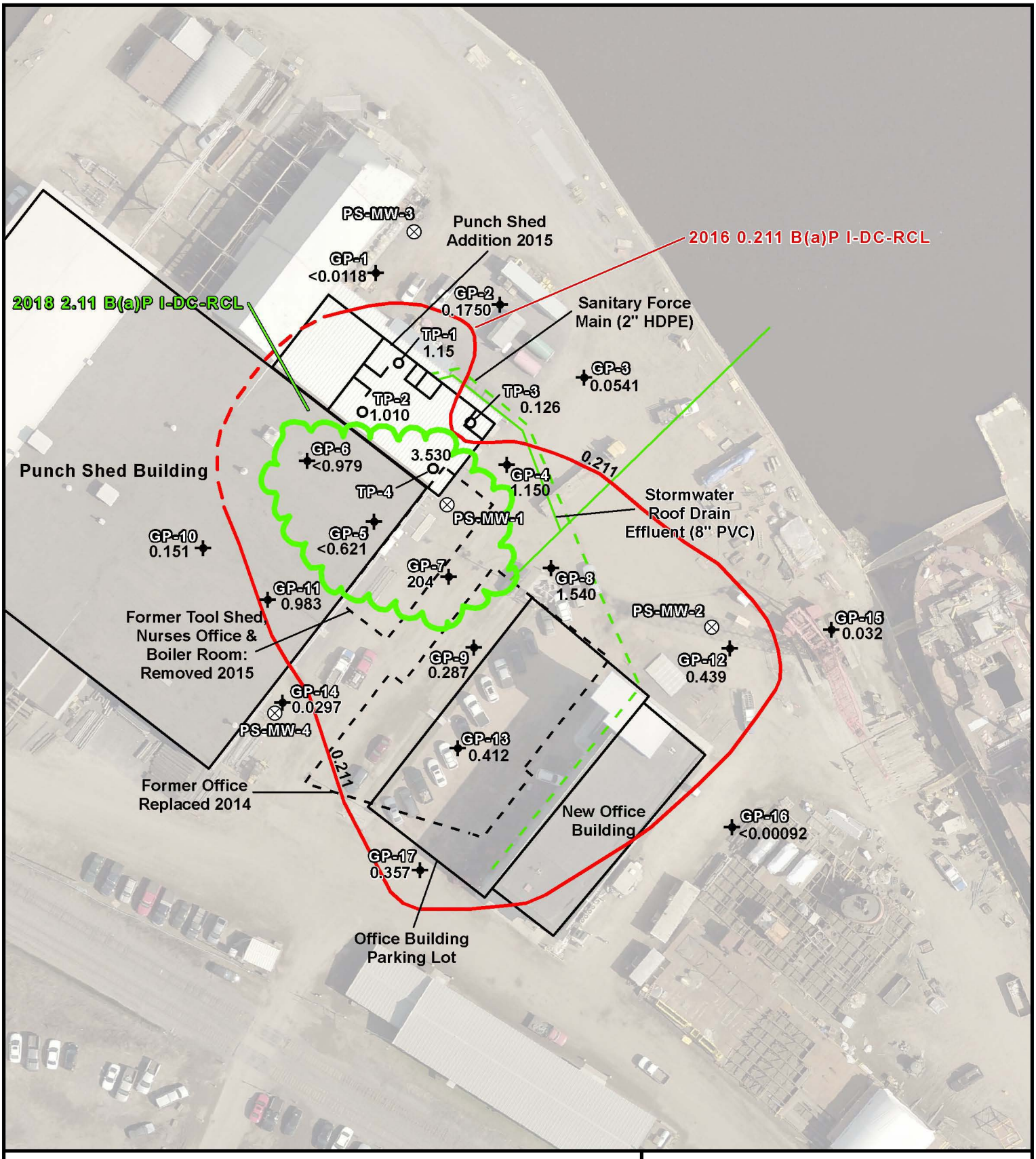
REV:	DESCRIPTION
DATE:	

FRASER SHIPYARD
PUNCHSHED ADDITION
Superior, WI

Proposed Site Plan

JOB No: 141177
DATE: 10/27/14
DRAWN BY: STF
DESIGNED BY: STF

SHEET:
C100



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 0.211 I-RCL
- 2.11 2018 I-RCL

Exceedances all within B(a)P extents:
- Benzo(a)anthracene
- Benzo(b)Flouranthene
- Benzo(k)flouranthene
- Dibenzo(a,h)anthracene
- Flourene
- Naphthalene

N

0 35 70 140 Feet

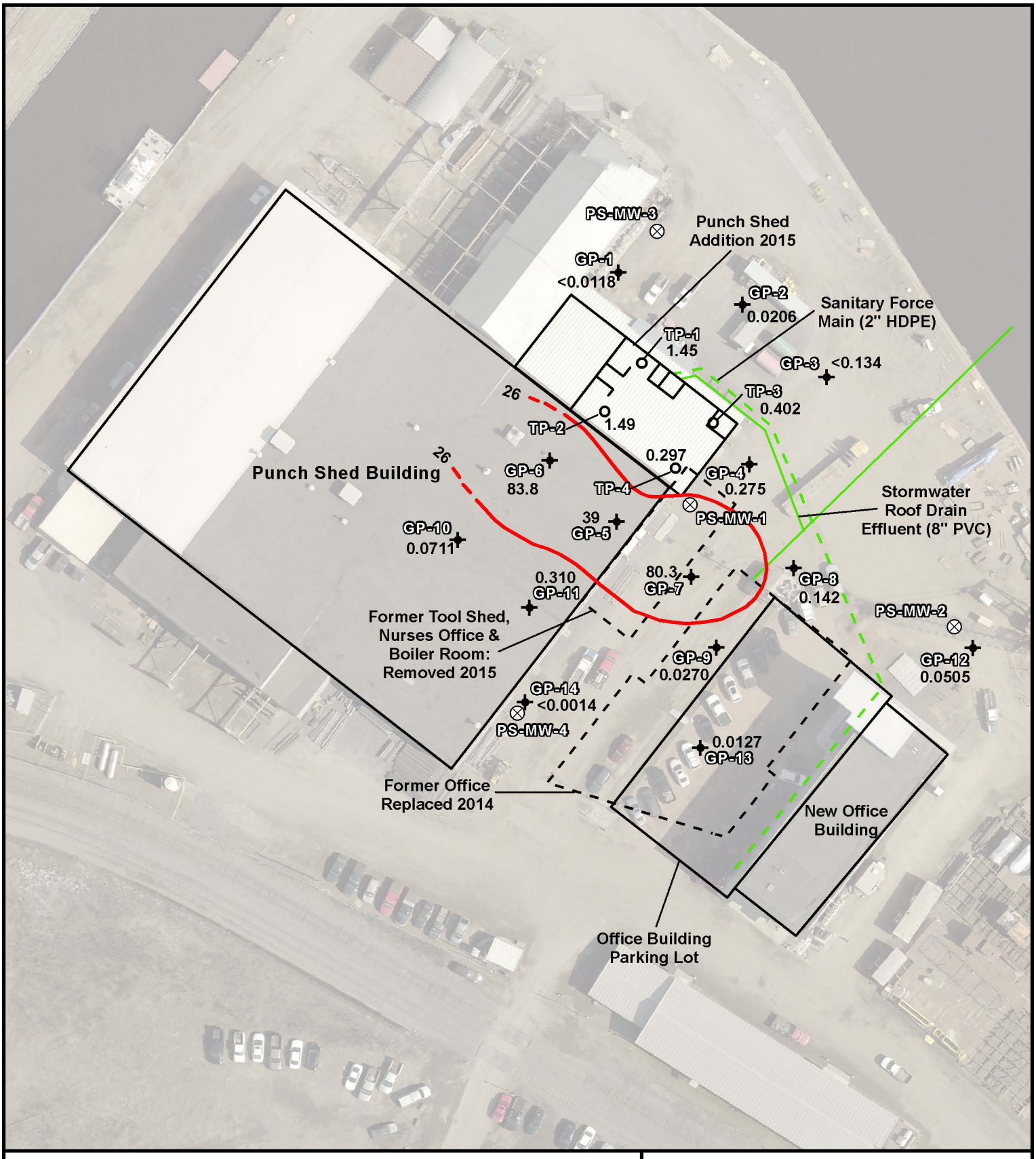
SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

FIGURE 4
Soil Benzo(a)Pyrene

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 10/12/2018	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure4



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 26 mg/Kg I-RCL

0 35 70 140 Feet

SCALE: 1:840

1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

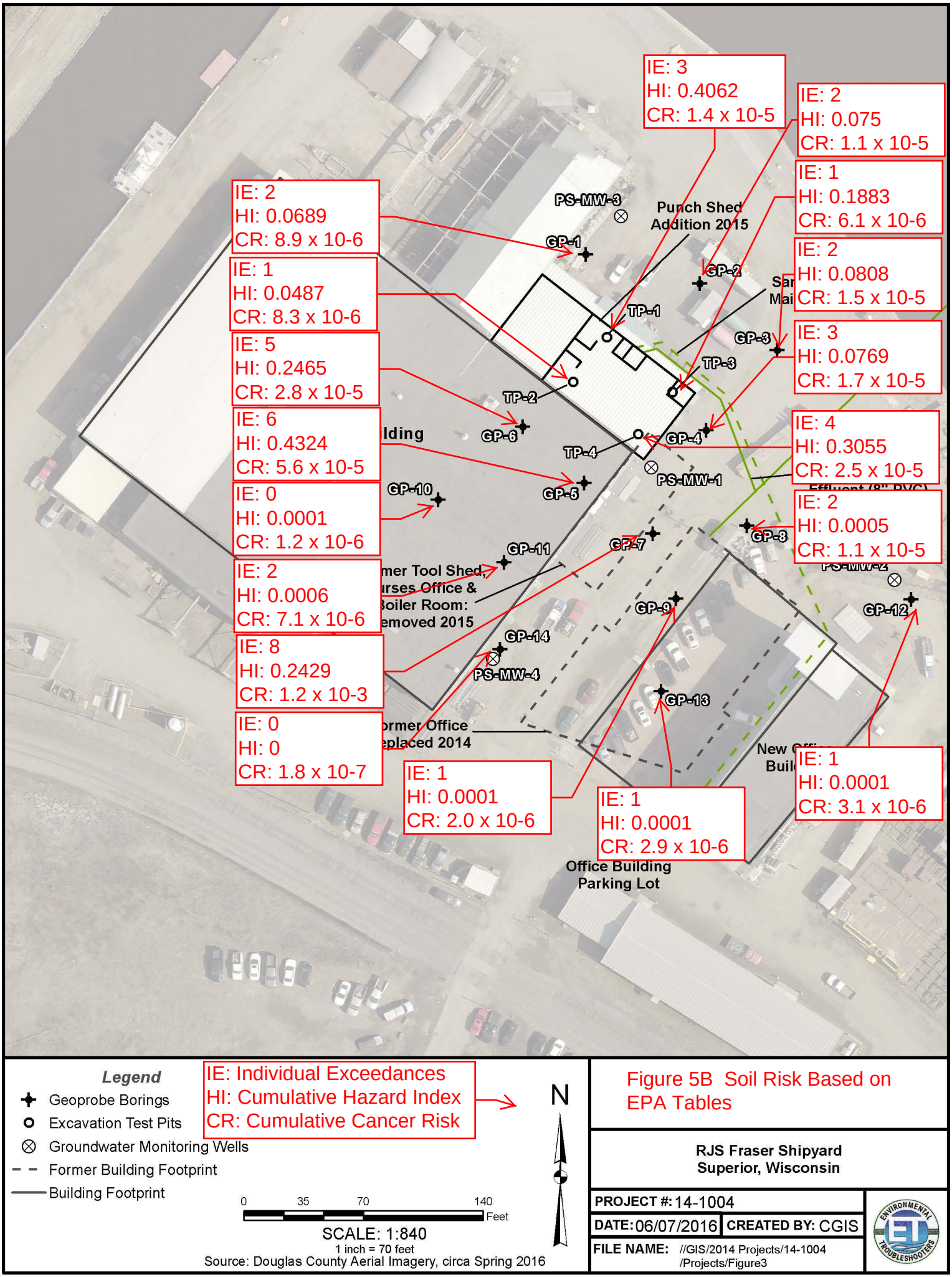
N

FIGURE 5

Soil Naphthalene

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 07/26/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure3



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint

IE: Individual Exceedances
HI: Cumulative Hazard Index
CR: Cumulative Cancer Risk

N

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet
Source: Douglas County Aerial Imagery, circa Spring 2016

Figure 5B Soil Risk Based on EPA Tables

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 06/07/2016	**CREATED BY:** CGIS
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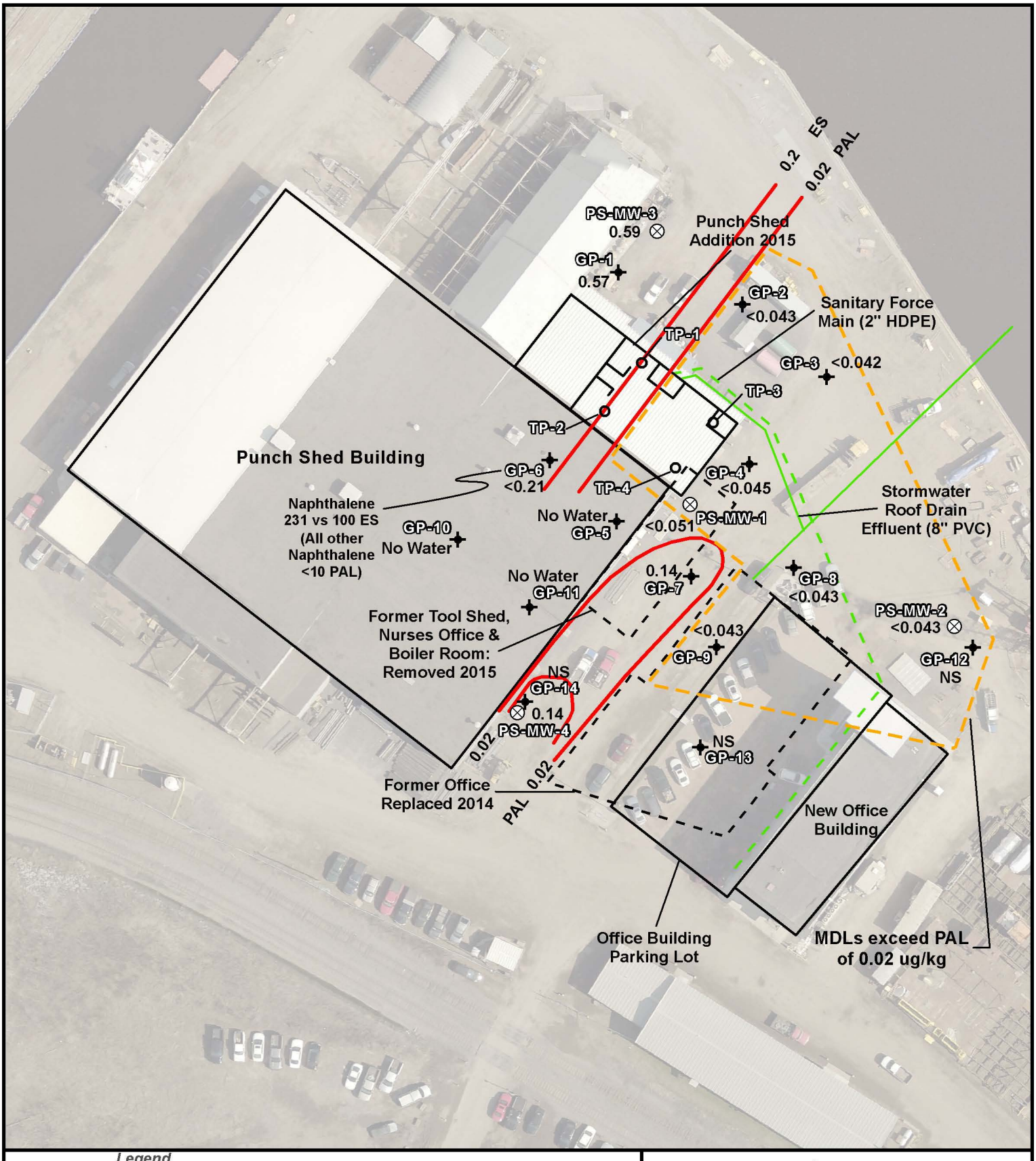

Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

N

0 35 70 140 Feet

SCALE: 1:840 1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

FIGURE 6

Groundwater Benzo(a)pyrene
Sample Date: 4/27/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 09/21/2016	**CREATED BY:** CGIS
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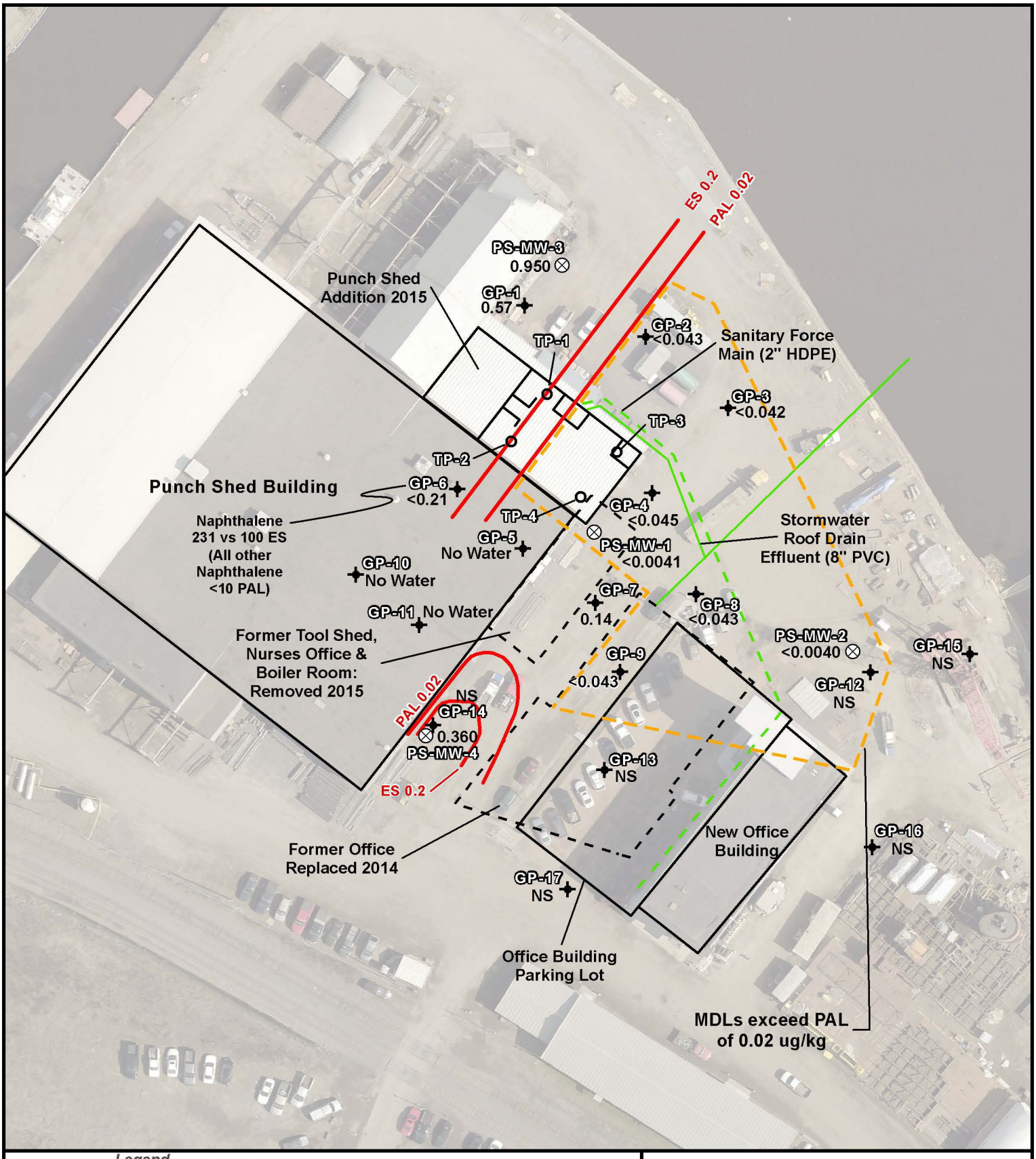

Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet

SCALE: 1:840 1 inch = 72 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

N

FIGURE 7

Groundwater Benzo(a)pyrene
Sample Date:8/22/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 10/12/2018	**CREATED BY:** CGIS
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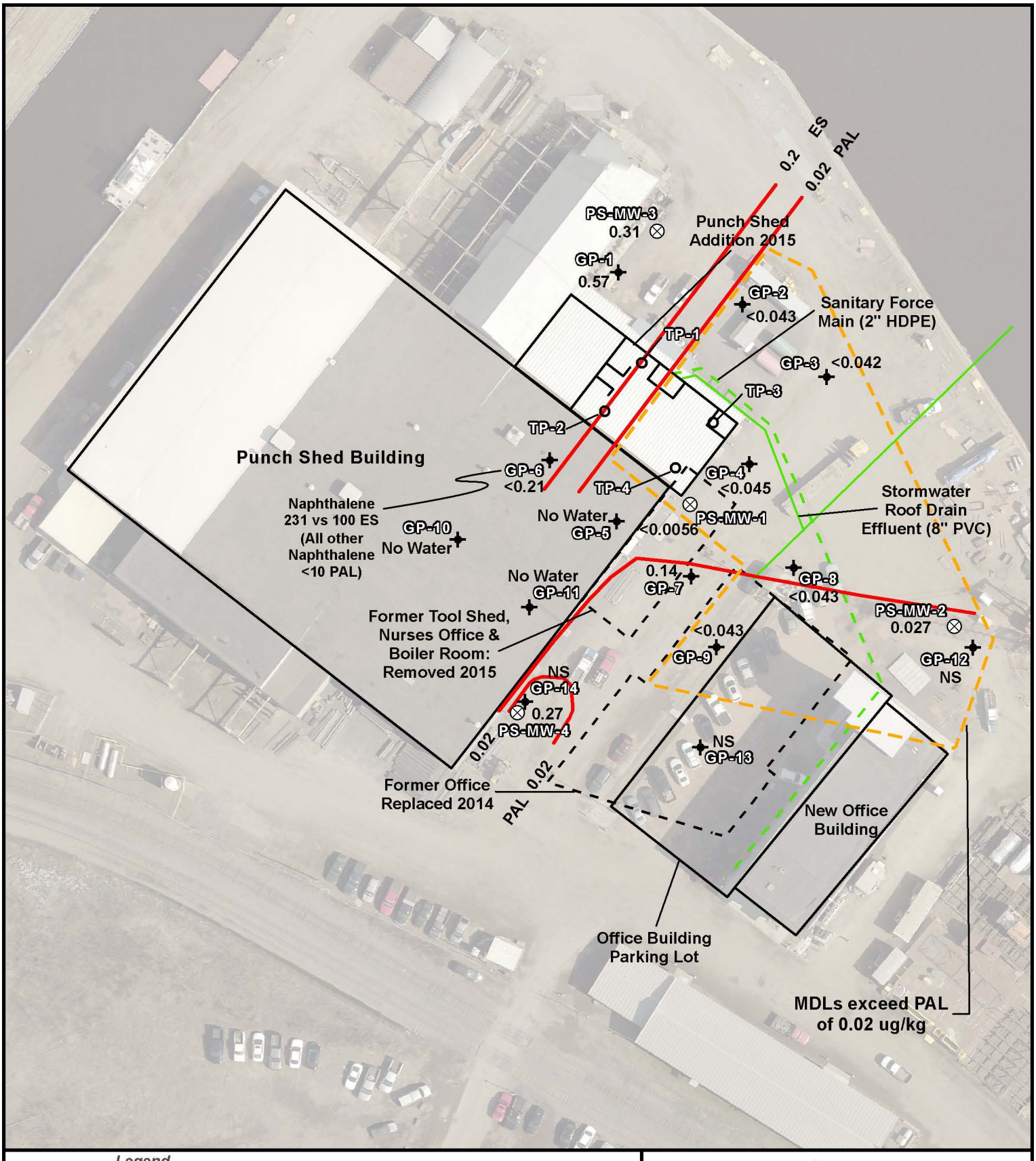


Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet

SCALE: 1:840 1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

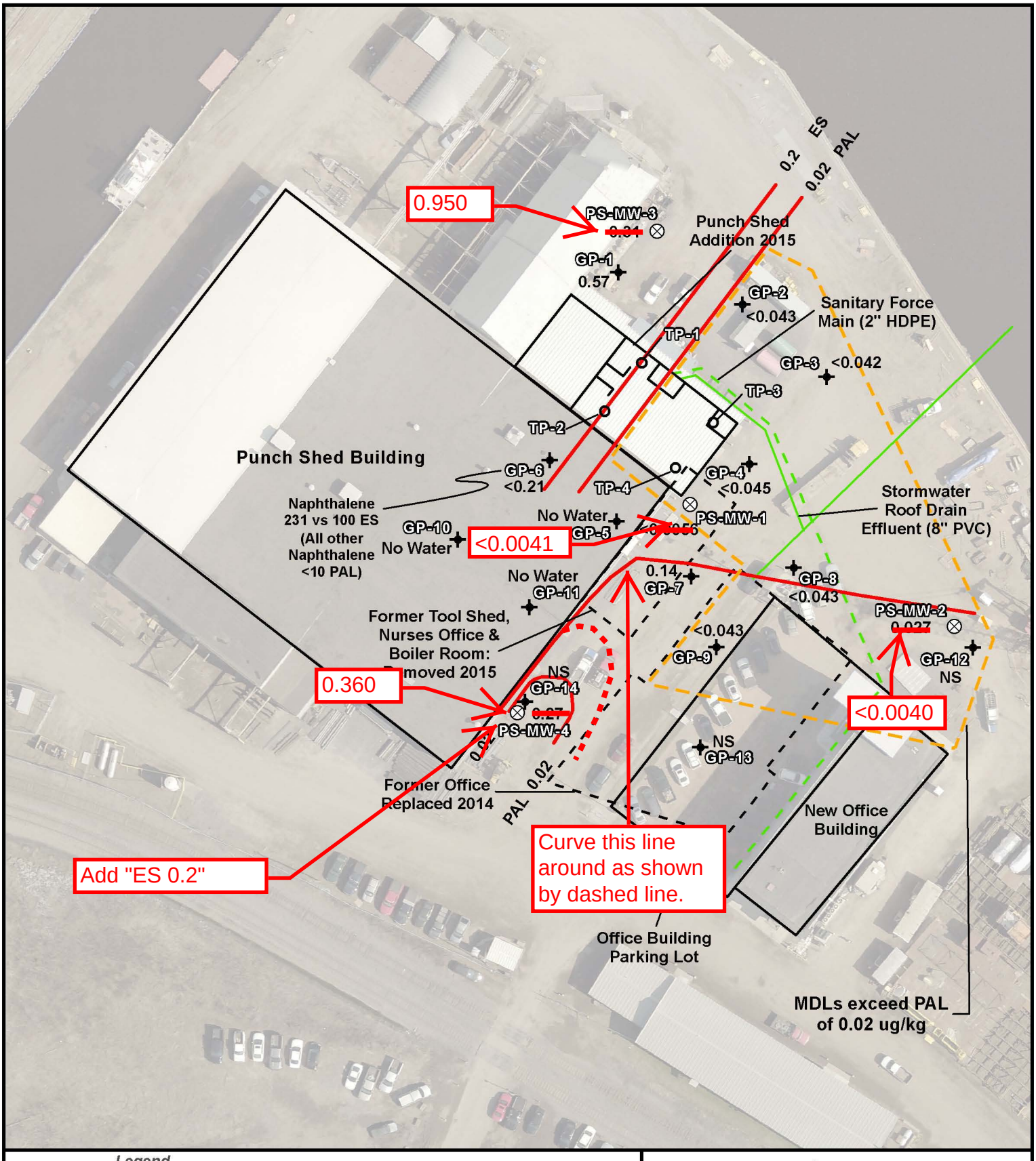
N

FIGURE 7

Groundwater Benzo(a)pyrene
Sample Date: 7/19/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 09/21/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure7



Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet

SCALE: 1:840 1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

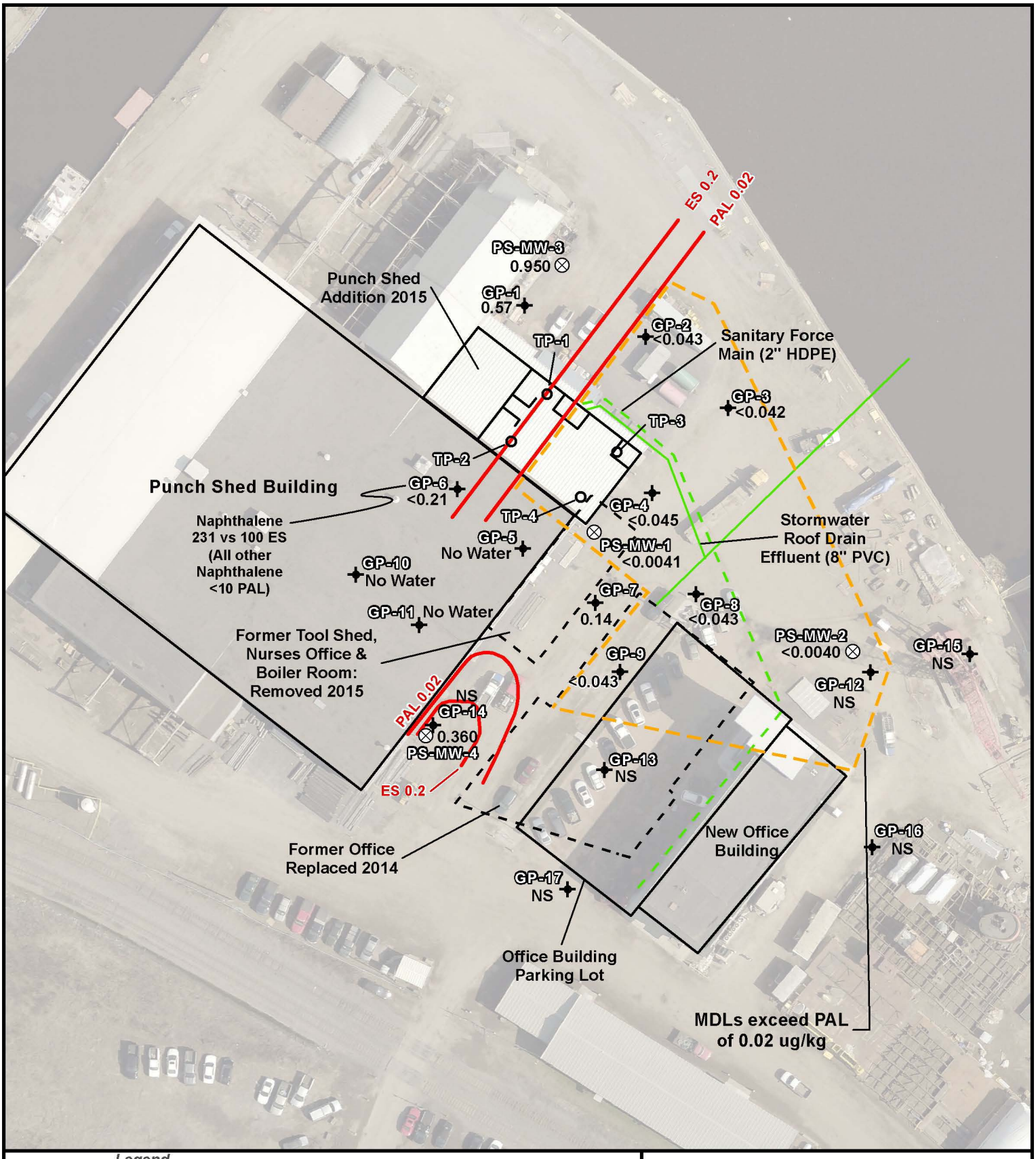
N

FIGURE 7

Groundwater Benzo(a)pyrene
Sample Date: 8/22/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 09/21/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure7



Legend

- Groundwater Monitoring Wells
- Geoprobe Borings
- Excavation Test Pits
- Former Building Footprint
- Building Footprint
- MDLs Exceed PAL of 0.02 ug/kg
- ES 0.2
- PAL 0.02

Borings GP-5, GP-10 & GP-11; no water encountered.
Borings GP-12, GP-13 & GP-14; soil delineation borings. No water sampled.

Exceedances of other PAHs within B(a)P extents include Benzo(b)flouranthene, Chrysene & naphthalene.

0 35 70 140 Feet

SCALE: 1:840 1 inch = 72 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

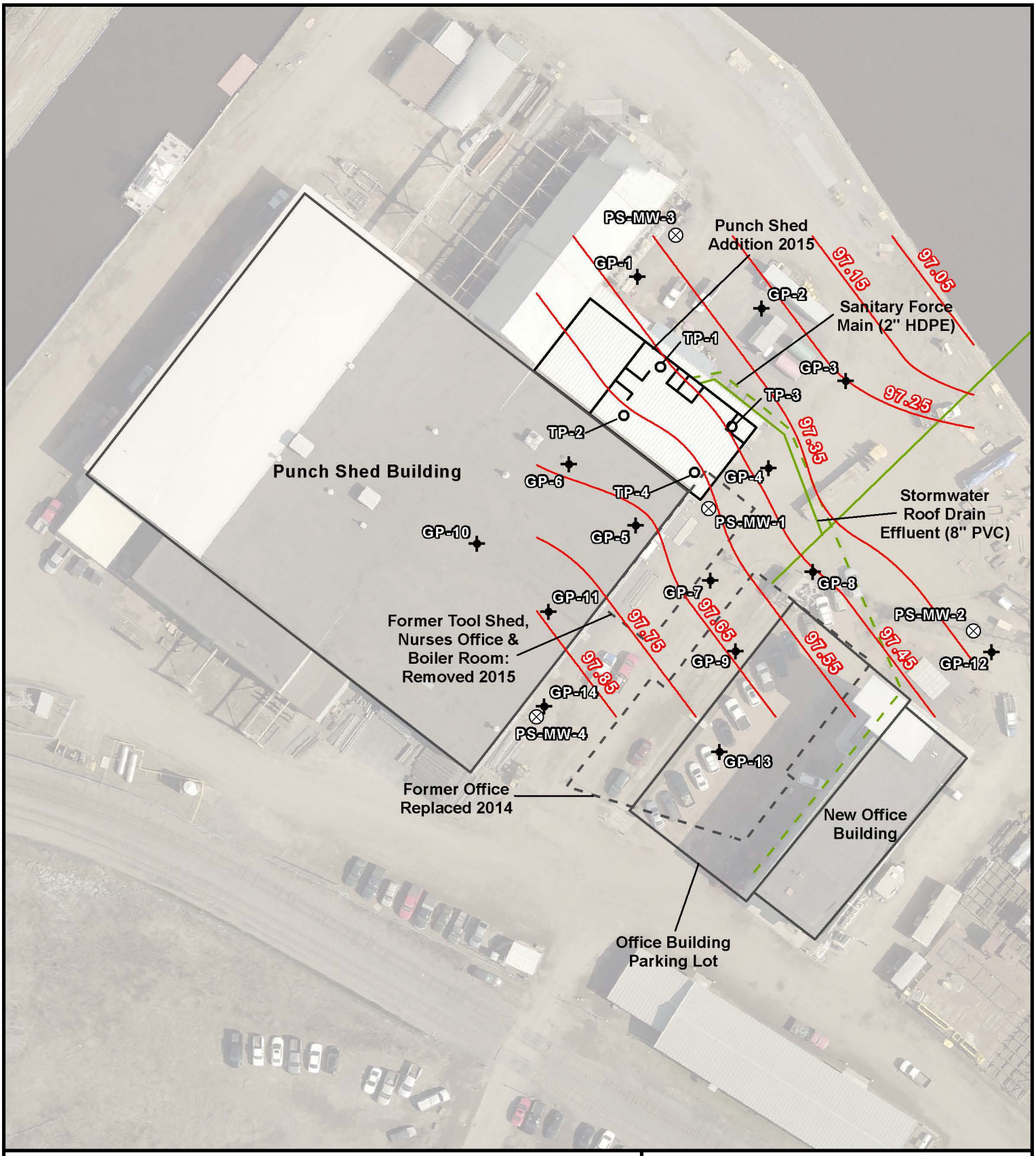
N

FIGURE 7

Groundwater Benzo(a)pyrene
Sample Date:8/22/16

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 10/12/2018	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure7



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 97.05 Equipotential Contour
- * PS-MW-1 data anomalous and not included

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

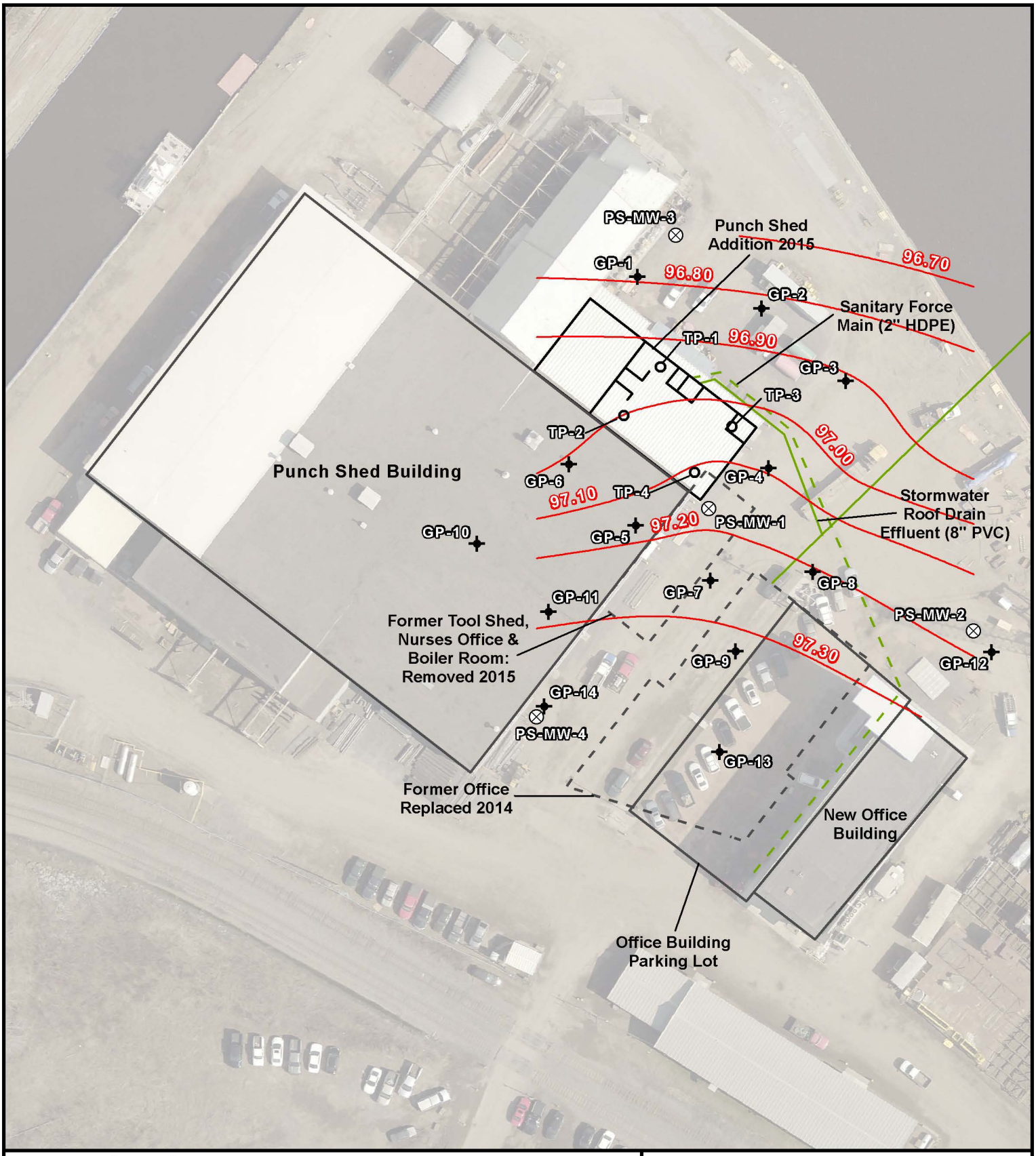
N

FIGURE 8a

Groundwater Potentiometric
Sample Date: 04/27/2016

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 08/29/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure 8a



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 96.70 Equipotential Contour

0 35 70 140 Feet

SCALE: 1:840

1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

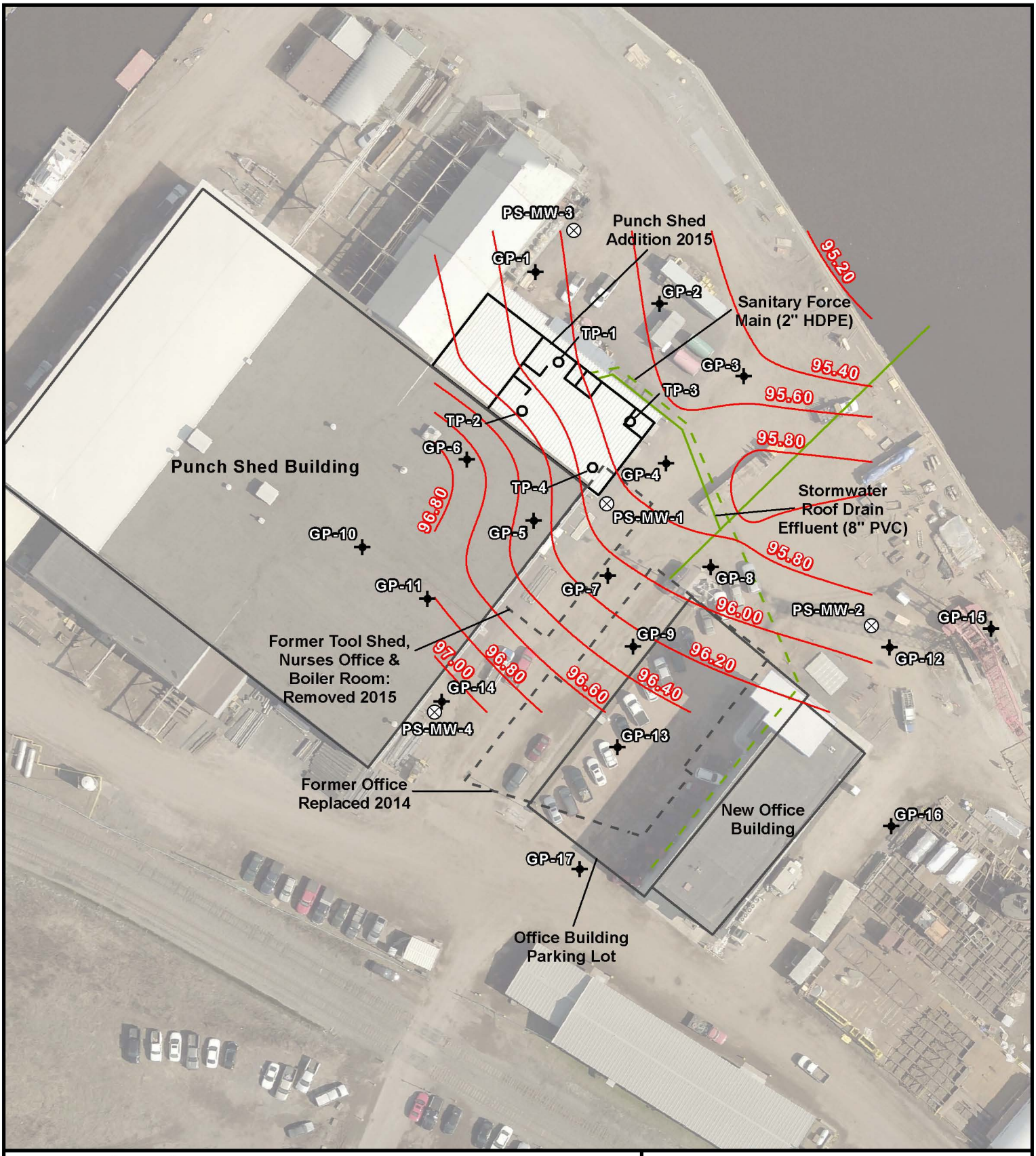
N

FIGURE 8b

Groundwater Potentiometric
Sample Date: 07/19/2016

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 08/29/2016	**CREATED BY:** CGIS
FILE NAME:	//GIS/2014 Projects/14-1004 /Projects/Figure 8b



Legend

- Geoprobe Borings
- Excavation Test Pits
- Groundwater Monitoring Wells
- Former Building Footprint
- Building Footprint
- 96.70 Equipotential Contour

0 35 70 140 Feet

SCALE: 1:840
1 inch = 70 feet

Source: Douglas County Aerial Imagery, circa Spring 2016

N

FIGURE 8c

Groundwater Potentiometric
Sample Date: 8/22/2018

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004	
DATE: 10/12/2018	**CREATED BY:** CGIS
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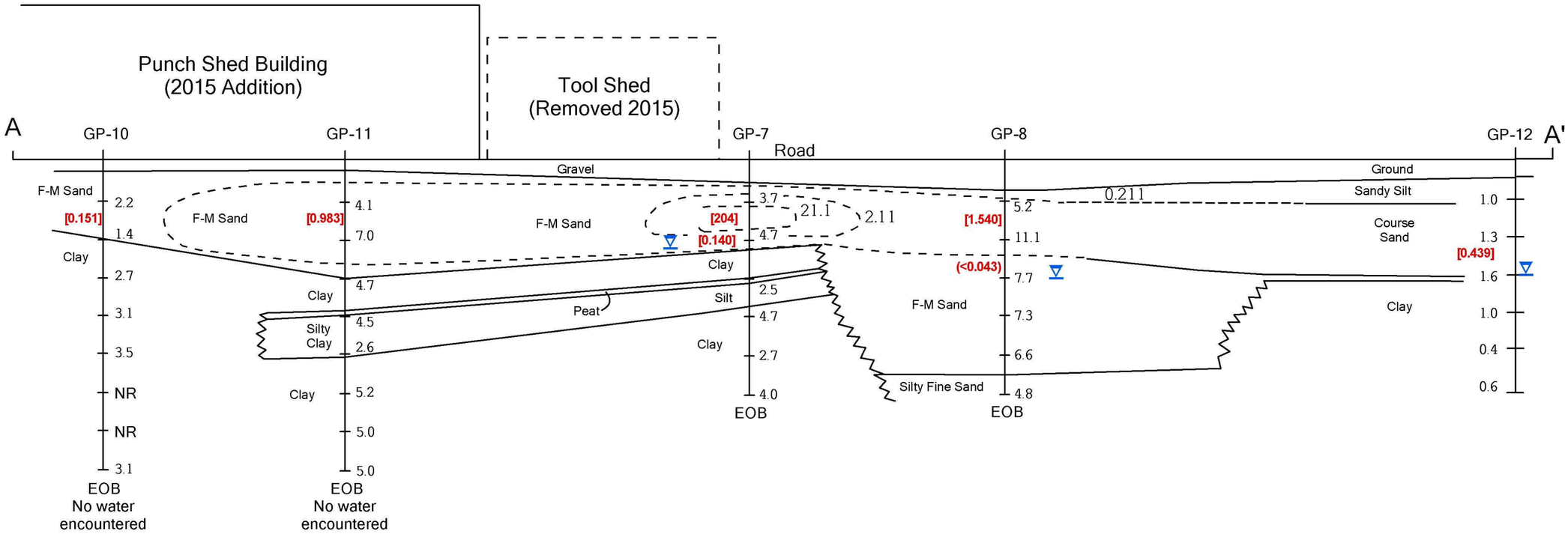
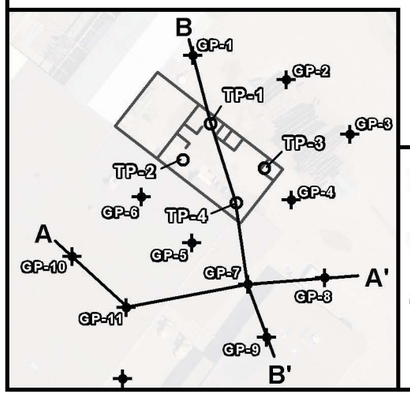




[0.246] Benzo(a)Pyrene - B(a)P - mg/kg

(0.172) B(a)P in groundwater - µg/kg

0.211 B(a)P in soil Industrial RCL isopleths

Water table depth

NR No Recovery

2.2 PID Reading

EOB End of boring

Vertical Scale 1" = 5'

Horizontal Scale 1" = 20'

FIGURE 9A

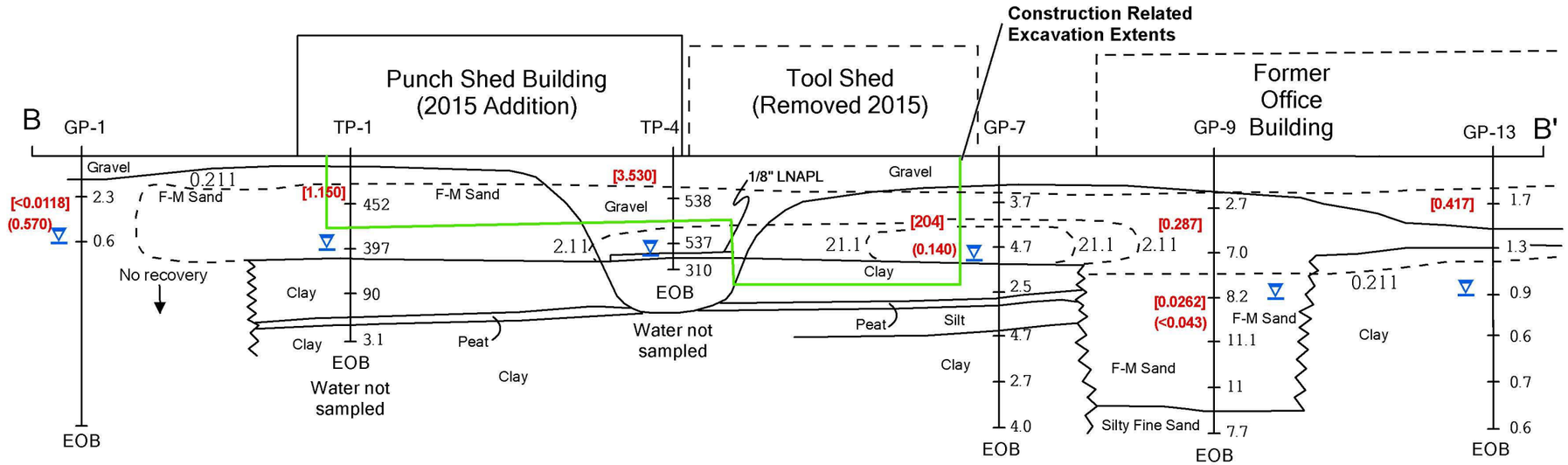
Geologic Cross Section A-A'

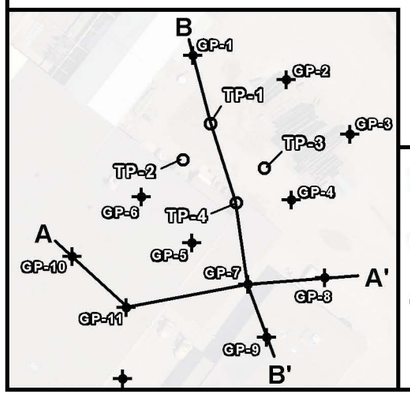
RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 08/25/2016 **CREATED BY:** CGIS

FILE NAME: //GIS/2014 Projects/14-1004 Projects/Figure9a





[0.246] Benzo(a)Pyrene - B(a)P - mg/kg

(0.172) B(a)P in groundwater - µg/kg

0.211 B(a)P in soil Industrial RCL isopleths

Water table depth

NR No Recovery

2.2 PID Reading

EOB End of boring

Vertical Scale 1" = 5'

Horizontal Scale 1" = 20'

FIGURE 9B

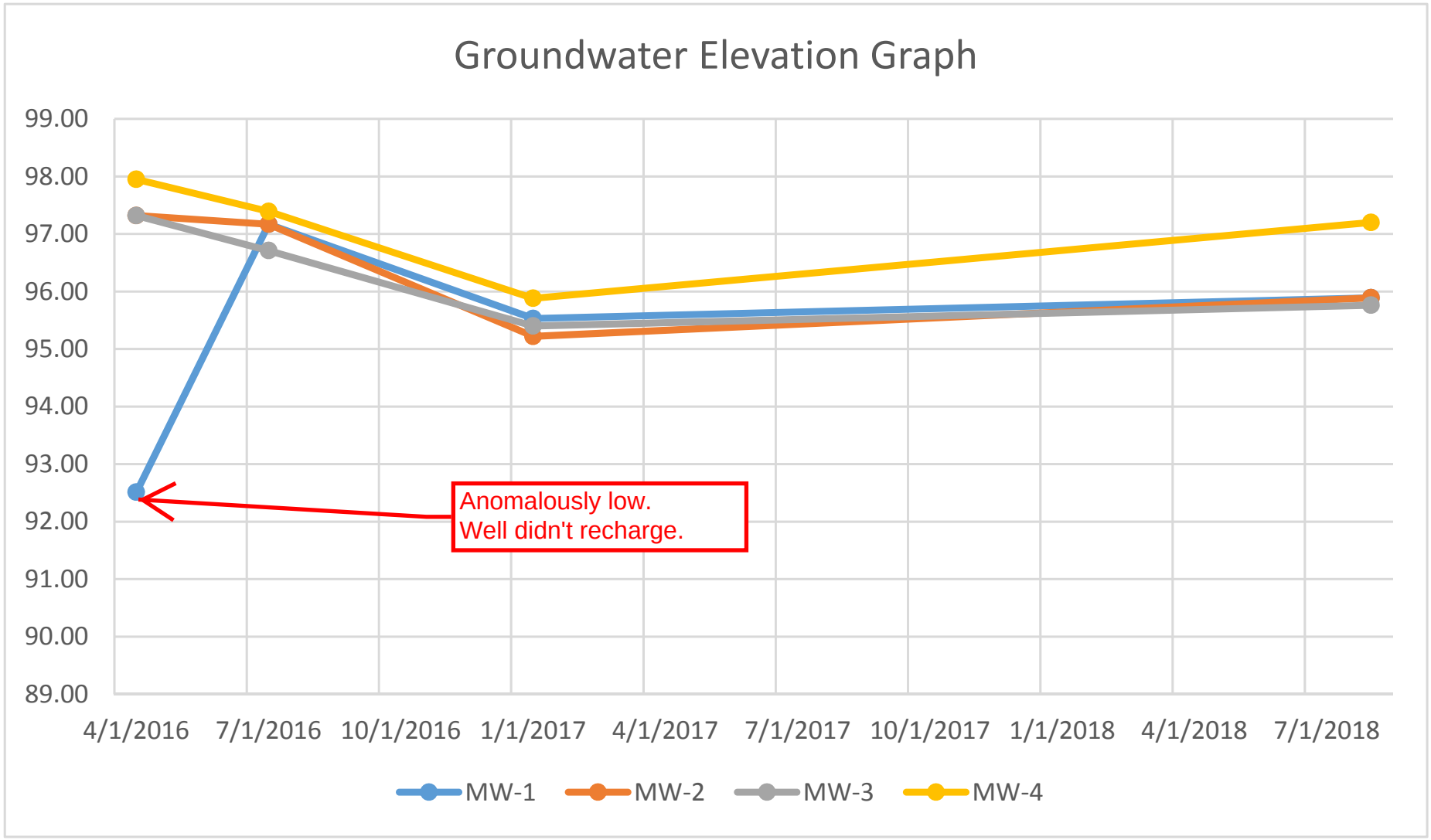
Geologic Cross Section B-B'

RJS Fraser Shipyard
Superior, Wisconsin

PROJECT #: 14-1004

DATE: 08/25/2016 | CREATED BY: CGIS

FILE NAME: //GIS/2014 Projects/14-1004 Projects/Figure9b


Groundwater Elevation Graph
99.00
98.00
97.00
96.00
95.00
94.00
93.00
92.00
91.00
90.00
89.00
4/1/2016
7/1/2016
10/1/2016
1/1/2017
4/1/2017
7/1/2017
10/1/2017
1/1/2018
4/1/2018
7/1/2018
Anomalously low.
Well didn't recharge.
MW-1
MW-2
MW-3
MW-4

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Scott Walker, Governor
Cathy Stepp, Secretary

Ashland Service Center
2501 Golf Course Road
Ashland, Wisconsin 54806
Telephone 715-685-2900
FAX 715-685-2909

November 15, 2016

MR JORDAN HAFSTAD
FRASER SHIPYARDS INC
1 CLOUGH AVE
SUPERIOR WI 54880

Subject: Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request for the Site Investigation at the Fraser Shipyard Punch Shed Addition, Fraser Shipyard Facility, Superior, Wisconsin
WDNR BRRTS #02-16-562599

Dear Mr. Hafstad:

On October 20, 2016, the Department of Natural Resources' (DNR) Remediation and Redevelopment program received a completed Technical Assistance, Environmental Liability Clarification or Post-Closure Modification Request (Form 4400-237), prepared for the above named site by Environmental Troubleshooters, Inc. and dated October 17, 2016. This form was accompanied by the appropriate review fee for "Other Technical Assistance" as required under section NR 749.04, Wisconsin Administrative Code, as well as a compilation of the soil and groundwater investigation results and visual aids (i.e., maps and figures) collected to date.

As your consultant pointed out, the investigation results suggest that the contamination associated with the Punch Shed Addition release overlies a larger area of what appears to be historic soil and groundwater contamination. The request for technical assistance related to the current extent of investigation and whether or not further investigation would be needed to delineate the historic contamination.

Our evaluation consisted of reviewing the investigation data included with the request for technical assistance, as well as previous submittals from, and email correspondence with, Environmental Troubleshooters, Inc. I also presented the investigation data to the DNR's Northern Region Closure Committee for a discussion of the adequacy of the site investigation. Based on this evaluation, we concluded the following:

- We concur with the assessment of Environmental Troubleshooters, Inc. that the data likely represent two or more releases in this area, historic and more recent. Your consultant has delineated the more recent release(s) using the relatively high naphthalene concentrations in soil, as depicted on Figure 5 Soil Naphthalene from the packet that accompanied the request for technical assistance.
- The extent of soil contamination (historic and more recent) has been adequately defined to the north and west. Residual contamination under the Punch Shed Building will be addressed in the final closure letter through a continuing obligation for a structural impediment.

- The extent of historic soil contamination to the east and south of the New Office Building has not been adequately defined. Although your consultant has attributed this contamination to historic fill, given the 100+ year history of industrial operations at this facility, it is just as likely (if not more so) that the contamination is attributable to past activities at the facility. We believe that you should install a minimum of three additional soil borings to the east, south-east and south of the New Office Building to more completely delineate the extent of historic contamination.
- It appears from Figure 2 Vicinity Map that the Punch Shed Building and New Office Building area is near the former AOC #9 (part of DNR BRRTS Activity #02-16-000079), identified and investigated in the 1990s. If your consultant has not already done so, they should review the case file information for AOC #9 to see if any of that investigation data could be applied to the current investigation.
- The Closure Committee also questioned whether or not soil was excavated during construction of the New Office Building and, if so, was that soil characterized for the presence of contamination. If characterization was performed, your consultant should include those results with the site investigation results.
- It does appear that you have adequately delineated the degree and extent of groundwater contamination. You should continue to monitor groundwater quality until you can demonstrate stable or decreasing concentrations, as required for closure under ch. NR 726, Wis. Adm. Code.

The DNR appreciates the opportunity to review and comment on your results at this stage of the investigation. We find that this type of fee-based evaluation early in the process leads to more successful case closure applications at the end. We would be happy to discuss these conclusions further with you and/or your consultant.

If you have any questions concerning this letter or the project in general, please do not hesitate to write or call me at 715-685-2920. I can also be reached by e-mail at Christopher.Saari@Wisconsin.gov.

Sincerely,

Christopher A. Saari
Hydrogeologist

cc: John McCarthy – Environmental Troubleshooters, Inc.

Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
02-16-562599

GP15 2-4

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.	1.8E-07

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 10/10/2018.
Date of Worksheet Used: 12/11/2015.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	871.	26.	26.	ca		0.0014		0.	5.4E-11
Benzo[a]pyrene	50-32-8	-	0.211	0.211	ca		0.0297			1.4E-07
Acenaphthene	83-32-9	33,000.	-	33,000.	nc		0.0015		0.	
Acenaphthylene	208-96-8	-	-				0.0011			
Anthracene	120-12-7	165,000.	-	100,000.	ceiling		0.0118		0.	
Benz[a]anthracene	56-55-3	-	2.1	2.1	ca		0.0269			1.3E-08
Benzo[b]fluoranthene	205-99-2	-	2.11	2.11	ca		0.038			1.8E-08
Benzo[g,h,i]perylene	191-24-2	-	-				0.0136			
Benzo[k]fluoranthene	207-08-9	-	21.1	21.1	ca		0.0171			8.1E-10
Chrysene	218-01-9	-	211.	211.	ca		0.033			1.6E-10
Dibenz[a,h]anthracene	53-70-3	-	0.211	0.211	ca		0.0013			6.2E-09
Fluoranthene	206-44-0	22,000.	-	22,000.	nc		0.0675		0.	
Fluorene	86-73-7	22,000.	-	22,000.	nc		0.0015		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	2.11	2.11	ca		0.0109			5.2E-09
Phenanthrene	85-01-8	-	-				0.0592			
Pyrene	129-00-0	16,500.	-	16,500.	nc		0.0634		0.	

NR 720 Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
Type BRRTS No. Here (If Known)

GP16 4-6

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.	3.1E-09

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 10/10/2018.
Date of Worksheet Used: 06/01/2018.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	830.	24.1	24.1	ca		0.0035		0.	1.5E-10
Benzo[a]pyrene	50-32-8	222.	2.11	2.11	ca		0.0031		0.	1.5E-09
Acenaphthene	83-32-9	45,200.	-	45,200.	nc		0.0018		0.	
Acenaphthylene	208-96-8	-	-				0.0022			
Anthracene	120-12-7	226,000.	-	100,000.	ceiling		0.0021		0.	
Benz[a]anthracene	56-55-3	-	20.8	20.8	ca		0.0048			2.3E-10
Benzo[b]fluoranthene	205-99-2	-	21.1	21.1	ca		0.0017			8.1E-11
Benzo[g,h,i]perylene	191-24-2	-	-				0.0028			
Benzo[k]fluoranthene	207-08-9	-	211.	211.	ca		0.0038			1.8E-11
Chrysene	218-01-9	-	2,110.	2,110.	ca		0.0061			2.9E-12
Dibenz[a,h]anthracene	53-70-3	-	2.11	2.11	ca		0.0021			1.0E-09
Fluoranthene	206-44-0	30,100.	-	30,100.	nc		0.0019		0.	
Fluorene	86-73-7	30,100.	-	30,100.	nc		0.0014		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	21.1	21.1	ca		0.003			1.4E-10
Phenanthrene	85-01-8	-	-				0.0086			
Pyrene	129-00-0	22,600.	-	22,600.	nc		0.0021		0.	

NR 720 Direct-Contact ***Exceedance*** - ***Hazard*** - ***Risk*** Calculation Summary from Soil Data

BRRTS # :
Type BRRTS No. Here (If Known)

GP17 2-4'

# of Soil-Concentration Entries: 16

Number of Individual Exceedance	(Cumulative) Hazard Index	(Cumulative) Cancer Risk
0	0.0018	2.5E-07

Bottom-Line: Yes, levels are below INDUSTRIAL direct-contact concern.

Date of Entry: 10/10/2018.
Date of Worksheet Used: 06/01/2018.

List below only has contaminants with data.

Contaminant	CAS Number	NC RCL (mg/kg)	C RCL (mg/kg)	Not-To-Exceed D-C RCL (mg/kg)	Basis	BTV (mg/kg)	INPUTTED Site Data (mg/kg)	Flag E = Individual Exceedance!	Hazard Quotient (HQ) from Data	Cancer Risk (CR) from Data
Naphthalene	91-20-3	830.	24.1	24.1	ca		0.0798		0.0001	3.3E-09
Benzo[a]pyrene	50-32-8	222.	2.11	2.11	ca		0.357		0.0016	1.7E-07
Acenaphthene	83-32-9	45,200.	-	45,200.	nc		0.651		0.	
Acenaphthylene	208-96-8	-	-				0.0249			
Anthracene	120-12-7	226,000.	-	100,000.	ceiling		0.163		0.	
Benz[a]anthracene	56-55-3	-	20.8	20.8	ca		0.366			1.8E-08
Benzo[b]fluoranthene	205-99-2	-	21.1	21.1	ca		0.481			2.3E-08
Benzo[g,h,i]perylene	191-24-2	-	-				0.229			
Benzo[k]fluoranthene	207-08-9	-	211.	211.	ca		0.165			7.8E-10
Chrysene	218-01-9	-	2,110.	2,110.	ca		0.334			1.6E-10
Dibenz[a,h]anthracene	53-70-3	-	2.11	2.11	ca		0.0591			2.8E-08
Fluoranthene	206-44-0	30,100.	-	30,100.	nc		0.836		0.	
Fluorene	86-73-7	30,100.	-	30,100.	nc		0.0806		0.	
Indeno[1,2,3-cd]pyrene	193-39-5	-	21.1	21.1	ca		0.182			8.6E-09
Phenanthrene	85-01-8	-	-				0.738			
Pyrene	129-00-0	22,600.	-	22,600.	nc		0.77		0.	

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		GP-1	GP-2	GP-3	GP-4	GP-6	GP-7	GP-8	GP-81	GP-9
All results in ug/L	Sample Date		3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	6/29/2015	Dup	6/29/2015
VOCs	ES	PAL									
Acetone	9000	1800	<20.0	<20.0	<20.0	**33.5**	**60.5**	<20.0	--	--	--
Allyl Chloride	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Benzene	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Bromobenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Bromochloromethane	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Bromodichloromethane	0.6	0.06	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Bromoform	4.4	0.44	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Bromomethane	10	1	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
2-Butanone (MEK)	4000	800	<5.0	<5.0	<5.0	<5.0	**14.5**	<5.0	--	--	--
n-Butylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	**2.7**	<1.0	--	--	--
sec-Butylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	**1.6**	<1.0	--	--	--
tert-Butylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Carbon Tetrachloride	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Chlorobenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Chloroethane	400	80	<1.0	**3.4**	<1.0	<1.0	<1.0	<1.0	--	--	--
Chloroform	6	0.6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Chloromethane	30	3	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
2-Chlorotoluene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
4-Chlorotoluene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Dibromochloromethane	60	6	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Dibromomethane	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,2-Dichlorobenzene	600	60	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,3-Dichlorobenzene	600	120	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,4-Dichlorobenzene	75	15	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Dichlorodifluoromethane	1000	200	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,1-Dichloroethane (DCA)	850	85	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dichloroethane	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1-Dichloroethene	7	0.7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
trans-1,2-Dichloroethene	100	20	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		GP-1	GP-2	GP-3	GP-4	GP-6	GP-7	GP-8	GP-81	GP-9
All results in ug/L	Sample Date		3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	6/29/2015	Dup	6/29/2015
Dichlorofluoromethane	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2-Dichloropropane	5	0.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,3-Dichloropropane	0.4	0.04	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
2,2-Dichloropropane	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,1-Dichloropropene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
cis-1,3-Dichloropropene	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
trans-1,3-Dichloropropene	NP	NP	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
Ethylbenzene	700	140	<1.0	<1.0	<1.0	<1.0	**4.6**	<1.0	--	--	--
Hexachloro-1,3-butadiene	NP	NP	<1.0	**1.0**	<1.0	<1.0	<1.0	<1.0	--	--	--
Isopropylbenzene (cumene)	NP	NP	<1.0	<1.0	<1.0	<1.0	**2.1**	<1.0	--	--	--
p-Isopropyltoluene	NP	NP	**4.8**	<1.0	<1.0	<1.0	**12.1**	<1.0	--	--	--
Methylene Chloride	5	0.5	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
4-Methyl-2-pentanone (MIBK)	500	50	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	--	--	--
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Naphthalene	100	10	<4.0	<4.0	<4.0	<4.0	***228***	<4.0	--	--	--
n-Propylbenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	**2.8**	<1.0	--	--	--
Styrene	100	10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,1,2-Tetrachloroethane	70	7	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Tetrachloroethene (PCE)	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Tetrahydrofuran (THF)	50	10	<10.0	<10.0	<10.0	<10.0	<10.0	<10.0	--	--	--
Toluene	800	160	<1.0	<1.0	<1.0	<1.0	**1.8**	<1.0	--	--	--
1,2,3-Trichlorobenzene	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2,4-Trichlorobenzene	70	14	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,1-Trichloroethane (TCA)	200	40	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
Trichloroethene (TCE)	5	0.5	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	--	--	--
Trichlorofluoromethane	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2,3-Trichloropropane*	60	12	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	--	--	--
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	--	--	--
1,2,4-Trimethylbenzene	480	96	<1.0	<1.0	<1.0	<1.0	**96.4**	<1.0	--	--	--
1,3,5-Trimethylbenzene			<1.0	<1.0	<1.0	<1.0	**32.6**	<1.0	--	--	--
Vinyl Chloride	0.2	0.02	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	--	--	--
Xylene (total)	2000	400	<3.0	<3.0	<3.0	<3.0	**49.7**	<3.0	--	--	--

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		GP-1	GP-2	GP-3	GP-4	GP-6	GP-7	GP-8	GP-81	GP-9
	Sample Date		3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	3/25/2015	6/29/2015	Dup	6/29/2015
PAHs											
Acenaphthene	NP	NP	**1.2**	**0.19**	**0.15**	<0.045	**4.4**	**3.0**	**0.78**	**0.71**	**1.4**
Acenaphthylene	NP	NP	**0.17**	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	**0.092**	<0.043
Anthracene	3000	600	**0.18**	<0.043	<0.042	<0.045	<0.21	**1.1**	**0.079**	**0.073**	**0.17**
Benzo(a)anthracene	NP	NP	**0.43**	<0.043	<0.042	<0.045	<0.21	**0.15**	<0.043	<0.042	<0.043
Benzo(a)pyrene	0.2	0.02	***0.57***	<0.043	<0.042	<0.045	<0.21	**0.14**	<0.043	<0.042	<0.043
Benzo(b)fluoranthene	0.2	0.02	***0.84***	<0.043	<0.042	<0.045	<0.21	**0.16**	<0.043	<0.042	<0.043
Benzo(g,h,i)perylene	NP	NP	**0.52**	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	<0.042	<0.043
Benzo(k)fluoranthene	NP	NP	**0.27**	<0.043	<0.042	<0.045	<0.21	**0.068**	<0.043	<0.042	<0.043
Chrysene	0.2	0.02	***0.63***	<0.043	<0.042	<0.045	<0.21	**0.16**	<0.043	<0.042	<0.043
Dibenzo(a,h)anthracene	NP	NP	<0.041	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	<0.042	<0.043
Fluoranthene	400	80	**1.4**	**0.078**	<0.042	<0.045	<0.21	**0.9**	**0.087**	**0.086**	**0.17**
Fluorene	400	80	**0.35**	**0.17**	<0.042	<0.045	**2.3**	**1.6**	**0.56**	**0.51**	**0.46**
Indeno(1,2,3-cd)pyrene	NP	NP	**0.45**	<0.043	<0.042	<0.045	<0.21	<0.043	<0.043	<0.042	<0.043
Naphthalene	100	10	<0.041	<0.043	<0.042	<0.045	***231***	**2.1**	**0.056**	**0.064**	**0.29**
Phenanthrene	NP	NP	**0.89**	**0.11**	**0.083**	<0.045	**0.92**	**4.2**	<0.043	<0.042	**1.5**
Pyrene	250	50	**1.2**	**0.07**	<0.042	<0.045	<0.21	**0.7**	**0.063**	**0.068**	**0.14**

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-1				PS-MW-2				
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	4/27/2016	4/27/2016	7/19/2016	1/10/2017	8/23/2018
VOCs	ES	PAL						MW-2 Dup			
Acetone	9000	1800	**73.7**	**6.4J**	--	--	**93.9**	**88.5**	**2.7J**	--	--
Allyl Chloride	NP	NP	<4.0	<0.25	--	--	<4.0	<4.0	<0.25	--	--
Benzene	5	0.5	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--
Bromobenzene	NP	NP	<1.0	<0.34	--	--	<1.0	<1.0	<0.34	--	--
Bromochloromethane	NP	NP	<4.0	<0.19	--	--	<4.0	<4.0	<0.19	--	--
Bromodichloromethane	0.6	0.06	<1.0	<0.24	--	--	<1.0	<1.0	<0.24	--	--
Bromoform	4.4	0.44	<4.0	<0.27	--	--	<4.0	<4.0	<0.27	--	--
Bromomethane	10	1	<4.0	<0.44	--	--	<4.0	<4.0	<0.44	--	--
2-Butanone (MEK)	4000	800	<5.0	<1.1	--	--	<5.0	<5.0	<1.1	--	--
n-Butylbenzene	NP	NP	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--
sec-Butylbenzene	NP	NP	<1.0	<0.19	--	--	<1.0	<1.0	<0.19	--	--
tert-Butylbenzene	NP	NP	<1.0	<0.22	--	--	<1.0	<1.0	<0.22	--	--
Carbon Tetrachloride	5	0.5	<1.0	<0.20	--	--	<1.0	<1.0	<0.20	--	--
Chlorobenzene	NP	NP	<1.0	<0.11	--	--	<1.0	<1.0	<0.11	--	--
Chloroethane	400	80	<1.0	<0.34	--	--	<1.0	<1.0	<0.34	--	--
Chloroform	6	0.6	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
Chloromethane	30	3	<4.0	<0.25	--	--	<4.0	<4.0	<0.25	--	--
2-Chlorotoluene	NP	NP	<1.0	<0.30	--	--	<1.0	<1.0	<0.30	--	--
4-Chlorotoluene	NP	NP	<1.0	<0.26	--	--	<1.0	<1.0	<0.26	--	--
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<0.60	--	--	<4.0	<4.0	<0.60	--	--
Dibromochloromethane	60	6	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<0.20	--	--	<1.0	<1.0	<0.20	--	--
Dibromomethane	NP	NP	<4.0	<0.19	--	--	<4.0	<4.0	<0.19	--	--
1,2-Dichlorobenzene	600	60	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,3-Dichlorobenzene	600	120	<1.0	<0.12	--	--	<1.0	<1.0	<0.12	--	--
1,4-Dichlorobenzene	75	15	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
Dichlorodifluoromethane	1000	200	<4.0	<0.23	--	--	<4.0	<4.0	<0.23	--	--
1,1-Dichloroethane (DCA)	850	85	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,2-Dichloroethane	5	0.5	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,1-Dichloroethene	7	0.7	<1.0	<0.28	--	--	<1.0	<1.0	<0.28	--	--
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<0.12	--	--	<1.0	<1.0	<0.12	--	--
trans-1,2-Dichloroethene	100	20	<1.0	<0.16	--	--	<1.0	<1.0	<0.16	--	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-1				PS-MW-2				
	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	4/27/2016	4/27/2016	7/19/2016	1/10/2017	8/23/2018
Dichlorofluoromethane	NP	NP	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
1,2-Dichloropropane	5	0.5	<4.0	<0.22	--	--	<4.0	<4.0	<0.22	--	--
1,3-Dichloropropane	0.4	0.04	<1.0	<0.096	--	--	<1.0	<1.0	<0.096	--	--
2,2-Dichloropropane	NP	NP	<4.0	<0.13	--	--	<4.0	<4.0	<0.13	--	--
1,1-Dichloropropene	NP	NP	<1.0	<0.23	--	--	<1.0	<1.0	<0.23	--	--
cis-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<4.0	<4.0	<0.15	--	--
trans-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<4.0	<4.0	<0.15	--	--
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<0.19	--	--	<4.0	<4.0	<0.19	--	--
Ethylbenzene	700	140	<1.0	**0.24J**	--	--	<1.0	<1.0	**0.24J**	--	--
Hexachloro-1,3-butadiene	NP	NP	<1.0	<0.18	--	--	<1.0	<1.0	<0.18	--	--
Isopropylbenzene (cumene)	NP	NP	<1.0	<0.25	--	--	<1.0	<1.0	<0.25	--	--
p-Isopropyltoluene	NP	NP	**6.6**	**0.93J**	--	--	**2.8**	**2.9**	<0.19	--	--
Methylene Chloride	5	0.5	<4.0	<0.29	--	--	<4.0	<4.0	<0.29	--	--
4-Methyl-2-pentanone (MIBK)	500	50	**8.4**	**0.69J**	--	--	<5.0	<5.0	<0.43	--	--
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<0.15	--	--	<1.0	<1.0	<0.15	--	--
Naphthalene	100	10	<4.0	**0.21J**	--	--	<4.0	<4.0	<0.20	--	--
n-Propylbenzene	NP	NP	<1.0	<0.23	--	--	<1.0	<1.0	<0.23	--	--
Styrene	100	10	<1.0	<0.29	--	--	<1.0	<1.0	<0.29	--	--
1,1,1,2-Tetrachloroethane	70	7	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<0.22	--	--	<1.0	<1.0	<0.22	--	--
Tetrachloroethene (PCE)	5	0.5	<1.0	<0.25	--	--	<1.0	<1.0	<0.25	--	--
Tetrahydrofuran (THF)	50	10	<10.0	<1.5	--	--	<10.0	<10.0	<1.5	--	--
Toluene	800	160	**1.0**	**0.58J**	--	--	**1.4**	**1.2**	<0.14	--	--
1,2,3-Trichlorobenzene	NP	NP	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
1,2,4-Trichlorobenzene	70	14	<1.0	<0.21	--	--	<1.0	<1.0	<0.21	--	--
1,1,1-Trichloroethane (TCA)	200	40	<1.0	<0.17	--	--	<1.0	<1.0	<0.17	--	--
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<0.15	--	--	<1.0	<1.0	<0.15	--	--
Trichloroethene (TCE)	5	0.5	<0.40	<0.20	--	--	<0.40	<0.40	<0.20	--	--
Trichlorofluoromethane	NP	NP	<1.0	<0.33	--	--	<1.0	<1.0	<0.33	--	--
1,2,3-Trichloropropane*	60	12	<4.0	<0.28	--	--	<4.0	<4.0	<0.28	--	--
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<0.32	--	--	<1.0	<1.0	<0.32	--	--
1,2,4-Trimethylbenzene	480	96	**3.1**	**0.55J**	--	--	**2.1**	**2.2**	**0.35J**	--	--
1,3,5-Trimethylbenzene			**2.0**	<0.27	--	--	<1.0	<1.0	<0.27	--	--
Vinyl Chloride	0.2	0.02	<0.40	<0.29	--	--	<0.40	<0.40	<0.29	--	--
Xylene (total)	2000	400	**5.6**	<0.32	--	--	**4.2**	**3.9**	<0.32	--	--

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-1				PS-MW-2				
	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	4/27/2016	4/27/2016	7/19/2016	1/10/2017	8/23/2018
PAHs											
Acenaphthene	NP	NP	<0.051	**0.069**	**0.210**	<0.0033	<0.043	<0.044	**0.0017J**	<0.0064	<0.0032
Acenaphthylene	NP	NP	<0.051	**0.011J**	**0.042**	<0.0048	<0.043	<0.044	<0.0075	<0.013	<0.0046
Anthracene	3000	600	<0.051	**0.0066J**	**0.13**	<0.0064	<0.043	<0.044	**0.011J**	**0.010J**	<0.0062
Benzo(a)anthracene	NP	NP	<0.051	**0.011**	**0.015**	<0.0040	<0.043	<0.044	**0.031**	**0.028**	<0.0039
Benzo(a)pyrene	0.2	0.02	<0.051	<0.0056	**0.0091J**	<0.0041	<0.043	<0.044	**0.027**	**0.021J**	<0.004
Benzo(b)fluoranthene	0.2	0.02	<0.051	**0.0083J**	**0.017**	<0.013	<0.043	<0.044	**0.038**	**0.028**	<0.013
Benzo(g,h,i)perylene	NP	NP	<0.051	**0.0063J**	**0.011J**	<0.010	<0.043	<0.044	**0.022**	**0.02J**	<0.0098
Benzo(k)fluoranthene	NP	NP	<0.051	<0.0043	**0.0078J**	<0.011	<0.043	<0.044	**0.017**	**0.014J**	<0.010
Chrysene	0.2	0.02	<0.051	**0.0068J**	**0.018**	<0.0095	<0.043	<0.044	**0.029**	**0.022J**	<0.0092
Dibenzo(a,h)anthracene	NP	NP	<0.051	<0.0040	**0.0071J**	<0.0095	<0.043	<0.044	**0.0051J**	**0.011J**	<0.0092
Fluoranthene	400	80	**0.058**	**0.016J**	**0.045**	<0.019	<0.043	<0.044	**0.066**	**0.047**	<0.0018
Fluorene	400	80	<0.051	**0.0094J**	**0.075**	<0.0061	**0.063**	**0.064**	**0.019J**	**0.011J**	<0.0059
Indeno(1,2,3-cd)pyrene	NP	NP	<0.051	<0.0042	**0.010J**	<0.014	<0.043	<0.044	**0.017J**	**0.018J**	<0.013
Naphthalene	100	10	**0.061**	**0.013J**	**0.440**	**0.0430**	**0.11**	**0.093**	**0.077**	**0.022J**	<0.0068
Phenanthrene	NP	NP	**0.071**	**0.019J**	**0.066**	<0.011	**0.15**	**0.14**	**0.096**	**0.042**	<0.010
Pyrene	250	50	<0.051	**0.027**	**0.031**	<0.015	<0.043	<0.044	**0.059**	**0.037**	<0.015

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-3						
All results in ug/L	Sample Date		4/27/2016	7/19/2016	7/19/2016	1/10/2017	1/10/2017	8/23/2018	8/23/2018
VOCs	ES	PAL			Dup		Dup		Dup
Acetone	9000	1800	<20.0	**5.9J**	**4.1J**	--	--	--	--
Allyl Chloride	NP	NP	<4.0	<0.25	<0.25	--	--	--	--
Benzene	5	0.5	<1.0	<0.16	<0.16	--	--	--	--
Bromobenzene	NP	NP	<1.0	<0.34	<0.34	--	--	--	--
Bromochloromethane	NP	NP	<4.0	<0.19	<0.19	--	--	--	--
Bromodichloromethane	0.6	0.06	<1.0	<0.24	<0.24	--	--	--	--
Bromoform	4.4	0.44	<4.0	<0.27	<0.27	--	--	--	--
Bromomethane	10	1	<4.0	<0.44	<0.44	--	--	--	--
2-Butanone (MEK)	4000	800	<5.0	<1.1	<1.1	--	--	--	--
n-Butylbenzene	NP	NP	<1.0	<0.16	<0.16	--	--	--	--
sec-Butylbenzene	NP	NP	<1.0	<0.19	<0.19	--	--	--	--
tert-Butylbenzene	NP	NP	<1.0	<0.22	<0.22	--	--	--	--
Carbon Tetrachloride	5	0.5	<1.0	<0.20	<0.20	--	--	--	--
Chlorobenzene	NP	NP	<1.0	<0.11	<0.11	--	--	--	--
Chloroethane	400	80	<1.0	<0.34	<0.34	--	--	--	--
Chloroform	6	0.6	<1.0	<0.21	<0.21	--	--	--	--
Chloromethane	30	3	<4.0	<0.25	<0.25	--	--	--	--
2-Chlorotoluene	NP	NP	<1.0	<0.30	<0.30	--	--	--	--
4-Chlorotoluene	NP	NP	<1.0	<0.26	<0.26	--	--	--	--
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<0.60	<0.60	--	--	--	--
Dibromochloromethane	60	6	<1.0	<0.16	<0.16	--	--	--	--
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<0.20	<0.20	--	--	--	--
Dibromomethane	NP	NP	<4.0	<0.19	<0.19	--	--	--	--
1,2-Dichlorobenzene	600	60	<1.0	<0.17	<0.17	--	--	--	--
1,3-Dichlorobenzene	600	120	<1.0	<0.12	<0.12	--	--	--	--
1,4-Dichlorobenzene	75	15	<1.0	<0.21	<0.21	--	--	--	--
Dichlorodifluoromethane	1000	200	<4.0	<0.23	<0.23	--	--	--	--
1,1-Dichloroethane (DCA)	850	85	<1.0	**0.76J**	**0.93J**	--	--	--	--
1,2-Dichloroethane	5	0.5	<1.0	<0.17	<0.17	--	--	--	--
1,1-Dichloroethene	7	0.7	<1.0	<0.28	<0.28	--	--	--	--
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<0.12	<0.12	--	--	--	--
trans-1,2-Dichloroethene	100	20	<1.0	<0.16	<0.16	--	--	--	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-3						
	Sample Date		4/27/2016	7/19/2016	7/19/2016	1/10/2017	1/10/2017	8/23/2018	8/23/2018
Dichlorofluoromethane	NP	NP	<1.0	<0.21	<0.21	--	--	--	--
1,2-Dichloropropane	5	0.5	<4.0	<0.22	<0.22	--	--	--	--
1,3-Dichloropropane	0.4	0.04	<1.0	<0.096	<0.096	--	--	--	--
2,2-Dichloropropane	NP	NP	<4.0	<0.13	<0.13	--	--	--	--
1,1-Dichloropropene	NP	NP	<1.0	<0.23	<0.23	--	--	--	--
cis-1,3-Dichloropropene	NP	NP	<4.0	<0.15	<0.15	--	--	--	--
trans-1,3-Dichloropropene	NP	NP	<4.0	<0.15	<0.15	--	--	--	--
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<0.19	<0.19	--	--	--	--
Ethylbenzene	700	140	<1.0	<0.15	<0.15	--	--	--	--
Hexachloro-1,3-butadiene	NP	NP	<1.0	<0.18	<0.18	--	--	--	--
Isopropylbenzene (cumene)	NP	NP	<1.0	<0.25	<0.25	--	--	--	--
p-Isopropyltoluene	NP	NP	<1.0	<0.19	<0.19	--	--	--	--
Methylene Chloride	5	0.5	<4.0	<0.29	<0.29	--	--	--	--
4-Methyl-2-pentanone (MIBK)	500	50	<5.0	<0.43	<0.43	--	--	--	--
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<0.15	<0.15	--	--	--	--
Naphthalene	100	10	<4.0	**1.9J**	**1.2J**	--	--	--	--
n-Propylbenzene	NP	NP	<1.0	<0.23	<0.23	--	--	--	--
Styrene	100	10	<1.0	<0.29	<0.29	--	--	--	--
1,1,1,2-Tetrachloroethane	70	7	<1.0	<0.17	<0.17	--	--	--	--
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<0.22	<0.22	--	--	--	--
Tetrachloroethene (PCE)	5	0.5	<1.0	<0.25	<0.25	--	--	--	--
Tetrahydrofuran (THF)	50	10	**24.2**	<1.5	**4.3J**	--	--	--	--
Toluene	800	160	<1.0	<0.14	<0.14	--	--	--	--
1,2,3-Trichlorobenzene	NP	NP	<1.0	<0.21	<0.21	--	--	--	--
1,2,4-Trichlorobenzene	70	14	<1.0	<0.21	<0.21	--	--	--	--
1,1,1-Trichloroethane (TCA)	200	40	<1.0	<0.17	<0.17	--	--	--	--
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<0.15	<0.15	--	--	--	--
Trichloroethene (TCE)	5	0.5	<0.40	<0.20	<0.20	--	--	--	--
Trichlorofluoromethane	NP	NP	<1.0	<0.33	<0.33	--	--	--	--
1,2,3-Trichloropropane*	60	12	<4.0	<0.28	<0.28	--	--	--	--
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<0.32	<0.32	--	--	--	--
1,2,4-Trimethylbenzene	480	96	<1.0	**0.38J**	**0.21J**	--	--	--	--
1,3,5-Trimethylbenzene			<1.0	<0.27	<0.27	--	--	--	--
Vinyl Chloride	0.2	0.02	<0.40	<0.29	<0.29	--	--	--	--
Xylene (total)	2000	400	<3.0	<0.32	<0.32	--	--	--	--

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

All results in ug/L	Sample ID		PS-MW-3						
	Sample Date		4/27/2016	7/19/2016	7/19/2016	1/10/2017	1/10/2017	8/23/2018	8/23/2018
PAHs									
Acenaphthene	NP	NP	**0.51**	**1.3**	**1.1**	**1.6**	**1.4**	**2.1**	**2.400**
Acenaphthylene	NP	NP	**0.10**	**0.078**	**0.051**	**0.033**	**0.014J**	**0.160**	**0.180**
Anthracene	3000	600	**0.44**	**0.28**	**0.24**	**0.15**	**0.11**	**0.47**	**0.610**
Benzo(a)anthracene	NP	NP	**0.54**	**0.28**	**0.21**	**0.094**	**0.021**	**0.620**	**0.840**
Benzo(a)pyrene	0.2	0.02	***0.59***	***0.31***	***0.24***	**0.12**	**0.020**	**0.69**	**0.950**
Benzo(b)fluoranthene	0.2	0.02	***0.69***	***0.37***	***0.29***	**0.13**	**0.022**	**0.90**	**1.100**
Benzo(g,h,i)perylene	NP	NP	**0.36**	**0.19**	**0.15**	**0.079**	**0.013**	**0.460**	**0.590**
Benzo(k)fluoranthene	NP	NP	**0.25**	**0.14**	**0.11**	**0.055**	**0.0077J**	**0.320**	**0.530**
Chrysene	0.2	0.02	***0.55***	***0.31***	***0.24***	**0.12**	**0.020**	**0.62**	**0.830**
Dibenzo(a,h)anthracene	NP	NP	**0.083**	**0.040**	**0.032J**	**0.018**	**<0.0039**	**0.082**	**0.100**
Fluoranthene	400	80	**1.50**	**0.83**	**0.69**	**0.38**	**0.13**	**1.90**	**2.500**
Fluorene	400	80	**0.31**	**0.46**	**0.41**	**0.48**	**0.43**	**0.91**	**1.100**
Indeno(1,2,3-cd)pyrene	NP	NP	**0.30**	**0.16**	**0.13**	**0.063**	**0.010J**	**0.370**	**0.480**
Naphthalene	100	10	**0.41**	**0.97**	**0.79**	**0.61**	**0.50**	**0.65**	**0.740**
Phenanthrene	NP	NP	**2.1**	**1.7**	**1.4**	**1.2**	**0.93**	**3.0**	**3.700**
Pyrene	250	50	**1.40**	**0.82**	**0.65**	**0.31**	**0.091**	**1.90**	**2.600**

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-4				HCL Trip
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	7/19/2016
VOCs	ES	PAL					
Acetone	9000	1800	<20.0	**5.4J**	--	--	**6.8J**
Allyl Chloride	NP	NP	<4.0	<0.25	--	--	<0.25
Benzene	5	0.5	<1.0	<0.16	--	--	<0.16
Bromobenzene	NP	NP	<1.0	<0.34	--	--	<0.34
Bromochloromethane	NP	NP	<4.0	<0.19	--	--	<0.19
Bromodichloromethane	0.6	0.06	<1.0	<0.24	--	--	<0.24
Bromoform	4.4	0.44	<4.0	<0.27	--	--	<0.27
Bromomethane	10	1	<4.0	<0.44	--	--	<0.44
2-Butanone (MEK)	4000	800	<5.0	<1.1	--	--	<1.1
n-Butylbenzene	NP	NP	<1.0	<0.16	--	--	<0.16
sec-Butylbenzene	NP	NP	<1.0	<0.19	--	--	<0.19
tert-Butylbenzene	NP	NP	<1.0	<0.22	--	--	<0.22
Carbon Tetrachloride	5	0.5	<1.0	<0.20	--	--	<0.20
Chlorobenzene	NP	NP	<1.0	<0.11	--	--	<0.11
Chloroethane	400	80	<1.0	<0.34	--	--	<0.34
Chloroform	6	0.6	<1.0	<0.21	--	--	<0.21
Chloromethane	30	3	<4.0	<0.25	--	--	<0.25
2-Chlorotoluene	NP	NP	<1.0	<0.30	--	--	<0.30
4-Chlorotoluene	NP	NP	<1.0	<0.26	--	--	<0.26
1,2-Dibromo-3-chloropropane	0.2	0.02	<4.0	<0.60	--	--	<0.60
Dibromochloromethane	60	6	<1.0	<0.16	--	--	<0.16
1,2-Dibromoethane (EDB)	0.05	0.005	<1.0	<0.20	--	--	<0.20
Dibromomethane	NP	NP	<4.0	<0.19	--	--	<0.19
1,2-Dichlorobenzene	600	60	<1.0	<0.17	--	--	<0.17
1,3-Dichlorobenzene	600	120	<1.0	<0.12	--	--	<0.12
1,4-Dichlorobenzene	75	15	<1.0	<0.21	--	--	<0.21
Dichlorodifluoromethane	1000	200	<4.0	<0.23	--	--	<0.23
1,1-Dichloroethane (DCA)	850	85	<1.0	<0.17	--	--	<0.17
1,2-Dichloroethane	5	0.5	<1.0	<0.17	--	--	<0.17
1,1-Dichloroethene	7	0.7	<1.0	<0.28	--	--	<0.28
cis-1,2-Dichloroethene (DCE)	70	7	<1.0	<0.12	--	--	<0.12
trans-1,2-Dichloroethene	100	20	<1.0	<0.16	--	--	<0.16

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published

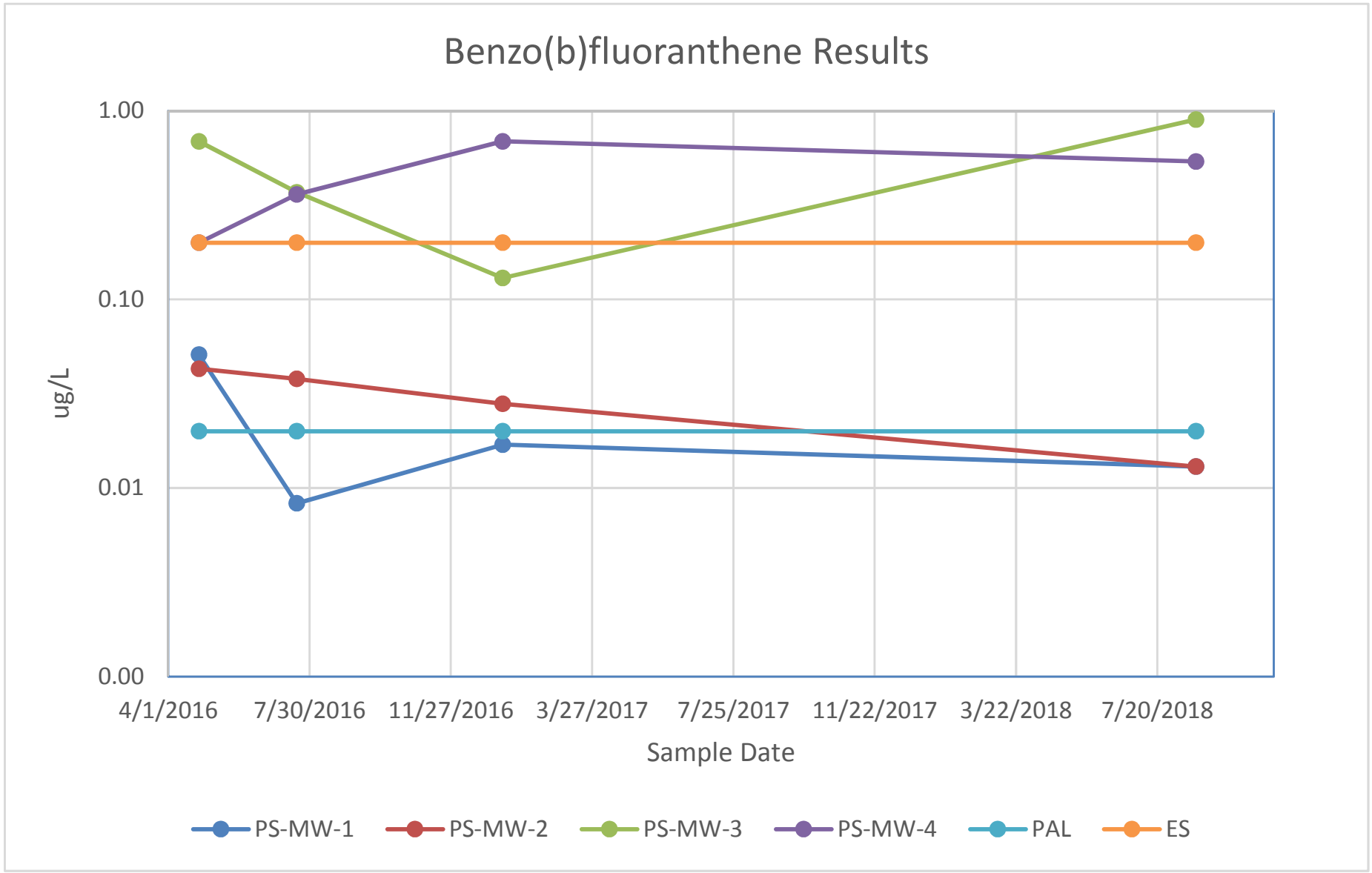
Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

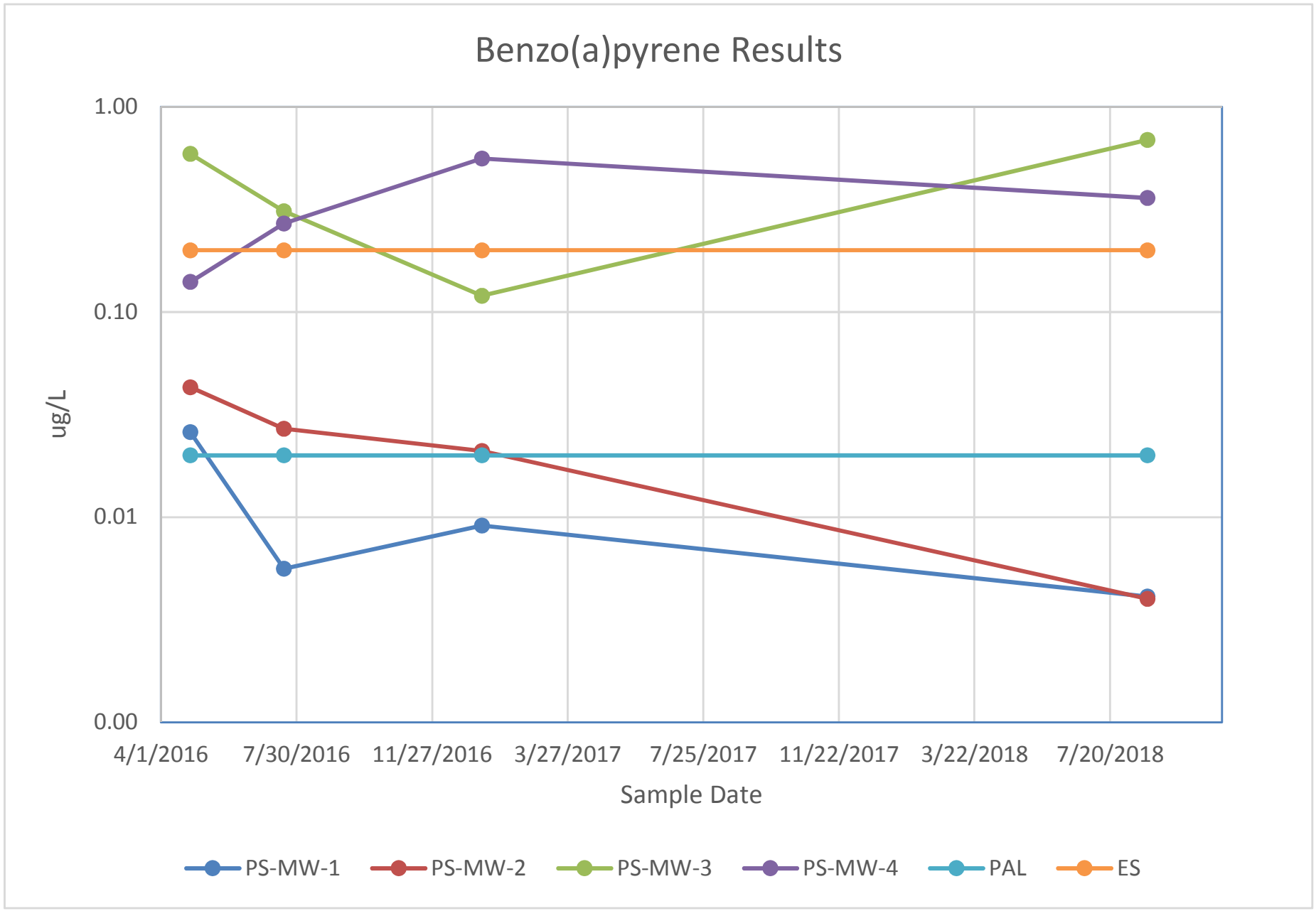
All results in ug/L	Sample ID		PS-MW-4				HCL Trip
	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	7/19/2016
Dichlorofluoromethane	NP	NP	<1.0	<0.21	--	--	<0.21
1,2-Dichloropropane	5	0.5	<4.0	<0.22	--	--	<0.22
1,3-Dichloropropane	0.4	0.04	<1.0	<0.096	--	--	<0.096
2,2-Dichloropropane	NP	NP	<4.0	<0.13	--	--	<0.13
1,1-Dichloropropene	NP	NP	<1.0	<0.23	--	--	<0.23
cis-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<0.15
trans-1,3-Dichloropropene	NP	NP	<4.0	<0.15	--	--	<0.15
Diethyl Ether (Ethyl Ether)	1000	100	<4.0	<0.19	--	--	<0.19
Ethylbenzene	700	140	<1.0	<0.15	--	--	<0.15
Hexachloro-1,3-butadiene	NP	NP	<1.0	<0.18	--	--	<0.18
Isopropylbenzene (cumene)	NP	NP	<1.0	<0.25	--	--	<0.25
p-Isopropyltoluene	NP	NP	**1.9**	**0.48J**	--	--	<0.19
Methylene Chloride	5	0.5	<4.0	<0.29	--	--	**0.37J**
4-Methyl-2-pentanone (MIBK)	500	50	<5.0	<0.43	--	--	<0.43
Methyl-tert-butyl-ether (MTBE)	60	12	<1.0	<0.15	--	--	<0.15
Naphthalene	100	10	<4.0	<0.20	--	--	<0.20
n-Propylbenzene	NP	NP	<1.0	<0.23	--	--	<0.23
Styrene	100	10	<1.0	<0.29	--	--	<0.29
1,1,1,2-Tetrachloroethane	70	7	<1.0	<0.17	--	--	<0.17
1,1,2,2-Tetrachloroethane	0.2	0.02	<1.0	<0.22	--	--	<0.22
Tetrachloroethene (PCE)	5	0.5	<1.0	<0.25	--	--	<0.25
Tetrahydrofuran (THF)	50	10	<10.0	<1.5	--	--	<1.5
Toluene	800	160	<1.0	<0.14	--	--	<0.14
1,2,3-Trichlorobenzene	NP	NP	<1.0	<0.21	--	--	<0.21
1,2,4-Trichlorobenzene	70	14	<1.0	<0.21	--	--	<0.21
1,1,1-Trichloroethane (TCA)	200	40	<1.0	**0.30J**	--	--	<0.17
1,1,2-Trichloroethane (TCA)	5	0.5	<1.0	<0.15	--	--	<0.15
Trichloroethene (TCE)	5	0.5	<0.40	<0.20	--	--	<0.20
Trichlorofluoromethane	NP	NP	<1.0	<0.33	--	--	<0.33
1,2,3-Trichloropropane*	60	12	<4.0	<0.28	--	--	<0.28
1,1,2-Trichlorofluoroethane	NP	NP	<1.0	<0.32	--	--	<0.32
1,2,4-Trimethylbenzene	480	96	**1.6**	**0.21J**	--	--	<0.18
1,3,5-Trimethylbenzene			<1.0	<0.27	--	--	<0.27
Vinyl Chloride	0.2	0.02	<0.40	<0.29	--	--	<0.29
Xylene (total)	2000	400	<3.0	<0.32	--	--	<0.32

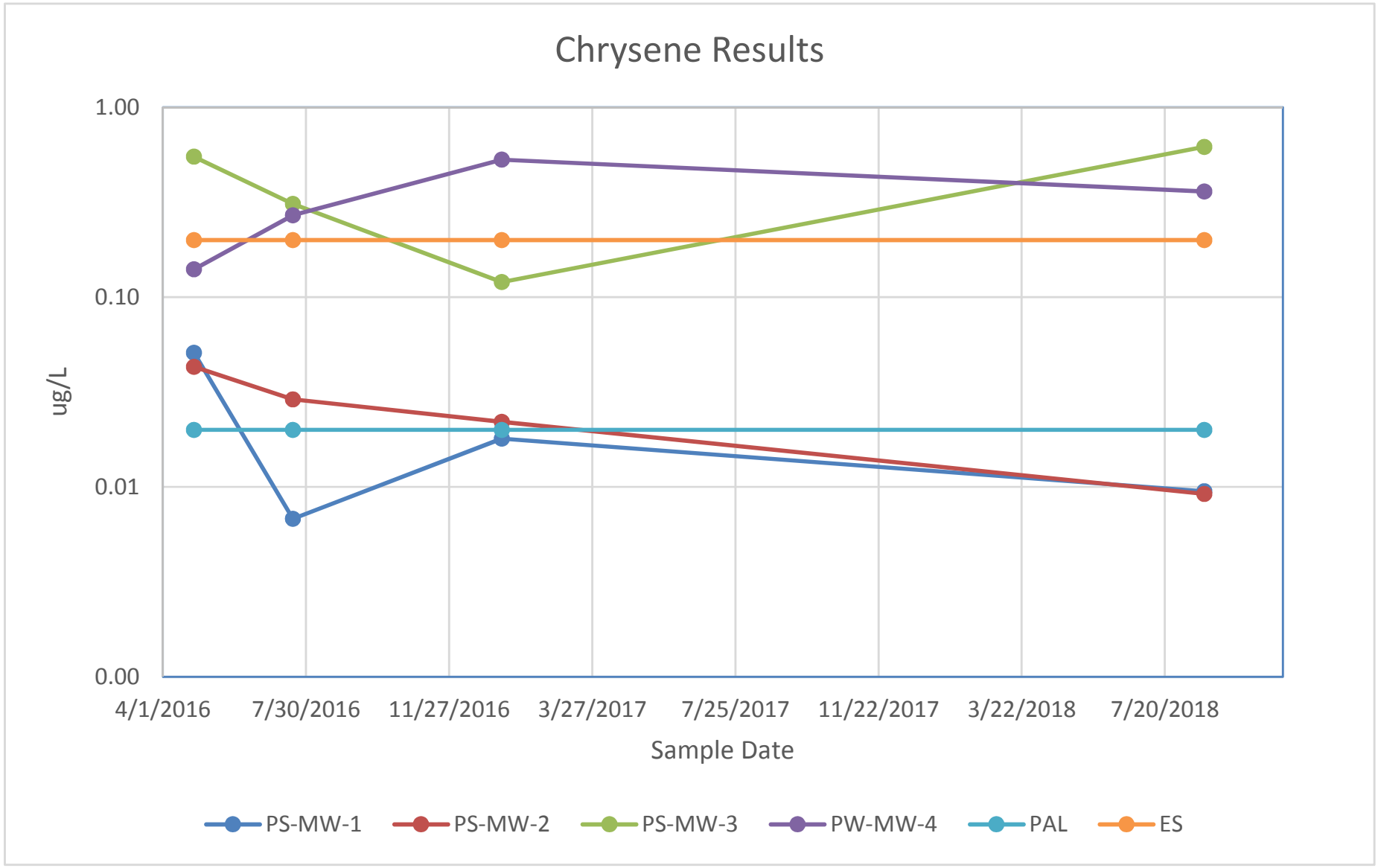
Table 3: Groundwater Analytical Summary
Fraser Shipyards - Punch Shed Addition

	Sample ID		PS-MW-4				HCL Trip
All results in ug/L	Sample Date		4/27/2016	7/19/2016	1/10/2017	8/23/2018	7/19/2016
PAHs							
Acenaphthene	NP	NP	**0.26**	**0.047**	**0.037**	**0.041**	--
Acenaphthylene	NP	NP	<0.041	**0.031**	**0.071**	<0.00047	--
Anthracene	3000	600	**0.058**	**0.071**	**0.140**	**0.100**	--
Benzo(a)anthracene	NP	NP	**0.14**	**0.23**	**0.48**	**0.32**	--
Benzo(a)pyrene	0.2	0.02	**0.14**	***0.27***	***0.56***	***0.36***	--
Benzo(b)fluoranthene	0.2	0.02	***0.20***	***0.36***	***0.69***	***0.54***	--
Benzo(g,h,i)perylene	NP	NP	**0.11**	**0.19**	**0.42**	**0.28**	--
Benzo(k)fluoranthene	NP	NP	**0.074**	**0.130**	**0.280**	**0.180**	--
Chrysene	0.2	0.02	**0.14**	***0.27***	***0.53***	***0.36***	--
Dibenzo(a,h)anthracene	NP	NP	<0.041	**0.040**	**0.099**	**0.047**	--
Fluoranthene	400	80	**0.39**	**0.58**	**1.30**	**0.82**	--
Fluorene	400	80	**0.065**	**0.027**	**0.048**	<0.0060	--
Indeno(1,2,3-cd)pyrene	NP	NP	**0.088**	**0.16**	**0.36**	**0.22**	--
Naphthalene	100	10	**0.11**	**0.055**	**0.075**	<0.0069	--
Phenanthrene	NP	NP	**0.34**	**0.30**	**0.65**	**0.44**	--
Pyrene	250	50	**0.32**	**0.56**	**0.99**	**0.79**	--

29.5	Exceeds WDNR PAL & ES
0.081	Exceeds WDNR PAL, but not ES
<0.081	MDL exceeds WDNR PAL, but not ES
0.35	Detected above reporting limit
--	Not analyzed
NP	Not published


Benzo(b)fluoranthene Results
1.00
0.10
0.01
0.00
ug/L
4/1/2016
7/30/2016
11/27/2016
3/27/2017
7/25/2017
11/22/2017
3/22/2018
7/20/2018
Sample Date
PS-MW-1
PS-MW-2
PS-MW-3
PS-MW-4
PAL
ES


Benzo(a)pyrene Results
1.00
0.10
0.01
0.00
ug/L
4/1/2016
7/30/2016
11/27/2016
3/27/2017
7/25/2017
11/22/2017
3/22/2018
7/20/2018
Sample Date
PS-MW-1
PS-MW-2
PS-MW-3
PS-MW-4
PAL
ES


Chrysene Results
1.00
0.10
0.01
0.00
ug/L
4/1/2016
7/30/2016
11/27/2016
3/27/2017
7/25/2017
11/22/2017
3/22/2018
7/20/2018
Sample Date
PS-MW-1
PS-MW-2
PS-MW-3
PW-MW-4
PAL
ES

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW1	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.03	0.05	0.05			
2	19-Jul-16	0.01	0.01	0.01			
3	10-Jan-17	0.01	0.02	0.02			
4	22-Aug-18	0.00	0.01	0.01			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	-6.0	-2.0	-2.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.01	0.02	0.02	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.011	0.019	0.020	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.860	0.859	0.943	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		**DECREASING**	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		**DECREASING**	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at			**CV <= 1**	**CV <= 1**	n<4	n<4	n<4
80% Confidence Level		NA	**STABLE**	**STABLE**	n<4	n<4	n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW2	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.04	0.04	0.04			
2	19-Jul-16	0.03	0.04	0.03			
3	10-Jan-17	0.02	0.03	0.02			
4	22-Aug-18	0.00	0.01	0.01			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	-6.0	-6.0	-6.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.02	0.03	0.03	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.015	0.012	0.013	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.650	0.415	0.519	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		DECREASING	DECREASING	DECREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		DECREASING	DECREASING	DECREASING	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW-3	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.59	0.69	0.55			
2	19-Jul-16	0.31	0.37	0.31			
3	10-Jan-17	0.12	0.13	0.12			
4	22-Aug-18	0.69	0.90	0.62			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	0.0	0.0	0.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.43	0.52	0.40	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.261	0.341	0.229	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.609	0.652	0.573	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		**CV <= 1 STABLE**	**CV <= 1 STABLE**	**CV <= 1 STABLE**	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

State of Wisconsin
Department of Natural Resources
Remediation and Redevelopment Program

Mann-Kendall Statistical Test
Form 4400-215 (2/2001)

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Site Name = Fraser Shipyard			BRRTS No. =		Well Number = MW4	

	Compound ->	B(a)P	B(b)F	Chrysene			
Event Number	Sampling Date (most recent last)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)	Concentration (leave blank if no data)
1	27-Apr-16	0.14	0.20	0.14			
2	19-Jul-16	0.27	0.36	0.27			
3	10-Jan-17	0.56	0.69	0.53			
4	22-Aug-18	0.36	0.54	0.36			
5							
6							
7							
8							
9							
10							
	Mann Kendall Statistic (S) =	4.0	4.0	4.0	0.0	0.0	0.0
	Number of Rounds (n) =	4	4	4	0	0	0
	Average =	0.33	0.45	0.33	#DIV/0!	#DIV/0!	#DIV/0!
	Standard Deviation =	0.177	0.213	0.164	#DIV/0!	#DIV/0!	#DIV/0!
	Coefficient of Variation(CV)=	0.531	0.476	0.504	#DIV/0!	#DIV/0!	#DIV/0!
Error Check, Blank if No Errors Detected					n<4	n<4	n<4
Trend ≥ 80% Confidence Level		INCREASING	INCREASING	INCREASING	n<4	n<4	n<4
Trend ≥ 90% Confidence Level		No Trend	No Trend	No Trend	n<4	n<4	n<4
Stability Test, If No Trend Exists at 80% Confidence Level		NA	NA	NA	n<4 n<4	n<4 n<4	n<4 n<4

Data Entry By = JJM	Date = 2-Oct-18	Checked By =

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary

All results in mg/kg (ppm)		Test Pits				RI Soil Borings	
	Boring / Test Pit	TP-1	TP-2	TP-3	TP-4	GP-1	GP-2
	Sample ID	TP1 0-2'	TP2 2-4'	TP3 0-2'	TP4 0-2'	GP1 2-4'	GP2 2-4'
	Sample Depth (ft)	0-2	2-4	0-2	0-2	2-4	2-4
	Total Depth	8	6	6	5		
	Refusal?	N	N	N	N	N	N
	Date	10/27/14	10/27/14	10/27/14	10/27/14	3/24/15	3/24/15
	Ind. - RCL						
Gasoline Range Organics	NE	**837**	**572**	**72.1**	**156**	--	--
RCRA Metals (total)							
Arsenic via 6010	2.39	**7.7**	**1.2**	**7.7**	**3.9**	--	--
Arsenic via 6020	2.39	**8.5**	**2.6**	**10.6**	**5.1**	--	--
Barium	100000	**87.3**	**18.4**	**49.9**	**109**	--	--
Cadmium	799	**0.58**	**0.13**	**0.36**	**1.4**	--	--
Chromium	5.58 (VI)/100000	**12**	**5.5**	**10.1**	**42.4**	--	--
Lead	800	**296**	**41.5**	**118**	**212**	--	--
Mercury	3.13	**0.061**	**0.022**	**0.036**	**0.11**	--	--
Selenium	5110	**2.4**	**0.53**	**2.0**	**3.5**	--	--
Silver	5110	**0.065**	<0.045	<0.055	**24.5**	--	--
VOCs							
Acetone	100000	<0.594	<1.120	<0.604	<0.575	<1.150	<1.250
Allyl Chloride	4.85	<0.0078	<0.147	<0.0079	<0.0075	<0.229	<0.250
Benzene	7.41	**0.0525**	<0.0224	**0.0605**	<0.0115	<0.0229	<0.025
Bromobenzene	679	<0.0103	<0.0194	<0.0105	<0.010	<0.0573	<0.0624
Bromochloromethane	976	<0.0081	<0.0152	<0.0082	<0.0078	<0.229	<0.250
Bromodichloromethane	1.96	<0.0106	<0.0199	<0.0107	<0.0102	<0.0573	<0.0624
Bromoform	115	<0.119	<0.224	<0.121	<0.115	<0.229	<0.250
Bromomethane	46	<0.297	<0.560	<0.302	<0.288	<0.573	<0.624
2-Butanone (MEK)	28400	<0.148	<0.280	<0.151	<0.144	<0.286	<0.312
n-Butylbenzene	108	**0.426**	**0.795**	<0.0073	<0.0070	<0.0573	<0.0624
sec-Butylbenzene	145	**0.298**	**0.261**	**0.0285**	<0.0068	<0.0573	<0.0624
tert-Butylbenzene	183	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
Carbon Tetrachloride	4.25	**0.0753**	<0.0181	<0.0098	<0.0093	<0.229	<0.250
Chlorobenzene	761	<0.0091	<0.0172	<0.0093	<0.0088	<0.0573	<0.0624
Chloroethane	3.03	**3.140**	<0.0282	**0.753**	<0.0145	<0.573	<0.624
Chloroform	2.13	<0.0090	<0.0171	<0.0092	<0.0088	<0.0573	<0.0624
Chloromethane (methyl chloride)	720	<0.0108	<0.0204	<0.0110	<0.0105	<0.229	<0.250
2-Chlorotoluene	907	**0.423**	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
4-Chlorotoluene	253	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,2-Dibromo-3-chloropropane	0.099	<0.0315	<0.0593	<0.0320	<0.0305	<0.573	<0.624
Dibromochloromethane	34.1	<0.0128	<0.0242	<0.0130	<0.0124	<0.0573	<0.0624
1,2-Dibromoethane (EDB)	0.23	<0.0073	<0.0138	<0.0074	<0.0071	<0.0573	<0.0624
Dibromomethane	154	<0.0166	<0.0314	<0.0169	<0.0161	<0.0573	<0.0624
1,2-Dichlorobenzene	376	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,3-Dichlorobenzene	297	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,4-Dichlorobenzene	17.5	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
Dichlorodifluoromethane	571	<0.0274	<0.0517	<0.0279	<0.0266	<0.229	<0.250

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary

All results in mg/kg (ppm)		Test Pits				RI Soil Borings	
	Boring / Test Pit	TP-1	TP-2	TP-3	TP-4	GP-1	GP-2
	Sample ID	TP1 0-2'	TP2 2-4'	TP3 0-2'	TP4 0-2'	GP1 2-4'	GP2 2-4'
	Sample Depth (ft)	0-2	2-4	0-2	0-2	2-4	2-4
	Total Depth	8	6	6	5		
	Refusal?	N	N	N	N	N	N
	Date	10/27/14	10/27/14	10/27/14	10/27/14	3/24/15	3/24/15
1,1-Dichloroethane (DCA)	23.7	**2.660**	**0.0766**	**0.0885**	**0.0702**	<0.0573	<0.0624
1,2-Dichloroethane	3.03	<0.0140	<0.264	<0.0142	<0.0136	<0.0573	<0.0624
1,1-Dichloroethene	1190	**0.0516**	<0.0224	<0.0121	<0.0115	<0.229	<0.250
cis-1,2-Dichloroethene (DCE)	2040	<0.0121	<0.0228	<0.0123	**0.137**	<0.0573	<0.0624
trans-1,2-Dichloroethene	1850	<0.0118	<0.0222	<0.0120	**0.0402**	<0.229	<0.250
Dichlorofluoromethane	NE	<0.297	<0.560	<0.302	<0.288	<0.573	<0.624
1,2-Dichloropropane	6.62	<0.0095	<0.0180	<0.0097	<0.0092	<0.0573	<0.0624
1,3-Dichloropropane	1490	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
2,2-Dichloropropane	191	<0.0079	<0.0150	<0.0081	<0.0077	<0.229	<0.250
1,1-Dichloropropene	NL?	<0.0097	<0.0183	<0.0099	<0.0094	<0.0573	<0.0624
cis-1,3-Dichloropropene	1210	<0.0075	<0.0141	<0.0076	<0.0072	<0.0573	<0.0624
trans-1,3-Dichloropropene	1510	<0.0084	<0.0158	<0.0085	<0.0081	<0.0573	<0.0624
Diethyl Ether (Ethyl Ether)	10100	<0.0126	<0.0237	<0.0128	<0.0122	<0.229	<0.250
Ethylbenzene	37	**0.163**	**0.0901**	**0.130**	**0.0407**	<0.0573	<0.0624
Hexachloro-1,3-butadiene	7.45	<0.148	<0.280	<0.151	<0.144	<0.286	<0.312
Isopropylbenzene (cumene)	268	0.0933	0.0845	0.0560	<0.0288	<0.0573	<0.0624
p-Isopropyltoluene	162	**0.976**	**1.57**	**0.0373**	**0.126**	<0.0573	<0.0624
Methylene Chloride	1070	<0.0119	<0.224	<0.121	<0.115	<0.229	<0.250
4-Methyl-2-pentanone (MIBK)	2450	**0.318**	<0.280	<0.151	<0.144	<0.286	<0.312
Methyl-tert-butyl-ether (MTBE)	293	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
Naphthalene	26	**2.27**	**4.39**	**0.473**	**0.641**	<0.229	<0.250
n-Propylbenzene	264	**0.181**	**0.242**	**0.0753**	<0.0070	<0.0573	<0.0624
Styrene	867	<0.0089	<0.0167	<0.0090	<0.0086	<0.0573	<0.0624
1,1,1,2-Tetrachloroethane	12.9	<0.0297	<0.0560	<0.0302	<0.0288	<0.0573	<0.0624
1,1,2,2-Tetrachloroethane	3.69	<0.0081	<0.0154	<0.0083	<0.0079	<0.0573	<0.0624
Tetrachloroethene (PCE)	153	<0.0214	<0.0404	<0.0218	**0.331**	<0.0573	<0.0624
Tetrahydrofuran (THF)	100000	<0.0759	<0.143	<0.0771	<0.0735	<2.290	<2.500
Toluene	818	**0.27**	**0.0235**	**0.306**	**0.0962**	<0.0573	<0.0624
1,2,3-Trichlorobenzene	818	<0.0141	<0.0266	<0.0144	<0.0137	<0.0573	<0.0624
1,2,4-Trichlorobenzene	98.7	<0.0108	<0.0204	<0.0110	<0.0105	<0.0573	<0.0624
1,1,1-Trichloroethane (TCA)	640	**0.472**	**0.535**	<0.0302	**0.0757**	<0.0573	<0.0624
1,1,2-Trichloroethane (TCA)	7.34	<0.0100	<0.0189	<0.0102	<0.0097	<0.0573	<0.0624
Trichloroethene (TCE)	8.81	<0.0074	<0.0139	<0.0075	**0.421**	<0.0573	<0.0624
Trichlorofluoromethane	1230	<0.0106	<0.0199	<0.0107	<0.0102	<0.229	<0.250
1,2,3-Trichloropropane	0.095	**0.369**	<0.0149	<0.0080	<0.0076	<0.229	<0.250
1,1,2-Trichlorofluoroethane	910	<0.0248	<0.0468	<0.0252	<0.0240	<0.229	<0.250
1,2,4-Trimethylbenzene	219	**3.25**	**3.67**	**0.305**	**0.138**	<0.0573	<0.0624
1,3,5-Trimethylbenzene	182	**3.88**	**1.53**	**0.124**	**0.096**	<0.0573	<0.0624
Vinyl Chloride	2.03	<0.0088	<0.0166	<0.0090	<0.0085	<0.0229	<0.0250
Xylene (total)	260	**0.937**	**0.692**	**0.814**	**0.209**	<0.172	<0.187

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Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary

All results in mg/kg (ppm)		Test Pits				RI Soil Borings	
	Boring / Test Pit	TP-1	TP-2	TP-3	TP-4	GP-1	GP-2
	Sample ID	TP1 0-2'	TP2 2-4'	TP3 0-2'	TP4 0-2'	GP1 2-4'	GP2 2-4'
	Sample Depth (ft)	0-2	2-4	0-2	0-2	2-4	2-4
	Total Depth	8	6	6	5		
	Refusal?	N	N	N	N	N	N
	Date	10/27/14	10/27/14	10/27/14	10/27/14	3/24/15	3/24/15
PAHs							
Acenaphthene	45200	**0.589**	**0.342**	<0.0597	**0.748**	<0.0118	**0.0154**
Acenaphthylene	NE	**0.566**	**0.210**	**0.105**	<0.282	<0.0118	**0.0384**
Anthracene	100000	**0.409**	**0.468**	**0.061**	**1.490**	<0.0118	**0.0509**
Benzo(a)anthracene	20.8	**1.000**	**1.090**	**0.108**	**3.350**	<0.0118	**0.1310**
Benzo(a)pyrene [B(a)P]	2.11	**1.150**	**1.010**	**0.126**	**3.530**	<0.0118	**0.1750**
Benzo(b)fluoranthene	21.1	**2.000**	**1.250**	**0.280**	**4.400**	<0.0118	**0.2280**
Benzo(g,h,i)perylene	NE	**1.170**	**0.723**	**0.176**	**2.480**	<0.0118	**0.1280**
Benzo(k)fluoranthene	211	**0.935**	**0.636**	**0.128**	**2.200**	<0.0118	**0.0744**
Chrysene	2110	**1.340**	**1.230**	**0.189**	**3.950**	<0.0118	**0.1770**
Dibenzo(a,h)anthracene	2.11	**0.333**	**0.193**	<0.0597	**0.666**	<0.0118	<0.0125
Fluoranthene	30100	**2.190**	**2.400**	**0.207**	**7.550**	<0.0118	**0.3280**
Fluorene	30100	**1.200**	**0.389**	<0.0597	**0.968**	<0.0118	**0.0180**
Indeno(1,2,3-cd)pyrene	21.1	**0.990**	**0.566**	**0.146**	**2.010**	<0.0118	**0.1080**
Naphthalene	24.1	**1.450**	**1.490**	**0.402**	**0.297**	<0.0118	**0.0206**
Phenanthrene	NE	**1.450**	**2.390**	**0.254**	**5.620**	<0.0118	**0.2480**
Pyrene	22600	**2.020**	**2.410**	**0.213**	**6.180**	<0.0118	**0.3750**

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Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		RI Soil Borings					
	Boring / Test Pit	GP-3	GP-4	GP-5	GP-50	GP-6	GP-7
	Sample ID	GP3 2-4'	GP4 2-4'	GP5 4-8'	GP-5	GP6 4-8'	GP7 2-4'
	Sample Depth (ft)	2-4	2-4	4-8	Duplicate	4-8	2-4
	Total Depth						
	Refusal?	N	N	N		N	N
	Date	3/24/15	3/24/15	3/25/15	3/25/15	3/24/15	3/24/15
	Ind. - RCL						
Gasoline Range Organics	NE	--	--	--	--	--	--
RCRA Metals (total)							
Arsenic via 6010	2.39	--	--	--	--	--	--
Arsenic via 6020	2.39	--	--	--	--	--	--
Barium	100000	--	--	--	--	--	--
Cadmium	799	--	--	--	--	--	--
Chromium	5.58 (VI)/100000	--	--	--	--	--	--
Lead	800	--	--	--	--	--	--
Mercury	3.13	--	--	--	--	--	--
Selenium	5110	--	--	--	--	--	--
Silver	5110	--	--	--	--	--	--
VOCs							
Acetone	100000	<1.350	<1.270	<6.210	<7.090	<1.900	<1.160
Allyl Chloride	4.85	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Benzene	7.41	<0.0269	<0.0254	<0.124	<0.124	<0.0379	<0.0232
Bromobenzene	679	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Bromochloromethane	976	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Bromodichloromethane	1.96	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Bromoform	115	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Bromomethane	46	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
2-Butanone (MEK)	28400	<0.336	<0.318	<1.550	<1.770	<0.474	<0.290
n-Butylbenzene	108	<0.0673	<0.0636	<0.310	**1.330**	**4.980**	**0.107**
sec-Butylbenzene	145	<0.0673	<0.0636	<0.310	**0.614**	**0.320**	<0.0580
tert-Butylbenzene	183	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Carbon Tetrachloride	4.25	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Chlorobenzene	761	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Chloroethane	3.03	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
Chloroform	2.13	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Chloromethane (methyl chloride)	720	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
2-Chlorotoluene	907	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
4-Chlorotoluene	253	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2-Dibromo-3-chloropropane	0.099	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
Dibromochloromethane	34.1	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2-Dibromoethane (EDB)	0.23	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Dibromomethane	154	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2-Dichlorobenzene	376	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,3-Dichlorobenzene	297	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,4-Dichlorobenzene	17.5	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Dichlorodifluoromethane	571	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		RI Soil Borings					
	Boring / Test Pit	GP-3	GP-4	GP-5	GP-50	GP-6	GP-7
	Sample ID	GP3 2-4'	GP4 2-4'	GP5 4-8'	GP-5	GP6 4-8'	GP7 2-4'
	Sample Depth (ft)	2-4	2-4	4-8	Duplicate	4-8	2-4
	Total Depth						
	Refusal?	N	N	N		N	N
	Date	3/24/15	3/24/15	3/25/15	3/25/15	3/24/15	3/24/15
1,1-Dichloroethane (DCA)	23.7	<0.0673	**0.142**	<0.310	<0.354	<0.0949	<0.0580
1,2-Dichloroethane	3.03	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1-Dichloroethene	1190	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
cis-1,2-Dichloroethene (DCE)	2040	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.580
trans-1,2-Dichloroethene	1850	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Dichlorofluoromethane	NE	<0.673	<0.636	<3.100	<3.540	<0.949	<0.580
1,2-Dichloropropane	6.62	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,3-Dichloropropane	1490	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
2,2-Dichloropropane	191	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,1-Dichloropropene	NL?	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
cis-1,3-Dichloropropene	1210	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
trans-1,3-Dichloropropene	1510	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Diethyl Ether (Ethyl Ether)	10100	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
Ethylbenzene	37	<0.0673	<0.0636	<0.310	**0.406**	**0.301**	**0.088**
Hexachloro-1,3-butadiene	7.45	<0.336	<0.318	<1.550	<1.770	<0.474	<0.290
Isopropylbenzene (cumene)	268	<0.0673	<0.0636	<0.310	<0.354	**0.268**	<0.0580
p-Isopropyltoluene	162	<0.0673	<0.0636	**1.88**	**3.180**	**1.680**	<0.0580
Methylene Chloride	1070	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
4-Methyl-2-pentanone (MIBK)	2450	<0.336	<0.318	<1.550	<1.770	<0.474	<0.290
Methyl-tert-butyl-ether (MTBE)	293	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Naphthalene	26	<0.269	<0.254	**18.80**	**33.700**	**67.500**	**10.300**
n-Propylbenzene	264	<0.0673	<0.0636	<0.310	**0.527**	**0.553**	<0.0580
Styrene	867	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1,1,2-Tetrachloroethane	12.9	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1,2,2-Tetrachloroethane	3.69	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Tetrachloroethene (PCE)	153	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Tetrahydrofuran (THF)	100000	<2.690	<2.540	<12.400	<14.200	<3.790	<2.320
Toluene	818	<0.0673	<0.0636	<0.310	<0.354	<0.0949	**0.224**
1,2,3-Trichlorobenzene	818	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,2,4-Trichlorobenzene	98.7	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
1,1,1-Trichloroethane (TCA)	640	<0.0673	<0.0636	<0.310	<0.354	<0.0949	**0.460**
1,1,2-Trichloroethane (TCA)	7.34	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Trichloroethene (TCE)	8.81	<0.0673	<0.0636	<0.310	<0.354	<0.0949	<0.0580
Trichlorofluoromethane	1230	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,2,3-Trichloropropane	0.095	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,1,2-Trichlorofluoroethane	910	<0.269	<0.254	<1.240	<1.420	<0.379	<0.232
1,2,4-Trimethylbenzene	219	<0.0673	**0.142**	**6.390**	**11.200**	**13.100**	**0.200**
1,3,5-Trimethylbenzene	182	<0.0673	**0.103**	**3.000**	**3.720**	**4.720**	**0.0712**
Vinyl Chloride	2.03	<0.0269	<0.0254	<0.124	<0.142	<0.0379	<0.0232
Xylene (total)	260	<0.202	<0.191	<0.931	**3.280**	**4.570**	**0.749**

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Addition
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		RI Soil Borings					
	Boring / Test Pit	GP-3	GP-4	GP-5	GP-50	GP-6	GP-7
	Sample ID	GP3 2-4'	GP4 2-4'	GP5 4-8'	GP-5	GP6 4-8'	GP7 2-4'
	Sample Depth (ft)	2-4	2-4	4-8	Duplicate	4-8	2-4
	Total Depth						
	Refusal?	N	N	N		N	N
	Date	3/24/15	3/24/15	3/25/15	3/25/15	3/24/15	3/24/15
PAHs							
Acenaphthene	45200	<0.0134	**0.246**	**3.080**	**2.240**	**6.970**	**121.0**
Acenaphthylene	NE	<0.0134	**0.163**	<0.621	<0.673	<0.979	**1.1**
Anthracene	100000	**0.0180**	**0.406**	<0.621	<0.673	<0.979	**182.0**
Benzo(a)anthracene	20.8	**0.0470**	**0.980**	<0.621	<0.673	<0.979	**215.0**
Benzo(a)pyrene [B(a)P]	2.11	**0.0541**	**1.150**	<0.621	<0.673	<0.979	**204.0**
Benzo(b)fluoranthene	21.1	**0.0705**	**1.500**	<0.621	<0.673	<0.979	**237.0**
Benzo(g,h,i)perylene	NE	**0.0402**	**0.751**	<0.621	<0.673	<0.979	**113.0**
Benzo(k)fluoranthene	211	**0.0282**	**0.601**	<0.621	<0.673	<0.979	**101.0**
Chrysene	2110	**0.0616**	**1.250**	<0.621	<0.673	<0.979	**207.0**
Dibenzo(a,h)anthracene	2.11	<0.0134	<0.0132	<0.621	<0.673	<0.979	<0.0573
Fluoranthene	30100	**0.1220**	**2.800**	<0.621	<0.673	<0.979	**645.0**
Fluorene	30100	<0.0134	**0.268**	**2.190**	**1.690**	**3.640**	**112.0**
Indeno(1,2,3-cd)pyrene	21.1	**0.0333**	**0.648**	<0.621	<0.673	<0.979	**105.0**
Naphthalene	24.1	<0.0134	**0.275**	**39.00**	**20.000**	**83.800**	**80.20**
Phenanthrene	NE	**0.0959**	**2.660**	**3.560**	**2.290**	**2.470**	**838.0**
Pyrene	22600	**0.1510**	**3.870**	**1.730**	**1.190**	**2.800**	**684.0**

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Soil Analytical Summary (cont)

All results in mg/kg (ppm)		Supplemental RI Borings				
	Boring / Test Pit	GP-8	GP-9		GP-10	GP-11
	Sample ID	GP8 2-4	GP9 2-4'	GP9 6-8'	GP10 2-4'	GP11 2-4'
	Sample Depth (ft)	2-4	2-4	6-8	2-4	2-4
	Total Depth					
	Refusal?	N	N	N	N	N
	Date	3/24/15	3/24/15	3/24/15	3/24/15	3/24/15
	Ind. - RCL					
Gasoline Range Organics	NE	--	--	--	--	--
RCRA Metals (total)						
Arsenic via 6010	2.39	--	--	--	--	--
Arsenic via 6020	2.39	--	--	--	--	--
Barium	100000	--	--	--	--	--
Cadmium	799	--	--	--	--	--
Chromium	5.58 (VI)/100000	--	--	--	--	--
Lead	800	--	--	--	--	--
Mercury	3.13	--	--	--	--	--
Selenium	5110	--	--	--	--	--
Silver	5110	--	--	--	--	--
VOCs						
Acetone	100000	--	--	--	--	--
Allyl Chloride	4.85	--	--	--	--	--
Benzene	7.41	--	--	--	--	--
Bromobenzene	679	--	--	--	--	--
Bromochloromethane	976	--	--	--	--	--
Bromodichloromethane	1.96	--	--	--	--	--
Bromoform	115	--	--	--	--	--
Bromomethane	46	--	--	--	--	--
2-Butanone (MEK)	28400	--	--	--	--	--
n-Butylbenzene	108	--	--	--	--	--
sec-Butylbenzene	145	--	--	--	--	--
tert-Butylbenzene	183	--	--	--	--	--
Carbon Tetrachloride	4.25	--	--	--	--	--
Chlorobenzene	761	--	--	--	--	--
Chloroethane	3.03	--	--	--	--	--
Chloroform	2.13	--	--	--	--	--
Chloromethane (methyl chloride)	720	--	--	--	--	--
2-Chlorotoluene	907	--	--	--	--	--
4-Chlorotoluene	253	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.099	--	--	--	--	--
Dibromochloromethane	34.1	--	--	--	--	--
1,2-Dibromoethane (EDB)	0.23	--	--	--	--	--
Dibromomethane	154	--	--	--	--	--
1,2-Dichlorobenzene	376	--	--	--	--	--
1,3-Dichlorobenzene	297	--	--	--	--	--
1,4-Dichlorobenzene	17.5	--	--	--	--	--
Dichlorodifluoromethane	571	--	--	--	--	--

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed
Soil Analytical Summary (cont)

All results in mg/kg (ppm)		Supplemental RI Borings				
	Boring / Test Pit	GP-8	GP-9		GP-10	GP-11
	Sample ID	GP8 2-4	GP9 2-4'	GP9 6-8'	GP10 2-4'	GP11 2-4'
	Sample Depth (ft)	2-4	2-4	6-8	2-4	2-4
	Total Depth					
	Refusal?	N	N	N	N	N
	Date	3/24/15	3/24/15	3/24/15	3/24/15	3/24/15
1,1-Dichloroethane (DCA)	23.7	--	--	--	--	--
1,2-Dichloroethane	3.03	--	--	--	--	--
1,1-Dichloroethene	1190	--	--	--	--	--
cis-1,2-Dichloroethene (DCE)	2040	--	--	--	--	--
trans-1,2-Dichloroethene	1850	--	--	--	--	--
Dichlorofluoromethane	NE	--	--	--	--	--
1,2-Dichloropropane	6.62	--	--	--	--	--
1,3-Dichloropropane	1490	--	--	--	--	--
2,2-Dichloropropane	191	--	--	--	--	--
1,1-Dichloropropene	NL?	--	--	--	--	--
cis-1,3-Dichloropropene	1210	--	--	--	--	--
trans-1,3-Dichloropropene	1510	--	--	--	--	--
Diethyl Ether (Ethyl Ether)	10100	--	--	--	--	--
Ethylbenzene	37	--	--	--	--	--
Hexachloro-1,3-butadiene	7.45	--	--	--	--	--
Isopropylbenzene (cumene)	268	--	--	--	--	--
p-Isopropyltoluene	162	--	--	--	--	--
Methylene Chloride	1070	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	2450	--	--	--	--	--
Methyl-tert-butyl-ether (MTBE)	293	--	--	--	--	--
Naphthalene	26	--	--	--	--	--
n-Propylbenzene	264	--	--	--	--	--
Styrene	867	--	--	--	--	--
1,1,1,2-Tetrachloroethane	12.9	--	--	--	--	--
1,1,2,2-Tetrachloroethane	3.69	--	--	--	--	--
Tetrachloroethene (PCE)	153	--	--	--	--	--
Tetrahydrofuran (THF)	100000	--	--	--	--	--
Toluene	818	--	--	--	--	--
1,2,3-Trichlorobenzene	818	--	--	--	--	--
1,2,4-Trichlorobenzene	98.7	--	--	--	--	--
1,1,1-Trichloroethane (TCA)	640	--	--	--	--	--
1,1,2-Trichloroethane (TCA)	7.34	--	--	--	--	--
Trichloroethene (TCE)	8.81	--	--	--	--	--
Trichlorofluoromethane	1230	--	--	--	--	--
1,2,3-Trichloropropane	0.095	--	--	--	--	--
1,1,2-Trichlorofluoroethane	910	--	--	--	--	--
1,2,4-Trimethylbenzene	219	--	--	--	--	--
1,3,5-Trimethylbenzene	182	--	--	--	--	--
Vinyl Chloride	2.03	--	--	--	--	--
Xylene (total)	260	--	--	--	--	--

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Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser Shipyard Punch Shed Soil Analytical Summary (cont)

All results in mg/kg (ppm)		Supplemental RI Borings				
	Boring / Test Pit	GP-8	GP-9		GP-10	GP-11
	Sample ID	GP8 2-4	GP9 2-4'	GP9 6-8'	GP10 2-4'	GP11 2-4'
	Sample Depth (ft)	2-4	2-4	6-8	2-4	2-4
	Total Depth					
	Refusal?	N	N	N	N	N
	Date	3/24/15	3/24/15	3/24/15	3/24/15	3/24/15
PAHs						
Acenaphthene	45200	**0.268**	**0.0359**	<0.0125	**0.0156**	**0.081**
Acenaphthylene	NE	**0.120**	**0.0135**	<0.0125	**0.0304**	**0.0582**
Anthracene	100000	**0.544**	**0.0785**	<0.0125	**0.0643**	**0.362**
Benzo(a)anthracene	20.8	**1.340**	**0.272**	**0.0183**	**0.185**	**0.980**
Benzo(a)pyrene [B(a)P]	2.11	**1.540**	**0.287**	**0.0262**	**0.151**	**0.983**
Benzo(b)fluoranthene	21.1	**1.760**	**0.339**	**0.0352**	**0.206**	**1.260**
Benzo(g,h,i)perylene	NE	**1.080**	**0.181**	**0.0194**	**0.120**	**0.763**
Benzo(k)fluoranthene	211	**0.674**	**0.137**	**0.0131**	**0.0633**	**0.494**
Chrysene	2110	**1.560**	**0.309**	**0.0316**	**0.243**	**1.570**
Dibenzo(a,h)anthracene	2.11	**0.320**	**0.0591**	<0.0125	**0.0458**	**0.213**
Fluoranthene	30100	**3.110**	**0.608**	**0.0983**	**0.267**	**1.790**
Fluorene	30100	**0.274**	**0.0344**	<0.0125	**0.0288**	**0.173**
Indeno(1,2,3-cd)pyrene	21.1	**0.878**	**0.162**	**0.0153**	**0.0911**	**0.611**
Naphthalene	24.1	**0.142**	**0.0270**	<0.0125	**0.0711**	**0.310**
Phenanthrene	NE	**2.940**	**0.462**	**0.0948**	**0.365**	**1.500**
Pyrene	22600	**3.120**	**0.576**	**0.0822**	**0.299**	**1.920**

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Table 2: Fraser (cont)
Soil Analytical

All results in mg/kg (ppm)		Supplemental RI Borings					
	Boring / Test Pit	GP-12	GP-13	GP-14	GP-15	GP-16	GP-17
	Sample ID	GP12 4-6	GP13 0-2	GP14 2-4	GP15(2-4)	GP16(4-6)	GP17(2-4)
	Sample Depth (ft)	4-6	0-2	2-4	2-4	4-6	2-4
	Total Depth						
	Refusal?	N	N	N	N	N	N
	Date	4/14/16	4/14/16	4/14/16	8/22/18	8/22/18	8/22/18
	Ind. - RCL						
Gasoline Range Organics	NE	--	--	--	--	--	--
RCRA Metals (total)							
Arsenic via 6010	2.39	--	--	--	--	--	--
Arsenic via 6020	2.39	--	--	--	--	--	--
Barium	100000	--	--	--	--	--	--
Cadmium	799	--	--	--	--	--	--
Chromium	5.58 (VI)/100000	--	--	--	--	--	--
Lead	800	--	--	--	--	--	--
Mercury	3.13	--	--	--	--	--	--
Selenium	5110	--	--	--	--	--	--
Silver	5110	--	--	--	--	--	--
VOCs							
Acetone	100000	--	--	--	--	--	--
Allyl Chloride	4.85	--	--	--	--	--	--
Benzene	7.41	--	--	--	--	--	--
Bromobenzene	679	--	--	--	--	--	--
Bromochloromethane	976	--	--	--	--	--	--
Bromodichloromethane	1.96	--	--	--	--	--	--
Bromoform	115	--	--	--	--	--	--
Bromomethane	46	--	--	--	--	--	--
2-Butanone (MEK)	28400	--	--	--	--	--	--
n-Butylbenzene	108	--	--	--	--	--	--
sec-Butylbenzene	145	--	--	--	--	--	--
tert-Butylbenzene	183	--	--	--	--	--	--
Carbon Tetrachloride	4.25	--	--	--	--	--	--
Chlorobenzene	761	--	--	--	--	--	--
Chloroethane	3.03	--	--	--	--	--	--
Chloroform	2.13	--	--	--	--	--	--
Chloromethane (methyl chloride)	720	--	--	--	--	--	--
2-Chlorotoluene	907	--	--	--	--	--	--
4-Chlorotoluene	253	--	--	--	--	--	--
1,2-Dibromo-3-chloropropane	0.099	--	--	--	--	--	--
Dibromochloromethane	34.1	--	--	--	--	--	--
1,2-Dibromoethane (EDB)	0.23	--	--	--	--	--	--
Dibromomethane	154	--	--	--	--	--	--
1,2-Dichlorobenzene	376	--	--	--	--	--	--
1,3-Dichlorobenzene	297	--	--	--	--	--	--
1,4-Dichlorobenzene	17.5	--	--	--	--	--	--
Dichlorodifluoromethane	571	--	--	--	--	--	--

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Table 2: Fraser (cont)
Soil Analytical

All results in mg/kg (ppm)		Supplemental RI Borings					
	Boring / Test Pit	GP-12	GP-13	GP-14	GP-15	GP-16	GP-17
	Sample ID	GP12 4-6	GP13 0-2	GP14 2-4	GP15(2-4)	GP16(4-6)	GP17(2-4)
	Sample Depth (ft)	4-6	0-2	2-4	2-4	4-6	2-4
	Total Depth						
	Refusal?	N	N	N	N	N	N
	Date	4/14/16	4/14/16	4/14/16	8/22/18	8/22/18	8/22/18
1,1-Dichloroethane (DCA)	23.7	--	--	--	--	--	--
1,2-Dichloroethane	3.03	--	--	--	--	--	--
1,1-Dichloroethene	1190	--	--	--	--	--	--
cis-1,2-Dichloroethene (DCE)	2040	--	--	--	--	--	--
trans-1,2-Dichloroethene	1850	--	--	--	--	--	--
Dichlorofluoromethane	NE	--	--	--	--	--	--
1,2-Dichloropropane	6.62	--	--	--	--	--	--
1,3-Dichloropropane	1490	--	--	--	--	--	--
2,2-Dichloropropane	191	--	--	--	--	--	--
1,1-Dichloropropene	NL?	--	--	--	--	--	--
cis-1,3-Dichloropropene	1210	--	--	--	--	--	--
trans-1,3-Dichloropropene	1510	--	--	--	--	--	--
Diethyl Ether (Ethyl Ether)	10100	--	--	--	--	--	--
Ethylbenzene	37	--	--	--	--	--	--
Hexachloro-1,3-butadiene	7.45	--	--	--	--	--	--
Isopropylbenzene (cumene)	268	--	--	--	--	--	--
p-Isopropyltoluene	162	--	--	--	--	--	--
Methylene Chloride	1070	--	--	--	--	--	--
4-Methyl-2-pentanone (MIBK)	2450	--	--	--	--	--	--
Methyl-tert-butyl-ether (MTBE)	293	--	--	--	--	--	--
Naphthalene	26	--	--	--	--	--	--
n-Propylbenzene	264	--	--	--	--	--	--
Styrene	867	--	--	--	--	--	--
1,1,1,2-Tetrachloroethane	12.9	--	--	--	--	--	--
1,1,2,2-Tetrachloroethane	3.69	--	--	--	--	--	--
Tetrachloroethene (PCE)	153	--	--	--	--	--	--
Tetrahydrofuran (THF)	100000	--	--	--	--	--	--
Toluene	818	--	--	--	--	--	--
1,2,3-Trichlorobenzene	818	--	--	--	--	--	--
1,2,4-Trichlorobenzene	98.7	--	--	--	--	--	--
1,1,1-Trichloroethane (TCA)	640	--	--	--	--	--	--
1,1,2-Trichloroethane (TCA)	7.34	--	--	--	--	--	--
Trichloroethene (TCE)	8.81	--	--	--	--	--	--
Trichlorofluoromethane	1230	--	--	--	--	--	--
1,2,3-Trichloropropane	0.095	--	--	--	--	--	--
1,1,2-Trichlorofluoroethane	910	--	--	--	--	--	--
1,2,4-Trimethylbenzene	219	--	--	--	--	--	--
1,3,5-Trimethylbenzene	182	--	--	--	--	--	--
Vinyl Chloride	2.03	--	--	--	--	--	--
Xylene (total)	260	--	--	--	--	--	--

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 2: Fraser (cont)
Soil Analytical

All results in mg/kg (ppm)		Supplemental RI Borings					
	Boring / Test Pit	GP-12	GP-13	GP-14	GP-15	GP-16	GP-17
	Sample ID	GP12 4-6	GP13 0-2	GP14 2-4	GP15(2-4)	GP16(4-6)	GP17(2-4)
	Sample Depth (ft)	4-6	0-2	2-4	2-4	4-6	2-4
	Total Depth						
	Refusal?	N	N	N	N	N	N
	Date	4/14/16	4/14/16	4/14/16	8/22/18	8/22/18	8/22/18
PAHs							
Acenaphthene	45200	**0.0148**	**0.0668**	<0.0015	<0.00043	<0.00055	**0.0651**
Acenaphthylene	NE	**0.0244**	**0.0109**	<0.0011	<0.00052	<0.00067	**0.0249**
Anthracene	100000	**0.0775**	**0.246**	**0.0118**	**0.012**	<0.00063	**0.163**
Benzo(a)anthracene	20.8	**0.401**	**0.422**	**0.0269**	**0.03**	<0.0015	**0.3660**
Benzo(a)pyrene [B(a)P]	2.11	**0.439**	**0.417**	**0.0297**	**0.032**	<0.00092	**0.357**
Benzo(b)fluoranthene	21.1	**0.637**	**0.602**	**0.038**	**0.042**	<0.00050	**0.481**
Benzo(g,h,i)perylene	NE	**0.189**	**0.157**	**0.0136**	**0.0227**	<0.00085	**0.229**
Benzo(k)fluoranthene	211	**0.218**	**0.224**	**0.0171**	**0.0166**	<0.0011	**0.165**
Chrysene	2110	**0.463**	**0.458**	**0.033**	**0.0309**	<0.0018	**0.334**
Dibenzo(a,h)anthracene	2.11	**0.0805**	**0.0633**	<0.0013	<0.00048	<0.00062	**0.591**
Fluoranthene	30100	**0.726**	**1.08**	**0.0675**	**0.0625**	<0.00058	**0.8360**
Fluorene	30100	**0.0176**	**0.12**	<0.0015	<0.00033	<0.00042	**0.0806**
Indeno(1,2,3-cd)pyrene	21.1	**0.192**	**0.164**	**0.0109**	**0.0178**	<0.00090	**0.182**
Naphthalene	24.1	**0.0505**	**0.0127**	<0.0014	<0.00081	<0.0010	**0.080**
Phenanthrene	NE	**0.222**	**0.805**	**0.0592**	**0.0394**	<0.0026	**0.7380**
Pyrene	22600	**0.68**	**0.891**	**0.0634**	**0.0526**	<0.0021	**0.7700**

NE - Not Established -- Not Analyzed
Bold Text - Reported above detection limit.
Bold Text and Box - Exceeds regulatory limit.

Table 4: Monitoring Well Elevations
Fraser Shipyards Punch Shed Addition

	Height Inst	Rod Reading	MW Elevation	4/27/2016 DTW	4/27/2016 GW Elev.	7/19/2016 DTW	7/19/2016 GW Elev.	1/10/2017 DTW	1/10/2017 GW Elev.	8/22/2018 DTW	8/22/2018 GW Elev.
Bench	104.08	4.08	100.00								
MW-1	104.08	1.10	102.98	10.47	92.51	5.81	97.17	7.45	95.53	7.09	95.89
MW-2	104.08	2.09	101.99	4.67	97.32	4.82	97.17	6.77	95.22	6.1	95.89
MW-3	104.08	2.19	101.89	4.57	97.32	5.18	96.71	6.49	95.40	6.13	95.76
MW-4	104.08	0.98	103.10	5.15	97.95	5.71	97.39	7.22	95.88	5.9	97.20

MW-1 4/27/16 DTW is anomalous. Well did not recharge or develop after initial installation.