

From: Miller, Roger <rmiller@geiconsultants.com>
Sent: Thursday, May 16, 2019 3:44 PM
To: James, Andrew G - DNR
Cc: Michael.Moore@gapac.com; Killian, Paul
Subject: Buth Oil Facility (former) BRRTS #: 02-05-563707 - Groundwater Sampling Results
Attachments: 1803484_GEI_DataAnalysisSummary_Table12_Broadway Mill_Lot 3.pdf;
Monitoring Well Locations (2) - Former Buth Oil (Rev 1).pdf;
Pace_40186806_frc_BW-3 and BW-6 GW_5-1-19.pdf

Hi Andy,

As a follow-up to our recent communications and on behalf of Georgia-Pacific Consumer Products LP, GEI is pleased to provide the attached tabulated groundwater analytical data, monitoring well location figure, and laboratory analytical report for the May 1, 2019, groundwater sampling round to support closure of the Buth Oil (former) case. As recommended by Mr. Keld Lauridsen (WDNR) in an email dated October 5, 2018, monitoring wells BW-3 and BW-6 in the Broadway Mill parking lot were resampled for VOC testing in spring 2019 to provide additional data on trends in petroleum-related VOC concentrations.

Overall, concentrations in the historical source area (BW-6) have remained stable or decreasing from 2015 to the present, as shown in the attached groundwater analytical summary table. Notably, naphthalene, toluene, trimethylbenzenes, and xylenes decreased at BW-6 between last September and this May. Although benzene and 1,2-dichloropropane (an antiknock agent) concentrations have varied somewhat over the last five years, it is reasonable to characterize the concentrations as being stable for a petroleum product AST system release from several decades ago. Additionally, VOCs were not detected in the second round from upgradient monitoring well BW-3, which replicated the initial non-detect results at this well from last September. Accordingly, available data supports the conclusion that residual petroleum hydrocarbons are naturally attenuating in saturated clay near the former aboveground source at/near BW-6.

I will call you to confirm receipt and answer any questions. After your review, we would proceed with preparing final closure documents, as appropriate.

Thanks,


 ROGER A. MILLER, P.G., C.P.G.
Senior Hydrogeologist
920.455.8657 cell: 920.737.6373
3159 Voyager Drive, Green Bay, WI 54311



Table A.1(i)

Groundwater Analytical Results

Project 1803484

Georgia-Pacific Broadway Mill Parking Lot

Green Bay, Wisconsin

Former Buth Oil Site

	CAS #	Wisconsin Regulatory Standards ^{1,2}		Sample Location	BW-3	BW-3	TW-7	TW-7	TW-6	TW-6	BW-6	BW-6	TW-8	TW-8
		NR 140 PAL ¹	NR 140 ES ²	Sample Date	9/19/18	5/1/19	5/11/15	6/3/15	5/11/15	6/3/15	9/19/18	5/1/19	5/11/15	6/3/15
VOCs (detected analytes)³ (µg/L)														
Benzene	71-43-2	0.5	5		< 0.25	< 0.25	< 0.50	< 0.50	224	1330	396	629	< 0.50	< 0.50
n-Butylbenzene	104-51-8	NE	NE		< 0.71	< 0.71	< 0.50	< 0.50	< 1.2	21.4	< 0.71	5.5 J	< 0.50	< 0.50
sec-Butylbenzene	135-98-8	NE	NE		< 0.85	< 0.85	< 2.2	< 2.2	< 5.5	< 43.7	2.2 J	< 4.2	< 2.2	< 2.2
tert-Butylbenzene	98-06-6	NE	NE		< 0.3	< 0.3	< 0.18	0.38 J	0.9 J	5.5 J	2.4	2.7 J	3.3	1.0
1,2-Dichloroethane	107-06-2	0.5	5		< 0.28	< 0.28	< 0.17	< 0.17	< 0.42	< 3.4	15.5	< 1.4	< 0.24	< 0.17
1,2-Dichloropropane	78-87-5	0.5	5		< 0.28	< 0.28	< 0.23	< 0.23	< 0.58	< 4.7	4.1	5.1	< 0.23	< 0.23
Ethylbenzene	100-41-4	140	700		< 0.22	< 0.22	< 0.50	< 0.50	29.2	212	102	115	< 0.50	< 0.50
Isopropylbenzene (Cumene)	98-82-8	NE	NE		< 0.39	< 0.39	< 0.14	< 0.14	2.2	13.6 J	6.7	12.8 J	< 0.14	< 0.14
p-Isopropyltoluene	99-87-6	NE	NE		< 0.80	< 0.80	< 0.50	< 0.50	1.9 J	10.3 J	3.0	4.4 J	< 0.50	< 0.50
Naphthalene	91-20-3	10	100		< 1.2	< 1.2	< 2.5	< 2.5	13.7	172	50.1	21.1 J	< 2.5	< 2.5
n-Propylbenzene	103-65-1	NE	NE		< 0.81	< 0.81	< 0.50	< 0.50	3.2	23.3	9.6	11 J	< 0.50	< 0.50
Toluene	108-88-3	160	800		< 0.17	< 0.17	< 0.50	< 0.50	15.2	169	51.7	40.2	< 0.50	< 0.50
1,2,4-Trimethylbenzene	95-63-6	96	480		< 1.71	< 1.71	< 1.00	< 1.00	39.5	283.6	102.2	74.4	< 1.00	< 1.00
1,3,5-Trimethylbenzene	108-67-8													
m&p-Xylene	1330-20-7	400	2,000		< 0.73	< 0.73	< 1.50	< 1.50	78.5	756.0	205.1	124.1	< 1.5	< 1.5
o-Xylene														

Notes

(mg/kg) = milligrams per kilogram; -- = not analyzed; (µg/kg) = micrograms per kilogram;
 < = not detected above method detection limit; DC = Direct Contact; GW = Groundwater
 J = concentration between detection limit and reporting limit; NE = Not Established;
 PAHs = Polycyclic Aromatic Hydrocarbons; VOCs = Volatile Organic Compounds;
 WT = Sample below observable water table

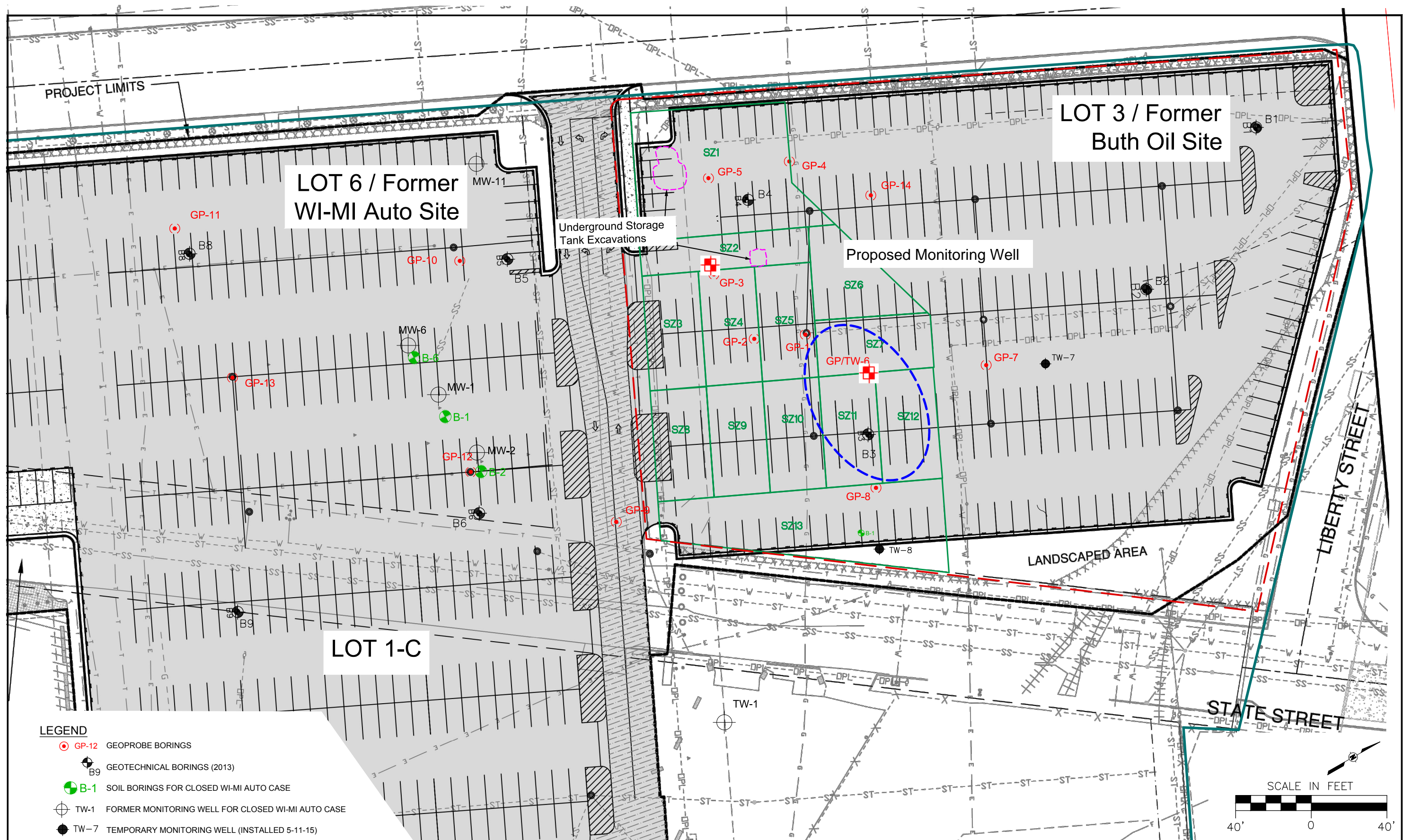
¹ NR 140 PAL = Chapter NR 140, Wisconsin Administrative Code, Preventive Action Limit;

² NR 140 ES = Chapter NR 140, Wisconsin Administrative Code, Enforcement Standard;

³ Only detected analytes are listed; refer to the laboratory analytical report for a full list of assessed analytes

Exceeds NR 140 ES standards **100**

Exceeds NR 140 PAL standards **100**



LEGEND

- ⊙ GP-12 GEOPROBE BORINGS
- B9 GEOTECHNICAL BORINGS (2013)
- ⊙ B-1 SOIL BORINGS FOR CLOSED WI-MI AUTO CASE
- TW-1 FORMER MONITORING WELL FOR CLOSED WI-MI AUTO CASE
- TW-7 TEMPORARY MONITORING WELL (INSTALLED 5-11-15)
- SZ8 SOIL MANAGEMENT ZONE
- APPROXIMATE PROPERTY BOUNDARY
- FORMER BUTH OIL SITE BOUNDARY
- ESTIMATED EXTENT OF NR 140 PALVES EXCEEDANCE

NO.	DATE	ISSUE/REVISION	APP
0	X	X	X

Designed:	RAM
Checked:	RAM
Drawn:	WSR
Submittal Date:	December 2017



GP-BROADWAY MILL PARKING LOT
 GEI Project 1506470

FORMER BUTH OIL CLOSURE REQUEST
 GROUNDWATER CONTAMINATION

FIG. NO.
 B.3.b.

May 06, 2019

Roger Miller
GEI Consultants, Inc.
3159 Voyager Drive
Green Bay, WI 54311

RE: Project: 1803484 BUTH OIL
Pace Project No.: 40186806

Dear Roger Miller:

Enclosed are the analytical results for sample(s) received by the laboratory on May 01, 2019. 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,



Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures

cc: Paul Garvey, GEI Consultants, Inc.



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

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SAMPLE SUMMARY

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40186806001	BW-3	Water	05/01/19 09:00	05/01/19 10:37
40186806002	BW-6	Water	05/01/19 09:45	05/01/19 10:37
40186806003	TRIP BLANK	Water	05/01/19 00:00	05/01/19 10:37

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SAMPLE ANALYTE COUNT

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40186806001	BW-3	EPA 8260	HNW	64	PASI-G
40186806002	BW-6	EPA 8260	HNW	64	PASI-G
40186806003	TRIP BLANK	EPA 8260	HNW	64	PASI-G

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SUMMARY OF DETECTION

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Lab Sample ID Method	Client Sample ID Parameters	Result	Units	Report Limit	Analyzed	Qualifiers
40186806002	BW-6					
EPA 8260	Benzene	629	ug/L	5.0	05/03/19 08:42	
EPA 8260	n-Butylbenzene	5.5J	ug/L	11.8	05/03/19 08:42	
EPA 8260	tert-Butylbenzene	2.7J	ug/L	5.1	05/03/19 08:42	
EPA 8260	1,2-Dichloropropane	5.1	ug/L	5.0	05/03/19 08:42	
EPA 8260	Ethylbenzene	115	ug/L	5.0	05/03/19 08:42	
EPA 8260	Isopropylbenzene (Cumene)	12.8J	ug/L	25.0	05/03/19 08:42	
EPA 8260	p-Isopropyltoluene	4.4J	ug/L	13.3	05/03/19 08:42	
EPA 8260	Naphthalene	21.1J	ug/L	25.0	05/03/19 08:42	
EPA 8260	n-Propylbenzene	11.0J	ug/L	25.0	05/03/19 08:42	
EPA 8260	Toluene	40.2	ug/L	25.0	05/03/19 08:42	
EPA 8260	1,2,4-Trimethylbenzene	53.2	ug/L	14.0	05/03/19 08:42	
EPA 8260	1,3,5-Trimethylbenzene	21.2	ug/L	14.6	05/03/19 08:42	
EPA 8260	m&p-Xylene	86.1	ug/L	10.0	05/03/19 08:42	
EPA 8260	o-Xylene	38.0	ug/L	5.0	05/03/19 08:42	

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ANALYTICAL RESULTS

Project: 1803484 BUTH OIL
Pace Project No.: 40186806

Sample: BW-3 **Lab ID: 40186806001** Collected: 05/01/19 09:00 Received: 05/01/19 10:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV		Analytical Method: EPA 8260							
Benzene	<0.25	ug/L	1.0	0.25	1		05/03/19 12:17	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		05/03/19 12:17	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		05/03/19 12:17	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		05/03/19 12:17	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		05/03/19 12:17	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		05/03/19 12:17	74-83-9	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		05/03/19 12:17	104-51-8	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		05/03/19 12:17	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		05/03/19 12:17	98-06-6	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		05/03/19 12:17	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		05/03/19 12:17	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		05/03/19 12:17	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		05/03/19 12:17	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		05/03/19 12:17	74-87-3	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		05/03/19 12:17	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		05/03/19 12:17	106-43-4	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		05/03/19 12:17	96-12-8	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		05/03/19 12:17	124-48-1	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		05/03/19 12:17	106-93-4	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		05/03/19 12:17	74-95-3	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		05/03/19 12:17	95-50-1	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		05/03/19 12:17	541-73-1	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		05/03/19 12:17	106-46-7	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		05/03/19 12:17	75-71-8	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		05/03/19 12:17	75-34-3	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		05/03/19 12:17	107-06-2	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		05/03/19 12:17	75-35-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		05/03/19 12:17	156-59-2	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		05/03/19 12:17	156-60-5	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		05/03/19 12:17	78-87-5	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		05/03/19 12:17	142-28-9	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		05/03/19 12:17	594-20-7	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		05/03/19 12:17	563-58-6	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		05/03/19 12:17	10061-01-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		05/03/19 12:17	10061-02-6	
Diisopropyl ether	<1.9	ug/L	6.3	1.9	1		05/03/19 12:17	108-20-3	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/03/19 12:17	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		05/03/19 12:17	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		05/03/19 12:17	98-82-8	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		05/03/19 12:17	99-87-6	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		05/03/19 12:17	75-09-2	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/03/19 12:17	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/03/19 12:17	91-20-3	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		05/03/19 12:17	103-65-1	
Styrene	<0.47	ug/L	1.6	0.47	1		05/03/19 12:17	100-42-5	
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		05/03/19 12:17	630-20-6	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Sample: BW-3 **Lab ID: 40186806001** Collected: 05/01/19 09:00 Received: 05/01/19 10:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV									
Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		05/03/19 12:17	79-34-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		05/03/19 12:17	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		05/03/19 12:17	108-88-3	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		05/03/19 12:17	87-61-6	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		05/03/19 12:17	120-82-1	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		05/03/19 12:17	71-55-6	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		05/03/19 12:17	79-00-5	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		05/03/19 12:17	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		05/03/19 12:17	75-69-4	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		05/03/19 12:17	96-18-4	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/03/19 12:17	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/03/19 12:17	108-67-8	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		05/03/19 12:17	75-01-4	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/03/19 12:17	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/03/19 12:17	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	85	%	70-130		1		05/03/19 12:17	460-00-4	
Dibromofluoromethane (S)	100	%	70-130		1		05/03/19 12:17	1868-53-7	
Toluene-d8 (S)	98	%	70-130		1		05/03/19 12:17	2037-26-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Sample: BW-6 **Lab ID: 40186806002** Collected: 05/01/19 09:45 Received: 05/01/19 10:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
Benzene	629	ug/L	5.0	1.2	5		05/03/19 08:42	71-43-2	
Bromobenzene	<1.2	ug/L	5.0	1.2	5		05/03/19 08:42	108-86-1	
Bromochloromethane	<1.8	ug/L	25.0	1.8	5		05/03/19 08:42	74-97-5	
Bromodichloromethane	<1.8	ug/L	6.1	1.8	5		05/03/19 08:42	75-27-4	
Bromoform	<19.9	ug/L	66.2	19.9	5		05/03/19 08:42	75-25-2	
Bromomethane	<4.9	ug/L	25.0	4.9	5		05/03/19 08:42	74-83-9	
n-Butylbenzene	5.5J	ug/L	11.8	3.5	5		05/03/19 08:42	104-51-8	
sec-Butylbenzene	<4.2	ug/L	25.0	4.2	5		05/03/19 08:42	135-98-8	
tert-Butylbenzene	2.7J	ug/L	5.1	1.5	5		05/03/19 08:42	98-06-6	
Carbon tetrachloride	<0.83	ug/L	5.0	0.83	5		05/03/19 08:42	56-23-5	
Chlorobenzene	<3.6	ug/L	11.8	3.6	5		05/03/19 08:42	108-90-7	
Chloroethane	<6.7	ug/L	25.0	6.7	5		05/03/19 08:42	75-00-3	
Chloroform	<6.4	ug/L	25.0	6.4	5		05/03/19 08:42	67-66-3	
Chloromethane	<10.9	ug/L	36.5	10.9	5		05/03/19 08:42	74-87-3	
2-Chlorotoluene	<4.6	ug/L	25.0	4.6	5		05/03/19 08:42	95-49-8	
4-Chlorotoluene	<3.8	ug/L	12.6	3.8	5		05/03/19 08:42	106-43-4	
1,2-Dibromo-3-chloropropane	<8.8	ug/L	29.4	8.8	5		05/03/19 08:42	96-12-8	
Dibromochloromethane	<13.0	ug/L	43.4	13.0	5		05/03/19 08:42	124-48-1	
1,2-Dibromoethane (EDB)	<4.1	ug/L	13.8	4.1	5		05/03/19 08:42	106-93-4	
Dibromomethane	<4.7	ug/L	15.6	4.7	5		05/03/19 08:42	74-95-3	
1,2-Dichlorobenzene	<3.5	ug/L	11.8	3.5	5		05/03/19 08:42	95-50-1	
1,3-Dichlorobenzene	<3.1	ug/L	10.5	3.1	5		05/03/19 08:42	541-73-1	
1,4-Dichlorobenzene	<4.7	ug/L	15.7	4.7	5		05/03/19 08:42	106-46-7	
Dichlorodifluoromethane	<2.5	ug/L	25.0	2.5	5		05/03/19 08:42	75-71-8	
1,1-Dichloroethane	<1.4	ug/L	5.0	1.4	5		05/03/19 08:42	75-34-3	
1,2-Dichloroethane	<1.4	ug/L	5.0	1.4	5		05/03/19 08:42	107-06-2	
1,1-Dichloroethene	<1.2	ug/L	5.0	1.2	5		05/03/19 08:42	75-35-4	
cis-1,2-Dichloroethene	<1.4	ug/L	5.0	1.4	5		05/03/19 08:42	156-59-2	
trans-1,2-Dichloroethene	<5.5	ug/L	18.2	5.5	5		05/03/19 08:42	156-60-5	
1,2-Dichloropropane	5.1	ug/L	5.0	1.4	5		05/03/19 08:42	78-87-5	
1,3-Dichloropropane	<4.1	ug/L	13.8	4.1	5		05/03/19 08:42	142-28-9	
2,2-Dichloropropane	<11.3	ug/L	37.8	11.3	5		05/03/19 08:42	594-20-7	
1,1-Dichloropropene	<2.7	ug/L	9.0	2.7	5		05/03/19 08:42	563-58-6	
cis-1,3-Dichloropropene	<18.1	ug/L	60.5	18.1	5		05/03/19 08:42	10061-01-5	
trans-1,3-Dichloropropene	<21.9	ug/L	72.8	21.9	5		05/03/19 08:42	10061-02-6	
Diisopropyl ether	<9.4	ug/L	31.5	9.4	5		05/03/19 08:42	108-20-3	
Ethylbenzene	115	ug/L	5.0	1.1	5		05/03/19 08:42	100-41-4	
Hexachloro-1,3-butadiene	<5.9	ug/L	25.0	5.9	5		05/03/19 08:42	87-68-3	
Isopropylbenzene (Cumene)	12.8J	ug/L	25.0	2.0	5		05/03/19 08:42	98-82-8	
p-Isopropyltoluene	4.4J	ug/L	13.3	4.0	5		05/03/19 08:42	99-87-6	
Methylene Chloride	<2.9	ug/L	25.0	2.9	5		05/03/19 08:42	75-09-2	
Methyl-tert-butyl ether	<6.2	ug/L	20.8	6.2	5		05/03/19 08:42	1634-04-4	
Naphthalene	21.1J	ug/L	25.0	5.9	5		05/03/19 08:42	91-20-3	
n-Propylbenzene	11.0J	ug/L	25.0	4.1	5		05/03/19 08:42	103-65-1	
Styrene	<2.3	ug/L	7.8	2.3	5		05/03/19 08:42	100-42-5	
1,1,1,2-Tetrachloroethane	<1.3	ug/L	5.0	1.3	5		05/03/19 08:42	630-20-6	

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ANALYTICAL RESULTS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Sample: BW-6 **Lab ID: 40186806002** Collected: 05/01/19 09:45 Received: 05/01/19 10:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<1.4	ug/L	5.0	1.4	5		05/03/19 08:42	79-34-5	
Tetrachloroethene	<1.6	ug/L	5.4	1.6	5		05/03/19 08:42	127-18-4	
Toluene	40.2	ug/L	25.0	0.86	5		05/03/19 08:42	108-88-3	
1,2,3-Trichlorobenzene	<3.1	ug/L	25.0	3.1	5		05/03/19 08:42	87-61-6	
1,2,4-Trichlorobenzene	<4.8	ug/L	25.0	4.8	5		05/03/19 08:42	120-82-1	
1,1,1-Trichloroethane	<1.2	ug/L	5.0	1.2	5		05/03/19 08:42	71-55-6	
1,1,2-Trichloroethane	<2.8	ug/L	25.0	2.8	5		05/03/19 08:42	79-00-5	
Trichloroethene	<1.3	ug/L	5.0	1.3	5		05/03/19 08:42	79-01-6	
Trichlorofluoromethane	<1.1	ug/L	5.0	1.1	5		05/03/19 08:42	75-69-4	
1,2,3-Trichloropropane	<3.0	ug/L	25.0	3.0	5		05/03/19 08:42	96-18-4	
1,2,4-Trimethylbenzene	53.2	ug/L	14.0	4.2	5		05/03/19 08:42	95-63-6	
1,3,5-Trimethylbenzene	21.2	ug/L	14.6	4.4	5		05/03/19 08:42	108-67-8	
Vinyl chloride	<0.87	ug/L	5.0	0.87	5		05/03/19 08:42	75-01-4	
m&p-Xylene	86.1	ug/L	10.0	2.3	5		05/03/19 08:42	179601-23-1	
o-Xylene	38.0	ug/L	5.0	1.3	5		05/03/19 08:42	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	93	%	70-130		5		05/03/19 08:42	460-00-4	
Dibromofluoromethane (S)	98	%	70-130		5		05/03/19 08:42	1868-53-7	
Toluene-d8 (S)	99	%	70-130		5		05/03/19 08:42	2037-26-5	

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ANALYTICAL RESULTS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Sample: TRIP BLANK **Lab ID: 40186806003** Collected: 05/01/19 00:00 Received: 05/01/19 10:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
Benzene	<0.25	ug/L	1.0	0.25	1		05/03/19 23:13	71-43-2	
Bromobenzene	<0.24	ug/L	1.0	0.24	1		05/03/19 23:13	108-86-1	
Bromochloromethane	<0.36	ug/L	5.0	0.36	1		05/03/19 23:13	74-97-5	
Bromodichloromethane	<0.36	ug/L	1.2	0.36	1		05/03/19 23:13	75-27-4	
Bromoform	<4.0	ug/L	13.2	4.0	1		05/03/19 23:13	75-25-2	
Bromomethane	<0.97	ug/L	5.0	0.97	1		05/03/19 23:13	74-83-9	
n-Butylbenzene	<0.71	ug/L	2.4	0.71	1		05/03/19 23:13	104-51-8	
sec-Butylbenzene	<0.85	ug/L	5.0	0.85	1		05/03/19 23:13	135-98-8	
tert-Butylbenzene	<0.30	ug/L	1.0	0.30	1		05/03/19 23:13	98-06-6	
Carbon tetrachloride	<0.17	ug/L	1.0	0.17	1		05/03/19 23:13	56-23-5	
Chlorobenzene	<0.71	ug/L	2.4	0.71	1		05/03/19 23:13	108-90-7	
Chloroethane	<1.3	ug/L	5.0	1.3	1		05/03/19 23:13	75-00-3	
Chloroform	<1.3	ug/L	5.0	1.3	1		05/03/19 23:13	67-66-3	
Chloromethane	<2.2	ug/L	7.3	2.2	1		05/03/19 23:13	74-87-3	
2-Chlorotoluene	<0.93	ug/L	5.0	0.93	1		05/03/19 23:13	95-49-8	
4-Chlorotoluene	<0.76	ug/L	2.5	0.76	1		05/03/19 23:13	106-43-4	
1,2-Dibromo-3-chloropropane	<1.8	ug/L	5.9	1.8	1		05/03/19 23:13	96-12-8	
Dibromochloromethane	<2.6	ug/L	8.7	2.6	1		05/03/19 23:13	124-48-1	
1,2-Dibromoethane (EDB)	<0.83	ug/L	2.8	0.83	1		05/03/19 23:13	106-93-4	
Dibromomethane	<0.94	ug/L	3.1	0.94	1		05/03/19 23:13	74-95-3	
1,2-Dichlorobenzene	<0.71	ug/L	2.4	0.71	1		05/03/19 23:13	95-50-1	
1,3-Dichlorobenzene	<0.63	ug/L	2.1	0.63	1		05/03/19 23:13	541-73-1	
1,4-Dichlorobenzene	<0.94	ug/L	3.1	0.94	1		05/03/19 23:13	106-46-7	
Dichlorodifluoromethane	<0.50	ug/L	5.0	0.50	1		05/03/19 23:13	75-71-8	
1,1-Dichloroethane	<0.27	ug/L	1.0	0.27	1		05/03/19 23:13	75-34-3	
1,2-Dichloroethane	<0.28	ug/L	1.0	0.28	1		05/03/19 23:13	107-06-2	
1,1-Dichloroethene	<0.24	ug/L	1.0	0.24	1		05/03/19 23:13	75-35-4	
cis-1,2-Dichloroethene	<0.27	ug/L	1.0	0.27	1		05/03/19 23:13	156-59-2	
trans-1,2-Dichloroethene	<1.1	ug/L	3.6	1.1	1		05/03/19 23:13	156-60-5	
1,2-Dichloropropane	<0.28	ug/L	1.0	0.28	1		05/03/19 23:13	78-87-5	
1,3-Dichloropropane	<0.83	ug/L	2.8	0.83	1		05/03/19 23:13	142-28-9	
2,2-Dichloropropane	<2.3	ug/L	7.6	2.3	1		05/03/19 23:13	594-20-7	
1,1-Dichloropropene	<0.54	ug/L	1.8	0.54	1		05/03/19 23:13	563-58-6	
cis-1,3-Dichloropropene	<3.6	ug/L	12.1	3.6	1		05/03/19 23:13	10061-01-5	
trans-1,3-Dichloropropene	<4.4	ug/L	14.6	4.4	1		05/03/19 23:13	10061-02-6	
Diisopropyl ether	<1.9	ug/L	6.3	1.9	1		05/03/19 23:13	108-20-3	
Ethylbenzene	<0.22	ug/L	1.0	0.22	1		05/03/19 23:13	100-41-4	
Hexachloro-1,3-butadiene	<1.2	ug/L	5.0	1.2	1		05/03/19 23:13	87-68-3	
Isopropylbenzene (Cumene)	<0.39	ug/L	5.0	0.39	1		05/03/19 23:13	98-82-8	
p-Isopropyltoluene	<0.80	ug/L	2.7	0.80	1		05/03/19 23:13	99-87-6	
Methylene Chloride	<0.58	ug/L	5.0	0.58	1		05/03/19 23:13	75-09-2	
Methyl-tert-butyl ether	<1.2	ug/L	4.2	1.2	1		05/03/19 23:13	1634-04-4	
Naphthalene	<1.2	ug/L	5.0	1.2	1		05/03/19 23:13	91-20-3	
n-Propylbenzene	<0.81	ug/L	5.0	0.81	1		05/03/19 23:13	103-65-1	
Styrene	<0.47	ug/L	1.6	0.47	1		05/03/19 23:13	100-42-5	
1,1,1,2-Tetrachloroethane	<0.27	ug/L	1.0	0.27	1		05/03/19 23:13	630-20-6	

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ANALYTICAL RESULTS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Sample: TRIP BLANK **Lab ID: 40186806003** Collected: 05/01/19 00:00 Received: 05/01/19 10:37 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Analytical Method: EPA 8260									
1,1,2,2-Tetrachloroethane	<0.28	ug/L	1.0	0.28	1		05/03/19 23:13	79-34-5	
Tetrachloroethene	<0.33	ug/L	1.1	0.33	1		05/03/19 23:13	127-18-4	
Toluene	<0.17	ug/L	5.0	0.17	1		05/03/19 23:13	108-88-3	
1,2,3-Trichlorobenzene	<0.63	ug/L	5.0	0.63	1		05/03/19 23:13	87-61-6	
1,2,4-Trichlorobenzene	<0.95	ug/L	5.0	0.95	1		05/03/19 23:13	120-82-1	
1,1,1-Trichloroethane	<0.24	ug/L	1.0	0.24	1		05/03/19 23:13	71-55-6	
1,1,2-Trichloroethane	<0.55	ug/L	5.0	0.55	1		05/03/19 23:13	79-00-5	
Trichloroethene	<0.26	ug/L	1.0	0.26	1		05/03/19 23:13	79-01-6	
Trichlorofluoromethane	<0.21	ug/L	1.0	0.21	1		05/03/19 23:13	75-69-4	
1,2,3-Trichloropropane	<0.59	ug/L	5.0	0.59	1		05/03/19 23:13	96-18-4	
1,2,4-Trimethylbenzene	<0.84	ug/L	2.8	0.84	1		05/03/19 23:13	95-63-6	
1,3,5-Trimethylbenzene	<0.87	ug/L	2.9	0.87	1		05/03/19 23:13	108-67-8	
Vinyl chloride	<0.17	ug/L	1.0	0.17	1		05/03/19 23:13	75-01-4	
m&p-Xylene	<0.47	ug/L	2.0	0.47	1		05/03/19 23:13	179601-23-1	
o-Xylene	<0.26	ug/L	1.0	0.26	1		05/03/19 23:13	95-47-6	
Surrogates									
4-Bromofluorobenzene (S)	89	%	70-130		1		05/03/19 23:13	460-00-4	
Dibromofluoromethane (S)	99	%	70-130		1		05/03/19 23:13	1868-53-7	
Toluene-d8 (S)	99	%	70-130		1		05/03/19 23:13	2037-26-5	

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QUALITY CONTROL DATA

Project: 1803484 BUTH OIL
Pace Project No.: 40186806

QC Batch: 320246 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV
Associated Lab Samples: 40186806001, 40186806002, 40186806003

METHOD BLANK: 1860685 Matrix: Water
Associated Lab Samples: 40186806001, 40186806002, 40186806003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	<0.27	1.0	05/03/19 06:12	
1,1,1-Trichloroethane	ug/L	<0.24	1.0	05/03/19 06:12	
1,1,2,2-Tetrachloroethane	ug/L	<0.28	1.0	05/03/19 06:12	
1,1,2-Trichloroethane	ug/L	<0.55	5.0	05/03/19 06:12	
1,1-Dichloroethane	ug/L	<0.27	1.0	05/03/19 06:12	
1,1-Dichloroethene	ug/L	<0.24	1.0	05/03/19 06:12	
1,1-Dichloropropene	ug/L	<0.54	1.8	05/03/19 06:12	
1,2,3-Trichlorobenzene	ug/L	<0.63	5.0	05/03/19 06:12	
1,2,3-Trichloropropane	ug/L	<0.59	5.0	05/03/19 06:12	
1,2,4-Trichlorobenzene	ug/L	<0.95	5.0	05/03/19 06:12	
1,2,4-Trimethylbenzene	ug/L	<0.84	2.8	05/03/19 06:12	
1,2-Dibromo-3-chloropropane	ug/L	<1.8	5.9	05/03/19 06:12	
1,2-Dibromoethane (EDB)	ug/L	<0.83	2.8	05/03/19 06:12	
1,2-Dichlorobenzene	ug/L	<0.71	2.4	05/03/19 06:12	
1,2-Dichloroethane	ug/L	<0.28	1.0	05/03/19 06:12	
1,2-Dichloropropane	ug/L	<0.28	1.0	05/03/19 06:12	
1,3,5-Trimethylbenzene	ug/L	<0.87	2.9	05/03/19 06:12	
1,3-Dichlorobenzene	ug/L	<0.63	2.1	05/03/19 06:12	
1,3-Dichloropropane	ug/L	<0.83	2.8	05/03/19 06:12	
1,4-Dichlorobenzene	ug/L	<0.94	3.1	05/03/19 06:12	
2,2-Dichloropropane	ug/L	<2.3	7.6	05/03/19 06:12	
2-Chlorotoluene	ug/L	<0.93	5.0	05/03/19 06:12	
4-Chlorotoluene	ug/L	<0.76	2.5	05/03/19 06:12	
Benzene	ug/L	<0.25	1.0	05/03/19 06:12	
Bromobenzene	ug/L	<0.24	1.0	05/03/19 06:12	
Bromochloromethane	ug/L	<0.36	5.0	05/03/19 06:12	
Bromodichloromethane	ug/L	<0.36	1.2	05/03/19 06:12	
Bromoform	ug/L	<4.0	13.2	05/03/19 06:12	
Bromomethane	ug/L	<0.97	5.0	05/03/19 06:12	
Carbon tetrachloride	ug/L	<0.17	1.0	05/03/19 06:12	
Chlorobenzene	ug/L	<0.71	2.4	05/03/19 06:12	
Chloroethane	ug/L	<1.3	5.0	05/03/19 06:12	
Chloroform	ug/L	<1.3	5.0	05/03/19 06:12	
Chloromethane	ug/L	<2.2	7.3	05/03/19 06:12	
cis-1,2-Dichloroethene	ug/L	<0.27	1.0	05/03/19 06:12	
cis-1,3-Dichloropropene	ug/L	<3.6	12.1	05/03/19 06:12	
Dibromochloromethane	ug/L	<2.6	8.7	05/03/19 06:12	
Dibromomethane	ug/L	<0.94	3.1	05/03/19 06:12	
Dichlorodifluoromethane	ug/L	<0.50	5.0	05/03/19 06:12	
Diisopropyl ether	ug/L	<1.9	6.3	05/03/19 06:12	
Ethylbenzene	ug/L	<0.22	1.0	05/03/19 06:12	

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.

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QUALITY CONTROL DATA

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

METHOD BLANK: 1860685

Matrix: Water

Associated Lab Samples: 40186806001, 40186806002, 40186806003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/L	<1.2	5.0	05/03/19 06:12	
Isopropylbenzene (Cumene)	ug/L	<0.39	5.0	05/03/19 06:12	
m&p-Xylene	ug/L	<0.47	2.0	05/03/19 06:12	
Methyl-tert-butyl ether	ug/L	<1.2	4.2	05/03/19 06:12	
Methylene Chloride	ug/L	<0.58	5.0	05/03/19 06:12	
n-Butylbenzene	ug/L	<0.71	2.4	05/03/19 06:12	
n-Propylbenzene	ug/L	<0.81	5.0	05/03/19 06:12	
Naphthalene	ug/L	<1.2	5.0	05/03/19 06:12	
o-Xylene	ug/L	<0.26	1.0	05/03/19 06:12	
p-Isopropyltoluene	ug/L	<0.80	2.7	05/03/19 06:12	
sec-Butylbenzene	ug/L	<0.85	5.0	05/03/19 06:12	
Styrene	ug/L	<0.47	1.6	05/03/19 06:12	
tert-Butylbenzene	ug/L	<0.30	1.0	05/03/19 06:12	
Tetrachloroethene	ug/L	<0.33	1.1	05/03/19 06:12	
Toluene	ug/L	<0.17	5.0	05/03/19 06:12	
trans-1,2-Dichloroethene	ug/L	<1.1	3.6	05/03/19 06:12	
trans-1,3-Dichloropropene	ug/L	<4.4	14.6	05/03/19 06:12	
Trichloroethene	ug/L	<0.26	1.0	05/03/19 06:12	
Trichlorofluoromethane	ug/L	<0.21	1.0	05/03/19 06:12	
Vinyl chloride	ug/L	<0.17	1.0	05/03/19 06:12	
4-Bromofluorobenzene (S)	%	89	70-130	05/03/19 06:12	
Dibromofluoromethane (S)	%	99	70-130	05/03/19 06:12	
Toluene-d8 (S)	%	98	70-130	05/03/19 06:12	

LABORATORY CONTROL SAMPLE: 1860686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/L	50	54.0	108	70-130	
1,1,2,2-Tetrachloroethane	ug/L	50	52.6	105	70-130	
1,1,2-Trichloroethane	ug/L	50	55.6	111	70-130	
1,1-Dichloroethane	ug/L	50	49.0	98	73-150	
1,1-Dichloroethene	ug/L	50	50.5	101	73-138	
1,2,4-Trichlorobenzene	ug/L	50	52.0	104	70-130	
1,2-Dibromo-3-chloropropane	ug/L	50	53.8	108	64-129	
1,2-Dibromoethane (EDB)	ug/L	50	55.4	111	70-130	
1,2-Dichlorobenzene	ug/L	50	54.7	109	70-130	
1,2-Dichloroethane	ug/L	50	50.0	100	75-140	
1,2-Dichloropropane	ug/L	50	48.0	96	73-135	
1,3-Dichlorobenzene	ug/L	50	52.2	104	70-130	
1,4-Dichlorobenzene	ug/L	50	53.2	106	70-130	
Benzene	ug/L	50	52.4	105	70-130	
Bromodichloromethane	ug/L	50	54.9	110	70-130	
Bromoform	ug/L	50	51.0	102	68-129	
Bromomethane	ug/L	50	34.9	70	18-159	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

LABORATORY CONTROL SAMPLE: 1860686

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/L	50	53.0	106	70-130	
Chlorobenzene	ug/L	50	56.8	114	70-130	
Chloroethane	ug/L	50	39.9	80	53-147	
Chloroform	ug/L	50	51.1	102	74-136	
Chloromethane	ug/L	50	22.8	46	29-115	
cis-1,2-Dichloroethene	ug/L	50	50.2	100	70-130	
cis-1,3-Dichloropropene	ug/L	50	48.3	97	70-130	
Dibromochloromethane	ug/L	50	56.9	114	70-130	
Dichlorodifluoromethane	ug/L	50	19.5	39	10-130	
Ethylbenzene	ug/L	50	58.6	117	80-124	
Isopropylbenzene (Cumene)	ug/L	50	56.5	113	70-130	
m&p-Xylene	ug/L	100	121	121	70-130	
Methyl-tert-butyl ether	ug/L	50	50.1	100	54-137	
Methylene Chloride	ug/L	50	51.9	104	73-138	
o-Xylene	ug/L	50	60.4	121	70-130	
Styrene	ug/L	50	55.5	111	70-130	
Tetrachloroethene	ug/L	50	54.8	110	70-130	
Toluene	ug/L	50	56.3	113	80-126	
trans-1,2-Dichloroethene	ug/L	50	54.1	108	73-145	
trans-1,3-Dichloropropene	ug/L	50	49.8	100	70-130	
Trichloroethene	ug/L	50	53.3	107	70-130	
Trichlorofluoromethane	ug/L	50	48.7	97	76-147	
Vinyl chloride	ug/L	50	32.0	64	51-120	
4-Bromofluorobenzene (S)	%			99	70-130	
Dibromofluoromethane (S)	%			102	70-130	
Toluene-d8 (S)	%			100	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1860691 1860692

Parameter	Units	40186754001		1860691		1860692		% Rec	% Rec	% Rec	Limits	RPD	RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec							
1,1,1-Trichloroethane	ug/L	<1.0	50	50	52.4	53.8	105	108	70-130	3	20			
1,1,2,2-Tetrachloroethane	ug/L	<1.0	50	50	49.4	49.4	99	99	70-130	0	20			
1,1,2-Trichloroethane	ug/L	<5.0	50	50	52.5	53.4	105	107	70-137	2	20			
1,1-Dichloroethane	ug/L	<1.0	50	50	47.9	48.5	96	97	73-153	1	20			
1,1-Dichloroethene	ug/L	<1.0	50	50	48.1	48.5	96	97	73-138	1	20			
1,2,4-Trichlorobenzene	ug/L	<5.0	50	50	50.1	50.9	100	102	70-130	2	20			
1,2-Dibromo-3-chloropropane	ug/L	<5.9	50	50	49.6	48.4	99	97	58-129	2	20			
1,2-Dibromoethane (EDB)	ug/L	<2.8	50	50	52.3	53.9	105	108	70-130	3	20			
1,2-Dichlorobenzene	ug/L	<2.4	50	50	53.0	54.0	106	108	70-130	2	20			
1,2-Dichloroethane	ug/L	<1.0	50	50	48.9	49.2	98	98	75-140	1	20			
1,2-Dichloropropane	ug/L	<1.0	50	50	46.5	47.6	93	95	71-138	2	20			
1,3-Dichlorobenzene	ug/L	<2.1	50	50	50.3	51.7	101	103	70-130	3	20			
1,4-Dichlorobenzene	ug/L	<3.1	50	50	51.2	52.4	102	105	70-130	2	20			

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QUALITY CONTROL DATA

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Parameter	Units	1860691		1860692		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		40186754001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result							
Benzene	ug/L	<1.0	50	50	51.8	52.1	104	104	70-130	0	20	
Bromodichloromethane	ug/L	<1.2	50	50	52.5	53.5	105	107	70-130	2	20	
Bromoform	ug/L	<13.2	50	50	48.7	48.9	97	98	68-129	0	20	
Bromomethane	ug/L	<5.0	50	50	34.9	35.9	70	72	15-170	3	20	
Carbon tetrachloride	ug/L	<1.0	50	50	51.1	52.9	102	106	70-130	3	20	
Chlorobenzene	ug/L	<2.4	50	50	54.7	55.2	109	110	70-130	1	20	
Chloroethane	ug/L	<5.0	50	50	38.4	39.5	77	79	51-148	3	20	
Chloroform	ug/L	<5.0	50	50	49.5	50.9	99	102	74-136	3	20	
Chloromethane	ug/L	<7.3	50	50	22.0	22.5	44	45	23-115	2	20	
cis-1,2-Dichloroethene	ug/L	<1.0	50	50	49.4	50.3	99	101	70-131	2	20	
cis-1,3-Dichloropropene	ug/L	<12.1	50	50	47.1	47.7	94	95	70-130	1	20	
Dibromochloromethane	ug/L	<8.7	50	50	54.3	54.7	109	109	70-130	1	20	
Dichlorodifluoromethane	ug/L	<5.0	50	50	18.5	18.1	37	36	10-132	2	20	
Ethylbenzene	ug/L	<1.0	50	50	55.8	57.3	112	115	80-125	3	20	
Isopropylbenzene (Cumene)	ug/L	<5.0	50	50	54.2	55.1	108	110	70-130	2	20	
m&p-Xylene	ug/L	<2.0	100	100	116	119	116	119	70-130	2	20	
Methyl-tert-butyl ether	ug/L	<4.2	50	50	48.8	49.1	98	98	51-145	1	20	
Methylene Chloride	ug/L	<5.0	50	50	50.8	51.6	102	103	73-140	2	20	
o-Xylene	ug/L	<1.0	50	50	57.9	58.8	116	118	70-130	1	20	
Styrene	ug/L	<1.6	50	50	53.4	54.1	107	108	70-130	1	20	
Tetrachloroethene	ug/L	<1.1	50	50	52.3	54.6	105	109	70-130	4	20	
Toluene	ug/L	<5.0	50	50	54.8	55.8	110	112	80-131	2	20	
trans-1,2-Dichloroethene	ug/L	<3.6	50	50	52.9	53.3	106	107	73-148	1	20	
trans-1,3-Dichloropropene	ug/L	<14.6	50	50	48.1	49.0	96	98	70-130	2	20	
Trichloroethene	ug/L	<1.0	50	50	51.8	53.0	104	106	70-130	2	20	
Trichlorofluoromethane	ug/L	<1.0	50	50	47.6	47.9	95	96	74-147	1	20	
Vinyl chloride	ug/L	<1.0	50	50	30.3	30.3	61	61	41-129	0	20	
4-Bromofluorobenzene (S)	%						98	98	70-130			
Dibromofluoromethane (S)	%						100	100	70-130			
Toluene-d8 (S)	%						101	100	70-130			

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QUALIFIERS

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

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, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

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.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1803484 BUTH OIL

Pace Project No.: 40186806

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40186806001	BW-3	EPA 8260	320246		
40186806002	BW-6	EPA 8260	320246		
40186806003	TRIP BLANK	EPA 8260	320246		

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Document Name: Sample Condition Upon Receipt (SCUR)
Document No.: F-GB-C-031-Rev.07

Document Revised: 25Apr2018
Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: GEL Consultants

Project #: **WO# : 40186806**

Courier: CS Logistics Fed Ex Speedee UPS Waltoo
 Client Pace Other: _____

Tracking #: _____

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - N/A Type of Ice: Wet Blue Dry None Samples on ice, cooling process has begun

Cooler Temperature Uncorr: PSI /Corr: _____

Temp Blank Present: yes no Biological Tissue is Frozen: yes no

Person examining contents:
Date: 05/01/19
Initials: GW

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>mail, invoice, filtered, preservation</u> <u>or 05/01/19</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9.
-Pace Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes date/time/ID/Analysis Matrix: <u>W</u>		
Trip Blank Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>423</u>		

Client Notification/ Resolution: _____ If checked, see attached form for additional comments
Person Contacted: _____ Date/Time: _____
Comments/ Resolution: _____

Project Manager Review: GA Date: 5/1/19