



**US Army Corps
of Engineers®**
Engineer Research and
Development Center

Sampling, Chemical Analysis, and Bioassessment in Accordance with CWA Section 404

Houston Ship Channel Expansion Channel Improvement Project, North of Morgan's Point Houston Ship Channel, Texas

**(Part 4 of 6: Appendices 3-6, Chain of Custody, Particle Size Distribution
Report, Full Analytical Data Tables, & Analytical Lab Reports)**

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Vicksburg, MS

FINAL

14 June 2023*

*Supersedes all previous versions. Only coversheet revised; no change to content.

Appendix 3: Chain of Custody

Sampling Company: Benchmark	EL, CEERD-EP-R
POC: Neil Bentham	Dan Ferrar
Address: Po Box 158, Katy, TX 77492	3809 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180
Phone: 281-703-0257	W: 601-634-2118 M: 601-529-8042

ERDC:	EL, CEERD-EP-R
Project Manager:	Dan Ferrar
Address:	3809 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180
Email:	dan.ferrar@usace.army.mil
Phone:	W: 601-634-2118 M: 601-529-8042

Additional Notes:

Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/Furans, OC	SVOC	TPH High-level	TOC	Total Hg and Se	TSS	VOC	Cy III and VI	VOC (340 ml Clear VOA w/ NaHSO4)	VOC (140 ml Clear VOA w/ MeOH)	TPH	Sediment
1 HSCNew-NMP-11	10-2-18	0831	N/A	Sed	8	11														X	X	X	
2 HSCNew-NMP-10	10-2-18	1300			1	10														X	X	X	
3 HSCNew-NMP-09	10-2-18	0715			1	9														X	X	X	
4 HSCNew-NMP-08	10-3-18	0931			1	8														X	X	X	
5 HSCNew-NMP-07	10-3-18	1313			9	7														X	X	X	X (4 Buckets)
6																							
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							
Total																							

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Signature: *Neil Bentham* Date: **10-14-18**

2. I accept these samples for transfer to ERDC.

Signature: *N. Ferrar* Date: **10-6-18**

Date: **Nov Thurs 10-6-18**

Temperature of Cooler

CHAIN OF CUSTODY RECORD
 USACE ERDC Laboratories, 3909 Halls Ferry Road, Vicksburg, MS 39180
 Sampling Company: **Neil Kenborne**
 POC: **Neil Kenborne**
 Address: **3909 Halls Ferry Road, Vicksburg, MS 39180**
 Email: **neil.kenborne@usace.army.mil**
 Phone: **601-529-8042**

EL, CEERD-EP-R
 Dan Ferrar
 3909 Halls Ferry Road Bldg 8009
 Vicksburg, MS 39180
 Email: **dan.ferrar@usace.army.mil**
 Phone: **601-529-8042**

EL, CEERD-EP-R
 Cheryl Montgomery
 688 Virginia Road
 Concord, MA 01742
 Email: **cheryl.montgomery@usace.army.mil**
 Phone: **781-590-8317**

Additional Notes:
 Page 1 of 2

Sample Name	Date	Time	Depth	Media	# of containers	Station	1 10L HDPE Criblainer, Pre-filtered time: 48 hours	2 40 ml Clear VOA w/ NaHSO4, non-filtered Hold Time: 7 days	3 40 ml Clear VOA w/ NaHSO4, non-filtered Hold Time: 24 HOURS	4 40 ml Clear VOA w/ NaHSO4, non-filtered Hold Time: 14 days	5 40 ml Clear VOA w/ NaHSO4, non-filtered Hold Time: 14 days
1. HSC New-NMP-015W	10-22-18	10:00	N/A	H2O	14	1	X	X	X	X	X
2. HSC New-NMP-035W	10-22-18	10:53			14	3	X	X	X	X	X
3. HSC New-NMP-035W	10-22-18	11:30			9	DIR	X	X	X	X	X
4. HSC New-NMP-055W	10-22-18	12:00			14	5	X	X	X	X	X
5. HSC New-NMP-075W	10-22-18	12:40			14	7	X	X	X	X	X
6. HSC New-NMP-095W	10-22-18	13:10			14	9	X	X	X	X	X
7. HSC New-NMP-115W	10-22-18	13:40			14	11	X	X	X	X	X
8.											
9.											
10.											
11.											
12.											
13.											
14.											
15.											
Total											

1. I accept these samples for transfer to ERDC. Samples have been properly labeled and kept at 4°C or refrigerated.
 Signature: *[Signature]* Date: **10-23-18**
 Signature of ERDC Representative: *[Signature]* Date: **10-23-18**
 Temperature of Cooler: **4.9**

Appendix 4: Partical Size Distribution Report

SPECIFIC GRAVITY OF SOILS - ASTM D854-14 Method B

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Lab Sample No.	Boring	Depth	Sample	Replicate No.	Material Used	Passing #4 Sieve	Pycnometer Id.	Pre-test Pycnometer Check Weight	Weight Pycnometer +Soil+Water	Test Temp.	Tare No.	Weight Tare+ Dry Soil	Tare Weight	Weight Dry Soil	Test Water Density	Weight Pycnometer +Water at Test Temp	Average Calibrated Pycnometer Dry Weight	Average Calibrated Volume of Pycnometer	Specific Gravity of Soil at Test Temp	Conversion Factor For Temp	Specific Gravity of Soil at 20°C
								gm	gm	°C	gm	gm	gm	gm	gm/ml	gm	ml	g/cc	Tb-K	g/cc	
				Sieve	%	Mp	Mpws,t	Tt		Mds	ρw,t	Mpw,t	Mp	Vp	Gt	Tb-K	G20°C				
TEST PARAMETERS																	CALIBRATION PARAMETERS		SPECIFIC GRAVITY		
40901001	18J0402-01	NA	HSCNew-NMP-01-SD	1	-#4	100	A	159.91	689.97	22.7	209	226.57	176.21	50.36	0.9976	658.42	159.90	499.72	2.677	0.9994	2.68
40901002	18J0402-02	NA	HSCNew-NMP-02-SD	1	-#4	100	C	161.1	691.23	22.6	208	230.82	179.91	50.91	0.9976	659.37	161.11	499.44	2.672	0.9994	2.67
40901003	18J0402-03	NA	HSCNew-NMP-03-SD	1	-#4	98.7	D	163.45	694.51	22.6	207	226.38	174.04	52.34	0.9976	662.00	163.44	499.74	2.640	0.9994	2.64
40901004	18J0402-04	NA	HSCNew-NMP-04-SD	2	-#4	99.7	R	164.26	693.86	20.9	205	228.99	179.19	49.8	0.9980	662.85	164.29	499.56	2.650	0.9998	2.65
40901005	18J0402-05	NA	HSCNew-NMP-05-SD	1	-#4	99.7	G	163.57	693.82	21.1	813	152.7	101.68	51.02	0.9980	661.88	163.54	499.35	2.674	0.9998	2.67
40901006	18J0402-06	NA	HSCNew-NMP-06-SD	2	-#4	98.5	T	185.16	714.48	21.2	217	229.37	179.68	49.69	0.9980	683.51	185.15	499.38	2.654	0.9997	2.65
40901007	18J0402-07	NA	HSCNew-NMP-07-SD	2	-#4	100	W	193.16	722.31	21	200	233.58	184.21	49.37	0.9980	691.49	193.13	499.36	2.661	0.9998	2.66
40901008	18J0402-08	NA	HSCNew-NMP-08-SD	2	-#4	100	F	162.2	692.24	21.1	201	232.36	181.56	50.8	0.9980	660.65	162.20	499.46	2.645	0.9998	2.64
40901009	18J0402-09	NA	HSCNew-NMP-09-SD	2	-#4	100	J	159.87	690.21	21.3	751	231.52	180.84	50.68	0.9979	658.62	159.84	499.81	2.655	0.9997	2.65
40901010	18J0402-10	NA	HSCNew-NMP-10-SD	1	-#4	100	E	164.7	695.04	20.8	208	230.75	179.71	51.04	0.9980	662.97	164.70	499.24	2.691	0.9998	2.69
40901011	18J0402-11	NA	HSCNew-NMP-11-SD	1	-#4	100	N	183.46	713.15	21.1	807	151.9	101.69	50.21	0.9980	681.78	183.43	499.36	2.665	0.9998	2.66
40901012	18J0402-12	NA	HSCNew-NMP-03-DUP	2	-#4	100	G	163.59	693.28	21	510	152.21	102.21	50	0.9980	661.89	163.54	499.35	2.687	0.9998	2.69

Performed By: AR

Input Validation: AR

Reviewed By: ALO

Date: 10/17/2018

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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-01
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-01-SD
		Lab Sample	40901001

Sample Color: **VERY DARK GREENISH GRAY**

USCS Group Name: **FAT CLAY WITH SAND**

USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (44)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1086	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1086	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	538	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	538	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	74	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	555.52	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	348.65	No. 10	2	0.86	0.4%	99.6%	
Tare, gm	145.92	No. 20	0.85	0.32	0.2%	99.4%	
Water Content of Split Sample	102.0%	No. 40	0.425	0.63	0.3%	99.1%	
Wt. of DS., gm	202.73	No. 60	0.25	2.41	1.2%	97.9%	
Wt. of +#200 Sample, gm	40.94	No. 140	0.106	24.75	12.2%	85.7%	
		No. 200	0.075	11.97	5.9%	79.8%	

HYDROMETER (-#200)					
Tare No.	503	Wt. Dispers., gm	5	Specific Gravity	2.68
Wt. Tare + DS., gm	142.04	Wt. Dry Soil, gm (-#200)	34.75		Tested
Wt. Tare, gm	102.29	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9933

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	39	21.2	5.7	33.3	0.0134	95.2	0.0296	76.0%
5	37	21.2	5.7	31.3	0.0134	89.5	0.0190	71.4%
15	35.5	21.3	5.7	29.8	0.0133	85.2	0.0111	68.0%
30	34.5	21.4	5.6	28.9	0.0133	82.6	0.0079	65.9%
60	32	21.5	5.6	26.4	0.0133	75.5	0.0057	60.2%
250	29	22.5	5.3	23.7	0.0132	67.7	0.0028	54.1%
1440	26	22	5.5	20.5	0.0132	58.6	0.0012	46.8%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	0.0	Silt=20.7% Clay=59.1%				100	100		Gravel
Coarse=0; Fine=0		D60, mm	NA						
% Sand (-#4 & +#200)	20.2	D30, mm	NA						
Coarse=0.4; Medium=0.5; Fine=19.3		D10, mm	NA						
% Fines (-#200)	79.8	Cc	NA						
% Plus #200 (-3")	20.2	Cu	NA	2	99.6	Sand	21.4	21.5	
USCS Description				0.05	78.1	Silt	27.0	27.1	
FAT CLAY WITH SAND				0.002	51.1	Clay	51.1	51.3	
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification					
CH		CH - FAT CLAY		CLAY					
Auxiliary Information		Wt Ret, gm	% Retained						
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

Performed By: TF/MAC

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

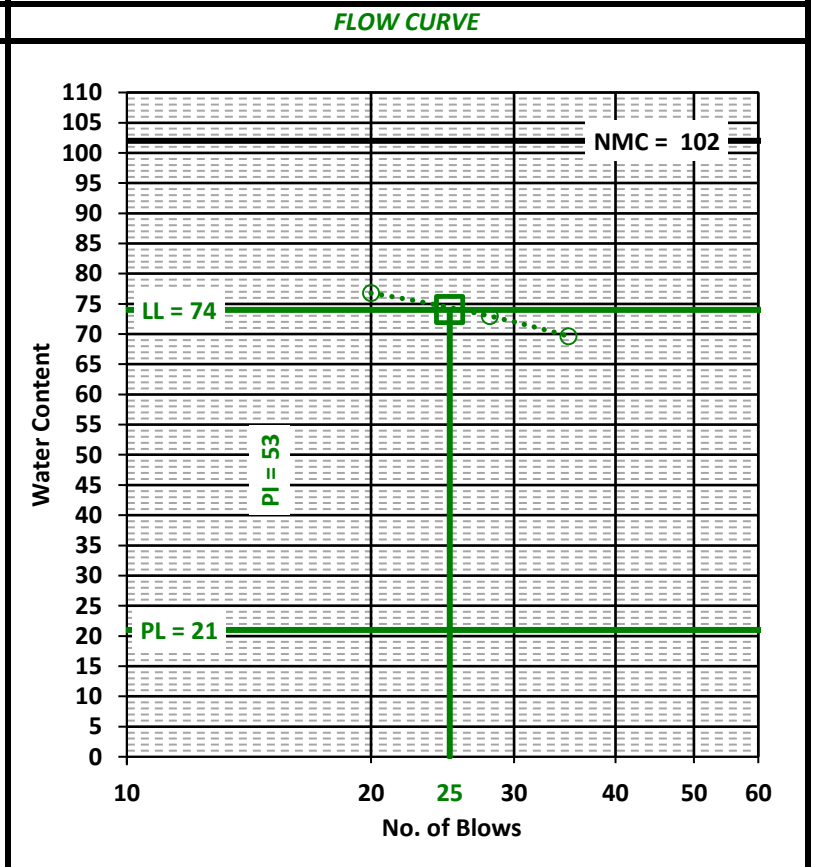
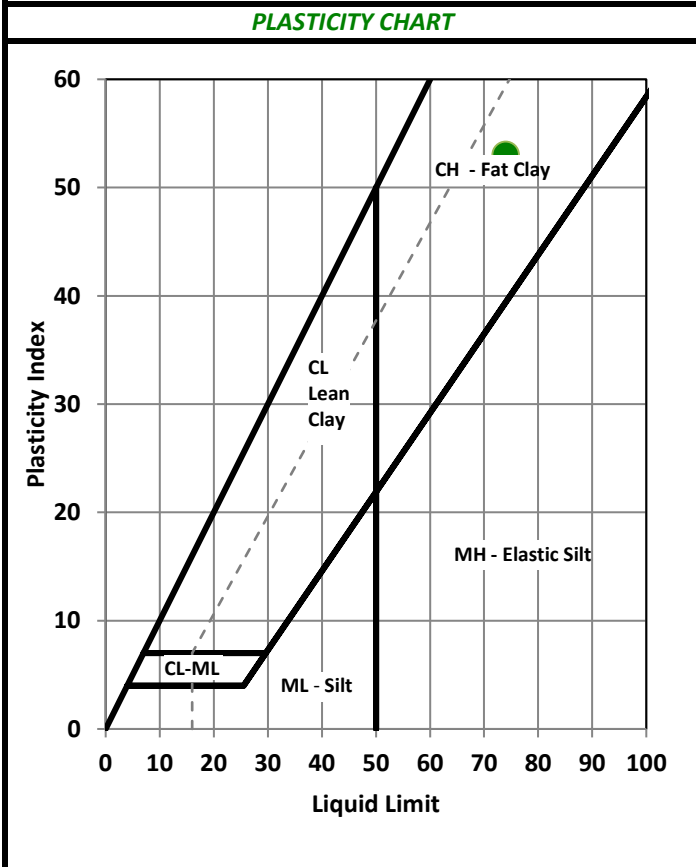
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-01
 Depth NA
 Sample HSCNew-NMP-01-SD
 Lab Sample 40901001

Soil Description: VERY DARK GREENISH GRAY FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	74	Liquid Limit (LL), %	74
Wt. Tare & WS, gm	555.52	Plastic Limit (PL), %	21
Wt. Tare & DS, gm	348.65	Plasticity Index (PI)	53
Wt. Tare, gm	145.92	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	102.0	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	VERY DARK GREENISH GRAY

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	712	474	489	472	471	409	
Wt. Tare & WS, gm	18.15	18.04	17.30	17.49	19.85	19.97	
Wt. Tare & DS, gm	17.15	16.74	16.15	14.58	16.02	16.16	
Wt. Tare, gm	12.50	10.77	10.55	10.79	10.77	10.69	
Water Content, %	21.5	21.8	20.5	76.8	73.0	69.7	
				# of Blows	20	28	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

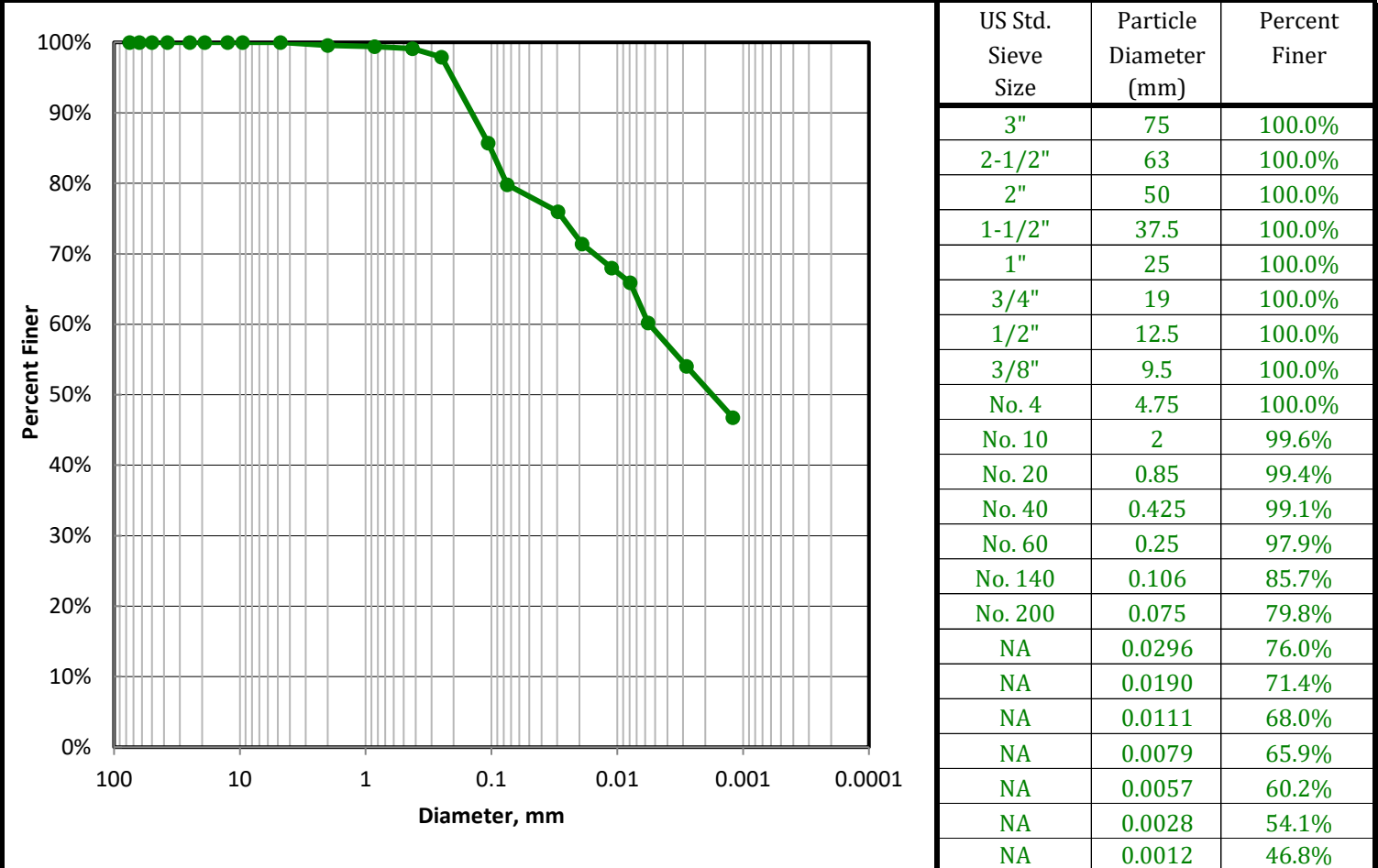
Boring 18J0402-01
 Depth NA
 Sample HSCNew-NMP-01-SD
 Lab Sample 40901001

Sample Color: **VERY DARK GREENISH GRAY**

USCS Group Name: **FAT CLAY WITH SAND**

USCS Group Symbol: **CH** USDA: **CLAY**

AASHTO: **A-7-6 (44)**



USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=20.7% Clay=59.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	20.2	D30, mm	NA
Coarse=0.4; Medium=0.5; Fine=19.3		D10, mm	NA
% Fines (-#200)	79.8	Cc	NA
% Plus #200 (-3")	20.2	Cu	NA
USCS Description			
FAT CLAY WITH SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	99.6	Gravel	0.4	0
		Sand	21.4	21.5
0.05	78.1	Silt	27.0	27.1
0.002	51.1	Clay	51.1	51.3
USDA Classification				
CLAY				

USDA CLASSIFICATION CHART

Client
Client Project
Project No.

Air Water & Soil Laboratories, Inc.
18J0402
40901

Boring 18J0402-01
Depth NA
Sample HSCNew-NMP-01-SD
Lab Sample 40901001

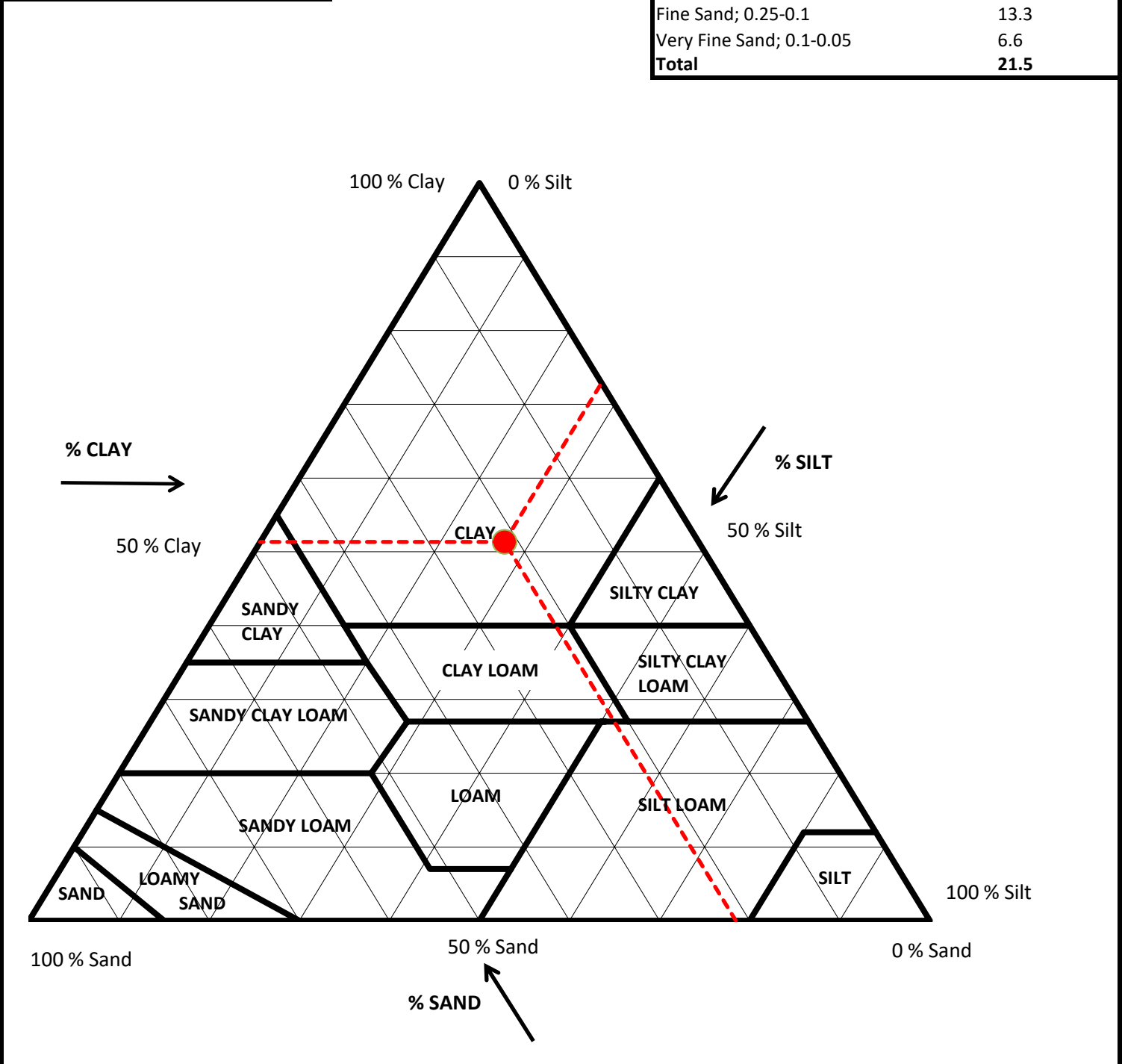
Sample Color: **VERY DARK GREENISH GRAY**
USCS Group Name: **FAT CLAY WITH SAND**
USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (44)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	21.5
Percent Silt, %	27.1
Percent Clay, %	51.3

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.1
Coarse Sand; 1-0.5	0.3
Medium Sand; 0.5-0.25	1.3
Fine Sand; 0.25-0.1	13.3
Very Fine Sand; 0.1-0.05	6.6
Total	21.5



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-02
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-02-SD
		Lab Sample	40901002

Sample Color: **VERY DARK GRAY**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM** AASHTO: **A-7-6 (20)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1012	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1012	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	704	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	704	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	73	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	608.39	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	467.71	No. 10	2	1.25	0.4%	99.6%	
Tare, gm	146.7	No. 20	0.85	2.36	0.7%	98.9%	
Water Content of Split Sample	43.8%	No. 40	0.425	2.17	0.7%	98.2%	
Wt. of DS., gm	321.01	No. 60	0.25	2.16	0.7%	97.5%	
Wt. of +#200 Sample, gm	68.87	No. 140	0.106	30.01	9.3%	88.2%	
		No. 200	0.075	30.92	9.6%	78.5%	

HYDROMETER (-#200)					
Tare No.	513	Wt. Dispers., gm	5	Specific Gravity	2.67
Wt. Tare + DS., gm	155.56	Wt. Dry Soil, gm (-#200)	46.88		Tested
Wt. Tare, gm	103.68	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9955

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	41.5	21.2	5.7	35.8	0.0134	76.0	0.0291	59.7%
5	37	21.3	5.7	31.3	0.0134	66.5	0.0191	52.2%
15	34	21.4	5.6	28.4	0.0134	60.3	0.0113	47.4%
30	32.5	21.4	5.6	26.9	0.0134	57.1	0.0081	44.9%
60	30	21.6	5.6	24.4	0.0133	51.8	0.0058	40.7%
250	27	22.5	5.3	21.7	0.0132	46.1	0.0029	36.2%
1440	23	21.8	5.5	17.5	0.0133	37.2	0.0012	29.2%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	0.0	Silt=38.7% Clay=39.8%				100	100		Gravel
Coarse=0; Fine=0		D60, mm	NA						
% Sand (-#4 & +#200)	21.5	D30, mm	NA						
Coarse=0.4; Medium=1.4; Fine=19.7		D10, mm	NA						
% Fines (-#200)	78.5	Cc	NA						
% Plus #200 (-3")	21.5	Cu	NA	2	99.6	Sand	29.1	29.2	
USCS Description				0.05	70.5	Silt	37.3	37.4	
LEAN CLAY WITH SAND				0.002	33.2	Clay	33.2	33.3	
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification					
CL		CL - LEAN CLAY		CLAY LOAM					
Auxiliary Information		Wt Ret, gm	% Retained	% Finer					
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

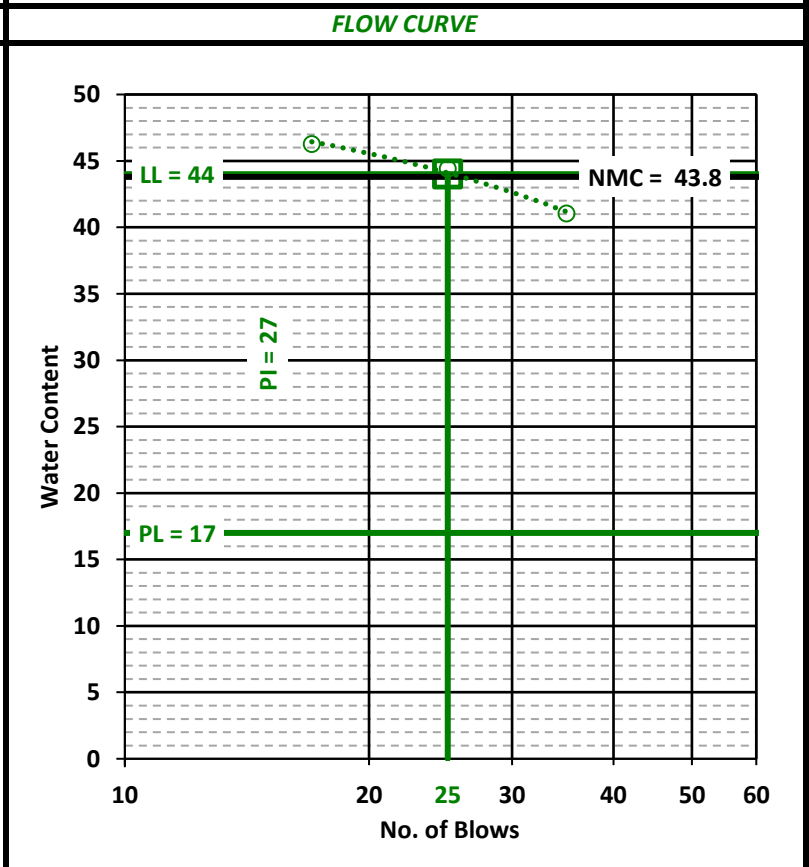
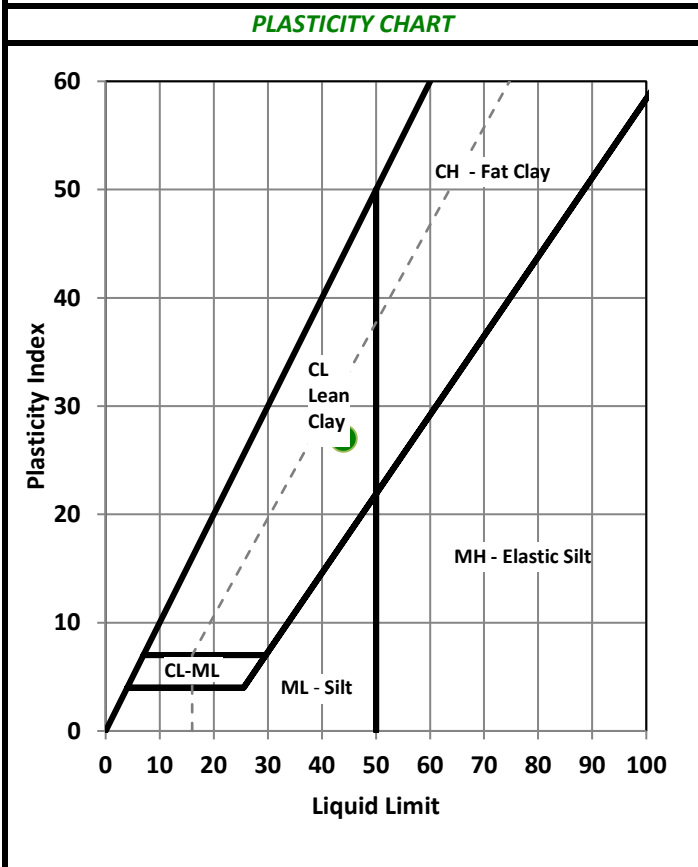
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-02
 Depth NA
 Sample HSCNew-NMP-02-SD
 Lab Sample 40901002

Soil Description: VERY DARK GRAY LEAN CLAY
 (-#40 Fraction)

AS-RECEIVED W.C.		SAMPLE SUMMARY	
Tare Number	73	Liquid Limit (LL), %	44
Wt. Tare & WS, gm	608.39	Plastic Limit (PL), %	17
Wt. Tare & DS, gm	467.71	Plasticity Index (PI)	27
Wt. Tare, gm	146.70	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	43.8	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	VERY DARK GRAY

PLASTIC LIMIT				LIQUID LIMIT			
Points Run				3 Points			
Tare Number	216	222	234		215	221	202
Wt. Tare & WS, gm	23.44	24.21	23.72		24.33	24.70	25.69
Wt. Tare & DS, gm	22.38	23.07	22.69		21.85	22.12	22.99
Wt. Tare, gm	16.13	16.24	16.40		16.49	16.31	16.41
Water Content, %	17.0	16.7	16.4		46.3	44.4	41.0
				# of Blows	17	25	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

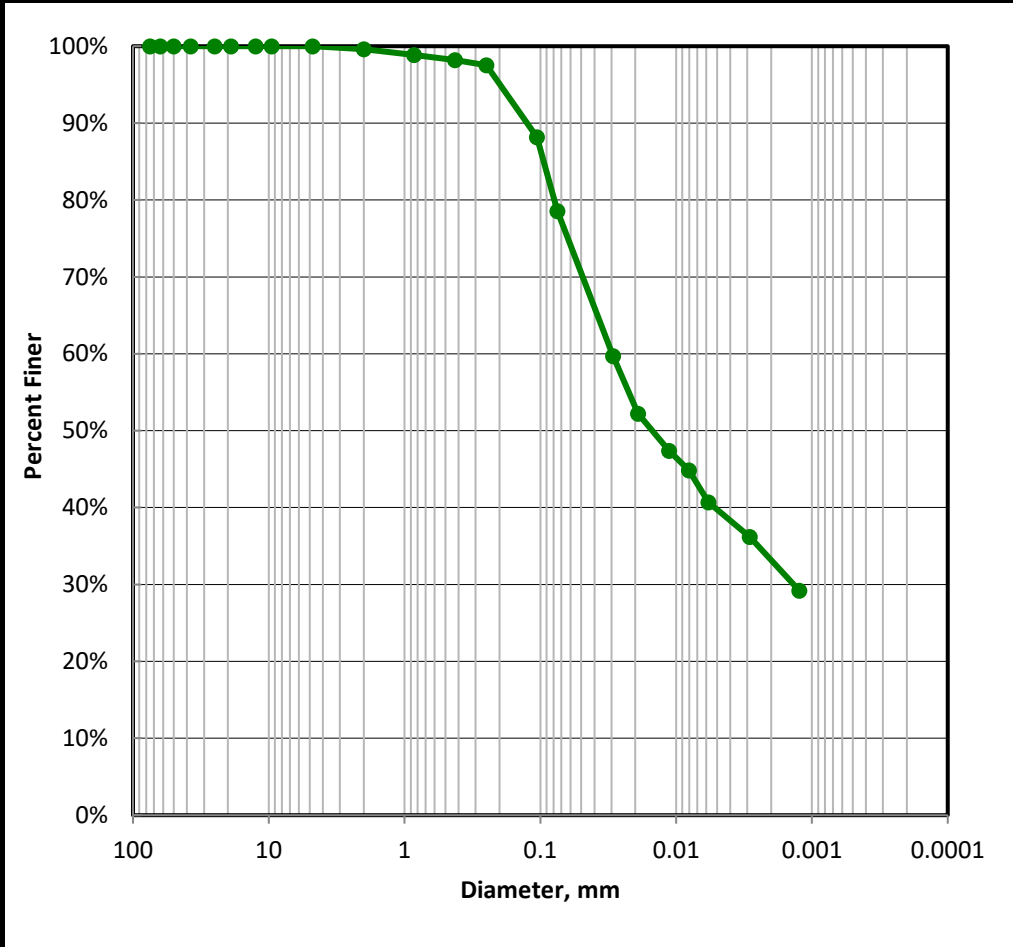
Boring 18J0402-02
 Depth NA
 Sample HSCNew-NMP-02-SD
 Lab Sample 40901002

Sample Color: **VERY DARK GRAY**

USCS Group Name: **LEAN CLAY WITH SAND**

USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (20)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.6%
No. 20	0.85	98.9%
No. 40	0.425	98.2%
No. 60	0.25	97.5%
No. 140	0.106	88.2%
No. 200	0.075	78.5%
NA	0.0291	59.7%
NA	0.0191	52.2%
NA	0.0113	47.4%
NA	0.0081	44.9%
NA	0.0058	40.7%
NA	0.0029	36.2%
NA	0.0012	29.2%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=38.7% Clay=39.8%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	21.5	D30, mm	NA
Coarse=0.4; Medium=1.4; Fine=19.7		D10, mm	NA
% Fines (-#200)	78.5	Cc	NA
% Plus #200 (-3")	21.5	Cu	NA
USCS Description			
LEAN CLAY WITH SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100	Gravel	0.4	0
2	99.6	Sand	29.1	29.2
0.05	70.5	Silt	37.3	37.4
0.002	33.2	Clay	33.2	33.3
USDA Classification				
CLAY LOAM				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-02
 Depth NA
 Sample HSCNew-NMP-02-SD
 Lab Sample 40901002

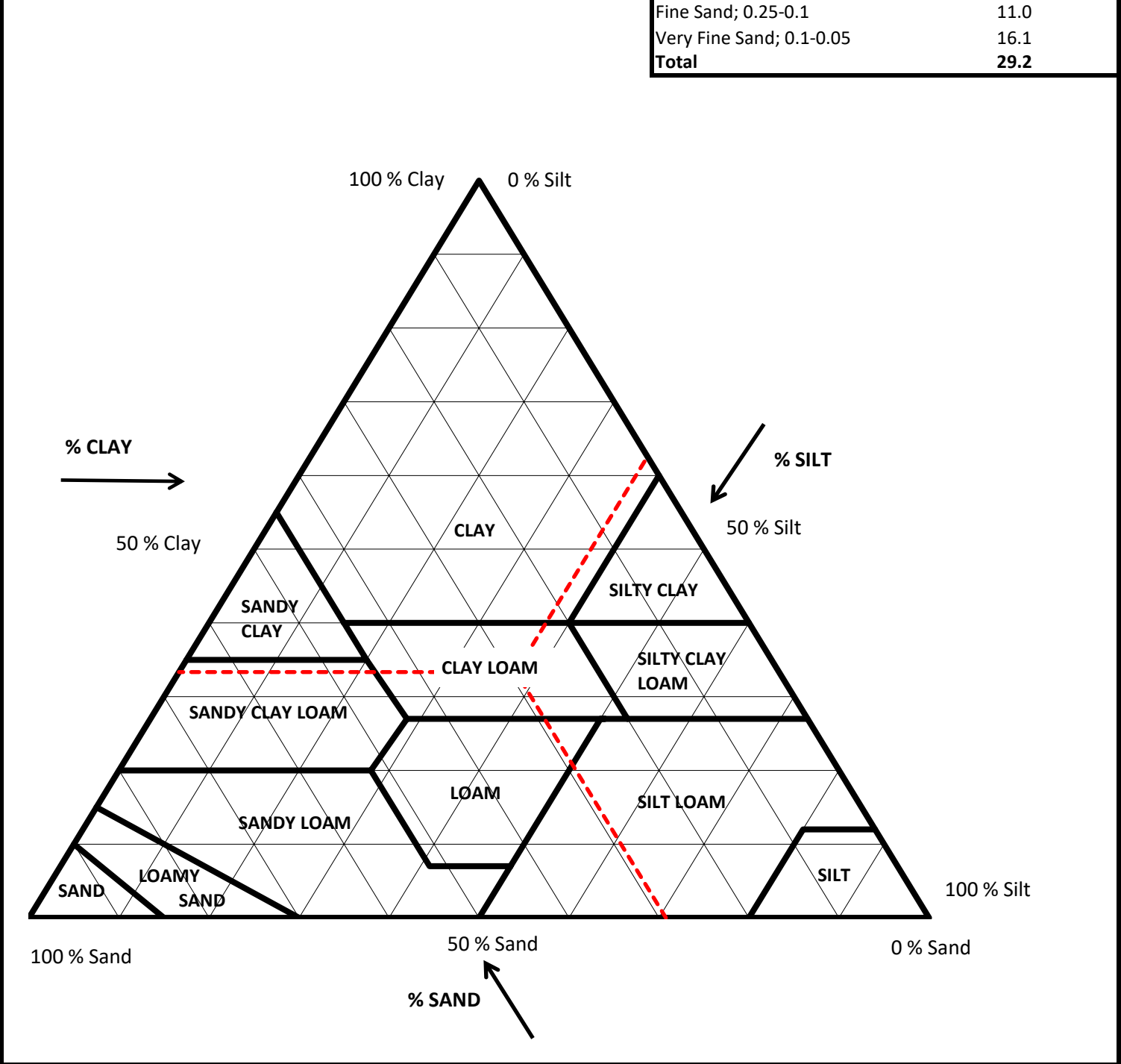
Sample Color: **VERY DARK GRAY**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (20)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	29.2
Percent Silt, %	37.4
Percent Clay, %	33.3

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.6
Coarse Sand; 1-0.5	0.7
Medium Sand; 0.5-0.25	0.8
Fine Sand; 0.25-0.1	11.0
Very Fine Sand; 0.1-0.05	16.1
Total	29.2



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-03
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-03-SD
		Lab Sample	40901003

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1053	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	11	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1041	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	847	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	859	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	6.06	0.7%	99.3%	
Tare No.	72	3/8"	9.5	4.63	0.5%	98.8%	
Tare + WS., gm	552.77	No. 4	4.75	0.78	0.1%	98.7%	
Tare + DS., gm	477.35	No. 10	2	2.4	0.7%	97.9%	
Tare, gm	147.62	No. 20	0.85	1.2	0.4%	97.6%	
Water Content of Split Sample	22.9%	No. 40	0.425	1.53	0.5%	97.1%	
Wt. of DS., gm	329.73	No. 60	0.25	10.14	3.0%	94.1%	
Wt. of +#200 Sample, gm	137.34	No. 140	0.106	90.12	27.0%	67.1%	
		No. 200	0.075	31.95	9.6%	57.6%	

HYDROMETER (-#200)					
Tare No.	550	Wt. Dispers., gm	5	Specific Gravity	2.64
Wt. Tare + DS., gm	240.57	Wt. Dry Soil, gm (-#200)	41.12		Tested
Wt. Tare, gm	194.45	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0023

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	35.5	21.5	5.6	29.9	0.0135	72.9	0.0307	42.0%
5	32	21.5	5.6	26.4	0.0135	64.4	0.0200	37.0%
15	29	21.6	5.6	23.4	0.0135	57.0	0.0118	32.8%
30	28	21.6	5.6	22.4	0.0135	54.6	0.0084	31.4%
60	26	21.7	5.6	20.4	0.0134	49.7	0.0060	28.6%
250	24	22.3	5.4	18.6	0.0133	45.3	0.0030	26.1%
1440	21	22.1	5.4	15.6	0.0134	38.0	0.0013	21.9%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION				
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	1.3	Silt=29.6% Clay=28%						
Coarse=0; Fine=1.3		D60, mm	NA	100	100	Gravel	2.1	0
% Sand (-#4 & +#200)	41.1	D30, mm	NA					
Coarse=0.7; Medium=0.8; Fine=39.6		D10, mm	NA					
% Fines (-#200)	57.6	Cc	NA					
% Plus #200 (-3")	42.4	Cu	NA	2	97.9	Sand	47.5	48.5
USCS Description				0.05	50.5	Silt	26.3	26.9
SANDY LEAN CLAY				0.002	24.2	Clay	24.2	24.7
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification				
CL		CL - LEAN CLAY		SANDY CLAY LOAM				
Auxiliary Information		Wt Ret, gm	% Retained	% Finer				
12" Sieve - 300 mm		0	0.0	100.0				
6" Sieve - 150 mm		0	0.0	100.0				
3" Sieve - 75 mm		0	0.0	100.0				

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

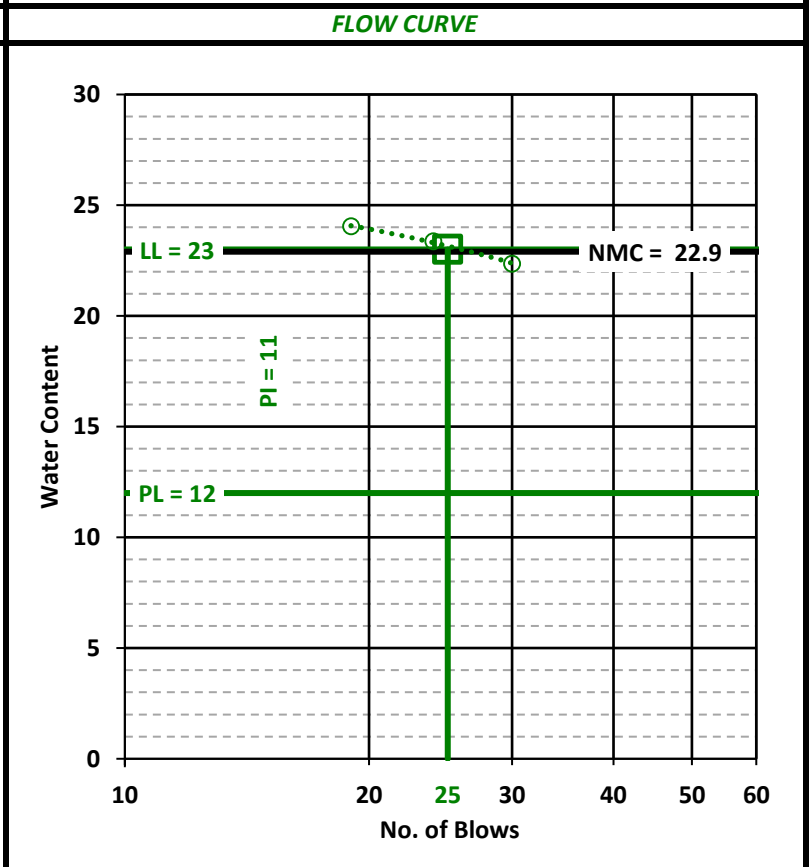
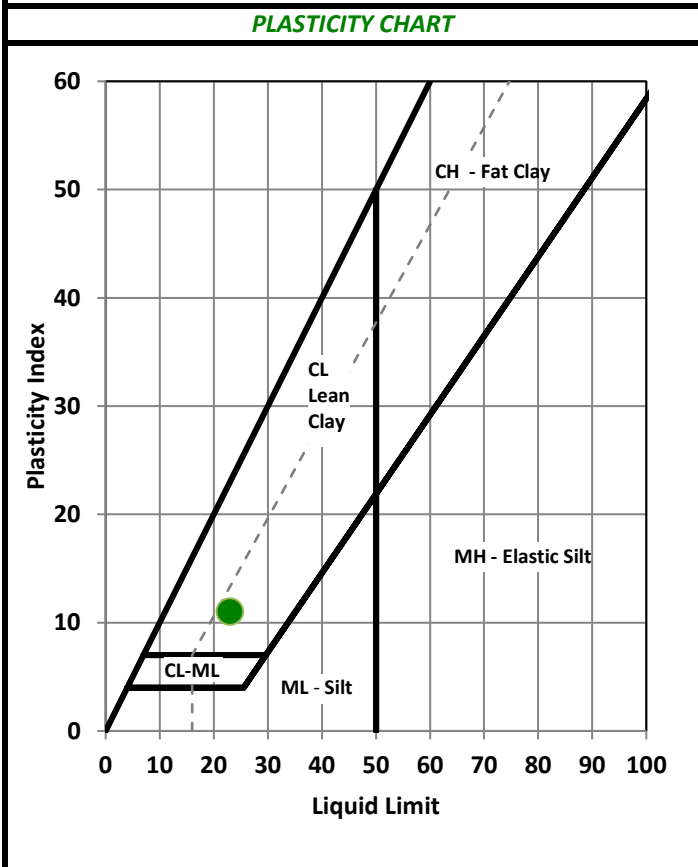
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-03
 Depth NA
 Sample HSCNew-NMP-03-SD
 Lab Sample 40901003

Soil Description: BROWN LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	72	Liquid Limit (LL), %	23
Wt. Tare & WS, gm	552.77	Plastic Limit (PL), %	12
Wt. Tare & DS, gm	477.35	Plasticity Index (PI)	11
Wt. Tare, gm	147.62	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	22.9	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	447	488	403	470	704	410	
Wt. Tare & WS, gm	18.09	17.14	18.69	21.08	19.95	17.62	
Wt. Tare & DS, gm	17.33	16.49	17.87	19.07	18.31	16.37	
Wt. Tare, gm	10.74	10.86	10.75	10.71	11.29	10.78	
Water Content, %	11.5	11.5	11.5	24.0	23.4	22.4	
				# of Blows	19	24	30



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

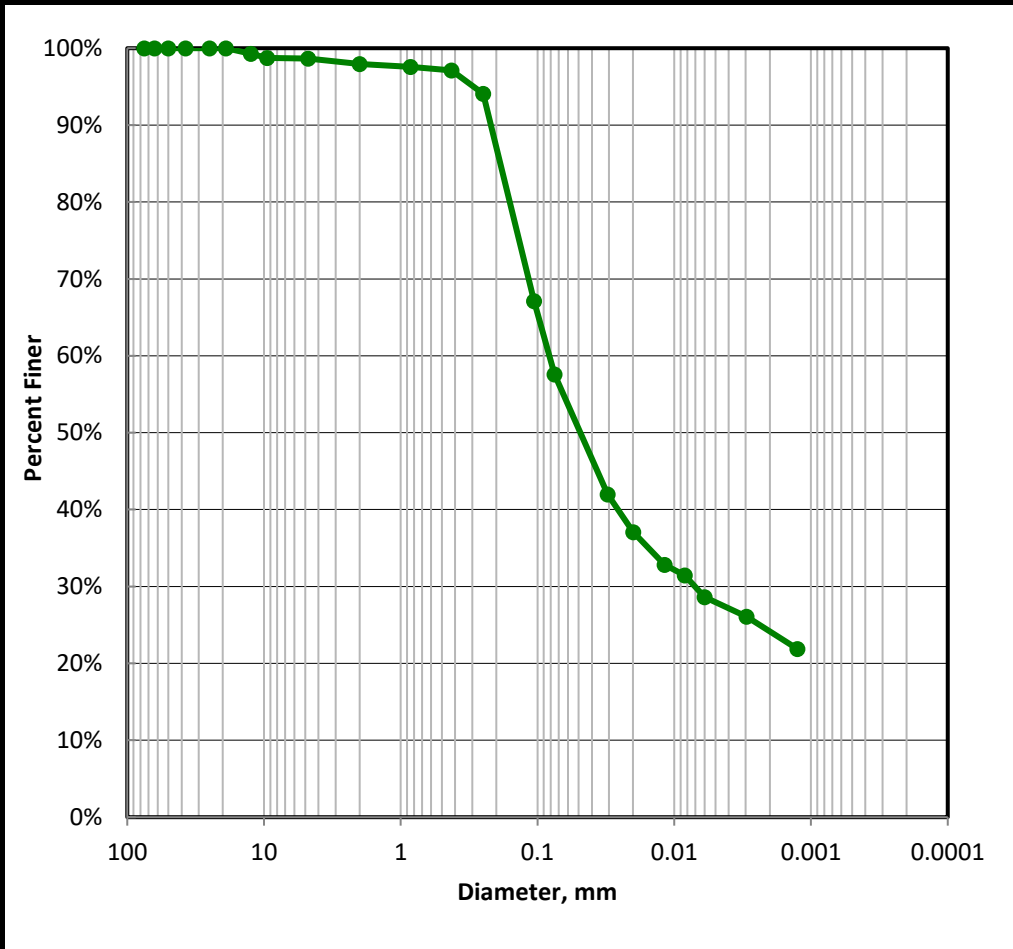
Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-03
 Depth NA
 Sample HSCNew-NMP-03-SD
 Lab Sample 40901003

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	99.3%
3/8"	9.5	98.8%
No. 4	4.75	98.7%
No. 10	2	97.9%
No. 20	0.85	97.6%
No. 40	0.425	97.1%
No. 60	0.25	94.1%
No. 140	0.106	67.1%
No. 200	0.075	57.6%
NA	0.0307	42.0%
NA	0.0200	37.0%
NA	0.0118	32.8%
NA	0.0084	31.4%
NA	0.0060	28.6%
NA	0.0030	26.1%
NA	0.0013	21.9%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	1.3	Silt=29.6% Clay=28%	
Coarse=0; Fine=1.3		D60, mm	NA
% Sand (-#4 & +#200)	41.1	D30, mm	NA
Coarse=0.7; Medium=0.8; Fine=39.6		D10, mm	NA
% Fines (-#200)	57.6	Cc	NA
% Plus #200 (-3")	42.4	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	97.9	Gravel	2.1	0
0.05	50.5	Sand	47.5	48.5
0.002	24.2	Silt	26.3	26.9
		Clay	24.2	24.7
USDA Classification				
SANDY CLAY LOAM				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

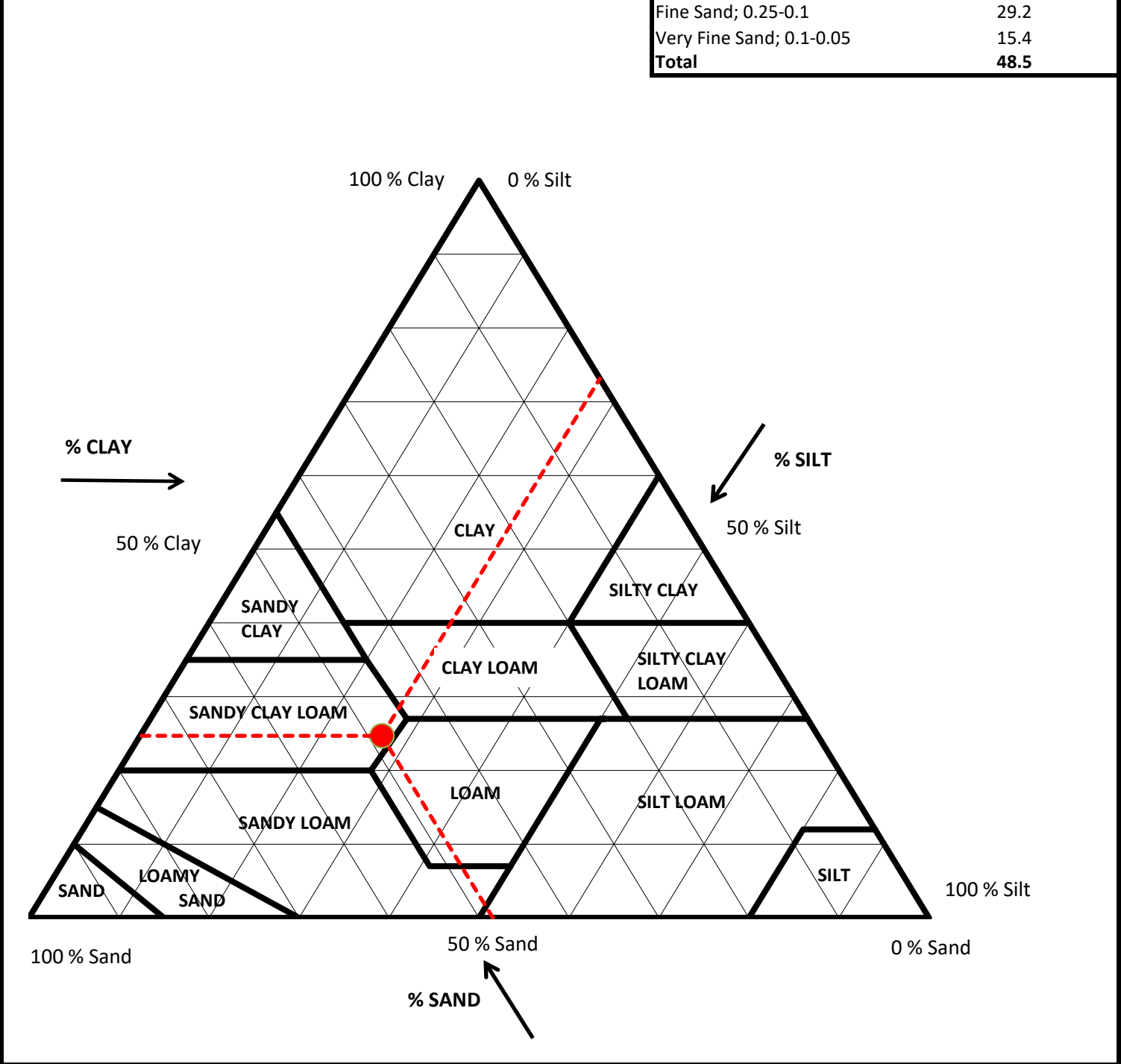
Boring 18J0402-03
 Depth NA
 Sample HSCNew-NMP-03-SD
 Lab Sample 40901003

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	48.5
Percent Silt, %	26.9
Percent Clay, %	24.7

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.3
Coarse Sand; 1-0.5	0.4
Medium Sand; 0.5-0.25	3.2
Fine Sand; 0.25-0.1	29.2
Very Fine Sand; 0.1-0.05	15.4
Total	48.5



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-04
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-04-SD
		Lab Sample	40901004

Sample Color: **VERY DARK GRAY**

USCS Group Name: **FAT CLAY**

USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (45)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1092	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	2	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1091	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	623	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	624	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	2066	3/8"	9.5	1.7	0.3%	99.7%	
Tare + WS., gm	575.58	No. 4	4.75	0	0.0%	99.7%	
Tare + DS., gm	394.07	No. 10	2	0.92	0.4%	99.3%	
Tare, gm	152.59	No. 20	0.85	1.21	0.5%	98.8%	
Water Content of Split Sample	75.2%	No. 40	0.425	0.89	0.4%	98.5%	
Wt. of DS., gm	241.48	No. 60	0.25	1.28	0.5%	98.0%	
Wt. of +#200 Sample, gm	31.00	No. 140	0.106	15.66	6.5%	91.5%	
		No. 200	0.075	11.04	4.6%	86.9%	

HYDROMETER (-#200)			
Tare No.	523	Wt. Dispers., gm	5
Wt. Tare + DS., gm	154.08	Wt. Dry Soil, gm (-#200)	46.13
Wt. Tare, gm	102.95		
		<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.65
			Tested
		<i>a Factor</i>	1.0000

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	48	22	5.5	42.5	0.0134	92.1	0.0273	80.1%
5	46	22	5.5	40.5	0.0134	87.8	0.0176	76.3%
15	43	22.1	5.4	37.6	0.0133	81.5	0.0104	70.9%
30	40.5	22.1	5.4	35.1	0.0133	76.1	0.0075	66.1%
60	37	22.2	5.4	31.6	0.0133	68.5	0.0055	59.5%
250	31.5	23.1	5.2	26.3	0.0132	57.0	0.0028	49.6%
1440	26.5	21.6	5.6	20.9	0.0134	45.3	0.0012	39.4%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.3	Silt=28.7% Clay=58.2%					
Coarse=0; Fine=0.3		D60, mm	NA				
% Sand (-#4 & +#200)	12.8	D30, mm	NA	100	100		
Coarse=0.4; Medium=0.9; Fine=11.6		D10, mm	NA			Gravel	0.7
% Fines (-#200)	86.9	Cc	NA	2	99.3	Sand	15.2
% Plus #200 (-3")	13.1	Cu	NA	0.05	84.2	Silt	38.7
USCS Description				0.002	45.5	Clay	45.5
FAT CLAY				USDA Classification			
USCS Group Symbol		Atterberg Limits Group Symbol		CLAY			
CH		CH - FAT CLAY					
Auxiliary Information		Wt Ret, gm	% Retained				
12" Sieve - 300 mm		0	0.0				
6" Sieve - 150 mm		0	0.0				
3" Sieve - 75 mm		0	0.0				

Performed By: TF/MAC

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

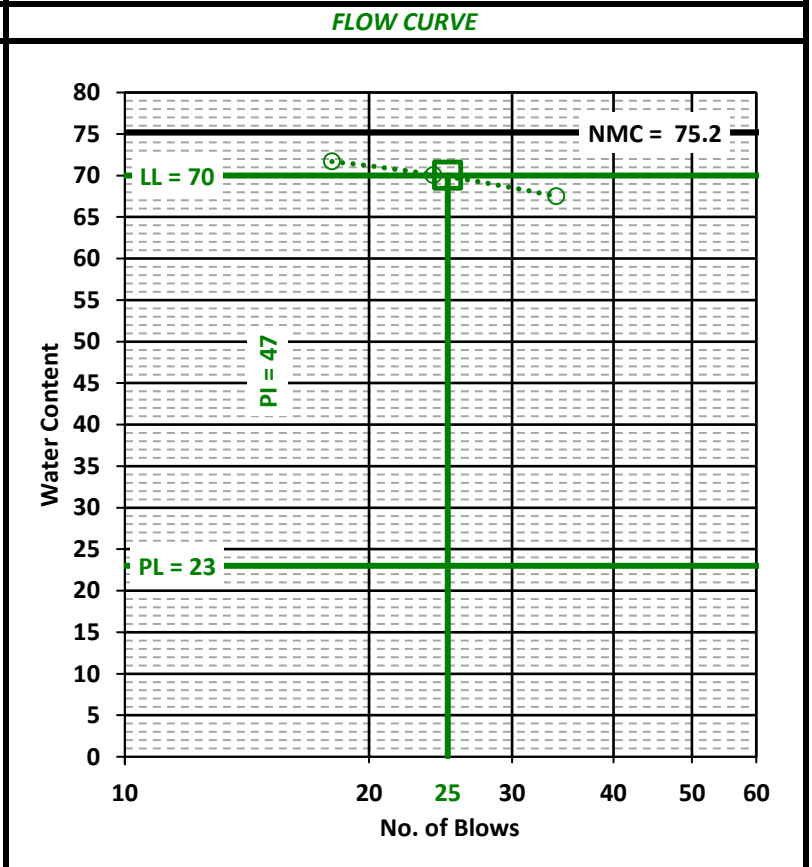
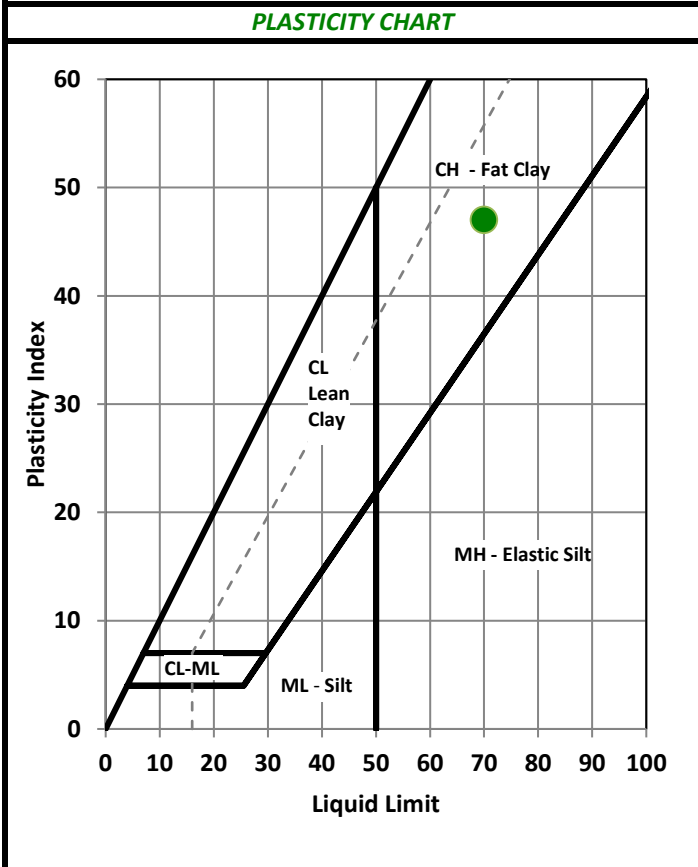
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-04
 Depth NA
 Sample HSCNew-NMP-04-SD
 Lab Sample 40901004

Soil Description: VERY DARK GRAY FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	2066	Liquid Limit (LL), %	70
Wt. Tare & WS, gm	575.58	Plastic Limit (PL), %	23
Wt. Tare & DS, gm	394.07	Plasticity Index (PI)	47
Wt. Tare, gm	152.59	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	75.2	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	VERY DARK GRAY

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	444	486	463	405	459	424	
Wt. Tare & WS, gm	17.42	17.70	16.90	18.14	19.49	19.38	
Wt. Tare & DS, gm	16.16	16.39	15.72	14.97	15.91	15.91	
Wt. Tare, gm	10.71	10.79	10.72	10.55	10.80	10.77	
Water Content, %	23.1	23.4	23.6	71.7	70.1	67.5	
				# of Blows	18	24	34



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

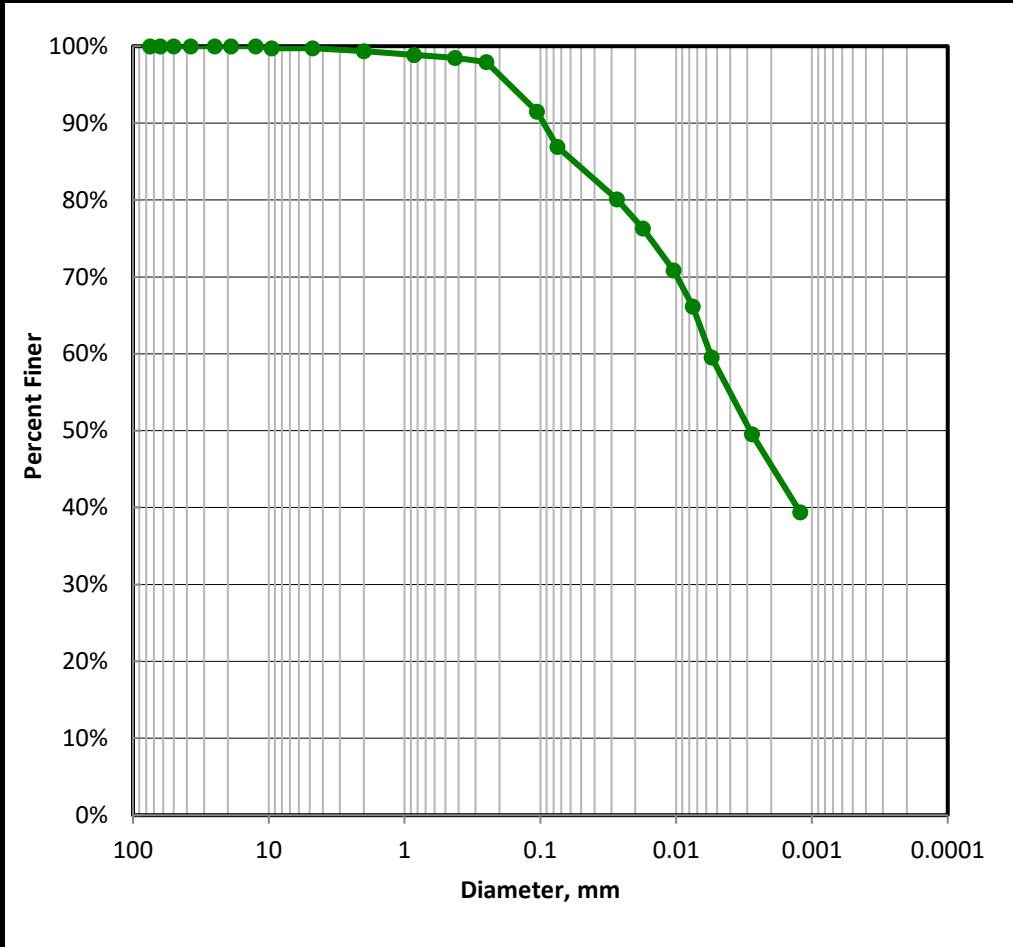
Boring 18J0402-04
 Depth NA
 Sample HSCNew-NMP-04-SD
 Lab Sample 40901004

Sample Color: **VERY DARK GRAY**

USCS Group Name: **FAT CLAY**

USCS Group Symbol: **CH** USDA: **CLAY**

AASHTO: **A-7-6 (45)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	99.7%
No. 4	4.75	99.7%
No. 10	2	99.3%
No. 20	0.85	98.8%
No. 40	0.425	98.5%
No. 60	0.25	98.0%
No. 140	0.106	91.5%
No. 200	0.075	86.9%
NA	0.0273	80.1%
NA	0.0176	76.3%
NA	0.0104	70.9%
NA	0.0075	66.1%
NA	0.0055	59.5%
NA	0.0028	49.6%
NA	0.0012	39.4%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.3	Silt=28.7% Clay=58.2%	
Coarse=0; Fine=0.3		D60, mm	NA
% Sand (-#4 & +#200)	12.8	D30, mm	NA
Coarse=0.4; Medium=0.9; Fine=11.6		D10, mm	NA
% Fines (-#200)	86.9	Cc	NA
% Plus #200 (-3")	13.1	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.3	Gravel 0.7	0
0.05	84.2	Sand 15.2	15.3
0.002	45.5	Silt 38.7	38.9
		Clay 45.5	45.8
USDA Classification			
CLAY			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-04
 Depth NA
 Sample HSCNew-NMP-04-SD
 Lab Sample 40901004

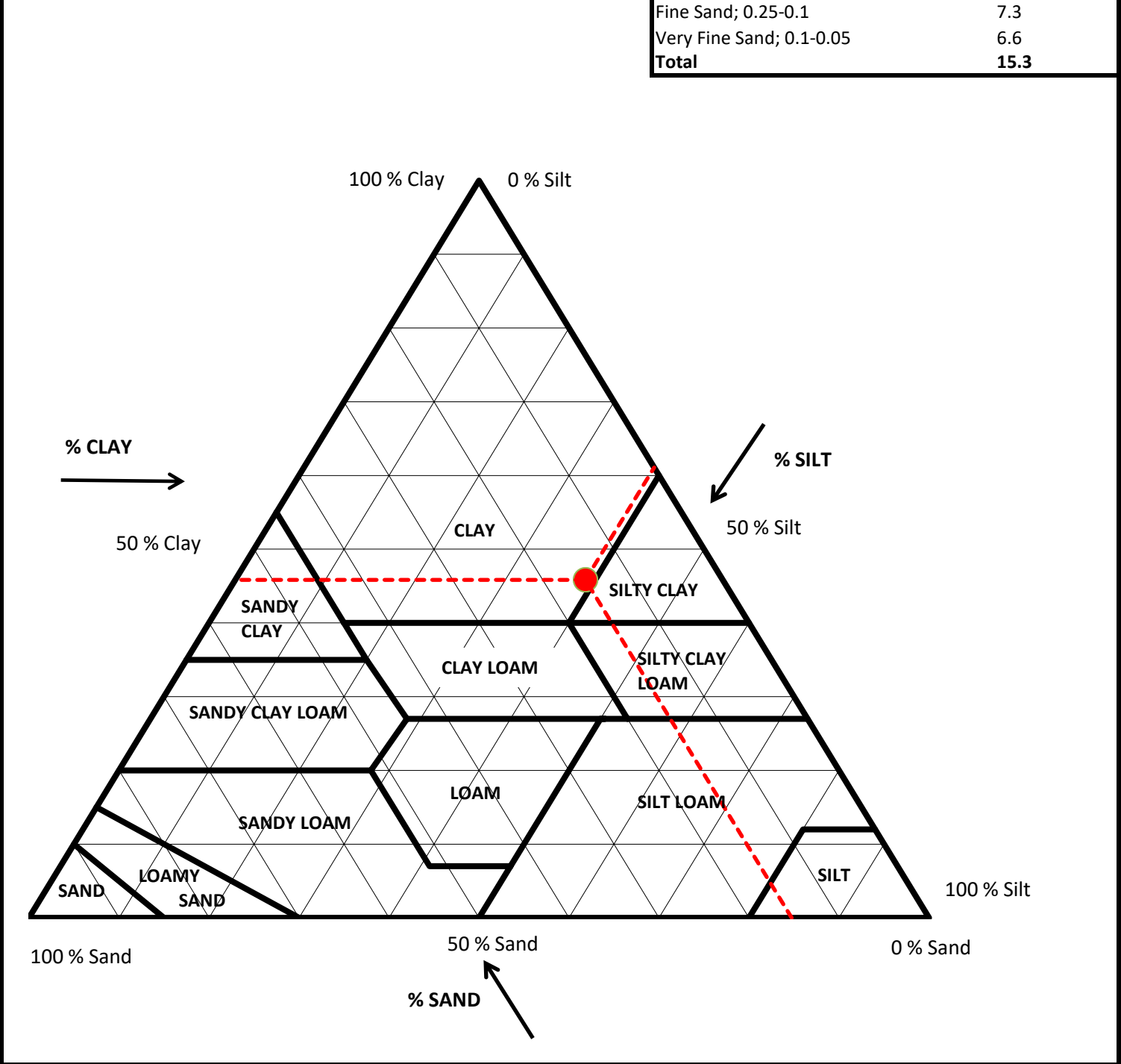
Sample Color: **VERY DARK GRAY**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (45)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	15.3
Percent Silt, %	38.9
Percent Clay, %	45.8

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.4
Coarse Sand; 1-0.5	0.4
Medium Sand; 0.5-0.25	0.6
Fine Sand; 0.25-0.1	7.3
Very Fine Sand; 0.1-0.05	6.6
Total	15.3



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-05
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-05-SD
		Lab Sample	40901005

Sample Color: **DARK GRAY**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM** AASHTO: **A-7-6 (18)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1248	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	2	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1246	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	811	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	813	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	2009	3/8"	9.5	1.06	0.1%	99.9%	
Tare + WS., gm	674.68	No. 4	4.75	1.43	0.2%	99.7%	
Tare + DS., gm	491.61	No. 10	2	9.72	2.8%	96.9%	
Tare, gm	150.33	No. 20	0.85	6.84	2.0%	94.9%	
Water Content of Split Sample	53.6%	No. 40	0.425	4.41	1.3%	93.6%	
Wt. of DS., gm	341.28	No. 60	0.25	6.52	1.9%	91.7%	
Wt. of +#200 Sample, gm	117.76	No. 140	0.106	51.98	15.2%	76.5%	
		No. 200	0.075	38.29	11.2%	65.3%	

HYDROMETER (-#200)					
Tare No.	543	Wt. Dispers., gm	5	Specific Gravity	2.67
Wt. Tare + DS., gm	233.81	Wt. Dry Soil, gm (-#200)	32.63		Tested
Wt. Tare, gm	196.18	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9955

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	32.5	21.5	5.6	26.9	0.0134	82.1	0.0311	53.6%
5	30	21.5	5.6	24.4	0.0134	74.4	0.0201	48.6%
15	28.5	21.7	5.6	22.9	0.0133	69.9	0.0117	45.6%
30	27.5	21.8	5.5	22.0	0.0133	67.1	0.0083	43.8%
60	26	21.9	5.5	20.5	0.0133	62.5	0.0059	40.8%
250	23	23	5.2	17.8	0.0131	54.3	0.0029	35.5%
1440	20.5	21.5	5.6	14.9	0.0134	45.5	0.0013	29.7%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION										
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA						
% Gravel (-3" & +#4)	0.3	Silt=25.8% Clay=39.5%				100	100		Gravel	3.1	0			
Coarse=0; Fine=0.3		D60, mm	NA					2	96.9	Sand		37.0		
% Sand (-#4 & +#200)	34.4	D30, mm	NA							0.05		59.9	Silt	27.0
Coarse=2.8; Medium=3.3; Fine=28.3		D10, mm	NA										0.002	32.8
% Fines (-#200)	65.3	Cc	NA	USDA Classification		CLAY LOAM								
% Plus #200 (-3")	34.7	Cu	NA											
USCS Description														
SANDY LEAN CLAY														
USCS Group Symbol		Atterberg Limits Group Symbol												
CL		CL - LEAN CLAY												
Auxiliary Information		Wt Ret, gm	% Retained	% Finer										
12" Sieve - 300 mm		0	0.0	100.0										
6" Sieve - 150 mm		0	0.0	100.0										
3" Sieve - 75 mm		0	0.0	100.0										

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

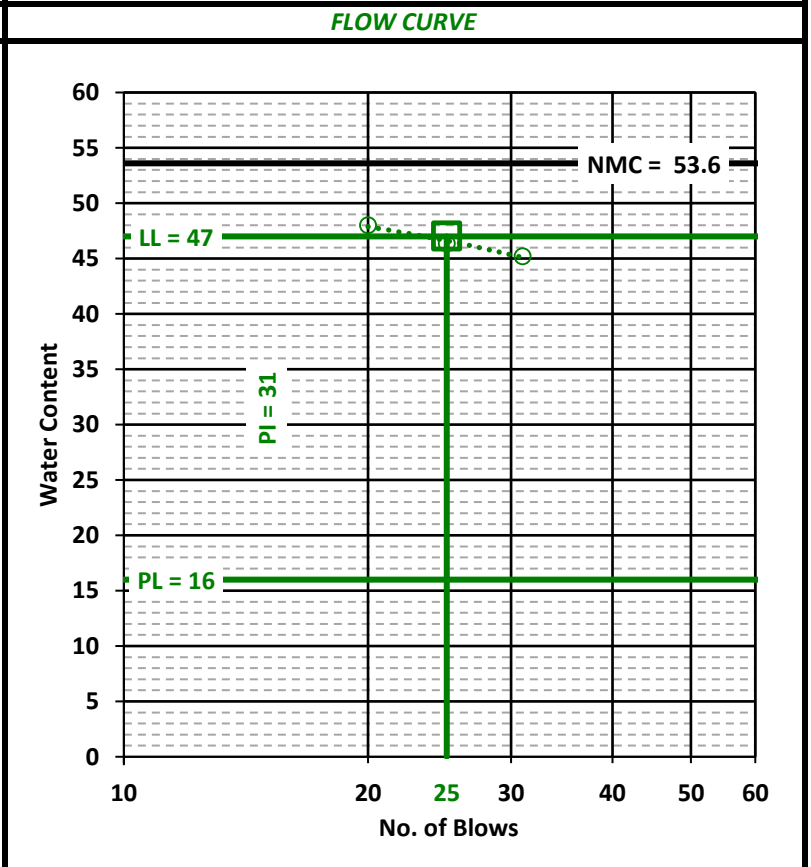
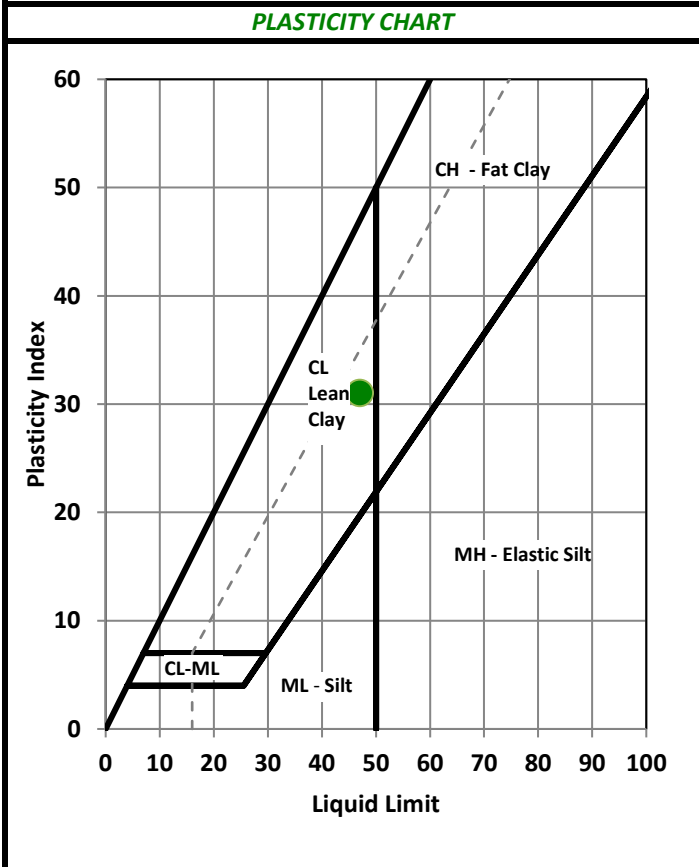
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-05
 Depth NA
 Sample HSCNew-NMP-05-SD
 Lab Sample 40901005

Soil Description: DARK GRAY LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	2009	Liquid Limit (LL), %	47
Wt. Tare & WS, gm	674.68	Plastic Limit (PL), %	16
Wt. Tare & DS, gm	491.61	Plasticity Index (PI)	31
Wt. Tare, gm	150.33	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	53.6	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	DARK GRAY

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	508	461	433	469	485	500	
Wt. Tare & WS, gm	18.27	16.85	17.70	19.24	20.11	18.92	
Wt. Tare & DS, gm	17.20	16.03	16.76	16.48	17.17	16.38	
Wt. Tare, gm	10.79	10.68	10.72	10.73	10.83	10.76	
Water Content, %	16.7	15.3	15.6	48.0	46.4	45.2	
				# of Blows	20	25	31



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

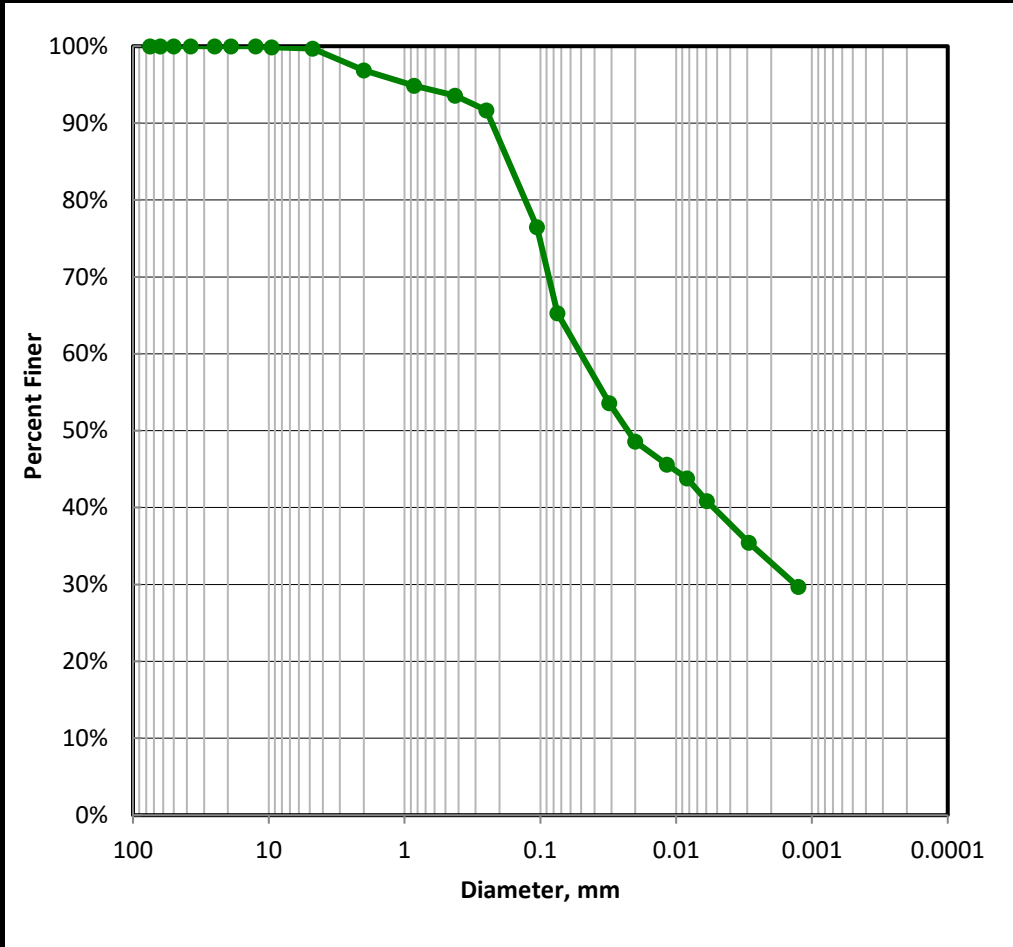
Boring 18J0402-05
 Depth NA
 Sample HSCNew-NMP-05-SD
 Lab Sample 40901005

Sample Color: **DARK GRAY**

USCS Group Name: **SANDY LEAN CLAY**

USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	99.9%
No. 4	4.75	99.7%
No. 10	2	96.9%
No. 20	0.85	94.9%
No. 40	0.425	93.6%
No. 60	0.25	91.7%
No. 140	0.106	76.5%
No. 200	0.075	65.3%
NA	0.0311	53.6%
NA	0.0201	48.6%
NA	0.0117	45.6%
NA	0.0083	43.8%
NA	0.0059	40.8%
NA	0.0029	35.5%
NA	0.0013	29.7%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.3	Silt=25.8% Clay=39.5%	
Coarse=0; Fine=0.3		D60, mm	NA
% Sand (-#4 & +#200)	34.4	D30, mm	NA
Coarse=2.8; Medium=3.3; Fine=28.3		D10, mm	NA
% Fines (-#200)	65.3	Cc	NA
% Plus #200 (-3")	34.7	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	96.9	Gravel	3.1	0
0.05	59.9	Sand	37.0	38.2
0.002	32.8	Silt	27.0	27.9
		Clay	32.8	33.9
USDA Classification				
CLAY LOAM				

USDA CLASSIFICATION CHART

Client
Client Project
Project No.

Air Water & Soil Laboratories, Inc.
18J0402
40901

Boring 18J0402-05
Depth NA
Sample HSCNew-NMP-05-SD
Lab Sample 40901005

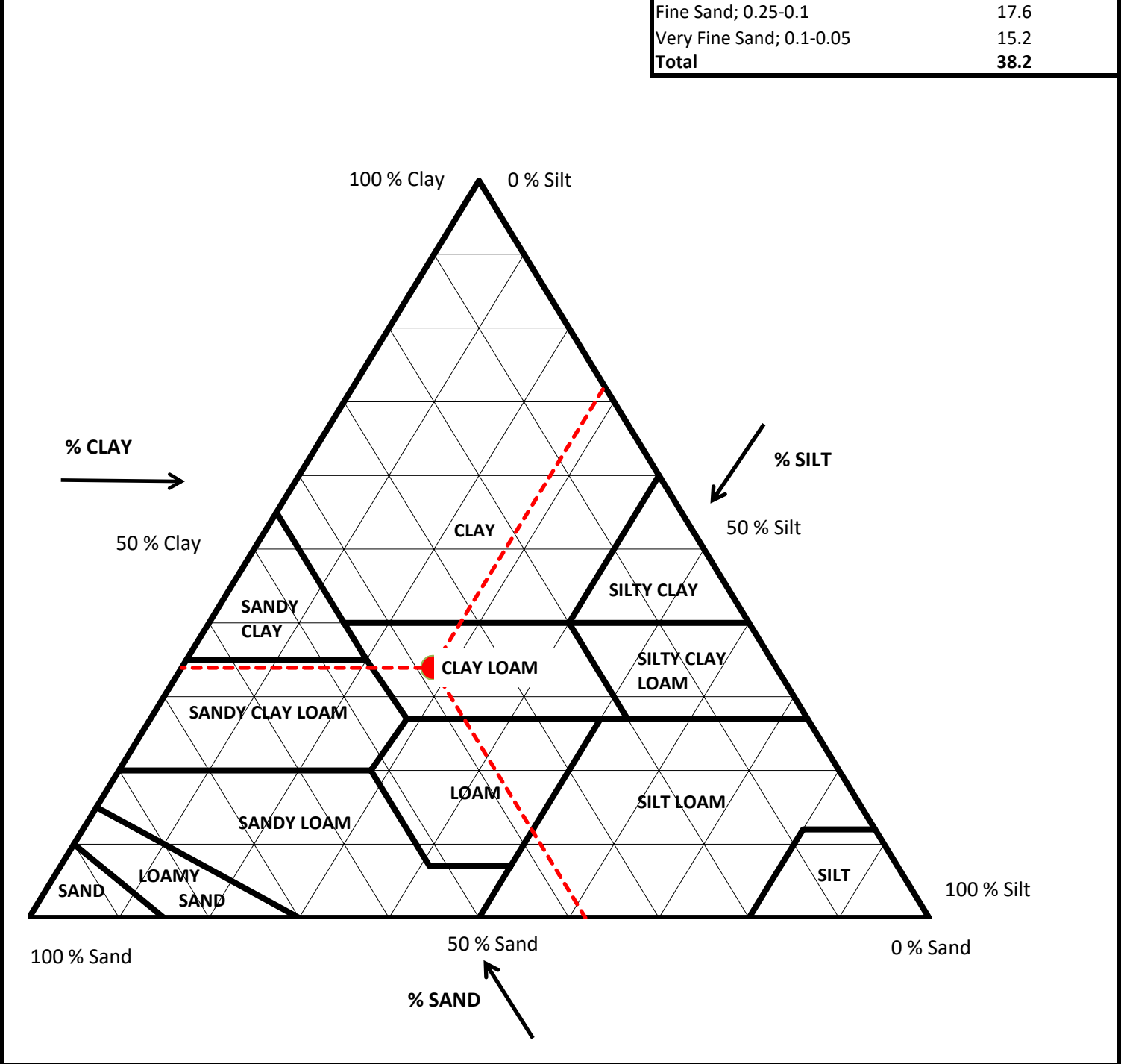
Sample Color: **DARK GRAY**
USCS Group Name: **SANDY LEAN CLAY**
USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	38.2
Percent Silt, %	27.9
Percent Clay, %	33.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	1.7
Coarse Sand; 1-0.5	1.4
Medium Sand; 0.5-0.25	2.3
Fine Sand; 0.25-0.1	17.6
Very Fine Sand; 0.1-0.05	15.2
Total	38.2



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-06
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-06-SD
		Lab Sample	40901006

Sample Color: **BROWN**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM** AASHTO: **A-7-6 (19)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1070	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	11	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1059	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	721	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	732	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	2.86	0.4%	99.6%	
Tare No.	2074	3/8"	9.5	7.77	1.1%	98.5%	
Tare + WS., gm	612.61	No. 4	4.75	0.5	0.1%	98.5%	
Tare + DS., gm	465.95	No. 10	2	0.26	0.1%	98.4%	
Tare, gm	153.25	No. 20	0.85	1.71	0.5%	97.9%	
Water Content of Split Sample	46.9%	No. 40	0.425	2.35	0.7%	97.1%	
Wt. of DS., gm	312.70	No. 60	0.25	2.81	0.9%	96.2%	
Wt. of +#200 Sample, gm	57.46	No. 140	0.106	22.29	7.0%	89.2%	
		No. 200	0.075	28.04	8.8%	80.4%	

HYDROMETER (-#200)					
Tare No.	Q53	Wt. Dispers., gm	5	Specific Gravity	2.65
Wt. Tare + DS., gm	242.5	Wt. Dry Soil, gm (-#200)	45.1		Tested
Wt. Tare, gm	192.4	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0000

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	42	21.4	5.6	36.4	0.0135	80.7	0.0290	64.9%
5	38	21.4	5.6	32.4	0.0135	71.8	0.0190	57.7%
15	34.5	21.5	5.6	28.9	0.0134	64.1	0.0113	51.5%
30	32	21.7	5.6	26.4	0.0134	58.5	0.0081	47.1%
60	30	21.8	5.5	24.5	0.0134	54.3	0.0058	43.7%
250	26	22.9	5.2	20.8	0.0132	46.1	0.0029	37.1%
1440	22.5	21.5	5.6	16.9	0.0134	37.5	0.0013	30.1%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	1.5	Silt=38.1% Clay=42.3%				100	100		Gravel
Coarse=0; Fine=1.5		D60, mm	NA						
% Sand (-#4 & +#200)	18.1	D30, mm	NA						
Coarse=0.1; Medium=1.3; Fine=16.7		D10, mm	NA						
% Fines (-#200)	80.4	Cc	NA						
% Plus #200 (-3")	19.6	Cu	NA	2	98.4	Sand	24.6	25.0	
USCS Description				0.05	73.8	Silt	39.7	40.4	
LEAN CLAY WITH SAND				0.002	34.0	Clay	34.0	34.6	
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification					
CL		CL - LEAN CLAY		CLAY LOAM					
Auxiliary Information		Wt Ret, gm	% Retained	% Finer					
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

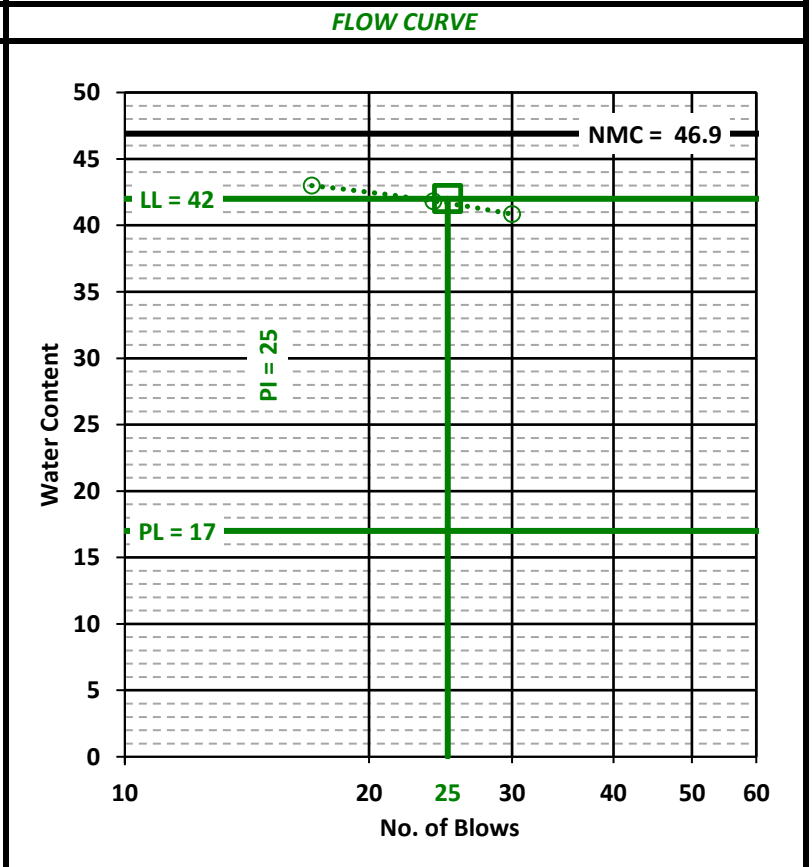
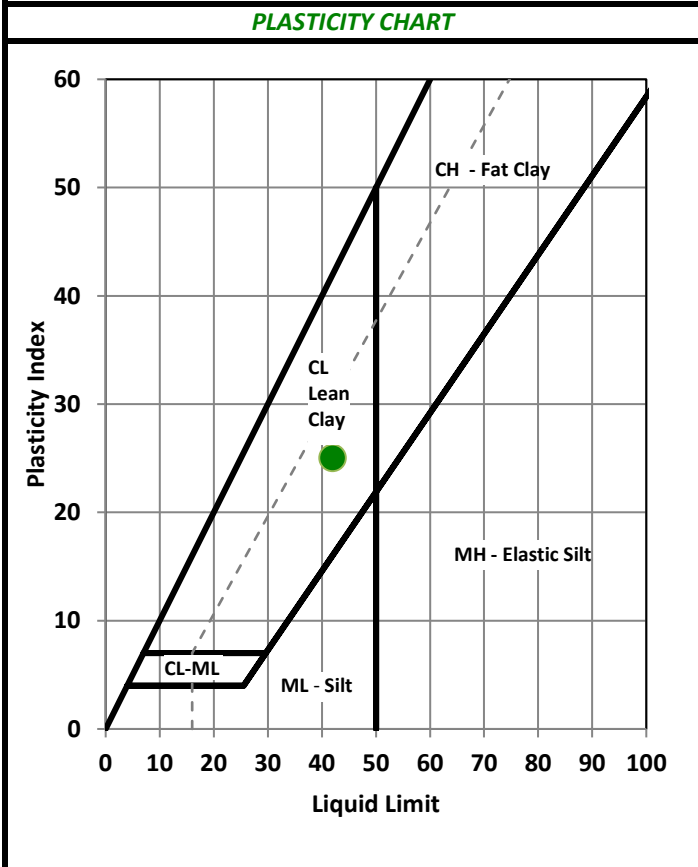
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-06
 Depth NA
 Sample HSCNew-NMP-06-SD
 Lab Sample 40901006

Soil Description: BROWN LEAN CLAY
 (-#40 Fraction)

AS-RECEIVED W.C.		SAMPLE SUMMARY	
Tare Number	2074	Liquid Limit (LL), %	42
Wt. Tare & WS, gm	612.61	Plastic Limit (PL), %	17
Wt. Tare & DS, gm	465.95	Plasticity Index (PI)	25
Wt. Tare, gm	153.25	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	46.9	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BROWN

PLASTIC LIMIT				LIQUID LIMIT			
Points Run 3 Points				3 Points			
Tare Number	434	702	423	422	450	404	
Wt. Tare & WS, gm	17.55	17.54	17.11	19.39	19.90	19.76	
Wt. Tare & DS, gm	16.57	16.81	16.19	16.81	17.22	17.15	
Wt. Tare, gm	10.78	12.47	10.73	10.81	10.81	10.76	
Water Content, %	16.9	16.8	16.8	43.0	41.8	40.8	
				# of Blows	17	24	30



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

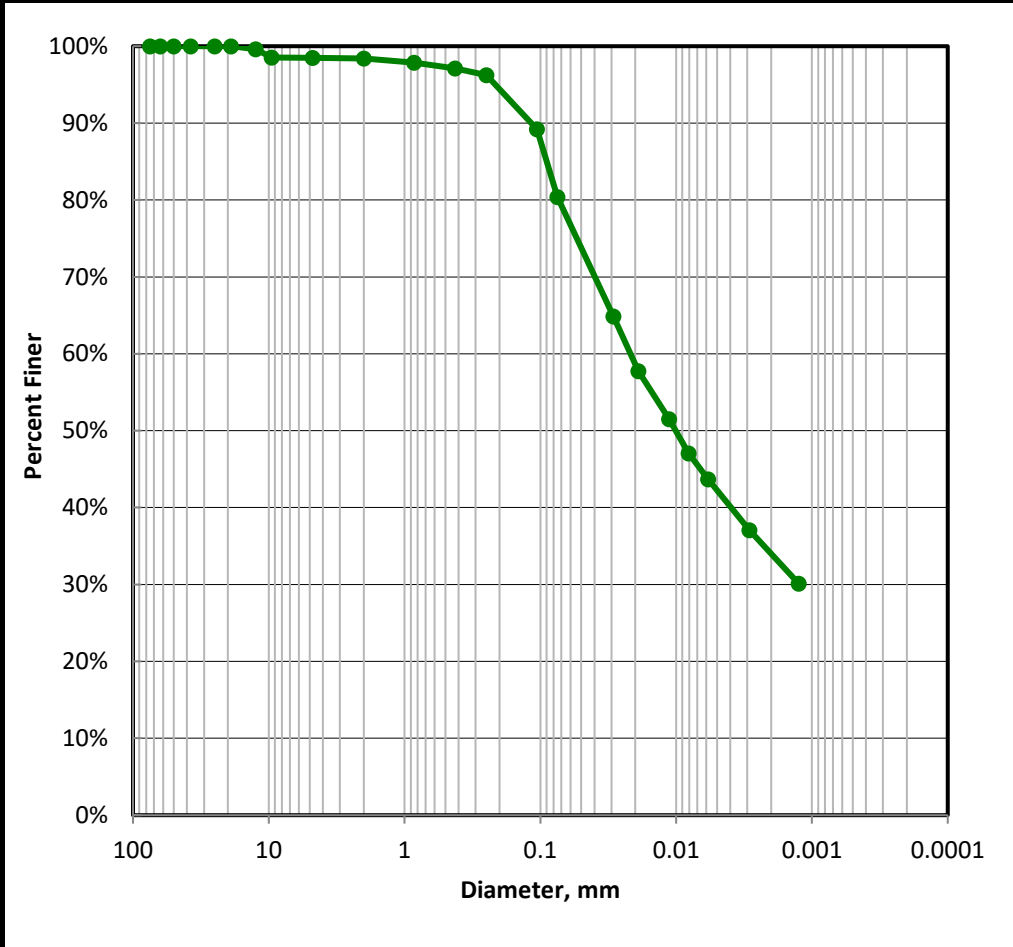
PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-06
 Depth NA
 Sample HSCNew-NMP-06-SD
 Lab Sample 40901006

Sample Color: **BROWN**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (19)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	99.6%
3/8"	9.5	98.5%
No. 4	4.75	98.5%
No. 10	2	98.4%
No. 20	0.85	97.9%
No. 40	0.425	97.1%
No. 60	0.25	96.2%
No. 140	0.106	89.2%
No. 200	0.075	80.4%
NA	0.029	64.9%
NA	0.019	57.7%
NA	0.011	51.5%
NA	0.008	47.1%
NA	0.005	43.7%
NA	0.002	37.1%
NA	0.001	30.1%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	1.5	Silt=38.1% Clay=42.3%	
Coarse=0; Fine=1.5		D60, mm	NA
% Sand (-#4 & +#200)	18.1	D30, mm	NA
Coarse=0.1; Medium=1.3; Fine=16.7		D10, mm	NA
% Fines (-#200)	80.4	Cc	NA
% Plus #200 (-3")	19.6	Cu	NA
USCS Description			
LEAN CLAY WITH SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	98.4	Gravel	1.6	0
0.05	73.8	Sand	24.6	25.0
0.002	34.0	Silt	39.7	40.4
		Clay	34.0	34.6
USDA Classification				
CLAY LOAM				

USDA CLASSIFICATION CHART

Client
Client Project
Project No.

Air Water & Soil Laboratories, Inc.
18J0402
40901

Boring 18J0402-06
Depth NA
Sample HSCNew-NMP-06-SD
Lab Sample 40901006

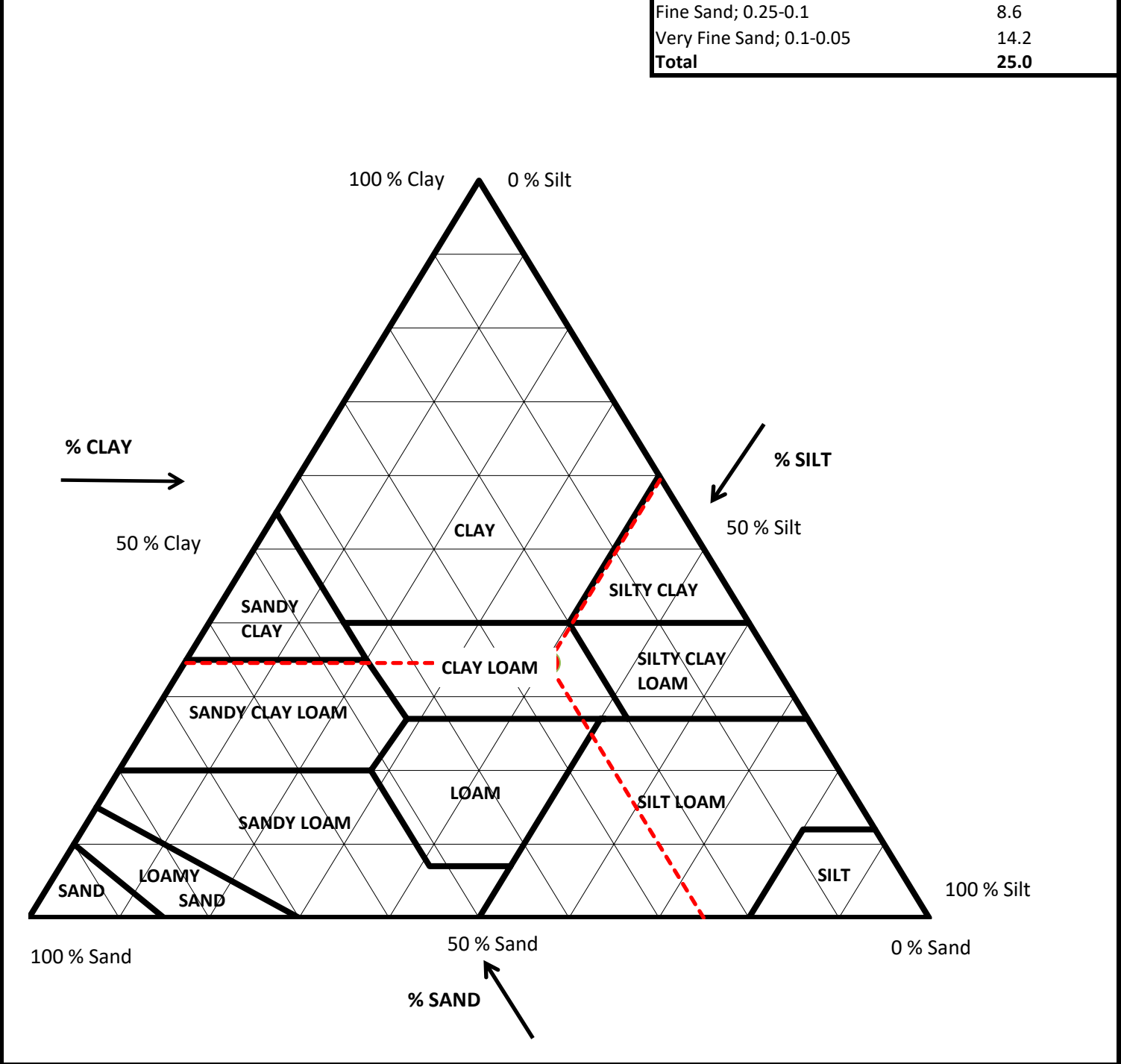
Sample Color: **BROWN**
USCS Group Name: **LEAN CLAY WITH SAND**
USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (19)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	25.0
Percent Silt, %	40.4
Percent Clay, %	34.6

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.4
Coarse Sand; 1-0.5	0.7
Medium Sand; 0.5-0.25	1.1
Fine Sand; 0.25-0.1	8.6
Very Fine Sand; 0.1-0.05	14.2
Total	25.0



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-07
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-07-SD
		Lab Sample	40901007

Sample Color: **BLACK**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM** AASHTO: **A-7-6 (18)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1066	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1066	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	713	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	713	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	88	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	584.02	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	438.95	No. 10	2	0.48	0.2%	99.8%	
Tare, gm	145.87	No. 20	0.85	1.93	0.7%	99.2%	
Water Content of Split Sample	49.5%	No. 40	0.425	3.06	1.0%	98.1%	
Wt. of DS., gm	293.08	No. 60	0.25	7.22	2.5%	95.7%	
Wt. of +#200 Sample, gm	88.83	No. 140	0.106	46.31	15.8%	79.9%	
		No. 200	0.075	29.83	10.2%	69.7%	

HYDROMETER (-#200)					
Tare No.	520	Wt. Dispers., gm	5	Specific Gravity	2.66
Wt. Tare + DS., gm	144.19	Wt. Dry Soil, gm (-#200)	37.06		Tested
Wt. Tare, gm	102.13	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9977

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	35.5	21.4	5.6	29.9	0.0134	80.5	0.0306	56.1%
5	32.5	21.4	5.6	26.9	0.0134	72.4	0.0198	50.5%
15	30	21.5	5.6	24.4	0.0134	65.7	0.0116	45.8%
30	29	21.7	5.6	23.4	0.0134	63.0	0.0083	43.9%
60	27	21.8	5.5	21.5	0.0133	57.9	0.0059	40.3%
250	24	22.9	5.2	18.8	0.0132	50.6	0.0029	35.3%
1440	22	21.4	5.6	16.4	0.0134	44.2	0.0013	30.8%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	0.0	Silt=30.6% Clay=39.1%				100	100		Gravel
Coarse=0; Fine=0		D60, mm	NA						
% Sand (-#4 & +#200)	30.3	D30, mm	NA						
Coarse=0.2; Medium=1.7; Fine=28.4		D10, mm	NA						
% Fines (-#200)	69.7	Cc	NA						
% Plus #200 (-3")	30.3	Cu	NA	2	99.8	Sand	36.3	36.3	
USCS Description				0.05	63.6	Silt	30.3	30.3	
SANDY LEAN CLAY				0.002	33.3	Clay	33.3	33.3	
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification					
CL		CL - LEAN CLAY		CLAY LOAM					
Auxiliary Information		Wt Ret, gm	% Retained						
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

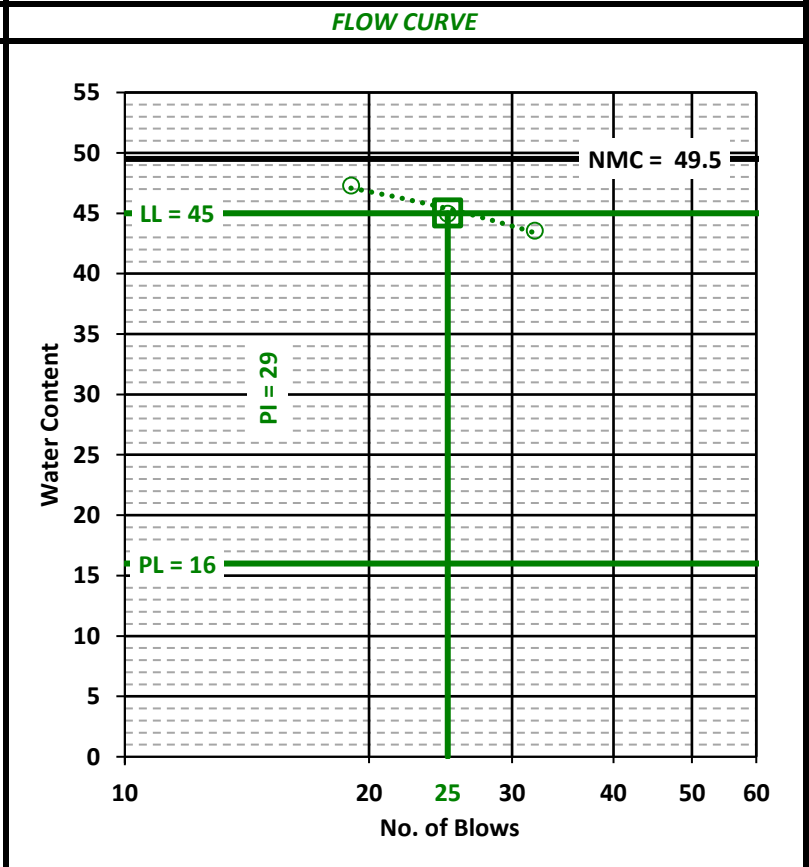
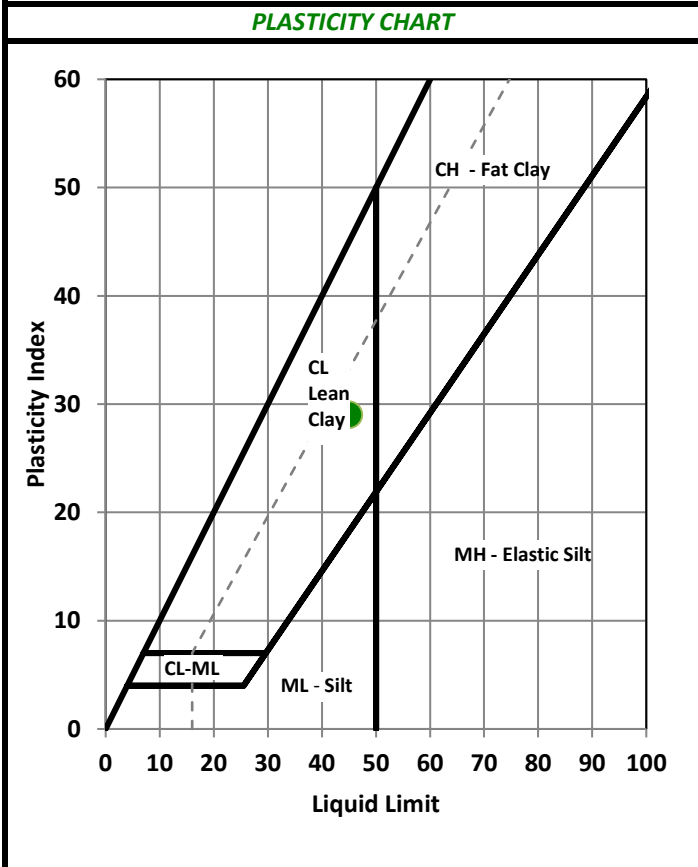
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-07
 Depth NA
 Sample HSCNew-NMP-07-SD
 Lab Sample 40901007

Soil Description: BLACK LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	88	Liquid Limit (LL), %	45
Wt. Tare & WS, gm	584.02	Plastic Limit (PL), %	16
Wt. Tare & DS, gm	438.95	Plasticity Index (PI)	29
Wt. Tare, gm	145.87	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	49.5	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BLACK

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	449	503	419	467	499	460	
Wt. Tare & WS, gm	17.09	18.21	18.66	19.22	18.67	17.67	
Wt. Tare & DS, gm	16.20	17.18	17.60	16.50	16.22	15.57	
Wt. Tare, gm	10.71	10.63	10.72	10.75	10.77	10.75	
Water Content, %	16.2	15.7	15.4	47.3	45.0	43.6	
				# of Blows	19	25	32



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

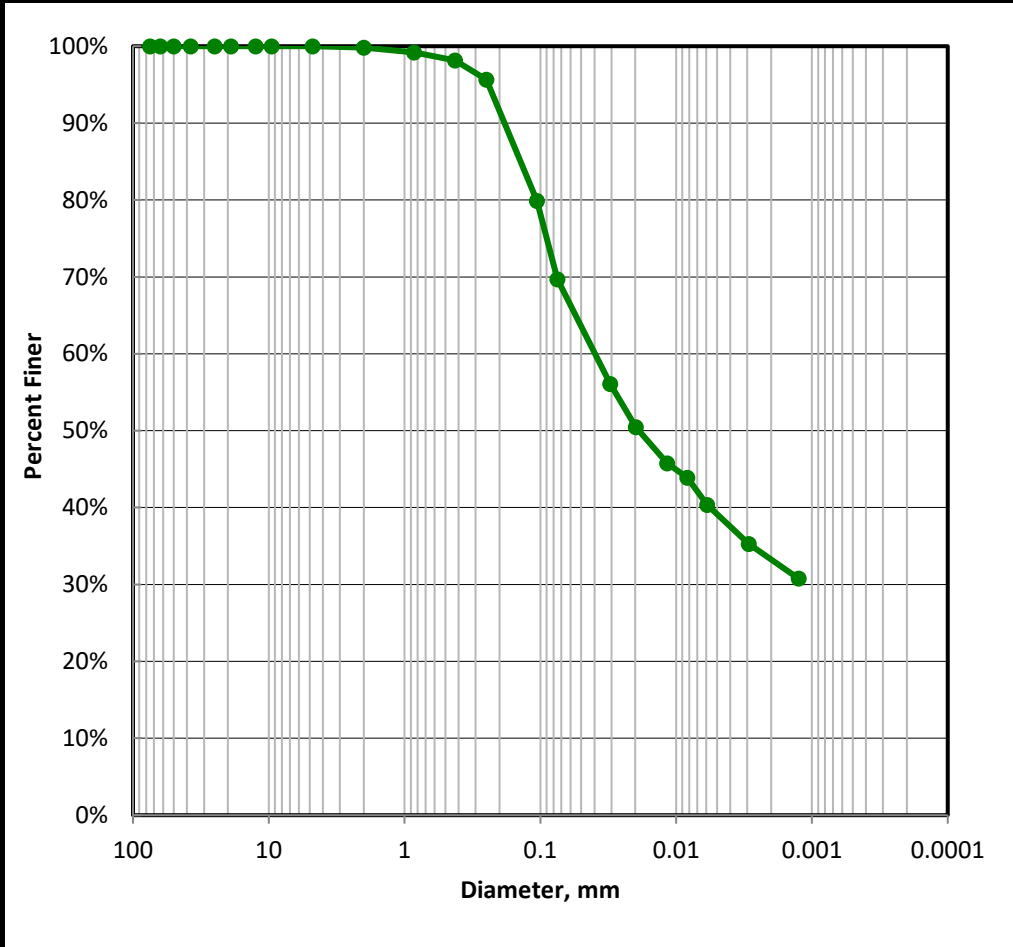
Boring 18J0402-07
 Depth NA
 Sample HSCNew-NMP-07-SD
 Lab Sample 40901007

Sample Color: **BLACK**

USCS Group Name: **SANDY LEAN CLAY**

USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.8%
No. 20	0.85	99.2%
No. 40	0.425	98.1%
No. 60	0.25	95.7%
No. 140	0.106	79.9%
No. 200	0.075	69.7%
NA	0.0306	56.1%
NA	0.0198	50.5%
NA	0.0116	45.8%
NA	0.0083	43.9%
NA	0.0059	40.3%
NA	0.0029	35.3%
NA	0.0013	30.8%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=30.6% Clay=39.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	30.3	D30, mm	NA
Coarse=0.2; Medium=1.7; Fine=28.4		D10, mm	NA
% Fines (-#200)	69.7	Cc	NA
% Plus #200 (-3")	30.3	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	99.8	Gravel	0.2	0
		Sand	36.3	36.3
0.05	63.6	Silt	30.3	30.3
0.002	33.3	Clay	33.3	33.3
USDA Classification				
CLAY LOAM				

USDA CLASSIFICATION CHART

Client
Client Project
Project No.

Air Water & Soil Laboratories, Inc.
18J0402
40901

Boring 18J0402-07
Depth NA
Sample HSCNew-NMP-07-SD
Lab Sample 40901007

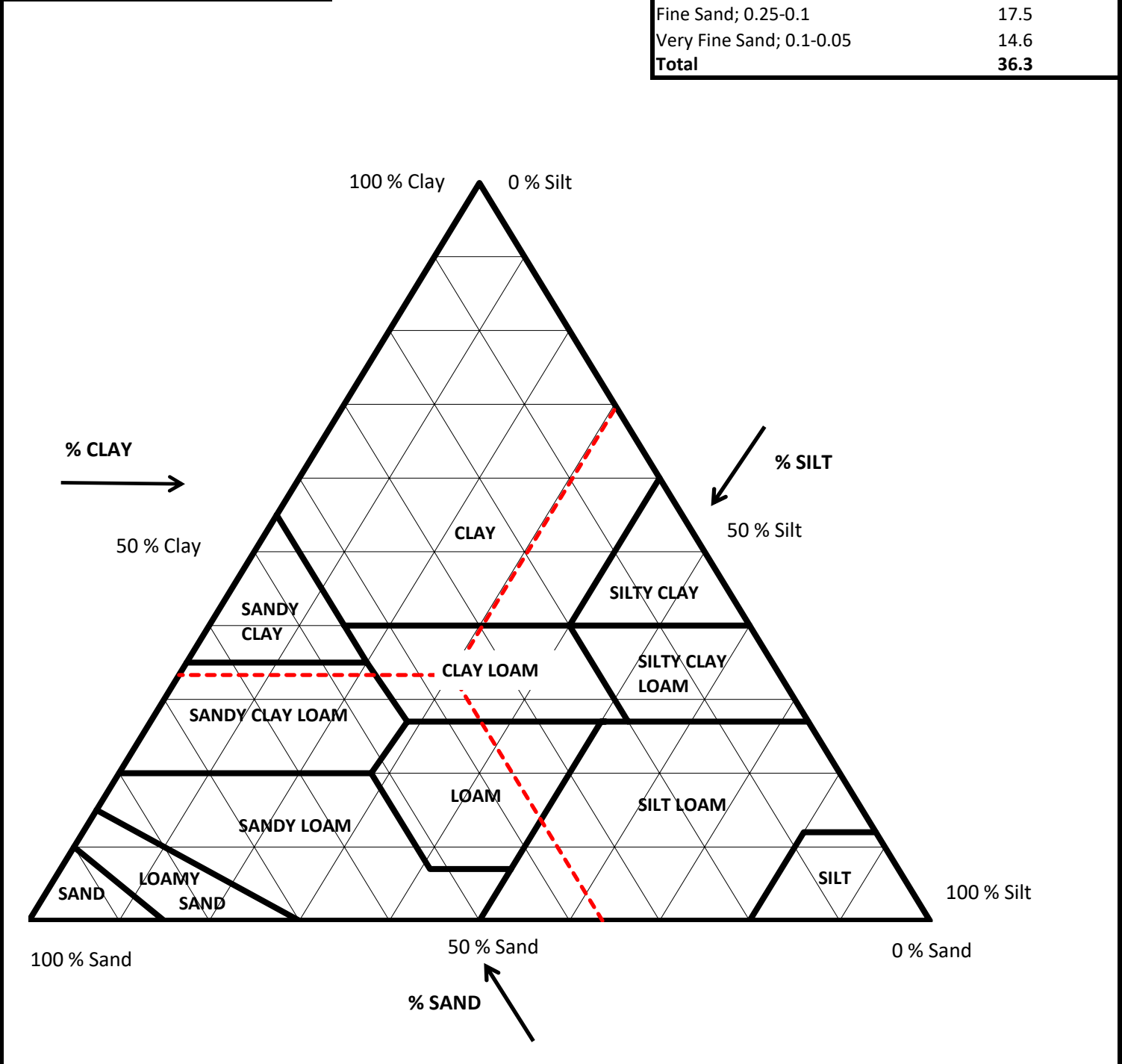
Sample Color: **BLACK**
USCS Group Name: **SANDY LEAN CLAY**
USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	36.3
Percent Silt, %	30.3
Percent Clay, %	33.3

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.5
Coarse Sand; 1-0.5	0.9
Medium Sand; 0.5-0.25	2.7
Fine Sand; 0.25-0.1	17.5
Very Fine Sand; 0.1-0.05	14.6
Total	36.3



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-08
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-08-SD
		Lab Sample	40901008

Sample Color:	BROWN	USDA:	CLAY	AASHTO:	A-7-6 (34)
USCS Group Name:	FAT CLAY				
USCS Group Symbol:	CH				

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1054	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1054	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	712	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	712	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	87	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	642.39	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	482.08	No. 10	2	0.5	0.1%	99.9%	
Tare, gm	148.48	No. 20	0.85	0.94	0.3%	99.6%	
Water Content of Split Sample	48.1%	No. 40	0.425	1	0.3%	99.3%	
Wt. of DS., gm	333.60	No. 60	0.25	2.03	0.6%	98.7%	
Wt. of +#200 Sample, gm	47.61	No. 140	0.106	32.02	9.6%	89.1%	
		No. 200	0.075	11.12	3.3%	85.7%	

HYDROMETER (-#200)					
Tare No.	240	Wt. Dispers., gm	5	Specific Gravity	2.64
Wt. Tare + DS., gm	235.9	Wt. Dry Soil, gm (-#200)	53.72		Tested
Wt. Tare, gm	177.18	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0023

Elapsed Time (min.)	R Measured	Temp *C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	58	21.5	5.6	52.4	0.0135	97.8	0.0247	83.8%
5	56.5	21.6	5.6	50.9	0.0135	95.0	0.0159	81.4%
15	53.5	21.7	5.6	47.9	0.0134	89.4	0.0095	76.6%
30	51	21.7	5.6	45.4	0.0134	84.7	0.0069	72.6%
60	48	21.9	5.5	42.5	0.0134	79.3	0.0050	68.0%
250	40.5	22.8	5.3	35.2	0.0133	65.7	0.0026	56.3%
1440	34	21.4	5.6	28.4	0.0135	53.0	0.0012	45.4%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION									
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA					
% Gravel (-3" & +#4)	0.0	Silt=17.7% Clay=68%				100	100		Gravel	0.1			
Coarse=0; Fine=0		D60, mm	NA										
% Sand (-#4 & +#200)	14.3	D30, mm	NA										
Coarse=0.1; Medium=0.6; Fine=13.5		D10, mm	NA										
% Fines (-#200)	85.7	Cc	NA										
% Plus #200 (-3")	14.3	Cu	NA	2	99.9	Sand	14.8	14.8					
USCS Description													
FAT CLAY													
USCS Group Symbol	Atterberg Limits Group Symbol								0.05	85.0	Silt	32.2	32.3
CH	CH - FAT CLAY												
Auxiliary Information	Wt Ret, gm	% Retained	% Finer										
12" Sieve - 300 mm	0	0.0	100.0										
6" Sieve - 150 mm	0	0.0	100.0										
3" Sieve - 75 mm	0	0.0	100.0	USDA Classification		CLAY							

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

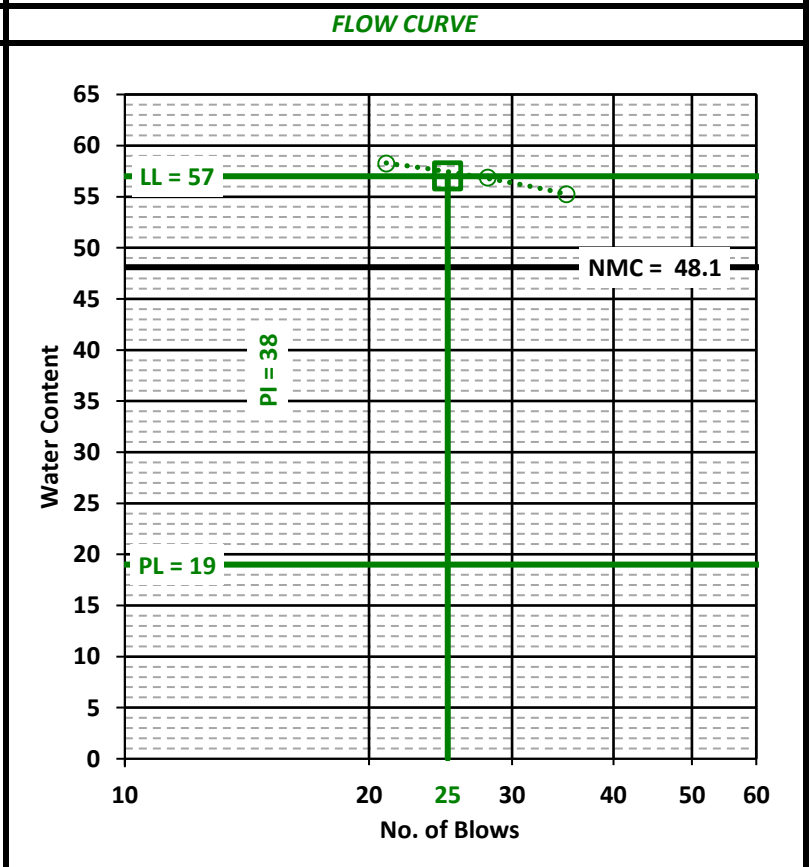
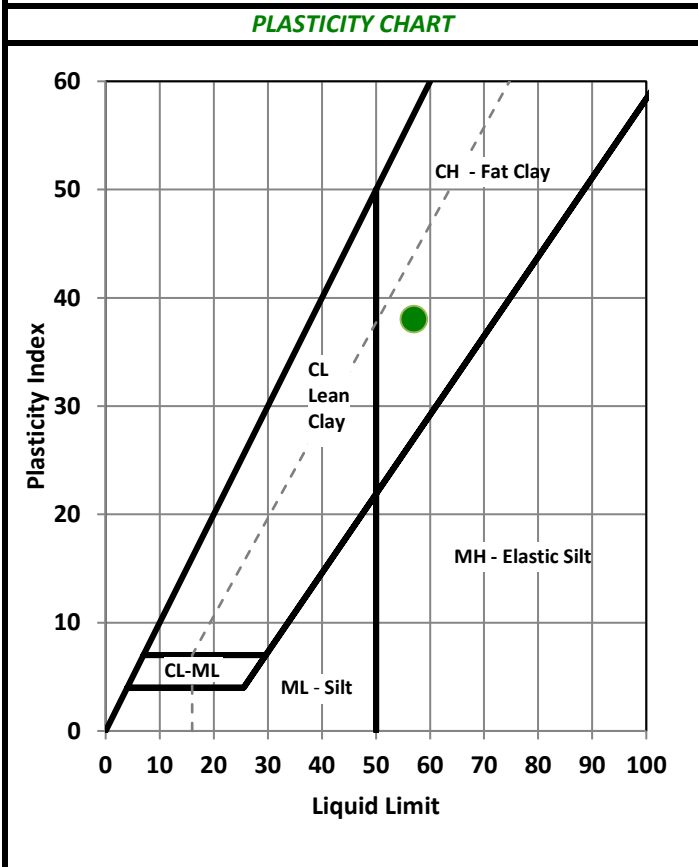
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-08
 Depth NA
 Sample HSCNew-NMP-08-SD
 Lab Sample 40901008

Soil Description: BROWN FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	87	Liquid Limit (LL), %	57
Wt. Tare & WS, gm	642.39	Plastic Limit (PL), %	19
Wt. Tare & DS, gm	482.08	Plasticity Index (PI)	38
Wt. Tare, gm	148.48	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	48.1	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	406	426	464	510	414	480	
Wt. Tare & WS, gm	17.83	17.02	17.50	19.14	19.68	19.09	
Wt. Tare & DS, gm	16.62	16.02	16.42	16.07	16.45	16.08	
Wt. Tare, gm	10.72	10.71	10.76	10.80	10.77	10.63	
Water Content, %	20.5	18.8	19.1	58.3	56.9	55.2	
				# of Blows	21	28	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

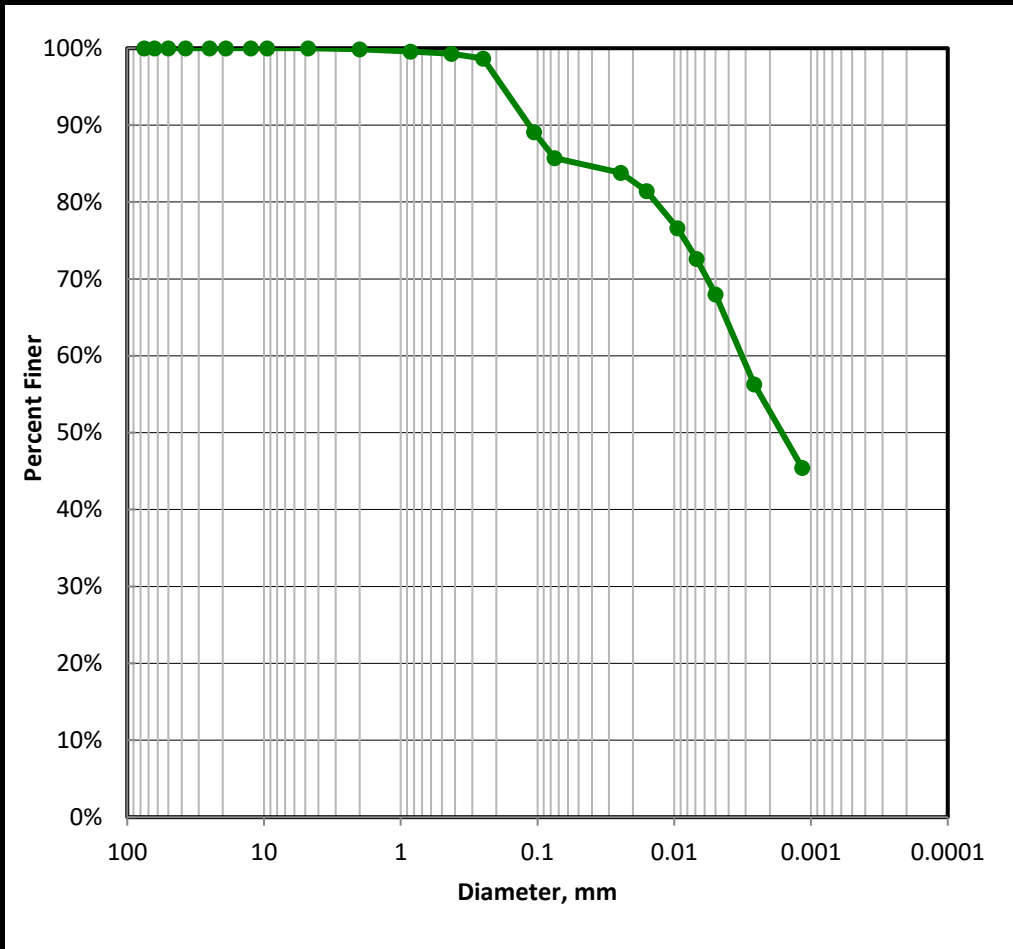
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-08
 Depth NA
 Sample HSCNew-NMP-08-SD
 Lab Sample 40901008

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (34)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.9%
No. 20	0.85	99.6%
No. 40	0.425	99.3%
No. 60	0.25	98.7%
No. 140	0.106	89.1%
No. 200	0.075	85.7%
NA	0.0247	83.8%
NA	0.0159	81.4%
NA	0.0095	76.6%
NA	0.0069	72.6%
NA	0.0050	68.0%
NA	0.0026	56.3%
NA	0.0012	45.4%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=17.7% Clay=68%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	14.3	D30, mm	NA
Coarse=0.1; Medium=0.6; Fine=13.5		D10, mm	NA
% Fines (-#200)	85.7	Cc	NA
% Plus #200 (-3")	14.3	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100	Gravel	0.1	0
2	99.9	Sand	14.8	14.8
0.05	85.0	Silt	32.2	32.3
0.002	52.8	Clay	52.8	52.9
USDA Classification				
CLAY				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-08
 Depth NA
 Sample HSCNew-NMP-08-SD
 Lab Sample 40901008

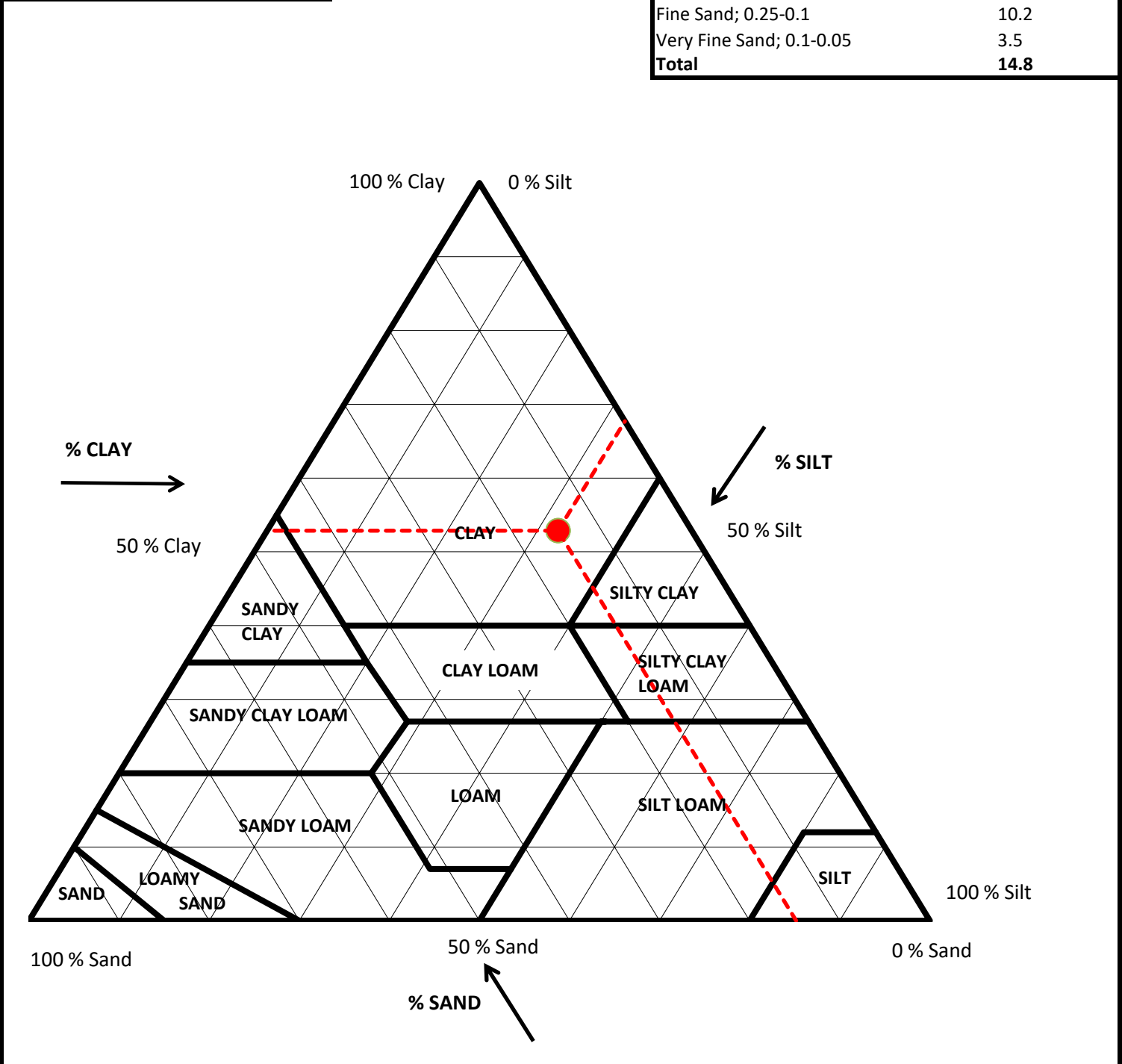
Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (34)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	14.8
Percent Silt, %	32.3
Percent Clay, %	52.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.3
Medium Sand; 0.5-0.25	0.7
Fine Sand; 0.25-0.1	10.2
Very Fine Sand; 0.1-0.05	3.5
Total	14.8



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-09
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-09-SD
		Lab Sample	40901009

Sample Color: **YELLOWISH RED**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY** AASHTO: **A-7-6 (34)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1087	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1087	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	722	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	722	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	86	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	650.73	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	481.78	No. 10	2	1.25	0.4%	99.6%	
Tare, gm	147.98	No. 20	0.85	0.84	0.3%	99.4%	
Water Content of Split Sample	50.6%	No. 40	0.425	0.81	0.2%	99.1%	
Wt. of DS., gm	333.80	No. 60	0.25	0.79	0.2%	98.9%	
Wt. of +#200 Sample, gm	28.71	No. 140	0.106	11.3	3.4%	95.5%	
		No. 200	0.075	13.72	4.1%	91.4%	

HYDROMETER (-#200)					
Tare No.	239	Wt. Dispers., gm	5	Specific Gravity	2.65
Wt. Tare + DS., gm	236.53	Wt. Dry Soil, gm (-#200)	51.83		Tested
Wt. Tare, gm	179.7	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0000

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	54	21.5	5.6	48.4	0.0134	93.4	0.0258	85.4%
5	53	21.5	5.6	47.4	0.0134	91.5	0.0165	83.6%
15	51	21.6	5.6	45.4	0.0134	87.6	0.0097	80.1%
30	50	21.7	5.6	44.4	0.0134	85.7	0.0069	78.3%
60	47	21.9	5.5	41.5	0.0134	80.1	0.0050	73.2%
250	40	22.7	5.3	34.7	0.0132	66.9	0.0026	61.2%
1440	31	21.4	5.6	25.4	0.0135	49.0	0.0012	44.8%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION							
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA			
% Gravel (-3" & +#4)	0.0	Silt=18.3% Clay=73.1%				100	100		Gravel	0.4	
Coarse=0; Fine=0		D60, mm	NA								
% Sand (-#4 & +#200)	8.6	D30, mm	NA								
Coarse=0.4; Medium=0.5; Fine=7.7		D10, mm	NA								
% Fines (-#200)	91.4	Cc	NA								
% Plus #200 (-3")	8.6	Cu	NA	2	99.6	Sand	10.5				
USCS Description											
FAT CLAY											
USCS Group Symbol	Atterberg Limits Group Symbol							0.05	89.1	Silt	33.4
CH	CH - FAT CLAY										
Auxiliary Information	Wt Ret, gm	% Retained	% Finer								
12" Sieve - 300 mm	0	0.0	100.0								
6" Sieve - 150 mm	0	0.0	100.0								
3" Sieve - 75 mm	0	0.0	100.0	USDA Classification							
				CLAY							

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

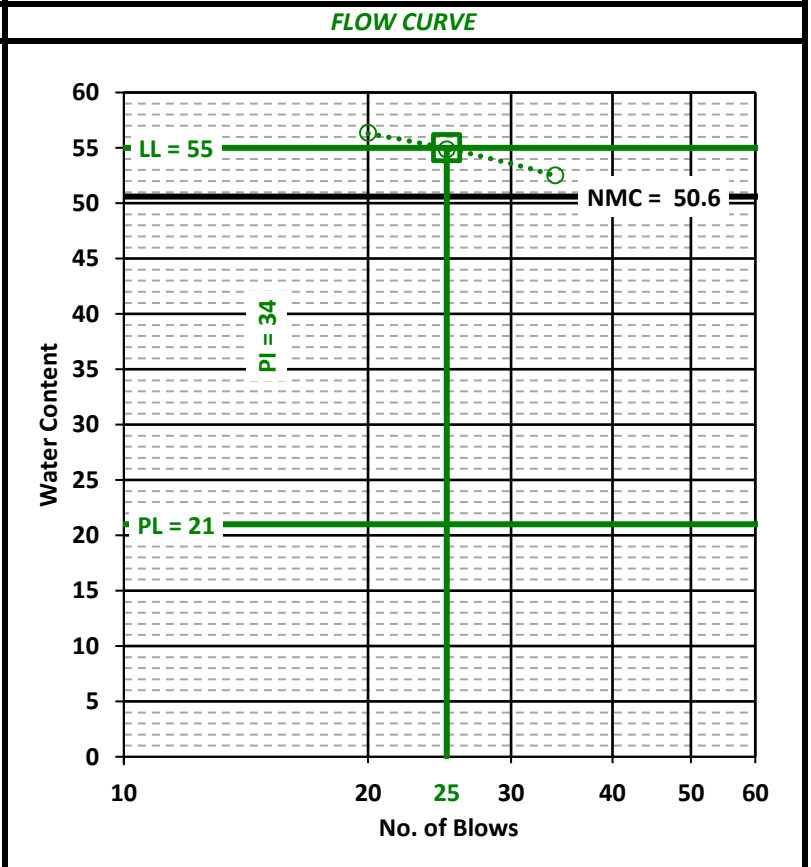
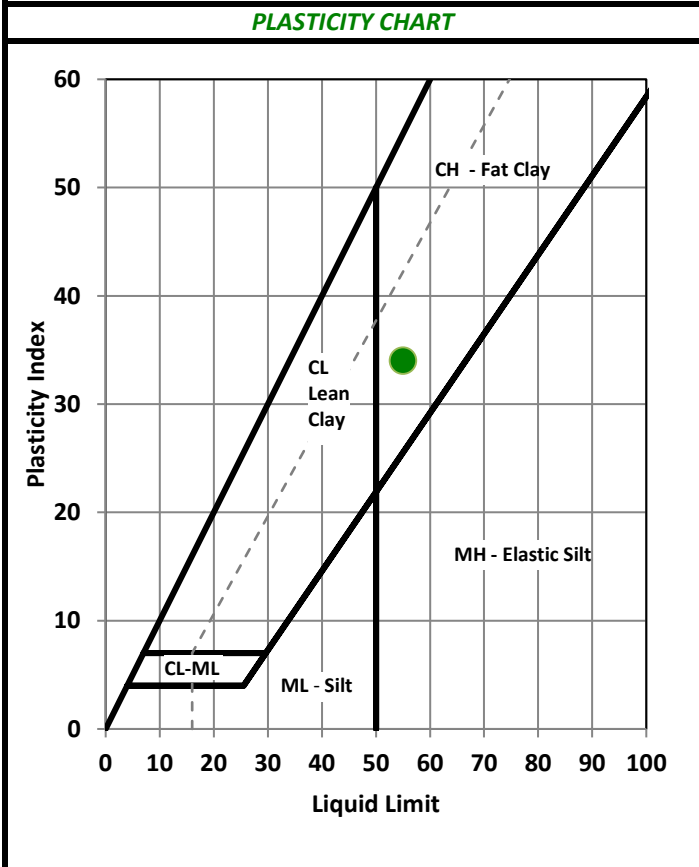
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-09
 Depth NA
 Sample HSCNew-NMP-09-SD
 Lab Sample 40901009

Soil Description: YELLOWISH RED FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>	<i>SAMPLE SUMMARY</i>
Tare Number 86	Liquid Limit (LL), % 55
Wt. Tare & WS, gm 650.73	Plastic Limit (PL), % 21
Wt. Tare & DS, gm 481.78	Plasticity Index (PI) 34
Wt. Tare, gm 147.98	USCS Group Symbol (-#40 Fraction) CH
Water Content, % 50.6	USCS Group Name (-#40 Fraction) FAT CLAY
	Sample Color: YELLOWISH RED

<i>PLASTIC LIMIT</i>	<i>LIQUID LIMIT</i>
Points Run 3 Points	Points Run 3 Points
Tare Number 506 707 425	Tare Number 411 402 496
Wt. Tare & WS, gm 17.40 18.87 17.43	Wt. Tare & WS, gm 18.32 20.03 20.49
Wt. Tare & DS, gm 16.27 17.74 16.28	Wt. Tare & DS, gm 15.57 16.75 17.15
Wt. Tare, gm 10.76 12.43 10.78	Wt. Tare, gm 10.69 10.77 10.79
Water Content, % 20.5 21.3 20.9	Water Content, % 56.4 54.8 52.5
	# of Blows 20 25 34



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

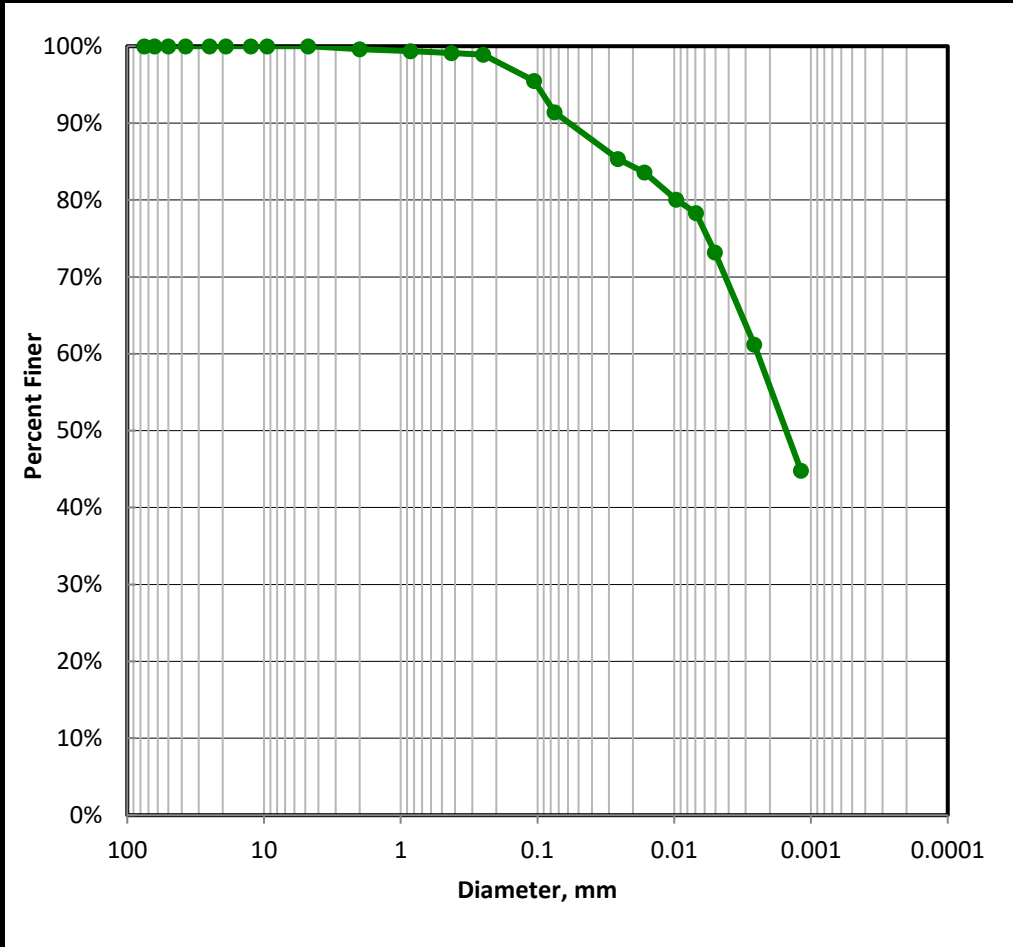
Boring 18J0402-09
 Depth NA
 Sample HSCNew-NMP-09-SD
 Lab Sample 40901009

Sample Color: **YELLOWISH RED**

USCS Group Name: **FAT CLAY**

USCS Group Symbol: **CH** USDA: **CLAY**

AASHTO: **A-7-6 (34)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.6%
No. 20	0.85	99.4%
No. 40	0.425	99.1%
No. 60	0.25	98.9%
No. 140	0.106	95.5%
No. 200	0.075	91.4%
NA	0.0258	85.4%
NA	0.0165	83.6%
NA	0.0097	80.1%
NA	0.0069	78.3%
NA	0.0050	73.2%
NA	0.0026	61.2%
NA	0.0012	44.8%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=18.3% Clay=73.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	8.6	D30, mm	NA
Coarse=0.4; Medium=0.5; Fine=7.7		D10, mm	NA
% Fines (-#200)	91.4	Cc	NA
% Plus #200 (-3")	8.6	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol	Atterberg Limits Group Symbol		
CH	CH - FAT CLAY		
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	99.6	Gravel	0.4	0
0.05	89.1	Sand	10.5	10.6
0.002	55.7	Silt	33.4	33.5
		Clay	55.7	55.9
USDA Classification				
CLAY				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-09
 Depth NA
 Sample HSCNew-NMP-09-SD
 Lab Sample 40901009

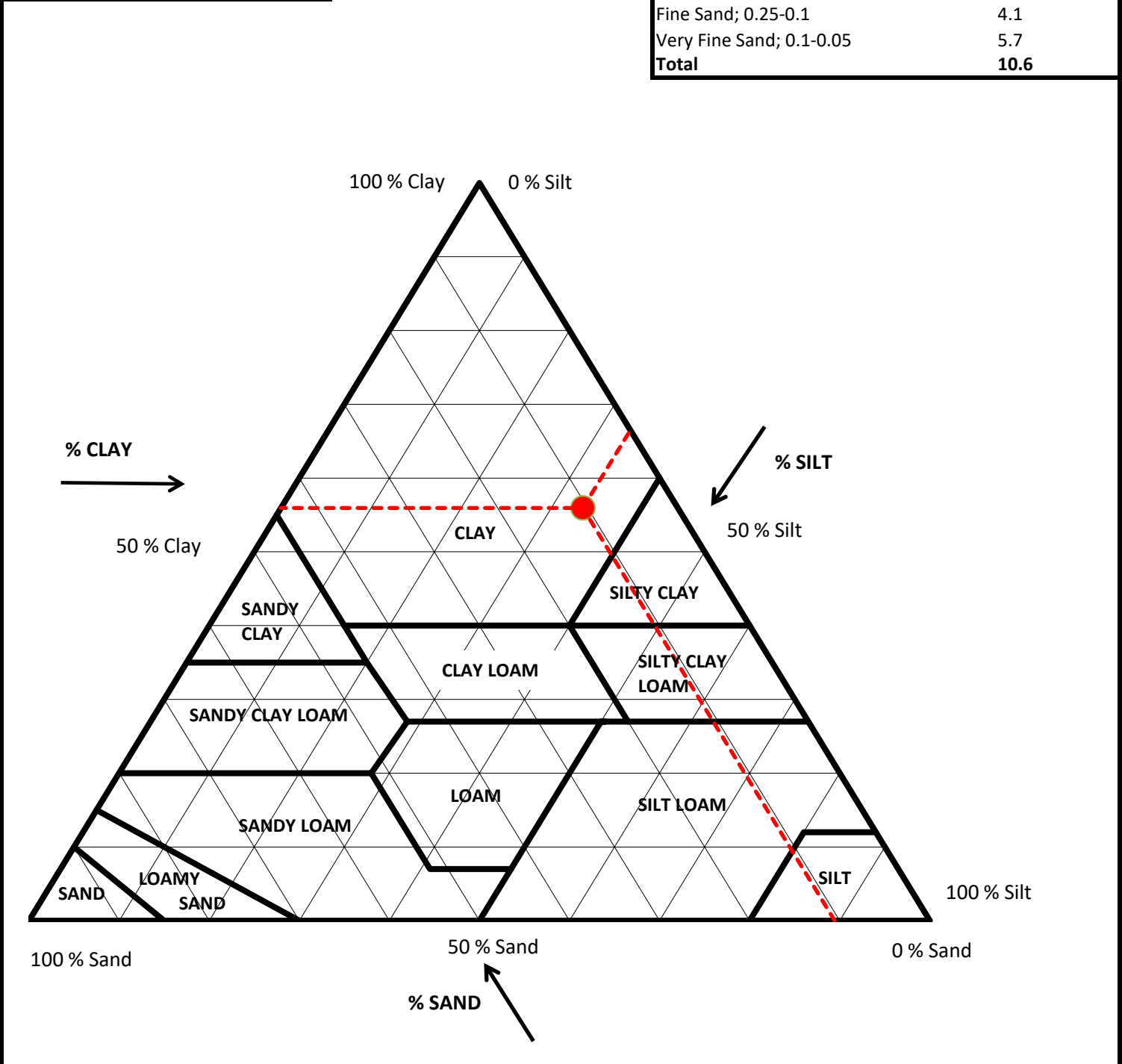
Sample Color: **YELLOWISH RED**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (34)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	10.6
Percent Silt, %	33.5
Percent Clay, %	55.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.2
Medium Sand; 0.5-0.25	0.3
Fine Sand; 0.25-0.1	4.1
Very Fine Sand; 0.1-0.05	5.7
Total	10.6



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-10
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-10-SD
		Lab Sample	40901010

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH** USDA: **CLAY** AASHTO: **A-7-6 (33)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1012	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1012	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	672	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	672	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	85	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	602.22	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	449.07	No. 10	2	0.66	0.2%	99.8%	
Tare, gm	146.04	No. 20	0.85	0.76	0.3%	99.5%	
Water Content of Split Sample	50.5%	No. 40	0.425	0.59	0.2%	99.3%	
Wt. of DS., gm	303.03	No. 60	0.25	0.87	0.3%	99.0%	
Wt. of +#200 Sample, gm	39.67	No. 140	0.106	23.6	7.8%	91.3%	
		No. 200	0.075	13.19	4.4%	86.9%	

HYDROMETER (-#200)			
Tare No.	238	Wt. Dispers., gm	5
Wt. Tare + DS., gm	237.26	Wt. Dry Soil, gm (-#200)	52.38
Wt. Tare, gm	179.88	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.69
			Tested
		<i>a Factor</i>	0.9911

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	55	21.5	5.6	49.4	0.0133	93.5	0.0252	81.2%
5	52.5	21.5	5.6	46.9	0.0133	88.7	0.0164	77.1%
15	50	21.6	5.6	44.4	0.0133	84.0	0.0097	73.0%
30	48	21.7	5.6	42.4	0.0132	80.2	0.0070	69.7%
60	44.5	21.8	5.5	39.0	0.0132	73.8	0.0051	64.1%
250	38.5	22.7	5.3	33.2	0.0131	62.8	0.0026	54.6%
1440	32	21.3	5.7	26.3	0.0133	49.8	0.0012	43.2%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.0	Silt=23% Clay=63.9%					
Coarse=0; Fine=0		D60, mm	NA	100	100	Gravel	0.2
% Sand (-#4 & +#200)	13.1	D30, mm	NA				
Coarse=0.2; Medium=0.4; Fine=12.4		D10, mm	NA				
% Fines (-#200)	86.9	Cc	NA				
% Plus #200 (-3")	13.1	Cu	NA				
USCS Description				2	99.8	Sand	15.0
FAT CLAY				0.05	84.8	Silt	34.0
USCS Group Symbol		Atterberg Limits Group Symbol		0.002	50.9	Clay	51.0
CH		CH - FAT CLAY		USDA Classification			
Auxiliary Information		Wt Ret, gm	% Retained	CLAY			
12" Sieve - 300 mm		0	0.0				
6" Sieve - 150 mm		0	0.0				
3" Sieve - 75 mm		0	0.0				

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

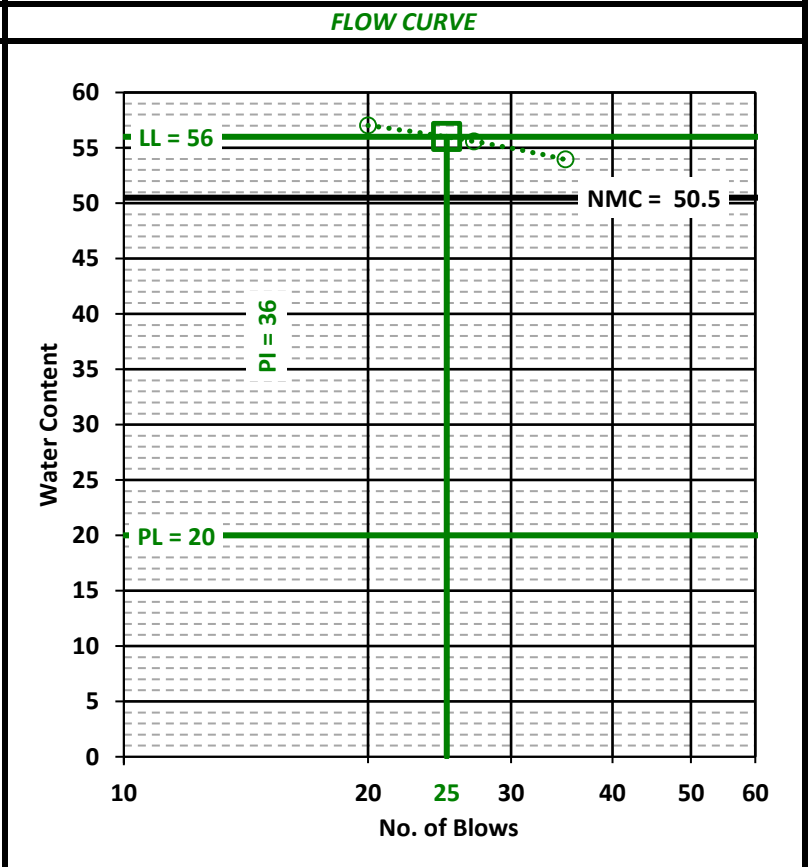
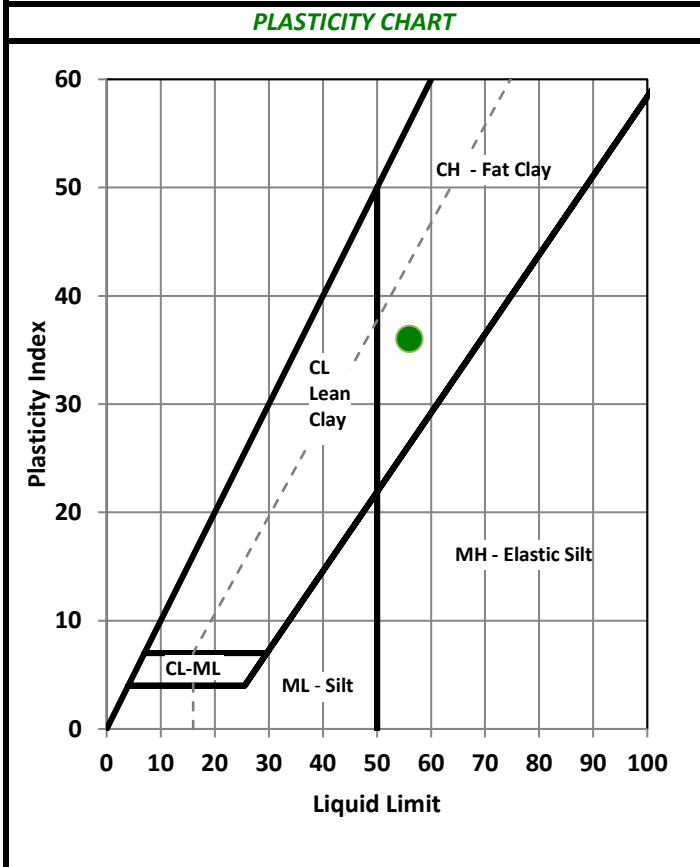
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-10
 Depth NA
 Sample HSCNew-NMP-10-SD
 Lab Sample 40901010

Soil Description: BROWN FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	85	Liquid Limit (LL), %	56
Wt. Tare & WS, gm	602.22	Plastic Limit (PL), %	20
Wt. Tare & DS, gm	449.07	Plasticity Index (PI)	36
Wt. Tare, gm	146.04	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	50.5	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	477	446	492	711	703	512	
Wt. Tare & WS, gm	16.76	17.14	17.93	18.67	19.74	19.90	
Wt. Tare & DS, gm	15.74	16.01	16.76	15.99	16.70	16.69	
Wt. Tare, gm	10.73	10.68	10.76	11.29	11.23	10.74	
Water Content, %	20.4	21.2	19.5	57.0	55.6	53.9	
				# of Blows	20	27	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

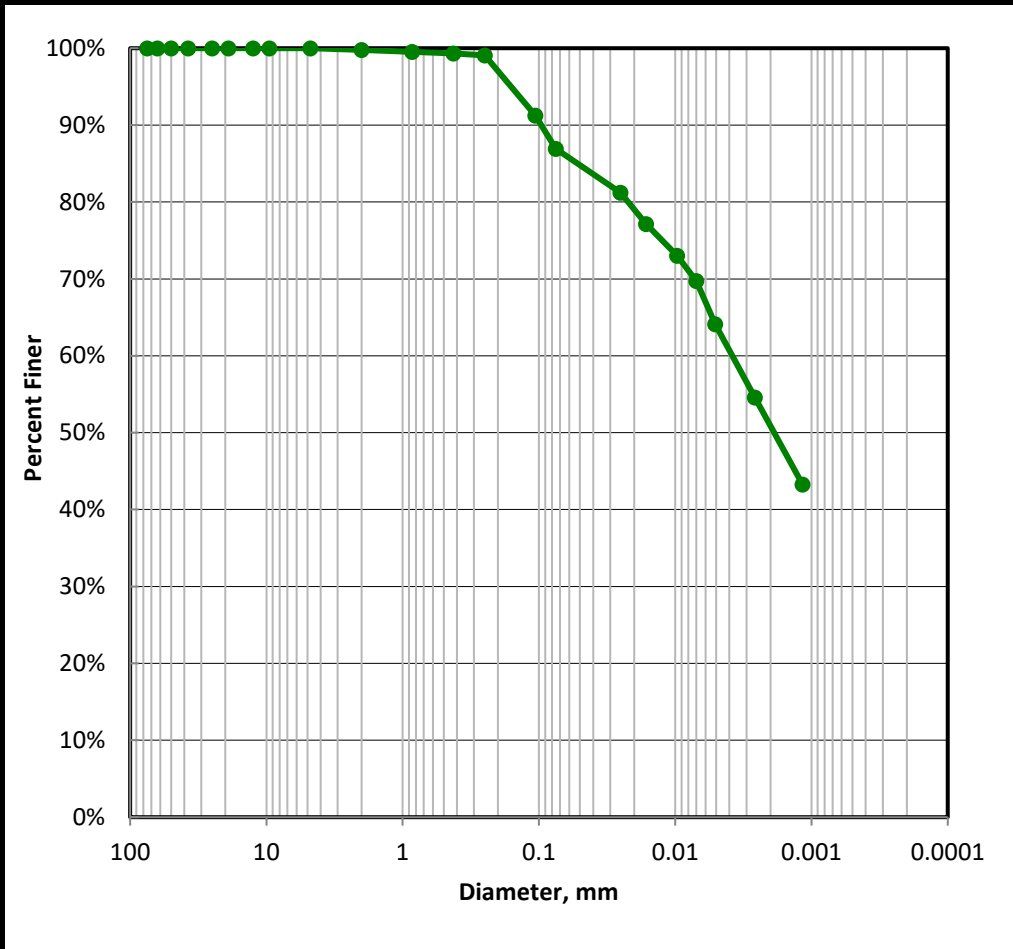
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-10
 Depth NA
 Sample HSCNew-NMP-10-SD
 Lab Sample 40901010

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (33)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.8%
No. 20	0.85	99.5%
No. 40	0.425	99.3%
No. 60	0.25	99.0%
No. 140	0.106	91.3%
No. 200	0.075	86.9%
NA	0.0252	81.2%
NA	0.0164	77.1%
NA	0.0097	73.0%
NA	0.0070	69.7%
NA	0.0051	64.1%
NA	0.0026	54.6%
NA	0.0012	43.2%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=23% Clay=63.9%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	13.1	D30, mm	NA
Coarse=0.2; Medium=0.4; Fine=12.4		D10, mm	NA
% Fines (-#200)	86.9	Cc	NA
% Plus #200 (-3")	13.1	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100	Gravel	0.2	0
2	99.8			
0.05	84.8			
0.002	50.9			
		Sand	15.0	15.0
		Silt	33.9	34.0
		Clay	50.9	51.0
USDA Classification				
CLAY				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-10
 Depth NA
 Sample HSCNew-NMP-10-SD
 Lab Sample 40901010

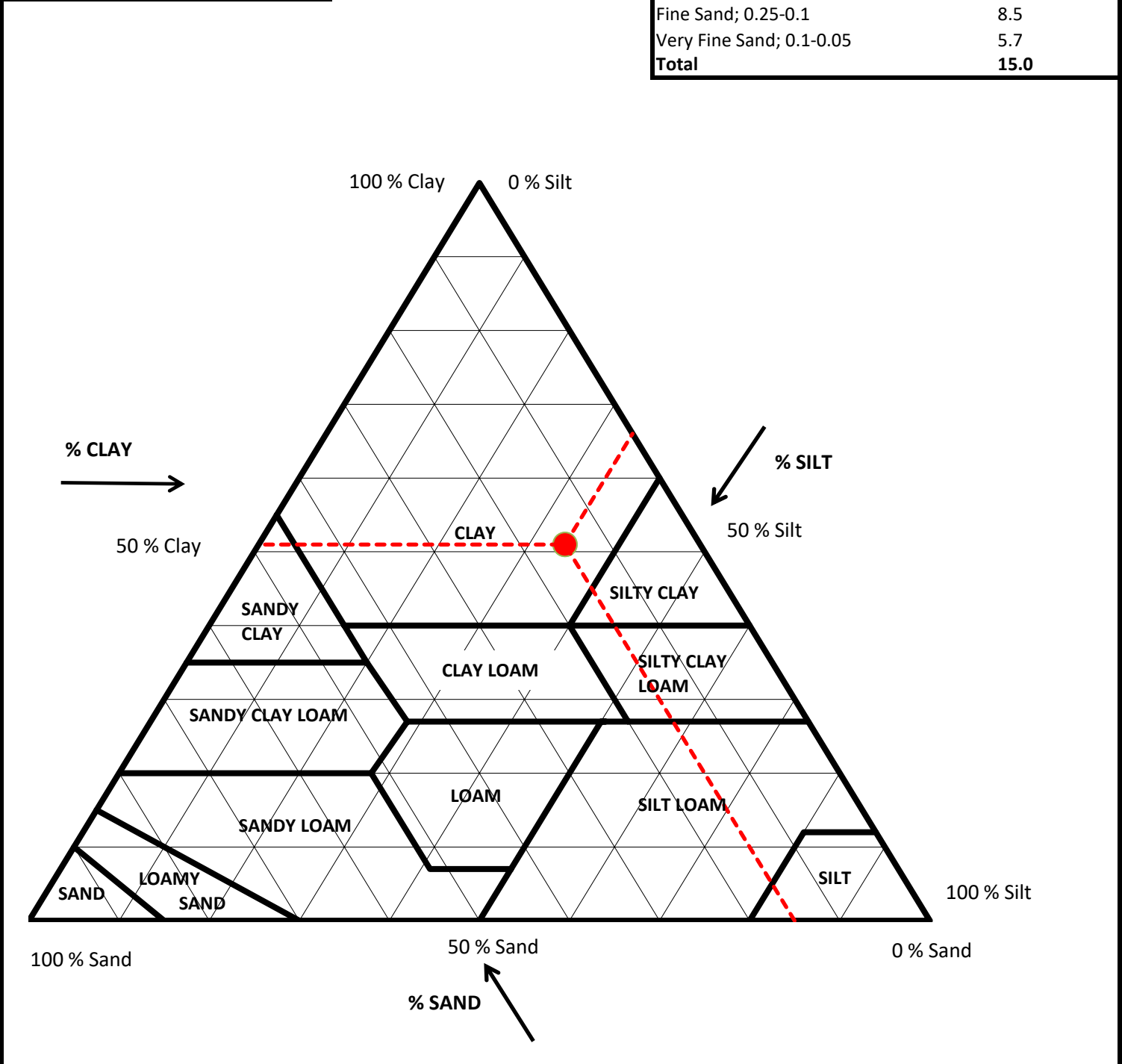
Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (33)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	15.0
Percent Silt, %	34.0
Percent Clay, %	51.0

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.2
Medium Sand; 0.5-0.25	0.3
Fine Sand; 0.25-0.1	8.5
Very Fine Sand; 0.1-0.05	5.7
Total	15.0



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-11
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-11-SD
		Lab Sample	40901011

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (7)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1064	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1064	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	775	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	775	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	B04	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	508.55	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	393.4	No. 10	2	1.16	0.4%	99.6%	
Tare, gm	84.25	No. 20	0.85	0.69	0.2%	99.4%	
Water Content of Split Sample	37.2%	No. 40	0.425	1.03	0.3%	99.1%	
Wt. of DS., gm	309.15	No. 60	0.25	10.52	3.4%	95.7%	
Wt. of +#200 Sample, gm	130.78	No. 140	0.106	94.18	30.5%	65.2%	
		No. 200	0.075	23.2	7.5%	57.7%	

HYDROMETER (-#200)			
Tare No.	237	Wt. Dispers., gm	5
Wt. Tare + DS., gm	219.53	Wt. Dry Soil, gm (-#200)	41.1
Wt. Tare, gm	173.43	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.66
			Tested
		<i>a Factor</i>	0.9977

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	41.5	21.4	5.6	35.9	0.0134	87.1	0.0291	50.3%
5	39	21.4	5.6	33.4	0.0134	81.1	0.0188	46.8%
15	36	21.4	5.6	30.4	0.0134	73.8	0.0111	42.6%
30	34	21.5	5.6	28.4	0.0134	68.9	0.0080	39.8%
60	31	21.6	5.6	25.4	0.0134	61.7	0.0058	35.6%
250	27.5	22.8	5.3	22.2	0.0132	53.9	0.0029	31.1%
1440	24	21.3	5.7	18.3	0.0134	44.4	0.0012	25.6%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.0	Silt=23.0% Clay=34.7%					
Coarse=0; Fine=0		D60, mm	NA	100	100	Gravel	0.4
% Sand (-#4 & +#200)	42.3	D30, mm	NA				
Coarse=0.4; Medium=0.6; Fine=41.4		D10, mm	NA				
% Fines (-#200)	57.7	Cc	NA				
% Plus #200 (-3")	42.3	Cu	NA	2	99.6	Sand	45.1
USCS Description							
SANDY LEAN CLAY							
USCS Group Symbol		Atterberg Limits Group Symbol					
CL		CL - LEAN CLAY		0.05	54.5	Silt	25.8
Auxiliary Information		Wt Ret, gm	% Retained				
12" Sieve - 300 mm		0	0.0				
6" Sieve - 150 mm		0	0.0				
3" Sieve - 75 mm		0	0.0	0.002	28.8	Clay	28.8
USDA Classification							
SANDY CLAY LOAM							

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

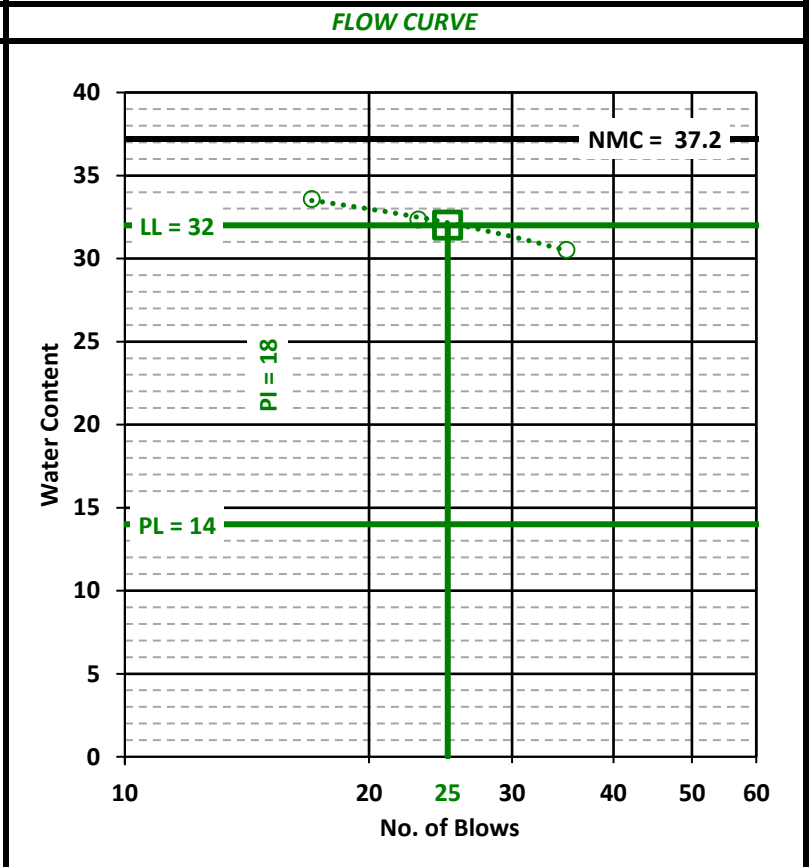
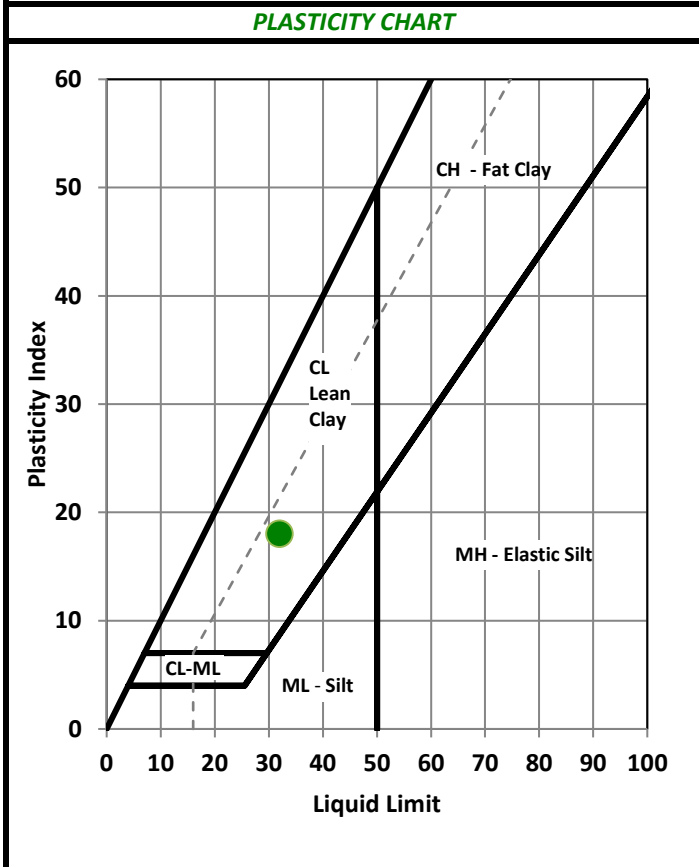
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-11
 Depth NA
 Sample HSCNew-NMP-11-SD
 Lab Sample 40901011

Soil Description: BROWN LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	B04	Liquid Limit (LL), %	32
Wt. Tare & WS, gm	508.55	Plastic Limit (PL), %	14
Wt. Tare & DS, gm	393.40	Plasticity Index (PI)	18
Wt. Tare, gm	84.25	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	37.2	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	476	429	493	462	412	490	
Wt. Tare & WS, gm	17.98	17.45	18.51	19.81	20.64	19.93	
Wt. Tare & DS, gm	17.12	16.62	17.59	17.54	18.22	17.79	
Wt. Tare, gm	10.81	10.63	10.72	10.78	10.74	10.78	
Water Content, %	13.6	13.9	13.4	33.6	32.4	30.5	
				# of Blows	17	23	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

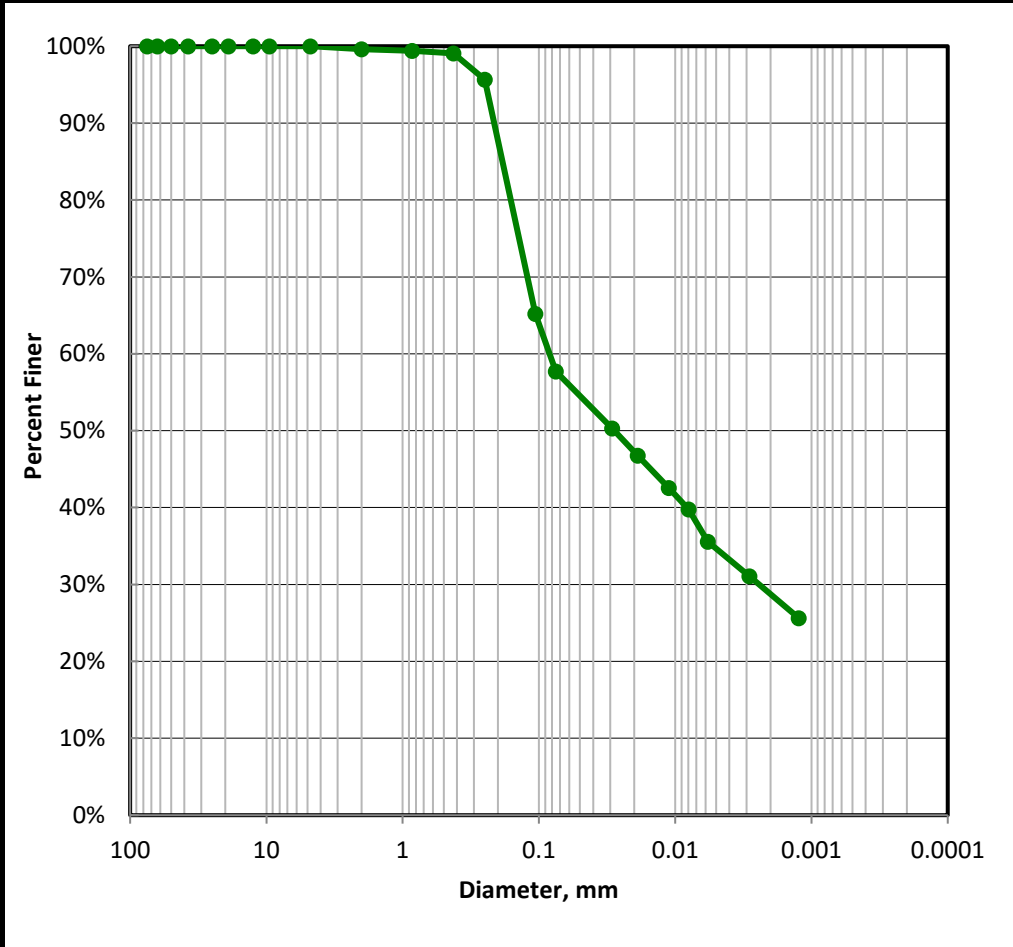
Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-11
 Depth NA
 Sample HSCNew-NMP-11-SD
 Lab Sample 40901011

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (7)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.6%
No. 20	0.85	99.4%
No. 40	0.425	99.1%
No. 60	0.25	95.7%
No. 140	0.106	65.2%
No. 200	0.075	57.7%
NA	0.0291	50.3%
NA	0.0188	46.8%
NA	0.0111	42.6%
NA	0.0080	39.8%
NA	0.0058	35.6%
NA	0.0029	31.1%
NA	0.0012	25.6%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=23.0% Clay=34.7%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	42.3	D30, mm	NA
Coarse=0.4; Medium=0.6; Fine=41.4		D10, mm	NA
% Fines (-#200)	57.7	Cc	NA
% Plus #200 (-3")	42.3	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100	Gravel	0.4	0
2	99.6	Sand	45.1	45.3
0.05	54.5	Silt	25.8	25.9
0.002	28.8	Clay	28.8	28.9
USDA Classification				
SANDY CLAY LOAM				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

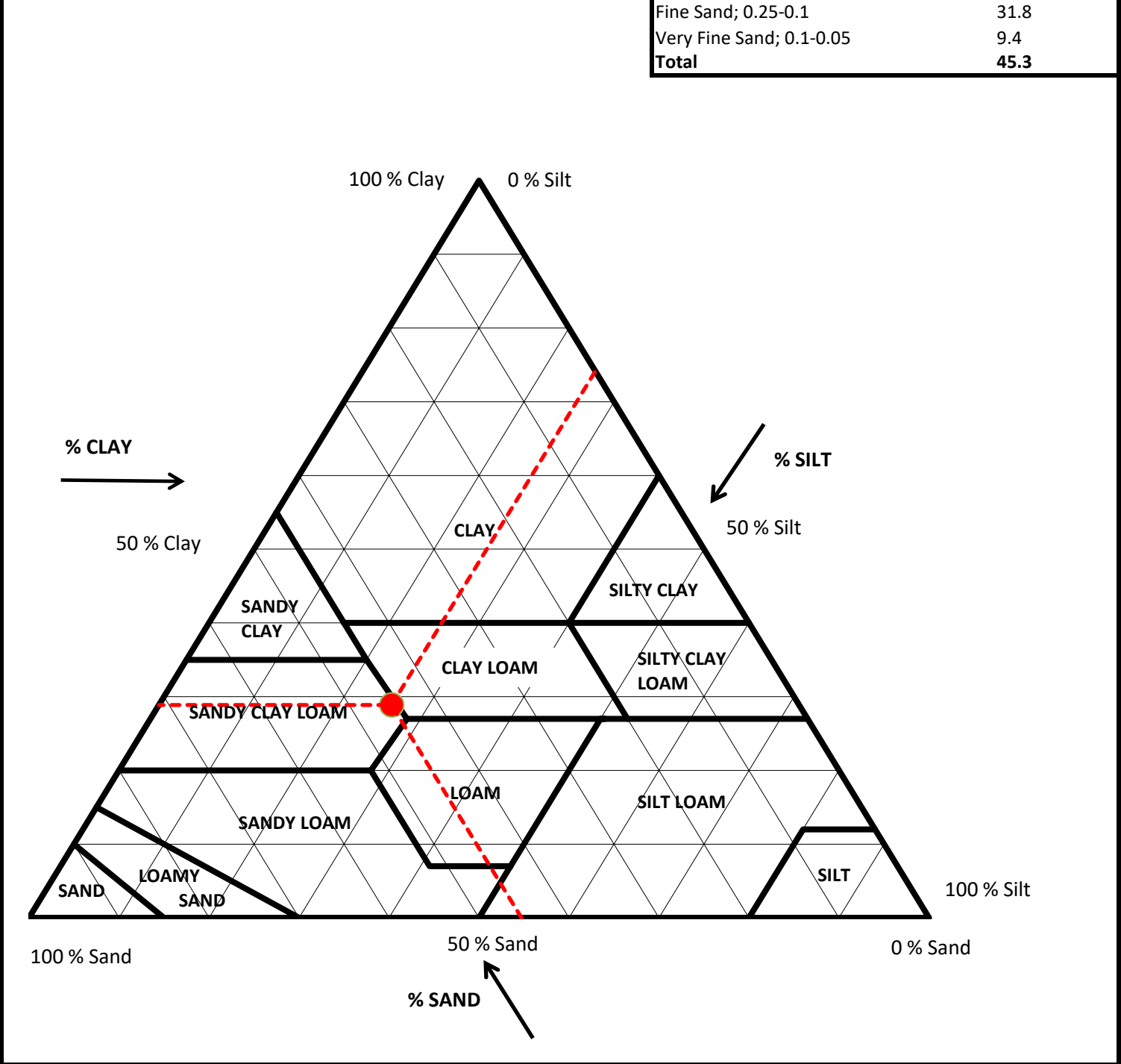
Boring 18J0402-11
 Depth NA
 Sample HSCNew-NMP-11-SD
 Lab Sample 40901011

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (7)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	45.3
Percent Silt, %	25.9
Percent Clay, %	28.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.3
Medium Sand; 0.5-0.25	3.5
Fine Sand; 0.25-0.1	31.8
Very Fine Sand; 0.1-0.05	9.4
Total	45.3



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-12
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-03-DUP
		Lab Sample	40901012

Sample Color: **GRAYISH BROWN**
 USCS Group Name: **CLAYEY SAND**
 USCS Group Symbol: **SC**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1041	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1041	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	821	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	821	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	B11	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	479.73	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	396.27	No. 10	2	1.76	0.6%	99.4%	
Tare, gm	84.26	No. 20	0.85	1.46	0.5%	99.0%	
Water Content of Split Sample	26.7%	No. 40	0.425	2.06	0.7%	98.3%	
Wt. of DS., gm	312.01	No. 60	0.25	15.69	5.0%	93.3%	
Wt. of +#200 Sample, gm	157.67	No. 140	0.106	112.8	36.2%	57.1%	
		No. 200	0.075	23.9	7.7%	49.5%	

HYDROMETER (-#200)			
Tare No.	236	Wt. Dispers., gm	5
Wt. Tare + DS., gm	209.1	Wt. Dry Soil, gm (-#200)	29.94
Wt. Tare, gm	174.16	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.69
			Tested
		<i>a Factor</i>	0.9911

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	29	21.2	5.7	23.3	0.0133	77.1	0.0319	38.2%
5	26	21.2	5.7	20.3	0.0133	67.2	0.0206	33.2%
15	24	21.2	5.7	18.3	0.0133	60.6	0.0121	30.0%
30	23	21.4	5.6	17.4	0.0133	57.6	0.0086	28.5%
60	22	21.6	5.6	16.4	0.0133	54.3	0.0061	26.9%
250	20	22.8	5.3	14.7	0.0131	48.7	0.0030	24.1%
1440	17.5	20.9	5.8	11.7	0.0134	38.7	0.0013	19.2%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.0	Silt=23.4% Clay=26.1%					
Coarse=0; Fine=0		D60, mm	NA				
% Sand (-#4 & +#200)	50.5	D30, mm	NA				
Coarse=0.6; Medium=1.1; Fine=48.8		D10, mm	NA	100	100		
% Fines (-#200)	49.5	Cc	NA			Gravel	0.6
% Plus #200 (-3")	50.5	Cu	NA	2	99.4	Sand	55.3
USCS Description				0.05	44.1	Silt	22.4
CLAYEY SAND				0.002	21.7	Clay	21.7
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification			
SC		CL - LEAN CLAY		SANDY CLAY LOAM			
Auxiliary Information		Wt Ret, gm	% Retained				
12" Sieve - 300 mm		0	0.0				
6" Sieve - 150 mm		0	0.0				
3" Sieve - 75 mm		0	0.0				

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

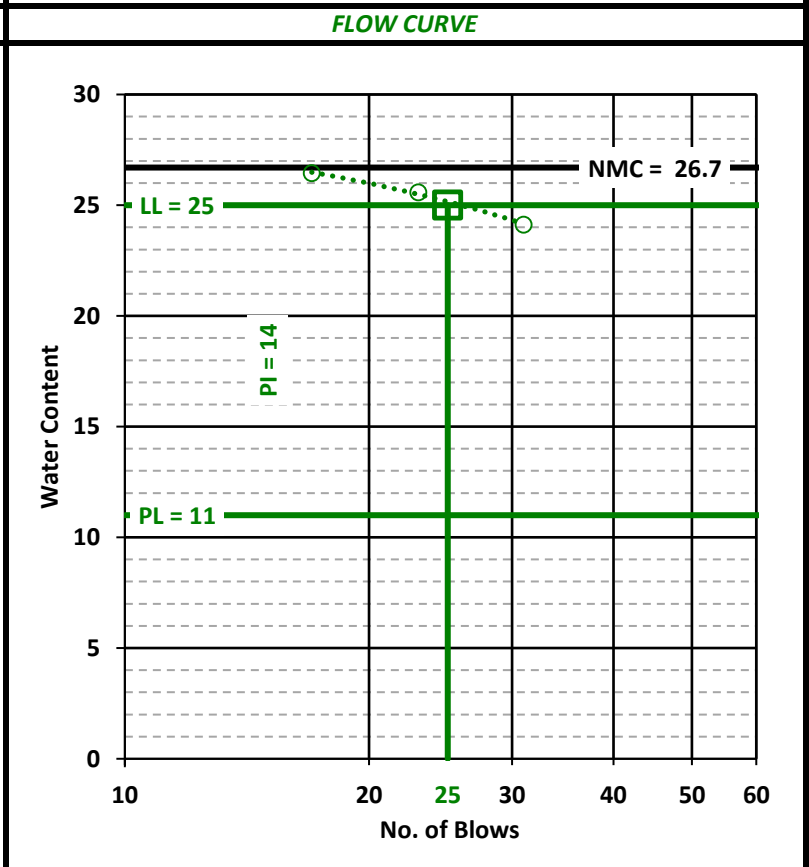
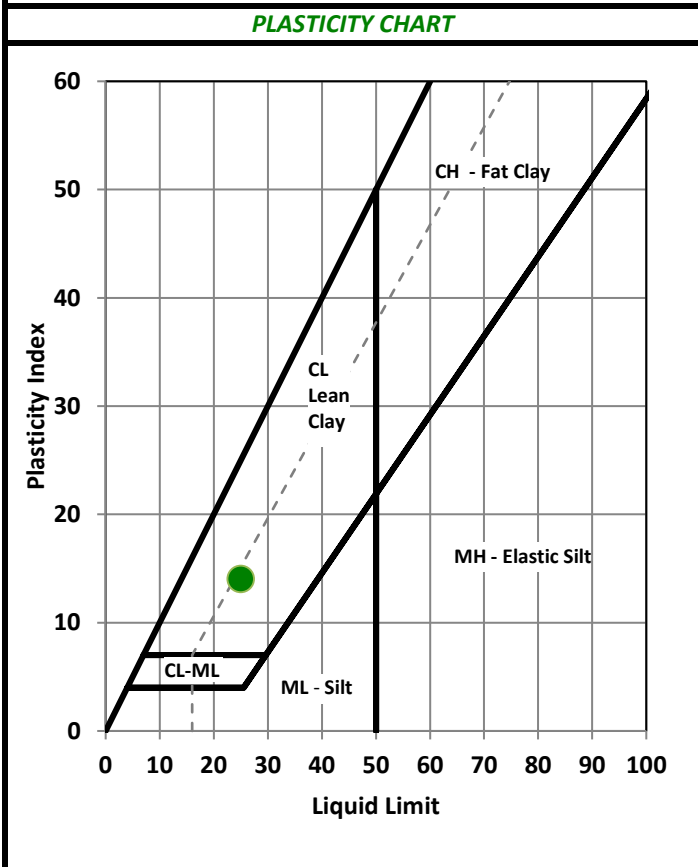
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-12
 Depth NA
 Sample HSCNew-NMP-03-DUP
 Lab Sample 40901012

Soil Description: GRAYISH BROWN LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	B11	Liquid Limit (LL), %	25
Wt. Tare & WS, gm	479.73	Plastic Limit (PL), %	11
Wt. Tare & DS, gm	396.27	Plasticity Index (PI)	14
Wt. Tare, gm	84.26	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	26.7	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	GRAYISH BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	420	417	466	709	453	701	
Wt. Tare & WS, gm	17.11	18.43	19.01	22.54	20.06	20.14	
Wt. Tare & DS, gm	16.48	17.64	18.19	20.43	18.17	18.42	
Wt. Tare, gm	10.72	10.72	10.74	12.45	10.78	11.29	
Water Content, %	10.9	11.4	11.0	26.4	25.6	24.1	
				# of Blows	17	23	31



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-12
 Depth NA
 Sample HSCNew-NMP-03-DUP
 Lab Sample 40901012

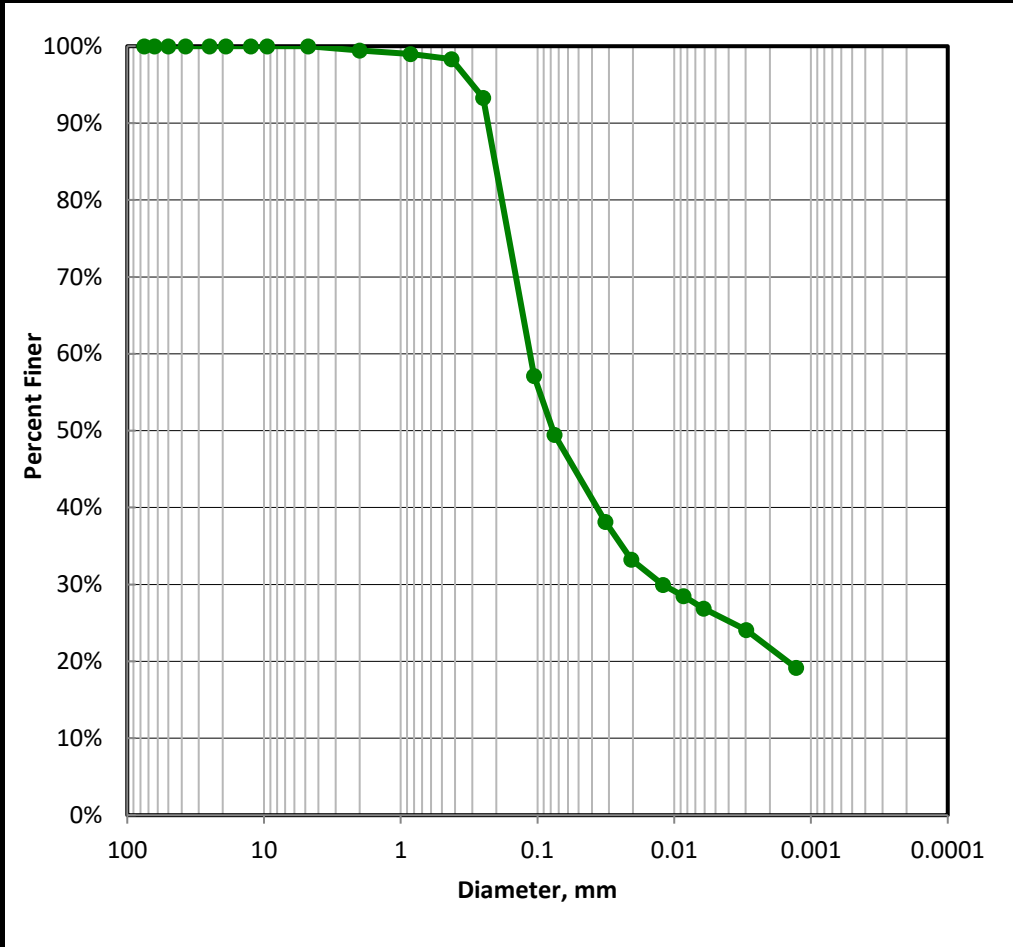
Sample Color: **GRAYISH BROWN**

USCS Group Name: **CLAYEY SAND**

USCS Group Symbol: **SC**

USDA: **SANDY CLAY LOAM**

AASHTO: **A-6 (3)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.4%
No. 20	0.85	99.0%
No. 40	0.425	98.3%
No. 60	0.25	93.3%
No. 140	0.106	57.1%
No. 200	0.075	49.5%
NA	0.0319	38.2%
NA	0.0206	33.2%
NA	0.0121	30.0%
NA	0.0086	28.5%
NA	0.0061	26.9%
NA	0.0030	24.1%
NA	0.0013	19.2%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=23.4% Clay=26.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	50.5	D30, mm	NA
Coarse=0.6; Medium=1.1; Fine=48.8		D10, mm	NA
% Fines (-#200)	49.5	Cc	NA
% Plus #200 (-3")	50.5	Cu	NA
USCS Description			
CLAYEY SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
SC		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.4	Gravel 0.6	0
0.05	44.1	Sand 55.3	55.6
0.002	21.7	Silt 22.4	22.5
		Clay 21.7	21.9
USDA Classification			
SANDY CLAY LOAM			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-12
 Depth NA
 Sample HSCNew-NMP-03-DUP
 Lab Sample 40901012

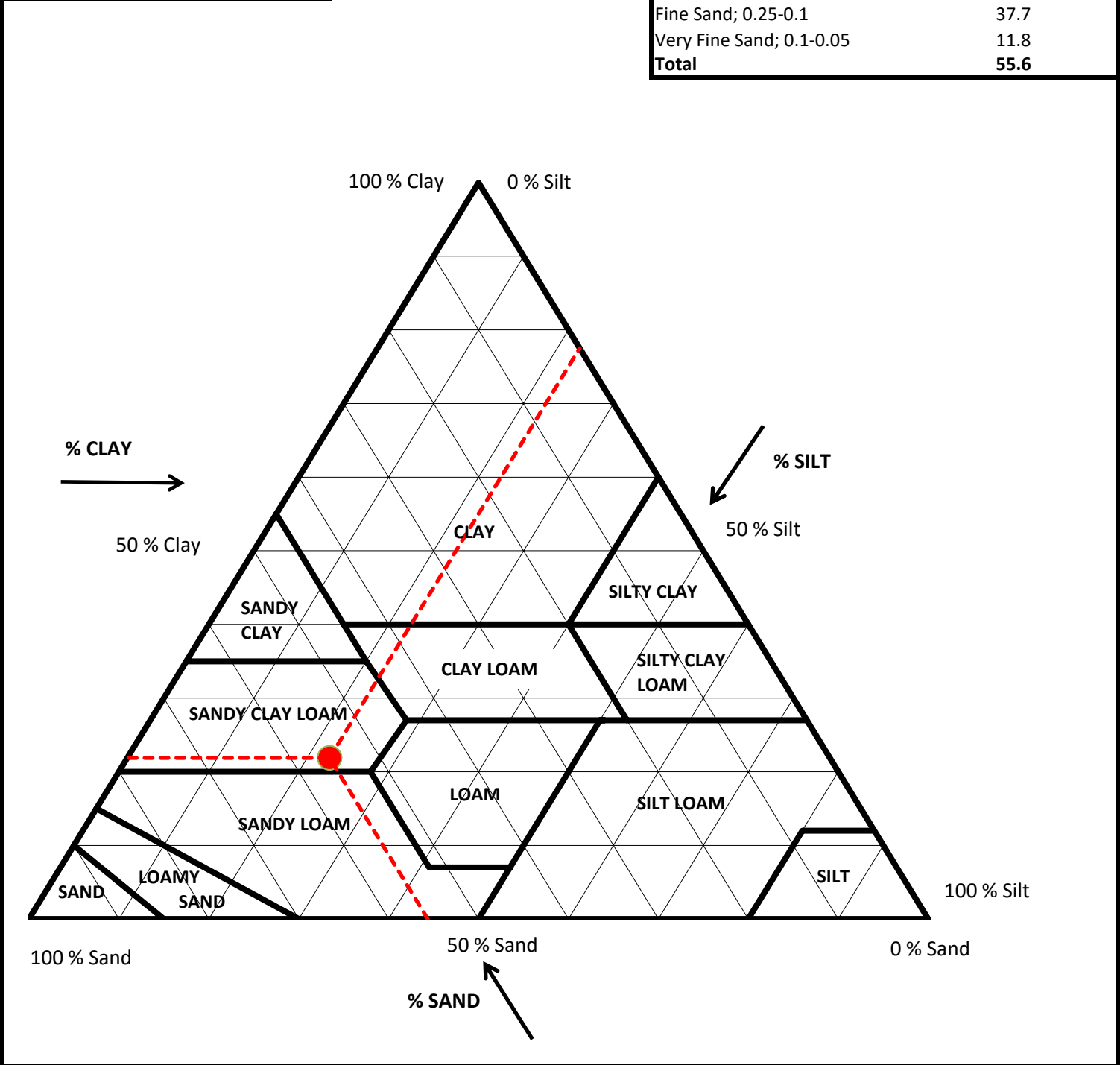
Sample Color: **GRAYISH BROWN**
 USCS Group Name: **CLAYEY SAND**
 USCS Group Symbol: **SC**

USDA: **SANDY CLAY LOAM**

AASHTO: **A-6 (3)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	55.6
Percent Silt, %	22.5
Percent Clay, %	21.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.4
Coarse Sand; 1-0.5	0.6
Medium Sand; 0.5-0.25	5.2
Fine Sand; 0.25-0.1	37.7
Very Fine Sand; 0.1-0.05	11.8
Total	55.6



Appendix 5: Full Analytical Data Tables

Table 5A: Site Water Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Marine Water Screening Criteria				No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SW	HSCNew-NMP-02-SW	HSCNew-NMP-03-SW	HSCNew-NMP-04-SW	HSCNew-NMP-05-SW	HSCNew-NMP-06-SW	HSCNew-NMP-07-SW	HSCNew-NMP-08-SW	HSCNew-NMP-09-SW	HSCNew-NMP-10-SW	HSCNew-NMP-11-SW	HSCNew-NMP-03-SW-Field Dup								
				TSWQS (Acute) (b)	EPA WQC (Acute) (c)	NOAA (Marine Acute) (d)	Region 6 (Marine Chronic) (e)					10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018				
				10/22/2018	10/22/2018	10/22/2018	10/22/2018					10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018			
2,4-Dinitrotoluene	121-14-2	ug/L	2 (g)	-	-	590	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
2,6-Dinitrotoluene	606-20-2	ug/L	2 (g)	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
2-Chloronaphthalene	91-58-7	ug/L	0.8 (g)	-	-	7.5	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
2-Chlorophenol	95-57-8	ug/L	0.9 (g)	-	-	-	265	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
2-Methylphenol	95-48-7	ug/L	10	3060	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
2-Nitrophenol	88-75-5	ug/L	2 (g)	-	-	-	2940	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
3,3-Dichlorobenzidine	91-94-1	ug/L	3 (g)	-	-	-	73	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
4,6-Dinitro-o-cresol	534-52-1	ug/L	10	-	-	-	-	12	2.0	2.0	2.0	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub
4-Bromophenyl phenyl ether	101-55-3	ug/L	0.4 (g)	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
4-Chloro-3-methylphenol	59-50-7	ug/L	0.7 (g)	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
4-Chlorophenyl phenyl ether	7005-72-3	ug/L	0.6 (g)	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
4-Methylphenol	106-44-5	ug/L	10	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
4-Nitrophenol	100-02-7	ug/L	5 (g)	-	-	4850	717	12	2.5	2.6	2.51	2.5	Ub	2.5	Ub	2.5	Ub	2.5	Ub	2.5	Ub	2.5	Ub	2.6	Ub	2.5	Ub	2.5	Ub	2.5	Ub
Benzidine	92-87-5	ug/L	1	-	-	-	-	12	20	20	20.1	20.0	Ub	20	Ub	20	Ub	20	Ub	20	Ub	20	Ub	20	Ub	20	Ub	20	Ub	20	Ub
Bis(2-chloroethoxy)methane	111-91-1	ug/L	1 (g)	-	-	12000	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Bis(2-chloroethyl)ether	111-44-4	ug/L	0.9 (g)	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Bis(2-chloroisopropyl)ether	108-60-1	ug/L	0.7 (g)	-	-	-	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/L	2 (g)	-	-	400	-	12	0.17	0.51	0.40	0.20	Jb	0.19	Jb	0.17	Jb	0.21	Jb	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.50	Ub
Butyl Benzyl Phthalate	85-68-7	ug/L	4 (g)	-	-	2944	147	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Diethyl Phthalate	84-66-2	ug/L	1 (g)	-	-	2944	884	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Dimethyl Phthalate	131-11-3	ug/L	1 (g)	-	-	2944	580	12	0.5	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Di-n-butyl Phthalate	84-74-2	ug/L	1 (g)	-	-	2944	NA	12	0.11	0.51	0.44	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.12	Jb	0.51	Ub	0.11	Jb	0.50	Ub	0.50	Ub	0.50	Ub
Di-n-octyl Phthalate	117-84-0	ug/L	3 (g)	-	-	2944	-	12	1.0	1.0	1.0	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub
Hexachlorobenzene	118-74-1	ug/L	0.4 (g)	-	-	160	-	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Hexachlorobutadiene	87-68-3	ug/L	0.9 (g)	-	-	32	0.32	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Hexachlorocyclopentadiene	77-47-4	ug/L	3.0 (g)	-	-	7	0.07	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Hexachloroethane	67-72-1	ug/L	0.9 (g)	-	-	940	9.4	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Isophorone	78-59-1	ug/L	1	-	-	12900	1290	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Nitrobenzene	98-95-3	ug/L	0.9 (g)	-	-	6680	66.8	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
N-Nitrosodimethylamine	62-75-9	ug/L	3.1 (g)	-	-	-	330000	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
N-Nitrosodi-n-propylamine	621-64-7	ug/L	0.9 (g)	-	-	-	120	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
N-Nitrosodiphenylamine	86-30-6	ug/L	2.1 (g)	-	-	3300000	330000	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
Pentachlorophenol	87-86-5	ug/L	50	15.1	13	13	9.6	12	2.0	2.0	2.0	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub
Phenol	108-95-2	ug/L	10	-	-	5800	5500	12	0.50	0.51	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.50	Ub	0.50	Ub	0.51	Ub	0.50	Ub
PAHs																															
Acenaphthene	83-32-9	ug/L	0.75 (g)	-	-	970	40.4	12	0.0020	0.010	0.0094	0.010	Ub	0.010	Ub	0.010	Ub	0.0020	Jb	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub
Acenaphthylene	208-96-8	ug/L	1.0 (g)	-	-	300	-	12	0.010	0.010	0.010	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub
Anthracene	120-12-7	ug/L	0.6 (g)	-	-	300	0.18	12	0.010	0.010	0.010	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub
Benzo(a)anthracene	56-55-3	ug/L	0.4 (g)	-	-	300	-	12	0.0018	0.010	0.0080	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.0018	Jb	0.0018	Jb	0.0019	Jb
Benzo(a)pyrene	50-32-8	ug/L	0.3 (g)	-	-	300	-	12	0.00093	0.010	0.0047	0.010	Ub	0.010	Ub	0.0015	Jb	0.010	Ub	0.0020	Jb	0.0012	Jb	0.0022	Jb	0.0026	Jb	0.0024	Jb	0.0027	Jb
Benzo(b)fluoranthene	205-99-2	ug/L	0.6 (g)	-	-	300	-	12	0.0015	0.010	0.0057	0.010	Ub	0.010	Ub	0.0026	Jb	0.010	Ub	0.0034	Jb	0.0019	Jb	0.0040	Jb	0.0045	Jb	0.0040	Jb	0.0060	Jb
Benzo(e)pyrene	192-97-2	ug/L	-	-	-	-	-	12	0.0015	0.010	0.0054	0.010	Ub	0.010	Ub	0.0025	Jb	0.010	Ub	0.0031	Jb	0.0018	Jb	0.0035	Jb	0.0040	Jb	0.0035	Jb	0.0045	Jb
Benzo(g,h,i)perylene	191-24-2	ug/L	1.2 (g)	-	-	300	-	12	0.0014	0.010	0.0046	0.0014	Jb	0.010	Ub	0.0026	Jb	0.010	Ub	0.0031	Jb	0.0017	Jb	0.0035	Jb	0.0039	Jb	0.0034	Jb	0.0044	Jb
Benzo(k)fluoranthene	207-08-9	ug/L	0.6 (g)	-	-	300	-	12	0.0015	0.010	0.0058	0.010	Ub	0.010	Ub	0.0020	Jb	0.010	Ub	0.0025	Jb	0.0015	Jb	0.0032	Jb	0.0034	Jb	0.0026	Jb	0.0035	Jb
Chrysene	218-01-9	ug/L	0.3 (g)	-	-	300	-	12	0.0011	0.010	0.0037	0.010	Ub	0.010	Ub	0.0021															

Table 5B: Site Water Analytical Results and Screening for PAHs^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Marine Water Screening Criteria				No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SW	HSCNew-NMP-02-SW	HSCNew-NMP-03-SW	HSCNew-NMP-04-SW	HSCNew-NMP-05-SW	HSCNew-NMP-06-SW	HSCNew-NMP-07-SW	HSCNew-NMP-08-SW	HSCNew-NMP-09-SW	HSCNew-NMP-10-SW	HSCNew-NMP-11-SW	HSCNew-NMP-03-SW-Field Dup	Field Equipment Blank													
				TSWQS (Acute) (b)	EPA WQC (Acute) (c)	NOAA (Marine Acute) (d)	Region 6 (Marine) Chronic (e)					10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018	10/22/2018									
PAHs																																					
Acenaphthene	83-32-9	ug/L	0.75 (g)	-	-	970	40.4	12	0.0020	0.010	0.0094	0.010	Ub	0.010	Ub	0.010	Ub	0.0020	Jb	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.0057	Jb				
Acenaphthylene	208-96-8	ug/L	1.0 (g)	-	-	300	-	12	0.010	0.010	0.010	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.0042	Jb				
Anthracene	120-12-7	ug/L	0.6 (g)	-	-	300	0.18	12	0.010	0.010	0.010	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub				
Benzo(a)anthracene	56-55-3	ug/L	0.4 (g)	-	-	300	-	12	0.0018	0.010	0.0080	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.0018	Jb	0.0018	Jb	0.0019	Jb	0.010	Ub	0.010	Ub				
Benzo(a)pyrene	50-32-8	ug/L	0.3 (g)	-	-	300	-	12	0.00093	0.010	0.0047	0.010	Ub	0.010	Ub	0.0015	Jb	0.010	Ub	0.0020	Jb	0.0012	Jb	0.0022	Jb	0.010	Ub	0.0026	Jb	0.0024	Jb	0.0027	Jb	0.00093	Jb		
Benzo(b)fluoranthene	205-99-2	ug/L	0.6 (g)	-	-	300	-	12	0.0015	0.010	0.0057	0.010	Ub	0.010	Ub	0.0026	Jb	0.010	Ub	0.0034	Jb	0.0019	Jb	0.0040	Jb	0.010	Ub	0.0045	Jb	0.0040	Jb	0.0060	Jb	0.0015	Jb	0.0022	Jb
Benzo(e)pyrene	192-97-2	ug/L	-	-	-	-	-	12	0.0015	0.010	0.0054	0.010	Ub	0.010	Ub	0.0025	Jb	0.010	Ub	0.0031	Jb	0.0018	Jb	0.0035	Jb	0.010	Ub	0.0040	Jb	0.0035	Jb	0.0045	Jb	0.0015	Jb	0.0014	Jb
Benzo(g,h,i)perylene	191-24-2	ug/L	1.2 (g)	-	-	300	-	12	0.0014	0.010	0.0046	0.0014	Jb	0.010	Ub	0.0026	Jb	0.010	Ub	0.0031	Jb	0.0017	Jb	0.0035	Jb	0.010	Ub	0.0039	Jb	0.0034	Jb	0.0044	Jb	0.0014	Jb	0.0014	Jb
Benzo(k)fluoranthene	207-08-9	ug/L	0.6 (g)	-	-	300	-	12	0.0015	0.010	0.0058	0.010	Ub	0.010	Ub	0.0020	Jb	0.010	Ub	0.0025	Jb	0.0015	Jb	0.0032	Jb	0.010	Ub	0.0034	Jb	0.0026	Jb	0.0035	Jb	0.010	Ub	0.0013	Jb
Chrysene	218-01-9	ug/L	0.3 (g)	-	-	300	-	12	0.0011	0.010	0.0037	0.010	Ub	0.010	Ub	0.0021	Jb	0.0013	Jb	0.0027	Jb	0.0017	Jb	0.0032	Jb	0.0011	Jb	0.0038	Jb	0.0033	Jb	0.0045	Jb	0.0012	Jb	0.0016	Jb
Dibenzo[a,h]anthracene	53-70-3	ug/L	1.3 (g)	-	-	300	-	12	0.010	0.010	0.010	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub
Fluoranthene	206-44-0	ug/L	0.9 (g)	-	-	40	2.96	12	0.0020	0.0083	0.0039	0.0023	Jb	0.0020	Jb	0.0032	Jb	0.0024	Jb	0.0044	Jb	0.0031	Jb	0.0060	Jb	0.0025	Jb	0.0049	Jb	0.0053	Jb	0.0083	Jb	0.0024	Jb	0.0030	Jb
Fluorene	86-73-7	ug/L	0.6 (g)	-	-	300	50	12	0.010	0.010	0.010	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.014	-
Indeno[1,2,3-c,d]pyrene	193-39-5	ug/L	1.2 (g)	-	-	300	-	12	0.0074	0.014	0.0092	0.014	-	0.0074	Jb	0.0088	Jb	0.0077	Jb	0.0089	Jb	0.0081	Jb	0.0097	Jb	0.0079	Jb	0.0096	Jb	0.0095	Jb	0.010	-	0.0082	Jb	0.0081	Jb
Naphthalene	91-20-3	ug/L	0.8 (g)	-	-	-	250	12	0.0019	0.024	0.0077	0.024	-	0.012	-	0.0036	Jb	0.0076	Jb	0.0019	Jb	0.0051	Jb	0.0019	Jb	0.0061	Jb	0.010	Ub	0.010	Ub	0.0032	Jb	0.0077	Jb	0.075	-
Phenanthrene	85-01-8	ug/L	0.5 (g)	7.7	-	7.7	4.6	12	0.0019	0.010	0.0067	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.010	Ub	0.0023	Jb	0.010	Ub	0.0022	Jb	0.0020	Jb	0.0019	Jb	0.0020	Jb	0.011	-
Pyrene	129-00-0	ug/L	1.5 (g)	-	-	300	0.24	12	0.0024	0.0079	0.0049	0.0037	Jb	0.0024	Jb	0.0048	Jb	0.0028	Jb	0.0066	Jb	0.0032	Jb	0.0079	Jb	0.0026	Jb	0.0071	Jb	0.0068	Jb	0.0077	Jb	0.0035	Jb	0.0028	Jb
PAH (Total) calculated (f)	130498-29-2	ug/L	-	-	-	-	-	12	0.020	0.059	0.037	0.046	-	0.023	-	0.034	-	0.024	-	0.039	-	0.029	-	0.047	-	0.020	-	0.048	-	0.045	-	0.059	-	0.030	-	0.13	-

FOOTNOTES- lowercase footnotes were created by the table generator

- a) The primary sources for this table were: TDLs - EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. USEPA/USACE, Regional Implementation Agreement, July 2003; US EPA SW-846 <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>;
- b) TSWQS Rule 307.6- (2014) <https://www.tceq.texas.gov/waterquality/standards> ; **NOTE**2018 TSWQSs were adopted by the commission on February 7, 2018, these Standards are effective for all state permits; however, until approved by USEPA, the 2014 Standards apply to federal permits.
- c) EPA WQC- <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>; see EPA footnote section below for individual EPA
- d) NOAA- <http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html>
- e) Region 6 screening benchmarks come from TCEQ's ecological benchmarks for water,
- f) PAHs did not have any elevated RL. PAH (total) calculated was determined by summing all non-U qualified data.
- g) These values are based on recommendations from the EPA Region 6 laboratory in Houston; these values were based on data or other technical basis;

Laboratory Qualifer

- Jb Estimated value less than RL
- Ub Compound was analyzed for but was not detected (non-detect)

Samples with Detections are BOLD

Table 5D: Sediment Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Sediment Screening Criteria			No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SD	HSCNew-NMP-02-SD	HSCNew-NMP-03-SD	HSCNew-NMP-04-SD	HSCNew-NMP-05-SD	HSCNew-NMP-06-SD	HSCNew-NMP-07-SD	HSCNew-NMP-08-SD	HSCNew-NMP-09-SD	HSCNew-NMP-10-SD	HSCNew-NMP-11-SD	HSCNew-NMP-03-SD	Field Dup											
				NOAA (Marine-ERL) (b)	NOAA (Marine-ERM) (c)	Region 6 (Marine) (d)					10/6/2018	10/6/2018	10/5/2018	10/5/2018	10/4/2018	10/4/2018	10/3/2019	10/3/2018	10/2/2018	10/2/2018	10/2/2018	10/2/2018	10/5/2018	10/5/2018										
VOCS																																		
1,1,1-Trichloroethane	71-55-6	mg/kg	-	-	-	2.63	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,1,2,2-Tetrachloroethane	79-34-5	mg/kg	-	-	-	0.61	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,1,2-Tetrachloro-1,2,2-trifluoroethane	76-13-1	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,1,2-Trichloroethane	79-00-5	mg/kg	-	-	-	0.3	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,1-Dichloroethane	75-34-3	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,1-Dichloroethane	75-35-4	mg/kg	-	-	-	15.41	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,2,3-Trichlorobenzene	87-61-6	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,2,4-Trichlorobenzene	120-82-1	mg/kg	0.01	-	-	0.39	12	0.0024	0.0037	0.0028	0.003	Ua	0.0029	Ua	0.0024	Ua	0.0037	Ua	0.0025	Ua	0.0028	Ua	0.0029	Ua	0.0029	Ua	0.0028	Ua	0.0026	Ua	0.0027	Ua	0.0025	Ua
1,2-Dibromo-3-Chloropropane	96-12-8	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,2-Dibromoethane	106-93-4	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,2-Dichlorobenzene	95-50-1	mg/kg	0.02	-	-	0.74	12	0.0024	0.004	0.0028	0.0035	Ua	0.003	Ua	0.0024	Ua	0.004	Ua	0.003	Ua	0.0028	Ua	0.0029	Ua	0.0029	Ua	0.0028	Ua	0.003	Ua	0.003	Ua	0.0025	Ua
1,2-Dichloroethane	107-06-2	mg/kg	-	-	-	4.3	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,2-Dichloropropane	78-87-5	mg/kg	-	-	-	2.82	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
1,3-Dichlorobenzene	541-73-1	mg/kg	0.02	-	-	0.32	12	0.0024	0.015	0.0042	0.0035	Ua	0.0079	-	0.0024	Ua	0.015	-	0.003	Ua	0.0028	Ua	0.0029	Ua	0.0029	Ua	0.0028	Ua	0.0026	Ua	0.0027	Ua	0.0025	Ua
1,4-Dichlorobenzene	106-46-7	mg/kg	0.02	-	-	0.7	12	0.0024	0.0037	0.0028	0.0035	Ua	0.0029	Ua	0.0024	Ua	0.004	Ua	0.0025	Ua	0.0028	Ua	0.0029	Ua	0.0029	Ua	0.0028	Ua	0.0026	Ua	0.0027	Ua	0.0025	Ua
1,4-Dioxane	123-91-1	mg/kg	-	-	-	-	12	0.47	0.73	0.57	0.69	Ua	0.57	Ua	0.47	Ua	0.73	Ua	0.51	Ua	0.57	Ua	0.59	Ua	0.59	Ua	0.56	Ua	0.53	Ua	0.53	Ua	0.49	Ua
2-Butanone	78-93-3	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
2-Hexanone	591-78-6	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
4-Methyl-2-Pentanone	108-10-1	mg/kg	-	-	-	45.34	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Acetone	67-64-1	mg/kg	-	-	-	167.23	12	0.059	0.26	0.13	0.086	Ua	0.079	-	0.059	Ua	0.26	-	0.13	-	0.21	-	0.13	-	0.13	-	0.15	-	0.19	-	0.078	-	0.062	Ua
Benzene	71-43-2	mg/kg	0.01	-	-	-	12	0.0024	0.047	0.0091	0.0035	Ua	0.011	-	0.0024	Ua	0.047	-	0.0025	Ua	0.0028	Ua	0.0029	Ua	0.0029	Ua	0.0028	Ua	0.0026	Ua	0.0027	Ua	0.0025	Ua
Bromodichloromethane	75-27-4	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Bromoform	75-25-2	mg/kg	-	-	-	1.78	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Bromomethane	74-83-9	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Carbon Disulfide	75-15-0	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Carbon Tetrachloride	56-23-5	mg/kg	-	-	-	3.67	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Chlorobenzene	108-90-7	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Chloroethane	75-00-3	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Chloroform	67-66-3	mg/kg	0.01	-	-	4.3	12	0.0024	0.0037	0.0028	0.0035	Ua	0.0029	Ua	0.0024	Ua	0.004	Ua	0.0025	Ua	0.0028	Ua	0.0029	Ua	0.0029	Ua	0.0028	Ua	0.003	Ua	0.0027	Ua	0.0025	Ua
Chloromethane	74-87-3	mg/kg	-	-	-	8.74	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
cis-1,2-Dichloroethane	156-59-2	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
cis-1,3-Dichloropropene	10061-01-5	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Cyclohexane	110-82-7	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Dibromochloromethane	124-48-1	mg/kg	-	-	-	-	12	0.030	0.046	0.036	0.043	Ua	0.036	Ua	0.030	Ua	0.046	Ua	0.032	Ua	0.036	Ua	0.037	Ua	0.037	Ua	0.035	Ua	0.033	Ua	0.033	Ua	0.031	Ua
Dichlorodif																																		

Table 5D: Sediment Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Sediment Screening Criteria			No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SD	HSCNew-NMP-02-SD	HSCNew-NMP-03-SD	HSCNew-NMP-04-SD	HSCNew-NMP-05-SD	HSCNew-NMP-06-SD	HSCNew-NMP-07-SD	HSCNew-NMP-08-SD	HSCNew-NMP-09-SD	HSCNew-NMP-10-SD	HSCNew-NMP-11-SD	HSCNew-NMP-03-SD												
				NOAA (Marine-ERL) (b)	NOAA (Marine-ERM) (c)	Region 6 (Marine) (d)					10/6/2018	10/6/2018	10/5/2018	10/5/2018	10/4/2018	10/4/2018	10/3/2019	10/3/2018	10/2/2018	10/2/2018	10/2/2018	10/5/2018												
				Field Dup																														
2,4-Dinitrophenol	51-28-5	ug/kg	500 (e)	-	-	-	12	250	468	305	468	Ub	287	Ub	250	Ub	326	Ub	329	Ub	286	Ub	294	Ub	304	Ub	293	Ub	304	Ub	272	Ub	252	Ub
2,4-Dinitrotoluene	121-14-2	ug/kg	200 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
2,6-Dinitrotoluene	606-20-2	ug/kg	200 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
2-Chloronaphthalene	91-58-7	ug/kg	160 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
2-Chlorophenol	95-57-8	ug/kg	110 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
2-Nitrophenol	88-75-5	ug/kg	200 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
3,3-Dichlorobenzidine	91-94-1	ug/kg	300 (e)	-	-	-	12	83	156	102	156	Ub	96	Ub	83	Ub	109	Ub	110	Ub	95	Ub	98	Ub	101	Ub	98	Ub	101	Ub	91	Ub	84	Ub
4,6-Dinitro-o-cresol	534-52-1	ug/kg	600	-	-	-	12	250	468	305	468	Ub	287	Ub	250	Ub	326	Ub	329	Ub	286	Ub	294	Ub	304	Ub	293	Ub	304	Ub	272	Ub	252	Ub
4-Bromophenyl phenyl ether	101-55-3	ug/kg	160 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
4-Chloro-3-methylphenol	59-50-7	ug/kg	140 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
4-Chlorophenyl phenyl ether	7005-72-3	ug/kg	170 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
4-Nitrophenol	100-02-7	ug/kg	500 (e)	-	-	-	12	691	1300	846	1300	Ub	795	Ub	691	Ub	903	Ub	912	Ub	792	Ub	815	Ub	842	Ub	811	Ub	841	Ub	751	Ub	698	Ub
Benizidine	92-87-5	ug/kg	5	-	-	-	12	1160	2180	1426	2180	Ub	1340	Ub	1160	Ub	1520	Ub	1540	Ub	1340	Ub	1370	Ub	1420	Ub	1370	Ub	1420	Ub	1270	Ub	1180	Ub
Bis(2-chloroethoxy)methane	111-91-1	ug/kg	170 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Bis(2-chloroethyl)ether	111-44-4	ug/kg	170 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Bis(2-chloroisopropyl)ether	108-60-1	ug/kg	140 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/kg	50	-	-	182 (f)	12	22	2240	789	100	-	229	-	22	Jc	2240	-	1020	-	1800	-	1250	-	598	-	293	-	1160	-	726	-	26	Jc
Butyl Benzyl Phthalate	85-68-7	ug/kg	50	-	-	-	12	16	78	46	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	17	Jc	51	Ub	16	Jc	42	Ub
Diethyl Phthalate	84-66-2	ug/kg	50	-	-	-	12	8.1	78	48	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	8.1	Jc	51	Ub	45	Ub	42	Ub
Dimethyl Phthalate	131-11-3	ug/kg	50	-	-	-	12	24	78	49	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	24	Jc	42	Ub
Di-n-butyl Phthalate	84-74-2	ug/kg	50	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Di-n-octyl Phthalate	117-84-0	ug/kg	50	-	-	-	12	83	156	102	156	Ub	96	Ub	83	Ub	109	Ub	110	Ub	95	Ub	98	Ub	101	Ub	98	Ub	101	Ub	91	Ub	84	Ub
Hexachlorobenzene	118-74-1	ug/kg	10	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Hexachlorobutadiene	87-68-3	ug/kg	20	-	-	-	12	11	55	44	32	Jc	11	Jc	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Hexachlorocyclopentadiene	77-47-4	ug/kg	300 (e)	-	-	-	12	250	468	305	468	Ub	287	Ub	250	Ub	326	Ub	329	Ub	286	Ub	294	Ub	304	Ub	293	Ub	304	Ub	272	Ub	252	Ub
Hexachloroethane	67-72-1	ug/kg	100	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Isophorone	78-59-1	ug/kg	10	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Nitrobenzene	98-95-3	ug/kg	160 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
N-Nitrosodimethylamine	62-75-9	ug/kg	-	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
N-Nitrosodi-n-propylamine	621-64-7	ug/kg	150 (e)	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
N-Nitrosodiphenylamine	86-30-6	ug/kg	20	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
Pentachlorophenol	87-86-5	ug/kg	100	-	-	-	12	250	468	305	468	Ub	287	Ub	250	Ub	326	Ub	329	Ub	286	Ub	294	Ub	304	Ub	293	Ub	304	Ub	272	Ub	252	Ub
Phenol	108-95-2	ug/kg	100	-	-	-	12	42	78	51	78	Ub	48	Ub	42	Ub	54	Ub	55	Ub	48	Ub	49	Ub	51	Ub	49	Ub	51	Ub	45	Ub	42	Ub
PAHs (g)																																		
Acenaphthene	83-32-9	ug/kg	20	16	500	16	12	4.7	683	198	9.2	-	66	-	4.7	Ub	311	-	35	-	57	-	206	-	476	-	683	-	410	-	118	-	5.7	-
Acenaphthylene	208-96-8	ug/kg	20	44	640	44	12	2.2	92	38	12	-	89	-	2.2	Jc	92	-	23	-	21	-	39	-	55	-	21	-	39	-	57	-	3.2	Jc
Anthracene	120-12-7	ug/kg	20	85.3	1100	85.3	12	4.7	733	178	20	-	56	-	4.7	Ub	162	-	35	-	44	-	179	-	733	-	465	-	288	-	136	-	12	-
Benzo(a)anthracene	56-55-3	ug/kg	20	261	1600	261	12	8.0	902	357	45	-	82	-	8.0	-	745	-	201	-	390	-	902	-	640	-	351	-	524	-	381	-	21	-
Benzo(a)pyrene	50-32-8	ug/kg	20	430	1600	430	12	8.9	709	269	63	-	159	-	8.9	-	539	-	166	-	327	-	709	-	292	-	187	-	434	-	324	-	22	-
Benzo(b)fluoranthene	205-99-2	ug/kg	20	-	-	-	12	6.7	1110	346	61	-	76	-	6.7	-	471	-	230	-	502	-	1110	-	406	-	263	-	604	-	405	-	23	-
Benzo(e)pyrene	192-97-2	ug/kg	-	-	-	-	12	6.8	810	306	64	-	132	-	6.8	-	670	-	227	-	361	-	810	-	360	-	201	-	488	-	335	-	20	-
Benzo(g,h,i)perylene	191-24-2	ug/kg	20	-	-	-	12	7.0	671	284	108	-	526	-	7.0	-	510	-	180	-	307	-	671	-	222	-	149	-	420	-	290	-	21	-
Benzo(k)fluoranthene	207-08-9	ug/kg	20	-	-	-	12	5.2	545	203	46	-	45	-	5.2	-	238	-	108	-	270	-	545	-	250	-	164	-	439	-	311	-	17	-
Chrysene	218-01-9	ug/kg	20	384	2800	384	12	7.0	850	337	53	-	76	-	7.0	-	651	-	210	-	370	-	850	-	536	-	291	-	585	-	389	-	23	-
Dibenzo[a,h]anthracene	53-70-3	ug/kg	20	63.4	260	63.4	12	4.1	153	54	8.2	Jc	4.6	Jc	4.7	Ub	153	-	41	-	66	-	147	-	41	-	32	-	80	-	62	-	4.1	Jc
Fluoranthene	206-44-0	ug/kg	20	600	5100	600	12	14	1830	861	126	-	543	-	14	-	1240	-	307	-	739	-	1830	-	1800	-	1120	-	1580	-	990	-	49	-
Fluorene	86-73-7	ug/kg	20	19	540	19	12	4.7	614	202	10	-	51	-	4.7	Ub	200	-	49	-	77	-	252	-	614	-	602	-	436	-	126	-	5.3	-
Indeno[1,2,3-c,d]pyrene	193-39-5	ug/kg	20	-	-	-	12	7.3	563	206	58	-	171	-	7.3	-	246	-	136	-	283	-	563	-	181	-	142	-	393	-	268	-	18	-

Table 5D: Sediment Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Sediment Screening Criteria			No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SD	HSCNew-NMP-02-SD	HSCNew-NMP-03-SD	HSCNew-NMP-04-SD	HSCNew-NMP-05-SD	HSCNew-NMP-06-SD	HSCNew-NMP-07-SD	HSCNew-NMP-08-SD	HSCNew-NMP-09-SD	HSCNew-NMP-10-SD	HSCNew-NMP-11-SD	Field Dup												
				NOAA (Marine-ERL) (b)	NOAA (Marine-ERM) (c)	Region 6 (Marine) (d)					10/6/2018	10/6/2018	10/5/2018	10/5/2018	10/4/2018	10/4/2018	10/3/2019	10/3/2018	10/2/2018	10/2/2018	10/2/2018	10/5/2018												
Endosulfan I	959-98-8	ug/kg	5 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Endosulfan II	33213-65-9	ug/kg	5 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Endosulfan Sulfate	1031-07-8	ug/kg	5 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Endrin	72-20-8	ug/kg	5 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Endrin Aldehyde	7421-93-4	ug/kg	5 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Gamma-BHC (lindane)	58-89-9	ug/kg	3 (e)	-	-	0.32 (i)	12	0.17	0.86	0.38	0.29	U	0.86	-	0.19	U	0.26	U	0.81	-	0.42	-	0.76	-	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Heptachlor	76-44-8	ug/kg	3 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Heptachlor Epoxide	1024-57-3	ug/kg	3 (e)	-	-	-	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
Toxaphene	8001-35-2	ug/kg	50	-	-	-	12	6.9	12	8.7	12	U	9.4	U	7.8	U	11	U	9.0	U	8.4	U	8.4	U	6.9	U	9.1	U	7.4	U	8.5	U	7.1	U
alpha-Chlordane	5103-71-9	ug/kg	3 (e)	0.5	6	2.26 (i)	12	0.045	1.9	0.75	0.045	J	0.23	U	0.19	U	0.26	U	0.22	U	1.9	-	1.9	-	1.1	-	0.71	-	0.76	-	1.6	-	0.18	U
gamma-Chlordane	5566-34-7	ug/kg	3 (e)	0.5	6	2.26 (i)	12	0.10	2.2	0.45	0.29	U	2.2	-	0.097	J	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	1.2	-	0.18	U	0.21	U	0.18	U
Oxychlordane	26880-48-8	ug/kg	3 (e)	0.5	6	2.26 (i)	12	0.17	3.6	0.50	0.29	U	3.6	-	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
cis-Nonachlor	510-37-31	ug/kg	3 (e)	0.5	6	2.26 (i)	12	0.17	0.29	0.22	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	0.21	U	0.21	U	0.17	U	0.23	U	0.18	U	0.21	U	0.18	U
trans-Nonachlor	39765-80-5	ug/kg	3 (e)	0.5	6	2.26 (i)	12	0.17	1.4	0.48	0.29	U	0.23	U	0.19	U	0.26	U	0.22	U	1.4	-	0.21	U	0.17	U	0.79	-	0.61	-	1.3	-	0.18	U
PCBs																																		
PCB 101	37680-73-2	ug/kg	-	-	-	-	12	0.20	7.9	3.6	0.50	-	5.1	-	0.20	J	7.9	-	2.1	-	5.7	-	6.7	-	3.8	-	1.6	-	2.3	-	5.2	-	1.5	-
PCB 105	32598-14-4	ug/kg	-	-	-	-	12	0.050	1.7	0.78	0.50	U	1.7	-	0.050	J	1.5	-	0.40	-	1.0	-	1.5	-	0.90	-	0.20	J	0.60	-	0.70	-	0.30	-
PCB 118	31508-00-6	ug/kg	-	-	-	-	12	0.10	4.7	2.0	0.20	J	2.8	-	0.10	J	4.7	-	1.3	-	3.3	-	3.8	-	2.6	-	0.90	-	1.1	-	2.2	-	1.1	-
PCB 126	57465-28-8	ug/kg	-	-	-	-	12	0.20	0.40	0.31	0.30	J	0.40	U	0.30	U	0.40	U	0.40	U	0.30	U	0.30	U	0.30	U	0.20	J	0.30	U	0.30	U	0.20	J
PCB 128	38380-07-3	ug/kg	-	-	-	-	12	0.20	0.50	0.34	0.50	U	0.40	U	0.30	U	0.40	U	0.40	U	0.30	U	0.30	U	0.30	U	0.40	U	0.30	U	0.30	U	0.20	J
PCB 138	35065-28-2	ug/kg	-	-	-	-	12	0.10	7.0	3.2	0.30	J	4.5	-	0.10	J	4.9	-	2.1	-	5.5	-	6.1	-	3.7	-	1.5	-	2.0	-	7.0	-	1.0	-
PCB 153	35065-27-1	ug/kg	-	-	-	-	12	0.20	9.4	4.1	0.50	-	4.8	-	0.20	J	6.3	-	2.8	-	6.9	-	7.3	-	4.4	-	2.0	-	2.7	-	9.4	-	1.3	-
PCB 169	32774-16-6	ug/kg	-	-	-	-	12	0.30	0.50	0.35	0.50	U	0.40	U	0.30	U	0.40	U	0.40	U	0.30	U	0.30	U	0.30	U	0.40	U	0.30	U	0.30	U	0.30	U
PCB 170	35065-30-6	ug/kg	-	-	-	-	12	0.30	3.0	1.2	0.50	U	1.4	-	0.30	U	2.5	-	0.90	-	2.0	-	1.7	-	1.1	-	0.40	-	0.60	-	3.0	-	0.30	-
PCB 18	37680-65-2	ug/kg	-	-	-	-	12	0.30	7.3	2.9	0.60	-	5.5	-	0.30	U	6.3	-	2.1	-	3.1	-	7.3	-	3.0	-	1.1	-	1.7	-	2.2	-	1.2	-
PCB 180	35065-29-3	ug/kg	-	-	-	-	12	0.060	5.9	1.8	0.10	J	1.5	-	0.060	J	2.4	-	1.3	-	2.9	-	2.8	-	1.8	-	1.0	-	1.3	-	5.9	-	0.40	-
PCB 187	52663-68-0	ug/kg	-	-	-	-	12	0.030	3.0	0.97	0.090	J	1.0	-	0.030	J	1.7	-	0.40	U	1.5	-	1.5	-	0.90	-	0.60	-	0.60	-	3.0	-	0.30	-
PCB 28	7012-37-5	ug/kg	-	-	-	-	12	0.30	13	3.5	1.1	-	2.7	-	0.30	-	13	-	3.3	-	4.4	-	5.4	-	2.1	-	1.3	-	2.6	-	3.9	-	2.2	-
PCB 44	41464-39-5	ug/kg	-	-	-	-	12	0.20	5.9	2.6	0.70	-	5.1	-	0.20	J	5.9	-	1.8	-	4.0	-	4.9	-	2.0	-	1.1	-	1.5	-	2.5	-	1.2	-
PCB 52	35693-99-3	ug/kg	-	-	-	-	12	0.20	7.6	3.1	1.1	-	6.5	-	0.20	J	7.6	-	2.4	-	3.3	-	6.0	-	2.8	-	0.90	-	1.7	-	2.6	-	1.7	-
PCB 66	32598-10-0	ug/kg	-	-	-	-	12	0.20	7.6	2.3	0.60	-	4.8	-	0.20	J	7.6	-	2.1	-	2.7	-	3.4	-	1.5	-	0.50	-	0.80	-	1.9	-	1.2	-
PCB 77	32598-13-3	ug/kg	-	-	-	-	12	0.08	1.1	0.46	0.080	J	1.0	-	0.30	U	1.1	-	0.50	-	0.50	-	0.60	-	0.50	-	0.10	J	0.30	U	0.40	-	0.10	J
PCB 8	34883-43-7	ug/kg	-	-	-	-	12	0.30	4.2	0.96	0.70	-	0.40	U	0.30	U	0.40	U	0.40	U	0.30	U	0.30	U	0.50	-	1.4	-	1.6	-	1.0	-	-	-
Total PCB Congeners calculated (h)	NA	ug/kg	1	22.7	180	22.7	12	2.7	74	34	7.9	J	49	-	2.7	J	74	-	24	-	47	-	64	-	32	-	14	-	22	-	52	-	15	-
Dioxins and Furans																																		
Total TEQ (j)	NA	pg/g	-	-	-	-	12	2.8	1370	161	28	-	166	-	2.8	-	1370	-	108	-	34	-	76	-	65	-	5.5	-	15	-	8.3	-	54	-
Metals (k)																																		
Antimony	7440-36-0	mg/kg	2.5	2	-	-	12	0.10	0.52	0.33	0.27	-	0.19	-	0.10	-	0.42	-	0.28	-	0.37	-	0.50	-	0.43	-	0.41	-	0.52	-	0.32	-	0.14	-
Arsenic	7440-38-2	mg/kg	0.3 (e)	-	-	8.2	12	1.9	6.2	3.62	4.1	-	2.6	-	2.1	-	6.2	-	3.9	-	3.6	-	3.0	-	4.5	-	4.1	-	2.6	-	1.9	-	1.9	-
Barium	7440-39-3	mg/kg	-	-	-	-	12	66	263	151	129	MB-02, B	108	MB-02, B	66	MB-02, B	263	MB-02, B	137	MB-02, B	130	MB-02, B	140	MB-02, B	216	MB-02, B	49	MB-02, B	178	MB-02, B	124	MB-02, B	109	MB-02, B
Beryllium	7440-41-7	mg/kg	1 (e)	-	-	-	12	0.41	1.8	0.83	0.99	-	0.75	-	0.41	-	1.1	-	0.78	-	0.64	-	0.68	-	0.94	-	1.8	-	0.86	-	0.49	-	0.48	-
Cadmium	7440-43-9	mg/kg	0.1	1.2	9.6	1.2	12	0.058	2.1	0.61	0.18	-	0.30	-	0.058	J	2.1	-	0.56	-	0.95	-	0.82	-	0.77	-	0.39	-	0.64	-	0.50	-	0.13	-
Chromium (total)	7440-47-3	mg/kg	1 (e)	81	370	81	12	10	66	28	26	-	23	-	10	-	66	-	28	-	32	-	29	-	34	-	31	-	26	-	17	-	12	-
Chromium (3+)	7440-47-3 (III)	mg/kg	1	-	-	-	12	10	66	28	26	-	23	-	10	-	66	-	28	-	32	-	29	-	34	-	31	-	26	-	17	-	12	-
Chromium (6+)	7440-47-3 (Cr6+)	mg/kg	1	-	-	-	12	0.014	0.022	0.018	0.022	J	0.020	J	0.022	J	0.020	J	0.014	J	0.020	J	0.016	J	0.015	J	0.018	J	0.015	J	0.019	J	0.020	J
Copper	7440-50-8	mg/kg	1 (e)	34	270	34	12	4.6	40	19	14	-	11	-	4.6	-	40	-	19	-	23	-	27	-	25	-	19	-	25	-	14	-	7.0	-
Lead	7439-92-1	mg/kg	0.3 (e)	46.7	218	46.7	12	8.4	81	39	25	-	32	-	8.4	-	81	-	32	-	48	-	70	-	60	-	26	-	38	-	33	-	16	-
Mercury	7439-97-6	mg/kg	0.2	0.15	0.71	0.15	12	0.012	0.41	0.15																								

Table 5D: Sediment Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Sediment Screening Criteria			No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SD		HSCNew-NMP-02-SD		HSCNew-NMP-03-SD		HSCNew-NMP-04-SD		HSCNew-NMP-05-SD		HSCNew-NMP-06-SD		HSCNew-NMP-07-SD		HSCNew-NMP-08-SD		HSCNew-NMP-09-SD		HSCNew-NMP-10-SD		HSCNew-NMP-11-SD		HSCNew-NMP-03-SD Field Dup					
				NOAA (Marine-ERL) (b)	NOAA (Marine-ERM) (c)	Region 6 (Marine) (d)					10/6/2018		10/6/2018		10/5/2018		10/5/2018		10/4/2018		10/4/2018		10/4/2018		10/3/2019		10/3/2018		10/2/2018		10/2/2018		10/2/2018		10/2/2018		10/5/2018	
TOC Mean	NA	%	0.10%	-	-	-	12	0.15	0.61	0.38	0.47	-	0.30	-	0.15	-	0.54	-	0.39	-	0.31	-	0.49	-	0.37	-	0.38	-	0.61	-	0.41	-	0.22	-				
Ammonia as N, filtered	7664-41-7	mg/kg	0.1	-	-	-	12	13	235	124	123	B	114	B	13	B	139	B	117	B	149	B	235	B	165	B	110	B	170	B	133	B	22	B				
Petroleum Hydrocarbons																																						
>C12-C28	NA	mg/kg	-	-	-	-	12	7.3	870	168.2	30	Ja	250	-	8.3	Ja	870	-	7.3	Ja	150	-	77	-	130	-	310	-	42	Bb	44	Bb	100	-				
>C28-C35	NA	mg/kg	-	-	-	-	12	11	140	49.1	19	Ja	46	Ja	11	Ja	140	-	12	Ja	81	Bb	49	Bb	44	Bb	100	-	33	Ja	26	Ja	28	Ja				
C6-C12	NA	mg/kg	-	-	-	-	12	7.3	94	22.9	19	Ja	41	Ja	7.8	Ja	94	-	7.3	Ja	15	Ja	12	Ja	17	Ja	23	Ja	12	Ja	11	Ja	16	Ja				
C6-C35	NA	mg/kg	-	-	-	-	12	24	1100	237	62	Ja	340	-	24	Ja	1100	-	24	Ja	240	-	140	Bb	190	-	430	-	84	Bb	71	Bb	140	Bb				
Total Petroleum Hydrocarbons	8012-95-1	mg/kg	5	-	-	-	0	0	0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

FOOTNOTES- lowercase footnotes were created by the table generator

- a) The primary sources for this table were: TDLs - EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. USEPA/USACE, Regional Implementation Agreement, July 2003; US EPA SW-846 <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>;
- b) NOAA- <http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html>
- c) These values are based on recommendations from the EPA Region 6 Laboratory in Houston; these values were based on data or other technical basis;
- d) Region 6 screening benchmarks come from TCEQ's ecological benchmarks for sediment, <http://www.tceq.state.tx.us/assets/public/remediation/eco/0106geragupdate.pdf>; unless otherwise noted, benchmarks are Effects Range Low (ERL) from: Long, E.R., D.D. MacDonald, S.L. Smith, and F.D. Calder. 1995. Incidence of Adverse Biological Effects Within Ranges of Chemical Concentrations in Marine and Estuarine Sediments. Environ. Manage. 19(1):81-97; see footnote (i)
- e) These values are based on recommendations from the EPA Region 6 Laboratory in Houston; these values were based on data or other technical basis;
- f) Azobenzene is reported by the laboratory instead of 1,2-diphenylhydrazine. 1,2-diphenylhydrazine is rapidly oxidized into azobenzene during analysis.
- g) PAHs methylanthalene and 2-methylanthalene were not analyzed for by the laboratory
- h) Total PCBs for Region 6 from "Update to Guidance for Conducting Ecological Risk Assessments at Remediation Sites in Texas RG-263 (revised) January 2006; Total PCBs for NOAA from Squirt Table for Organics in Sediment
- i) Threshold Effects Level (TEL) from: Smith, S.L., D.D. MacDonald, K.A. Keenleyside, and C.L. Gaudet. 1996b. The Development and Implementation of Canadian Sediment Quality Guidelines. In: Development and Progress in Sediment Quality Assessment: Rationale, Challenges, Techniques & Strategies. Ecosion World Monograph Series. Munawar & Dave (Eds.). Academic Publishing, Amsterdam, The Netherlands.
- j) Total TEQ was calculated using 2005 WHO TEF values from Van den Berg et al; 2006 (doi:10.1093/toxsci/kfi055) and https://clu-in.org/download/contaminantfocus/dioxins/Dioxin_TEFs_for_TEQs.pdf. Total TEQ was calculated by summing all non-U qualified data.
- k) Samples for metals analysis were diluted 4X for antimony, arsenic, barium, beryllium, cadmium, chromium (total), copper, lead, nickel, selenium, silver, 1X for chromium (3+) and chromium (+6), 2X for zinc and mercury

Laboratory Qualifier

B	Analyte is found in the associated blank as well as in the sample.
Bb	Indicates the analyte was detected in the laboratory method blank analyzed concurrently with the sample.
J	Detected but below the Reporting Limit (Limit of Quantitation); therefore, result is an estimated concentration.
Ja	Estimated value. This analyte was detected in the sample at a concentration less than the laboratory Limit of Quantitation, but above the Method Detection Limit.
Jb	Estimated concentration between the EDL and RDL
Jc	Estimated value less than RL
MB-02	The method blank contains the analyte at a concentration above the MRL due to memory interferences.
U	Analyte included in the analysis, but not detected
Ua	Analyte included in the analysis, but not detected at or above the Reporting Limit
Ub	Compound was analyzed for but was not detected (non-detect)

Samples with Detections are BOLD

One or more sample concentrations exceed criteria

Sample concentration exceeds criteria

Table 5E: Sediment Analytical Results for Dioxins and Furans
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-SD			HSCNew-NMP-02-SD			HSCNew-NMP-03-SD			HSCNew-NMP-04-SD			HSCNew-NMP-05-SD			HSCNew-NMP-06-SD			HSCNew-NMP-07-SD			HSCNew-NMP-08-SD			HSCNew-NMP-09-SD			HSCNew-NMP-10-SD			HSCNew-NMP-11-SD			HSCNew-NMP-03-SD-Field														
							10/6/2018	TEF	TEQ	10/6/2018	TEF	TEQ	10/5/2018	TEF	TEQ	10/5/2018	TEF	TEQ	10/4/2018	TEF	TEQ	10/4/2018	TEF	TEQ	10/3/2018	TEF	TEQ	10/3/2018	TEF	TEQ	10/3/2018	TEF	TEQ	10/2/2018	TEF	TEQ	10/2/2018	TEF	TEQ	#####	TEF	TEQ	#####	TEF	TEQ									
1,2,3,4,6,7,8-Hepta CDD	35822-46-9	ppb/g	12	5.5	473	207	132	-	0.01	1.3	61	-	0.01	0.61	5.5	-	0.01	0.055	473	-	0.01	4.7	157	-	0.01	1.6	286	-	0.01	2.9	438	-	0.01	4.4	294	-	0.01	2.9	102	-	0.01	1.0	311	-	0.01	3.1	198	-	0.01	2.0	26	-	0.01	0.26
1,2,3,4,6,7,8-Hepta CDF	67562-39-4	ppb/g	12	0.85	124	41	20	-	0.01	0.20	18	-	0.01	0.18	0.85	Jb	0.01	0.00846	124	-	0.01	1.2	31	-	0.01	0.31	45	-	0.01	0.45	81	-	0.01	0.81	72	-	0.01	0.72	16	-	0.01	0.16	52	-	0.01	0.52	28	-	0.01	0.28	4.7	Jb	0.01	0.047
1,2,3,4,7,8,9-Hepta CDF	55673-89-7	ppb/g	12	0.61	11	3.9	2.7	Jb	0.01	0.027	2.3	Jb	0.01	0.023	5.0	Uc	0.01	0.050	11	-	0.01	0.11	3.3	Jb	0.01	0.033	3.6	Jb	0.01	0.036	6.4	-	0.01	0.064	5.3	-	0.01	0.053	1.0	Jb	0.01	0.010	3.2	Jb	0.01	0.032	2.2	Jb	0.01	0.022	0.61	Jb	0.01	0.0061
1,2,3,4,7,8-Hexa CDD	39227-28-6	ppb/g	12	0.21	5.0	1.7	1.2	Jb	0.1	0.12	0.50	Jb	0.1	0.050	5.0	Uc	0.1	0.50	2.1	-	0.1	0.21	1.0	Jb	0.1	0.10	1.3	Jb	0.1	0.13	2.2	Jb	0.1	0.22	0.81	Jb	0.1	0.081	5.0	A2946, U	0.1	0.50	1.0	Jb	0.1	0.10	0.64	Jb	0.1	0.064	0.21	Jb	0.1	0.021
1,2,3,4,7,8-Hexa CDF	70648-26-9	ppb/g	12	0.34	46	8.9	3.8	Jb	0.1	0.38	6.2	-	0.1	0.62	0.34	Jb	0.1	0.034	46	-	0.1	4.6	15	-	0.1	1.5	5.2	-	0.1	0.52	8.7	-	0.1	0.87	13	-	0.1	1.3	1.3	Jb	0.1	0.13	3.9	Jb	0.1	0.39	2.2	Jb	0.1	0.22	1.8	Jb	0.1	0.18
1,2,3,6,7,8-Hexa CDD	57653-85-7	ppb/g	12	0.34	17	5.7	2.6	Jb	0.1	0.26	2.4	Jb	0.1	0.24	0.34	Jb	0.1	0.034	17	-	0.1	1.7	3.9	Jb	0.1	0.39	6.9	-	0.1	0.69	11	-	0.1	1.1	8.4	-	0.1	0.84	2.6	Jb	0.1	0.26	6.8	-	0.1	0.68	4.5	Jb	0.1	0.45	1.0	Jb	0.1	0.10
1,2,3,6,7,8-Hexa CDF	57117-44-9	ppb/g	12	0.46	11	3.6	1.5	Jb	0.1	0.15	1.7	Jb	0.1	0.27	0.46	Jb	0.1	0.046	11	-	0.1	1.1	4.4	Jb	0.1	0.44	2.2	Jb	0.1	0.22	5.1	-	0.1	0.51	4.5	Jb	0.1	0.45	0.76	Jb	0.1	0.076	5.0	A2946, U	0.1	0.50	1.8	Jb	0.1	0.18	0.46	Jb	0.1	0.046
1,2,3,7,8,9-Hexa CDD	19408-74-3	ppb/g	12	0.41	14	4.1	4.9	Jb	0.1	0.49	1.9	Jb	0.1	0.19	0.41	Jb, A0550	0.1	0.041	14	-	0.1	1.4	3.3	Jb	0.1	0.33	4.4	Jb	0.1	0.44	6.5	-	0.1	0.65	4.1	Jb	0.1	0.41	1.7	Jb, A0550	0.1	0.17	3.9	Jb	0.1	0.39	3.0	Jb	0.1	0.30	0.88	Jb	0.1	0.088
1,2,3,7,8,9-Hexa CDF	72918-21-9	ppb/g	12	0.35	5	4.6	5.0	Uc	0.1	0.50	5.0	Uc	0.1	0.50	5.0	Uc	0.1	0.50	5.0	A2946, U	0.1	0.50	0.35	Jb	0.1	0.035	5.0	Uc	0.1	0.50	5.0	Uc	0.1	0.50	5.0	A2946, U	0.1	0.50	5.0	Uc	0.1	0.50	5.0	Uc	0.1	0.50	5.0	Uc	0.1	0.50	5.0	Uc	0.1	0.50
1,2,3,7,8-Penta CDD	40321-76-4	ppb/g	12	0.35	12	2.3	0.66	Jb	1	0.66	1.6	Jb	1	1.6	5.0	Uc	1	5.0	12	-	1	12	1.3	Jb	1	1.3	1.0	Jb	1	1.0	2.1	Jb	1	2.1	1.2	Jb	1	1.2	0.35	Jb	1	0.35	0.89	Jb	1	0.89	0.52	Jb	1	0.52	0.64	Jb	1	0.64
1,2,3,7,8-Penta CDF	57117-41-6	ppb/g	12	0.62	32	5.8	1.9	Jb	0.03	0.058	4.4	Jb	0.03	0.13	5.0	Uc	0.03	0.15	32	-	0.03	0.97	7.5	-	0.03	0.22	1.9	Jb	0.03	0.058	5.0	Jb	0.03	0.091	5.3	-	0.03	0.16	5.0	A0553, U	0.03	0.15	1.0	Jb	0.03	0.031	0.62	Jb	0.03	0.019	1.4	Jb	0.03	0.041
2,3,4,6,7,8-Hexa CDF	60851-34-5	ppb/g	12	0.22	5.0	1.7	0.72	Jb	0.1	0.072	0.62	Jb	0.1	0.062	5.0	Uc	0.1	0.50	3.5	Jb	0.1	0.35	1.1	Jb	0.1	0.11	1.3	Jb	0.1	0.13	2.5	Jb	0.1	0.25	2.3	Jb	0.1	0.23	0.51	Jb	0.1	0.051	1.4	Jb	0.1	0.14	0.99	Jb	0.1	0.099	0.22	Jb	0.1	0.022
2,3,4,7,8-Penta CDF	57117-31-4	ppb/g	12	0.19	26	4.0	1.2	Jb	0.3	0.35	3.8	Jb	0.3	1.1	0.19	Jb	0.3	0.058	26	-	0.3	7.9	3.9	Jb	0.3	1.2	1.6	Jb	0.3	0.49	3.4	Jb	0.3	1.0	3.2	Jb	0.3	0.96	0.39	Jb	0.3	0.12	1.5	Jb	0.3	0.44	0.67	Jb	0.3	0.20	1.3	Jb	0.3	0.40
2,3,7,8-Tetra CDD	1746-01-6	ppb/g	12	1.9	1070	121	18	-	1	18	130	-	1	130	2.1	-	1	2.1	1070	A2949	1	1070	76	-	1	76	19	-	1	19	46	-	1	46	39	-	1	39	1.9	-	1	1.9	4.8	-	1	4.8	2.2	-	1	2.2	40	-	1	40
2,3,7,8-Tetra CDF	51207-31-9	ppb/g	12	4.6	2620	312	50	-	0.1	5.0	304	A1369	0.1	30	4.6	-	0.1	0.46	2620	A1626	0.1	262	230	A1369	0.1	23	66	-	0.1	6.6	162	-	0.1	16	156	-	0.1	16	7.4	-	0.1	0.74	19	-	0.1	1.9	8.7	-	0.1	0.87	122	-	0.1	12
OCDD	3268-87-9	ppb/g	12	114	7480	3046	3080	-	0.0003	0.92	1020	-	0.0003	0.31	114	-	0.0003	0.034	5350	A2949	0.0003	1.6	2330	-	0.0003	0.70	3660	-	0.0003	1.10	7480	A2949	0.0003	2.2	3810	-	0.0003	1.1	1490	-	0.0003	0.45	4730	A2949	0.0003	1.4	2870	-	0.0003	0.86	623	-	0.0003	0.19
OCDF	39001-02-0	ppb/g	12	6.1	1540	342	513	-	0.0003	0.15	769	-	0.0003	0.23	6.1	Jb	0.0003	0.00183	1540	-	0.0003	0.46	165	-	0.0003	0.050	180	-	0.0003	0.054	330	-	0.0003	0.099	211	-	0.0003	0.063	52	-	0.0003	0.016	191	-	0.0003	0.057	98	-	0.0003	0.029	45	-	0.0003	0.013
Total Hepta CDD	37871-00-4	ppb/g	12	17	1100	537	451	-		165	-		17	-				1100	-		400	-		713	-		1070	-		724	-		248	-		284	-		891	-		567	-		68	-		68						
Total Hepta CDF	38998-75-3	ppb/g	12	1.8	343	135	47	-		44	-		1.8	Jb				343	-		92	-		164	-		301	-		248	-		55	-		204	-		204	-		106	-		12	-		12						
Total Hexa CDD	34465-46-8	ppb/g	12	4.0	206	64	95	-		32	-		4.0	Jb				206	-		45	-		103	-		73	-		24	-		58	-		58	-		46	-		46	-		12	-		12						
Total Hexa CDF	55684-94-1	ppb/g	12	0.92	175	58	20	-		24	-		0.92	Jb				175	-		49	-		60	-		120	-		117	-		20	-		66	-		66	-		38	-		38	-		7.5	-		7.5			
Total Penta CDD	36088-22-9	ppb/g	12	0.25	36	8.1	17	-		7.7	-		0.25	Jb				36	-		4.2	Jb		4.1	Jb		4.1	Jb		5.5	-		1.9	Jb		5.0	Jb		5.0	Jb		4.1	Jb		2.2	Jb		2.2	Jb					
Total Penta CDF	30402-15-4	ppb/g	12	0.46	157	41	13	-		26	-		0.46	Jb				157	-		34	-		28	-		83	-		77	-		14	-		36	-		36	-		17	-		8.5	-		8.5						
Total Tetra CDD	41903-57-5	ppb/g	12	2.1	1180	134	19	-		2.1	-		2.1	-				1180	-		87	-		26	-		57	-		47	-		2.5	-		9.7	-		9.7	-		2.3	-		4.3	-		4.3						
Total Tetra CDF	55722-27-5	ppb/g	12	5.9	4360	531	74	-		582	-		5.9	-				4360	-		396	-		118	-		298	-		268	-		9.3	-		47	-		47	-		8.8	-		203	-		203						
Total TEQ (a)	</																																																					

Table 5F: Modified Elutriate Testing Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Marine Water Screening Criteria				No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-EL	HSCNew-NMP-02-EL	HSCNew-NMP-03-EL	HSCNew-NMP-04-EL	HSCNew-NMP-05-EL	HSCNew-NMP-06-EL	HSCNew-NMP-07-EL	HSCNew-NMP-08-EL	HSCNew-NMP-09-EL	HSCNew-NMP-10-EL	HSCNew-NMP-11-EL	HSCNew-NMP-03-EL-Field Dup				
				TSWQS (Acute) (b)	EPA WQC (Acute) (c)	NOAA (Marine Acute) (p)	Region 6 (Marine Chronic) (q)					10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018
VOCS																											
1,1,1-Trichloroethane	71-55-6	ug/L	-	-	-	31200	1560	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,1,2,2-Tetrachloroethane	79-34-5	ug/L	-	-	-	9020	451	12	0.40	0.40	0.40	0.40	Ua	0.40	Ua	0.40	Ua	0.40	Ua	0.40	Ua	0.40	Ua				
1,1,2,2-Tetrachloro-1,2,2-trifluoroethane	76-13-1	ug/L	-	-	-	-	-	12	10	10	10	10	Ua	10	Ua	10	Ua	10	Ua	10	Ua	10	Ua				
1,1,2-Trichloroethane	79-00-5	ug/L	-	-	-	275	275	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,1-Dichloroethane	75-34-3	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,1-Dichloroethene	75-35-4	ug/L	-	-	-	224000	12500	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,2,3-Trichlorobenzene	87-61-6	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,2,4-Trichlorobenzene	120-82-1	ug/L	0.9	-	-	160	22	12	0.90	0.90	0.90	0.90	Ua	0.90	Ua	0.90	Ua	0.90	Ua	0.90	Ua	0.90	Ua				
1,2-Dibromo-3-Chloropropane	96-12-8	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,2-Dibromoethane	106-93-4	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,2-Dichlorobenzene	95-50-1	ug/L	0.8	-	-	1970	99	12	0.50	0.50	0.50	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua				
1,2-Dichloroethane	107-06-2	ug/L	-	-	-	11300	5650	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,2-Dichloropropane	78-87-5	ug/L	-	-	-	10300	-	12	0.50	0.50	0.50	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua				
1,3-Dichlorobenzene	541-73-1	ug/L	0.9	-	-	1970	142	12	0.47	0.90	0.86	0.90	Ua	0.90	Ua	0.90	Ua	0.90	Ua	0.90	Ua	0.90	Ua				
1,4-Dichlorobenzene	106-46-7	ug/L	1	-	-	1970	99	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
1,4-Dioxane	123-91-1	ug/L	-	-	-	-	-	12	80	80	80	80	Ua	80	Ua	80	Ua	80	Ua	80	Ua	80	Ua				
2-Butanone	78-93-3	ug/L	-	-	-	-	-	12	3.2	10	7.1	10	Ua	10	Ua	10	Ua	10	Ua	10	Ua	10	Ua				
2-Hexanone	591-78-6	ug/L	-	-	-	-	-	12	5.0	5.0	5.0	5.0	Ua	5.0	Ua	5.0	Ua	5.0	Ua	5.0	Ua	5.0	Ua				
4-Methyl-2-Pentanone	108-10-1	ug/L	-	-	-	61500	12	5.0	5.0	5.0	5.0	Ua	5.0	Ua	5.0	Ua	5.0	Ua	5.0	Ua	5.0	Ua	5.0				
Acetone	67-64-1	ug/L	-	-	-	282000	12	10	74	42	33	-	19	-	10	Ua	49	-	74	-	42	-	45				
Benzene	71-43-2	ug/L	2	-	-	5100	109	12	0.47	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Bromodichloromethane	75-27-4	ug/L	-	-	-	-	-	12	0.50	0.50	0.50	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua				
Bromoform	75-25-2	ug/L	-	-	-	1220	1220	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Bromomethane	74-83-9	ug/L	-	-	-	600	600	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Carbon Disulfide	75-15-0	ug/L	-	-	-	-	-	12	10	10	10	10	Ua	10	Ua	10	Ua	10	Ua	10	Ua	10	Ua				
Carbon Tetrachloride	56-23-5	ug/L	-	-	-	50000	1500	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Chlorobenzene	108-90-7	ug/L	-	-	-	105	105	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Chloroethane	75-00-3	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Chloroform	67-66-3	ug/L	2	-	-	4100	4100	12	0.50	0.50	0.50	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua				
Chloromethane	74-87-3	ug/L	-	-	-	13500	12	1.0	3.4	1.6	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
cis-1,2-Dichloroethene	156-59-2	ug/L	-	-	-	224000	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0				
cis-1,3-Dichloropropene	10061-01-5	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Cyclohexane	110-82-7	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Dibromochloromethane	124-48-1	ug/L	-	-	-	12000	12	0.50	0.50	0.50	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50				
Dichlorodifluoromethane	75-71-8	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Ethylbenzene	100-41-4	ug/L	5	-	-	430	249	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Isopropylbenzene	98-82-8	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Methyl acetate	79-20-9	ug/L	-	-	-	-	-	12	4.0	4.0	4.0	4.0	Ua	4.0	Ua	4.0	Ua	4.0	Ua	4.0	Ua	4.0	Ua				
Methyl tert-butyl ether	1634-04-4	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Methylcyclohexane	108-87-2	ug/L	-	-	-	-	-	12	1.0	1.2	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Methylene chloride	75-09-2	ug/L	-	-	-	5420	12	4.0	16	8.3	4.6	-	4.0	Jc	4.0	Jc	4.0	Jc	4.0	Jc	4.0	Jc					
o-Xylene	95-47-6	ug/L	-	-	-	-	-	12	0.43	2.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
m&p-Xylene	179601-23-1	ug/L	-	-	-	-	-	12	0.90	2.0	1.8	2.0	Ua	2.0	Ua	2.0	Ua	2.0	Ua	2.0	Ua	2.0	Ua				
Styrene	100-42-5	ug/L	-	-	-	455	455	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Tetrachloroethene	127-18-4	ug/L	2	-	-	1450	1450	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Toluene	108-88-3	ug/L	5	-	-	6300	480	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
trans-1,2-Dichloroethene	156-60-5	ug/L	-	-	-	224000	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0				
trans-1,3-Dichloropropene	10061-02-6	ug/L	-	-	-	-	-	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Trichloroethene	79-01-6	ug/L	2	-	-	2000	970	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua				
Trichlorofluoromethane	75-69-4	ug/L	-	-	-	12000	12	1.0	1.0	1.0	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0	Ua	1.0				
Vinyl chloride	75-01-4	ug/L	-	-	-	-	-	12	0.50	0.50	0.50	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua	0.50	Ua				
SVOCs																											
1,2,4-Trichlorobenzene	120-82-1	ug/L	0.9 (g)	-	-	160	22	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub				
1,2-Dichlorobenzene	95-50-1	ug/L	0.8 (g)	-	-	1970	591	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub				
Azobenzene (c)	103-33-3	ug/L	1	-	-	-	-	12	0.47	0.52	0.50																

Table 5F: Modified Elutriate Testing Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Marine Water Screening Criteria				No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-EL	HSCNew-NMP-02-EL	HSCNew-NMP-03-EL	HSCNew-NMP-04-EL	HSCNew-NMP-05-EL	HSCNew-NMP-06-EL	HSCNew-NMP-07-EL	HSCNew-NMP-08-EL	HSCNew-NMP-09-EL	HSCNew-NMP-10-EL	HSCNew-NMP-11-EL	HSCNew-NMP-03-EL-Field Dup												
				TSWQS (Acute) (b)	EPA WQC (Acute) (c)	NOAA (Marine Acute) (p)	Region 6 (Marine Chronic) (q)					10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018	10/29/2018							
2-Chlorophenol	95-57-8	ug/L	0.9 (g)	-	-	-	265	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub		
2-Methylphenol	95-48-7	ug/L	10	3060	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
2-Nitrophenol	88-75-5	ug/L	2 (g)	-	-	-	2940	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
3,3-Dichlorobenzidine	91-94-1	ug/L	3 (g)	-	-	-	730	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
4,6-Dinitro-o-cresol	534-52-1	ug/L	10	-	-	-	-	12	1.9	2.1	2.0	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.1	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.1	Ub	1.9	Ub	2.0	Ub		
4-Bromophenyl phenyl ether	101-55-3	ug/L	0.4 (g)	-	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
4-Chloro-3-methylphenol	59-50-7	ug/L	0.7 (g)	-	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
4-Chlorophenyl phenyl ether	7005-72-3	ug/L	0.6 (g)	-	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
4-Methylphenol	106-44-5	ug/L	10	-	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
4-Nitrophenol	100-02-7	ug/L	5 (g)	-	-	4850	717	12	2.4	2.6	2.5	2.5	Ub	2.5	Ub	2.5	Ub	2.5	Ub	2.6	Ub	2.5	Ub	2.5	Ub	2.5	Ub	2.6	Ub	2.4	Ub	2.5	Ub		
Benzidine	92-87-5	ug/L	1	-	-	-	-	12	19	21	20	20	Ub	20	Ub	20	Ub	20	Ub	21	Ub	20.0	Ub	20	Ub	20	Ub	21	Ub	19	Ub	20	Ub		
Bis(2-chloroethoxy)methane	111-91-1	ug/L	1 (g)	-	-	12000	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Bis(2-chloroethyl)ether	111-44-4	ug/L	0.9 (g)	-	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Bis(2-chloroisopropyl)ether	108-60-1	ug/L	0.7 (g)	-	-	-	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Bis(2-ethylhexyl) Phthalate	117-81-7	ug/L	2 (g)	-	-	400	-	12	0.10	1.7	0.27	0.17	Jb	0.10	Jb	0.10	Jb	0.15	Jb	0.19	Jb	0.14	Jb	1.7	-	0.12	Jb	0.16	Jb	0.13	Jb	0.12	Jb	0.20	Jb
Butyl Benzyl Phthalate	85-68-7	ug/L	4 (g)	-	-	2944	147	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Diethyl Phthalate	84-66-2	ug/L	1 (g)	-	-	2944	884	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Dimethyl Phthalate	131-11-3	ug/L	1 (g)	-	-	2944	580	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Di-n-butyl Phthalate	84-74-2	ug/L	1 (g)	-	-	2944	NA	12	0.15	0.68	0.28	0.68	-	0.22	Jb	0.36	Jb	0.15	Jb	0.21	Jb	0.22	Jb	0.15	Jb	0.19	Jb	0.40	Jb	0.22	Jb	0.29	Jb	0.32	Jb
Di-n-octyl Phthalate	117-84-0	ug/L	3 (g)	-	-	2944	-	12	0.94	1.0	1.0	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	1.0	Ub	0.94	Ub	1.0	Ub		
Hexachlorobenzene	118-74-1	ug/L	0.4 (g)	-	-	160	-	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Hexachlorobutadiene	87-68-3	ug/L	0.9 (g)	-	-	32	0.32	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Hexachlorocyclopentadiene	77-47-4	ug/L	3.0 (g)	-	-	7	0.07	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Hexachloroethane	67-72-1	ug/L	0.9 (g)	-	-	940	9.4	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Isophorone	78-59-1	ug/L	1	-	-	12900	1290	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Nitrobenzene	98-95-3	ug/L	0.9 (g)	-	-	6680	66.8	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
N-Nitrosodimethylamine	62-75-9	ug/L	3.1 (g)	-	-	-	3300000	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
N-Nitrosodi-n-propylamine	621-64-7	ug/L	0.9 (g)	-	-	-	120	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
N-Nitrosodiphenylamine	86-30-6	ug/L	2.1 (g)	-	-	-	3300000	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
Pentachlorophenol	87-86-5	ug/L	50	15.1	13	13	9.6	12	1.9	2.1	2.0	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.1	Ub	2.0	Ub	2.0	Ub	2.0	Ub	2.0	Ub	1.9	Ub	2.0	Ub		
Phenol	108-95-2	ug/L	10	-	-	5800	5500	12	0.47	0.52	0.50	0.50	Ub	0.51	Ub	0.50	Ub	0.51	Ub	0.50	Ub	0.52	Ub	0.50	Ub	0.51	Ub	0.51	Ub	0.52	Ub	0.47	Ub	0.50	Ub
PAHs (d)																																			
Acenaphthene	83-32-9	ug/L	0.75 (g)	-	-	970	40.4	12	0.0099	5.9	0.85	0.061	-	0.59	-	0.0099	-	0.68	-	0.18	-	0.060	-	0.47	-	1.3	-	5.9	-	0.58	-	0.17	-	0.17	-
Acenaphthylene	208-96-8	ug/L	1.0 (g)	-	-	300	-	12	0.0033	0.087	0.021	0.0033	Jb	0.087	-	0.0094	Ub	0.024	-	0.012	-	0.0066	Jb	0.017	-	0.029	-	0.029	-	0.011	-	0.015	-	0.0056	Jb
Anthracene	120-12-7	ug/L	0.6 (g)	-	-	300	0.18	12	0.0045	0.85	0.17	0.011	-	0.079	-	0.0045	Jb	0.15	-	0.037	-	0.013	-	0.096	-	0.62	-	0.85	-	0.10	-	0.013	-	0.057	-
Benzo(a)anthracene	56-55-3	ug/L	0.4 (g)	-	-	300	-	12	0.0022	0.029	0.014	0.0022	Jb	0.0062	Jb	0.0094	Ub	0.021	-	0.0091	Jb	0.013	-	0.022	-	0.026	-	0.029	-	0.012	-	0.014	-	0.0066	Jb
Benzo(a)pyrene	50-32-8	ug/L	0.3 (g)	-	-	300	-	12	0.0012	0.010	0.0043	0.0012	Jb	0.0019	Jb	0.0094	Ub	0.0044	Jb	0.0028	Jb	0.0036	Jb	0.0056	Jb	0.0033	Jb	0.0032	Jb	0.0022	Jb	0.0035	Jb	0.010	Ub
Benzo(b)fluoranthene	205-99-2	ug/L	0.6 (g)	-	-	300	-	12	0.0027	0.010	0.0059	0.0099	Ub	0.010	Ub	0.0094	Ub	0.0041	Jb	0.0030	Jb	0.0045	Jb	0.0072	Jb	0.0033	Jb	0.0034	Jb	0.0027	Jb	0.0039	Jb	0.010	Ub
Benzo(e)pyrene	192-97-2	ug/L	-	-	-	-	-	12	0.0018	0.010	0.0047	0.0018	Jb	0.0020	Jb	0.0094	Ub	0.0051	Jb	0.0035	Jb	0.0046	Jb	0.0068	Jb	0.0035	Jb	0.0034	Jb	0.0026	Jb	0.0038	Jb	0.010	Ub
Benzo(g,h,i)perylene	191-24-2	ug/L	1.2 (g)	-	-	300	-	12	0.0017	0.010	0.0055	0.0017	Jb	0.0024	Jb	0.0094	Ub	0.0026	Jb	0.0021	Jb	0.0024	Jb	0.0031	Jb	0.0099	Ub	0.010	Ub	0.010	Ub	0.0022	Jb	0.010	Ub
Benzo(k)fluoranthene	207-08-9	ug/L	0.6 (g)	-	-	300	-	12	0.0018	0.010	0.0050	0.0099	Ub	0.010	Ub	0.0094	Ub	0.0021	Jb	0.0022	Jb	0.0024	Jb	0.0040	Jb	0.0026	Jb	0.0024	Jb	0.0018	Jb	0.0030	Jb	0.010	Ub
Chrysene																																			

Table 5F: Modified Elutriate Testing Analytical Results and Screening^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	Target Detection Limit (TDL)	Marine Water Screening Criteria				No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-EL		HSCNew-NMP-02-EL		HSCNew-NMP-03-EL		HSCNew-NMP-04-EL		HSCNew-NMP-05-EL		HSCNew-NMP-06-EL		HSCNew-NMP-07-EL		HSCNew-NMP-08-EL		HSCNew-NMP-09-EL		HSCNew-NMP-10-EL		HSCNew-NMP-11-EL		HSCNew-NMP-03-EL-Field Dup			
				TSWQS (Acute) (b)	EPA WQC (Acute) (o)	NOAA (Marine Acute) (p)	Region 6 (Marine Chronic) (q)					10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018		10/29/2018	
>C28-C35	NA	ug/L	-	-	-	-	-	12	4400	4900	4683	4800	Uc	4900	Uc	4700	Uc	4800	Uc	4800	Uc	4600	Uc	4600	Uc	4700	Uc	4900	Uc	4400	Uc	4600	Uc	4400	Uc	4400	Uc
C6-C12	NA	ug/L	-	-	-	-	-	12	4400	4900	4683	4800	Uc	4900	Uc	4700	Uc	4800	Uc	4800	Uc	4600	Uc	4600	Uc	4700	Uc	4900	Uc	4400	Uc	4600	Uc	4400	Uc	4400	Uc
C6-C35	NA	ug/L	-	-	-	-	-	12	8800	9800	9358	9500	Uc	9800	Uc	9400	Uc	9600	Uc	9600	Uc	9200	Uc	9200	Uc	9300	Uc	9800	Uc	8900	Uc	9200	Uc	8800	Uc	8800	Uc
Total Petroleum Hydrocarbons	8012-95-1		100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

FOOTNOTES- lowercase footnotes were created by the table generator

- a) The primary sources for this table were: TDLs - EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. USEPA/USACE, Regional Implementation Agreement, July 2003; US EPA SW-846 <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>;
- b) TSWQS Rule 307.6- (2014) <https://www.tceq.texas.gov/waterquality/standards> ; **NOTE**2018 TSWQSs were adopted by the commission on February 7, 2018, these Standards are effective for all state permits; however, until approved by USEPA, the 2014 Standards apply to federal permits.
- c) Azobenzene is reported by the laboratory instead of 1,2-diphenylhydrazine. 1,2-diphenylhydrazine is rapidly oxidized into azobenzene during analysis.
- d) PAHs methylnaphthalene and 2-methylnaphthalene were not analyzed for by the laboratory
- e) PAHs did not have any elevated RL. PAH (total) calculated was determined by summing all non-U qualified data.
- f) Total PCBs were not calculated since all analytes were nondetect, U qualified, and there were no elevated RL. Except for Sample HSCNew-NMP-011-EL which had detected concentrations of PCBs amd were
- g) These values are based on recommendations from the EPA Region 6 laboratory in Houston; these values were based on data or other technical basis;
- h) The values in parentheses are based on EPA "clean techniques", (EPA 1600 series methods) which are applicable in instances where other TDLs are inadequate to assess EPA water quality criteria;
- i) This value recommended by Houston lab using colorimetric method. This value is based upon FREE cyanide, not complexed as the method is designed to analyze for. If free cyanide is expected, consult the laboratory as to the best method for quantifying free cyanide;
- j) Total TEQ was calculated using 2005 WHO TEF values from Van den Berg et al; 2006 (doi:10.1093/toxsci/kfl055) and https://clu-in.org/download/contaminantfocus/dioxins/Dioxin_TEFs_for_TEQs.pdf. Total TEQ was calculated by summing all non-U qualified data. Total TEQ does not include J qualified result for Total Hepta CDD, Total Hepta CDF, Total Tetra CDD, and Total Tetra CDF since there is no reported TEF for Total Hepta CDD, Total Hepta CDF, Total Tetra CDD, and Total Tetra CDF.
- l) Metals are expressed as Dissolved values in water samples, except for mercury and selenium, which shall be reported as Total Recoverable Concentrations;
- m) Samples for metals analysis were diluted 10X for antimony, arsenic, barium, beryllium, cadmium, chromium (total), copper, lead, nickel, selenium, silver, thallium and zinc, 1X for chromium (3+), 2X for chromium (6+) and mercury
- n) 6010/6020 are not suitable Methods for Cr+6. If Cr+6 is suspected from past dredging history or industrial landuse in the vicinity, US EPA SW-846 Method 7199 (modified);
- o) EPA WQC- <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>; see EPA footnote section below for individual EPA value footnotes
- p) NOAA- <http://response.restoration.noaa.gov/cpr/sediment/squirt/squirt.html>
- q) Region 6 screening benchmarks come from TCEQ's ecological benchmarks for water,

EPA WQC footnotes- uppercase and double-lettered footnotes are directly from the NRWQC footnotes; only footnotes for constituents of concern are retained in this table

- A) This recommended water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive. Please consult the criteria document for details.
- D) Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic life Metals Criteria (PDF)," (49 pp, 3MB) October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available on NSCEP's web site and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble- Conversion Factors for Dissolved Metals.
- G) This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (PDF) (153 pp, 7.3MB) (EPA 440/5-80-019), Chlordane (PDF) (68 pp, 3.1MB) (EPA 440/5-80-027), DDT (PDF) (175 pp, 8.3MB) (EPA 440/5-80-038), Endosulfan (PDF) (155 pp, 7.3MB) (EPA 440/5-80-046), Endrin (PDF) (103 pp, 4.6MB) (EPA 440/5-80-047), Heptachlor (PDF) (114 pp, 5.4MB) (EPA 440/5-80-052), Hexachlorocyclohexane (PDF) (109 pp, 4.8MB) (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines (PDF) (104 pp, 3.3MB). If evaluation is to be done using an averaging period, the acute criteria values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.
- Q) This recommended water quality criterion is expressed as ug free cyanide (as CN)/l.
- Y) This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.
- cc) When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.
- dd) Selenium criteria document [EPA 440/5-87-006, September 1987]states that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the conc.of selenium exceeds 5.0 µg/l in salt water because the saltwater CCC does not take into account uptake via the food chain.
- ii)This criterion applies to DDT and its metabolites (i.e., the total conc. DDT plus metabolites should not exceed this value).

Laboratory Qualifiers

CCV-L	The CCV was below acceptable limits leading to negative bias in the results for this analyte.
Cl	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.☒
E	Reported concentration exceeds the calibration range of the instrument for that specific analysis for organics. Reported value is estimated due to the presence of an interference for inorganics
H	This sample was extracted and/or analyzed outside of the EPA recommended holding time.
J	Detected but below the Reporting Limit (Limit of Quantitation); therefore, result is an estimated concentration.
Ja	Estimated concentration between the EDL and RDL
Jb	Estimated value less than RL
Jc	The reported result is an estimated value.
N	Spiked sample recovery not within control limits
Q	Value is outside of acceptance limits.☒
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate/s.
U	Analyte included in the analysis, but not detected
Ua	Analyte included in the analysis, but not detected at or above the Reporting Limit
Ub	Compound was analyzed for but was not detected (non-detect)
Uc	Indicates the compound was analyzed for but not detected above the specified level.
Ud	Undetected at the limit of quantitation.
Z-03	See case narrative.

Samples with Detections are BOLD

- One or more sample concentrations exceed screening criteria
- Sample concentration exceeds criteria

Table 5G: Modified Elutriate Testing Analytical Results for Dioxins and Furans^a
Houston Ship Channel Expansion Channel Improvement Project (HSC ECIP), North of Morgan's Point
Houston Ship Channel, TX

Analyte	CAS No.	Units	No. of Samples	Sample Min	Sample Max	Sample Mean	HSCNew-NMP-01-EL			HSCNew-NMP-02-EL			HSCNew-NMP-03-EL			HSCNew-NMP-04-EL			HSCNew-NMP-05-EL			HSCNew-NMP-06-EL			HSCNew-NMP-07-EL			HSCNew-NMP-08-EL			HSCNew-NMP-09-EL			HSCNew-NMP-10-EL			HSCNew-NMP-11-EL			HSCNew-NMP-03-EL-Field										
							10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	REF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ	10/29/2018	TEF	TEQ								
1,2,3,4,6,7,8-Hepta CDD	35822-46-9	pg/L	12	5.6	51	43	6.2	Ja	0.01	0.062	50	Ud	0.01	0.50	50	Ud	0.01	0.50	51	Ud	0.01	0.51	50	Ud	0.01	0.50	50	Ud	0.01	0.50	50	Ud	0.01	0.50	51	Ud	0.01	0.51	48	Ud	0.01	0.48	50	Ud	0.01	0.50				
1,2,3,4,6,7,8-Hepta CDF	67562-39-4	pg/L	12	47	51	50	51	Ud	0.01	0.51	50	Ud	0.01	0.50	50	Ud	0.01	0.50	51	Ud	0.01	0.51	50	Ud	0.01	0.50	50	Ud	0.01	0.50	50	Ud	0.01	0.50	51	Ud	0.01	0.51	48	Ud	0.01	0.48	50	Ud	0.01	0.50				
1,2,3,4,7,8,9-Hepta CDF	55673-89-7	pg/L	12	47	51	50	51	Ud	0.01	0.51	50	Ud	0.01	0.50	50	Ud	0.01	0.50	51	Ud	0.01	0.51	50	Ud	0.01	0.50	50	Ud	0.01	0.50	50	Ud	0.01	0.50	51	Ud	0.01	0.51	48	Ud	0.01	0.48	50	Ud	0.01	0.50				
1,2,3,4,7,8-Hexa CDD	39227-28-6	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
1,2,3,4,7,8-Hexa CDF	70648-26-9	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
1,2,3,6,7,8-Hexa CDD	57653-85-7	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
1,2,3,6,7,8-Hexa CDF	57117-44-9	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
1,2,3,7,8,9-Hexa CDD	19408-74-3	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
1,2,3,7,8,9-Hexa CDF	72918-21-9	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
1,2,3,7,8-Penta CDD	40321-76-4	pg/L	12	47	51	50	51	Ud	1	51	50	Ud	1	50	50	Ud	1	50	51	Ud	1	51	50	Ud	1	50	50	Ud	1	50	50	Ud	1	50	51	Ud	1	51	48	Ud	1	48	50	Ud	1	50				
1,2,3,7,8-Penta CDF	57117-41-6	pg/L	12	47	51	50	51	Ud	0.03	1.5	50	Ud	0.03	1.5	50	Ud	0.03	1.5	51	Ud	0.03	1.5	50	Ud	0.03	1.5	50	Ud	0.03	1.5	50	Ud	0.03	1.5	51	Ud	0.03	1.5	48	Ud	0.03	1.4	50	Ud	0.03	1.5				
2,3,4,6,7,8-Hexa CDF	60851-34-5	pg/L	12	47	51	50	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	50	Ud	0.1	5.0	50	Ud	0.1	5.0	50	Ud	0.1	5.0	51	Ud	0.1	5.1	48	Ud	0.1	4.8	50	Ud	0.1	5.0				
2,3,4,7,8-Penta CDF	57117-31-4	pg/L	12	47	51	50	51	Ud	0.3	15	50	Ud	0.3	15	50	Ud	0.3	15	51	Ud	0.3	15	50	Ud	0.3	15	50	Ud	0.3	15	50	Ud	0.3	15	51	Ud	0.3	15	48	Ud	0.3	14	50	Ud	0.3	15				
2,3,7,8-Tetra CDD	1746-01-6	pg/L	12	2.5	10	8.6	10	Ud	1	10	10	Ud	1	10	10	Ud	1	10	7.9	Ja	1	7.9	10	A4910, U	1	10	10	Ud	1	10	10	Ud	1	10	10	Ud	1	10	9.5	Ud	1	9.5	2.5	Ja	1	2.5				
2,3,7,8-Tetra CDF	51207-31-9	pg/L	12	4.1	22	9.4	10	Ud	0.1	1.0	5.2	Ja	0.1	0.52	10	Ud	0.1	1.0	22	-	0.1	2.2	4.1	Ja	0.1	0.41	10	A3470, U	0.1	1.0	6.1	Ja	0.1	0.61	10	Ud	0.1	1.0	10	Ud	0.1	1.0	9.5	Ud	0.1	0.95	5.7	Ja	0.1	0.57
OCDD	3268-87-9	pg/L	12	11	101	85	101	A3470, U	0.0003	0.030	100	Ud	0.0003	0.030	100	Ud	0.0003	0.030	101	Ja	0.0003	0.0034	100	A3470, U	0.0003	0.030	94	A3470, U	0.0003	0.028	12	Ja	0.0003	0.0035	100	A3470, U	0.0003	0.030	101	A4997, U	0.0003	0.030	95	A3470, U	0.0003	0.029	100	A3470, U	0.0003	0.030
OCDF	39001-02-0	pg/L	12	11	101	92	11	Ja	0.0003	0.00321	100	Ud	0.0003	0.030	100	Ud	0.0003	0.030	101	Ud	0.0003	0.030	100	Ud	0.0003	0.030	94	Ud	0.0003	0.028	100	Ud	0.0003	0.030	100	Ud	0.0003	0.030	101	Ud	0.0003	0.030	95	Ud	0.0003	0.029	100	Ud	0.0003	0.030
Total Hepta CDD	37871-00-4	pg/L	12	3.6	51	41	23	Ja	(f)		50	Ud		50	Ud		50	Ud	51	Ud		50	Ud		3.6	Ja	(f)	12	Ja	(f)		50	Ud		50	Ud		51	Ud		48	A4997, U		50	Ud					
Total Hepta CDF	38998-75-3	pg/L	12	2.7	51	46	51	Ud			50	Ud		50	Ud		50	Ud	51	Ud		50	Ud		2.7	Ja	(g)		50	Ud		50	Ud		50	Ud		51	Ud		48	Ud		50	Ud					
Total Hexa CDD	34465-46-8	pg/L	12	47	51	50	51	Ud			50	Ud		50	Ud		50	Ud	51	Ud		50	Ud		47	Ud		50	Ud		50	Ud		50	Ud		51	Ud		48	Ud		50	Ud						
Total Hexa CDF	55684-94-1	pg/L	12	47	51	50	51	Ud			50	Ud		50	Ud		50	Ud	51	Ud		50	Ud		47	Ud		50	Ud		50	Ud		50	Ud		51	Ud		48	Ud		50	Ud						
Total Penta CDD	36088-22-9	pg/L	12	47	51	50	51	Ud			50	Ud		50	Ud		50	Ud	51	Ud		50	Ud		47	Ud		50	Ud		50	Ud		50	Ud		51	Ud		48	Ud		50	Ud						
Total Penta CDF	30402-15-4	pg/L	12	47	51	50	51	Ud			50	Ud		50	Ud		50	Ud	51	Ud		50	Ud		47	Ud		50	Ud		50	Ud		50	Ud		51	Ud		48	Ud		50	Ud						
Total Tetra CDD	41903-57-5	pg/L	12	2.5	10	8.6	10	Ud			10	Ud		10	Ud		10	Ud	7.9	Ja	(e)		10	A4910, U		10	Ud		2.5	Ja	(e)		10	Ud		10	Ud		10	Ud		9.5	Ud		2.5	Ja	(e)			
Total Tetra CDF	55722-27-5	pg/L	12	5.9	34	11	10	Ud			7.7	Ja	(d)	10	Ud		10	Ud	34	-	(d)	5.9	Ja	(d)	10	A3470, U		9.2	Ja	(d)	10	Ud		10	Ud		10	Ud		9.5	Ud		8.8	Ja	(d)					
Total TEQ (c)		pg/L							0.062				0.52			0			10					0.42			0																		3.1					

a) The primary sources for this table were: TDIs - EPA 823-B-95-001, QA/QC Guidance for Sampling and Analysis of Sediments, Water and Tissues for Dredged Material Evaluations. USEPA/USACE, Regional Implementation Agreement, July 2003; US EPA SW-846 <http://www.epa.gov/epawaste/hazard/testmethods/sw846/online/index.htm>;
b) TSWQS Rule 307.6- (2014) <https://www.tceq.texas.gov/waterquality/standards>; **NOTE**2018 TSWQSs were adopted by the commission on February 7, 2018, these Standards are effective for all state permits; however, until approved by USEPA, the 2014 Standards apply to federal permits.
c) Total TEQ was calculated using 2005 WHO TEQ values from Van den Berg et al; 2006 (doi:10.1093/toxsci/kfi055) and https://clu-in.org/download/contaminantfocus/dioxins/Dioxin_TEFs_for_TEQs.pdf. Total TEQ was calculated by summing all non-U qualified data.
d) Total TEQ does not include J qualified result for Total Tetra CDF since there is no reported TEF for Total Tetra CDF.
e) Total TEQ does not include J qualified result for Total Tetra CDD since there is no reported TEF for Total Tetra CDD.
f) Total TEQ does not include J qualified result for Total Hepta CDD since there is no reported TEF for Total Hepta CDD.
g) Total TEQ does not include J qualified result for Total Hepta CDF since there is no reported TEF for Total Hepta CDF.

Laboratory Qualifier
* Duplicate analysis not within control limits
A3470 RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
A4997 EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit. RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
Ja Estimated concentration between the EDL and RDL
Ud Undetected at the limit of quantitation.

Samples with Detections are BOLD

Appendix 6: Analytical Laboratory Reports

Analytical Reports: Site Water



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

22 May 2019

Cheryl Montgomery
ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg, MS 39180

RE: Houston Ship Channel-North of Morgan's Point

Enclosed are the results of analyses for samples received by the laboratory on 22-Oct-2018. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer than these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam
Database Manager



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
22-May-2019

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
HSCNew-NMP-01-SW	18J0401-01	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-02-SW	18J0401-02	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-03-SW	18J0401-03	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-04-SW	18J0401-04	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-05-SW	18J0401-05	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-06-SW	18J0401-06	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-07-SW	18J0401-07	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-08-SW	18J0401-08	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-09-SW	18J0401-09	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-10-SW	18J0401-10	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-11-SW	18J0401-11	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-03-SW-Field DUP	18J0401-13	Water	22-Oct-2018	22-Oct-2018
HSCNew-NMP-EQPB	18J0401-14	Water	06-Oct-2018	22-Oct-2018
HSCNew-NMP-EQPB	18J0401-15	Water	22-Oct-2018	22-Oct-2018

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
22-May-2019

Case Narrative

No issues were experienced during the analysis of Work Order 18J0401 unless specified below.

SVOC/PAH/PCP- SVOC/PAH/PCP- The RL of 20 ug/L exceeded the TDL of 1 ug/L for benzidine for all the samples. Benzidine was not detected in any of the samples. Azobenzene was reported instead of 1,2-phenylhydrazine due to the degradation of 1,2-phenylhydrazine in the injection port of the GC/MS. The WG 1167814-3 LCD recovery, associated with HSCNew-NMP-EQPPB (L1841553-01), was below the acceptance criteria for benzidine (9%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported. The WG 1167722-1 method blank has concentrations above the reporting limit for several compounds. The results of the original analysis are reported and are qualified with a "B" for any associated sample concentrations that are less than 10x the blank concentration for this analyte. For HSCNew-NMP-07-SW (L1843397-07) and HSCNew-NMP-11-SW (L1843397-11), the surrogate recoveries were outside the acceptance criteria for 2-fluorophenol (13%) and phenol-d5 (12%) (Project Limits=30-150); however, re-extraction could not be performed due to lack of additional sample. The results of the original analysis are reported; however, all associated compounds are considered to have a potential low bias. The WG 1173490-2/-3 LCS/LCSD recoveries, associated with all of the samples were below the acceptance criteria for benzoic acid (5%/4%); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported. The matrix spike/matrix spike duplicate (MS/MSD) was not performed on the SVOC/PAH/PCP due to insufficient sample volume.

Pests- The equipment rinsate, HSCNew-NMP-EQPB, was extracted five days outside of holding time due to a laboratory processing error. One of the continuing calibration verification (CCV) standards had low recoveries of 83.3 and 82.9% for 4,4'-DDT and oxychlorane, respectively (Project Limits 85-115%); however, the recoveries were within the DOD QSM 5.1 limits of 80-120%. The initial calibrating verification (ICV) standard had an elevated recovery of 127% (Project Limits=80-120%) for delta-BHC. The results of toxaphene for the ICV was not reportable. The ICV it is a second source standard that did not match the pattern of the standard used for the calibration. SW846 states that some toxaphene components, particularly the more heavily chlorinated components, are subject to dechlorination reactions. As a result, standards from different vendors may exhibit differences, which could lead to possible false negative results or large differences in quantitative results. No bias was observed for the pesticide results based on the quality control samples.

PCBs- The laboratory control sample/laboratory control duplicate (LCS/LCD) and MS/MSD had elevated recoveries ranging from 156-177% (Project Limits=50-150%) for PCB 170. The MS/MSD had elevated recoveries ranging from 160 and 167%, respectively, (Project Limits=50-150%) for PCB 153. No bias was observed for the PCB congener results based on the quality control samples.

VOCs- The chain of custody did not request VOCs for the sediment equipment rinsate, HSCNew-NMP-EQPB. The LCS had an elevated recovery of 157% (Laboratory Limits=45-150%) for tetrachloroethylene but the MS/MSD had acceptable recoveries based on laboratory limits of 45-150%. No significant bias was suspected for the VOC results.

TPH- The chain of custody did not request TPH for the sediment equipment rinsate, HSCNew-NMP-EQPB. The RLs ranging from of 5,000-10,000 ug/L exceeded the TDL of 100 ug/L for TPH by TCEQ (TNRRRC) 1005. The hydrocarbon ranges were not detected above the RL for all of the samples.

CN- Residual Chlorine or other oxidizing agent was detected in the container of all the site waters. Chlorine is an interference that can decompose cyanides; therefore, the results may have a negative bias.

Metals- The duplicate had an elevated RPD of 72.3% (Project Limits=30%) for antimony; however, the RPD was calculated using estimated concentrations below the RL of 0.005 mg/L. One of the two matrix spike duplicates had a low recovery of 57.8% (Project Limits=70-130%) for zinc. The recoveries for the LCSs and MS and MS/MSD were within the acceptable project limits for zinc. No bias was observed for the metal results based on the quality control samples.



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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
22-May-2019

Notes and Definitions

- Jc The reported result is an estimated value.
- * Duplicate analysis not within control limits
- A8644 EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
- A9428 RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.
 RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
- A9439 RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
 EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
- A9441 RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
- A9444 RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.
- B Analyte found in both sample and associated blank
- CCV-HA The CCV was above acceptable limits meaning that the instrument became more sensitive during the analysis. Since the result was non-detect for all analytes, the batch was accepted based on EPA SW-846 criteria.
- CCV-L The CCV was below acceptable limits leading to negative bias in the results for this analyte.
- Cl Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
- H This sample was extracted and/or analyzed outside of the EPA recommended holding time.
- J Detected but below the Reporting Limit (Limit of Quantitation); therefore, result is an estimated concentration.
- Jb Estimated value less than RL
- Z-03 See case narrative.
- Jd Used for Pesticides, PCBs, Herbicides, Formaldehyde, Explosives and Method 504.1 analytes when there is a greater than 40 % difference for detected concentrations between the two GC columns.
- L LCS recovery is outside of established acceptance limits
- N Spiked sample recovery not within control limits
- Q Value is outside of acceptance limits.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- Q-SURR Percent Recovery is outside project limits of 30-150% but within laboratory limits of 15-115%.
- RPD-01 Analyses are not controlled on RPD values from sample concentrations less than the reporting limit.
- U Analyte included in the analysis, but not detected



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Project Manager: Cheryl Montgomery

Reported:

22-May-2019

Notes and Definitions

- Ua Analyte included in the analysis, but not detected at or above the Reporting Limit
- Ub Compound was analyzed for but was not detected (non-detect)
- Uc Indicates the compound was analyzed for but not detected above the specified level.
- Ud Undetected at the limit of quantitation.
- Ja Estimated concentration between the EDL and RDL
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference



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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW
18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0046	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0019	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0740	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0013	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0025	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0013	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0013	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0092	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0571	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00050	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	0.00080	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, J
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00382	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW

18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0674			67.4 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0894			74.5 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW

18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.115	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.077		77.3 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.091		76.0 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.106	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	11.2	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	10.8		<i>54 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	10.4		<i>52 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	5.26		<i>26 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.196	0.081		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW

18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	11.1		<i>56 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	4.56		<i>23 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	9.68		<i>48 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.366		<i>73 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00161		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	ND	0.00084		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.431		<i>86 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	ND	0.00127		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(g,h,i)perylene	0.00138	0.00131		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Chrysene	ND	0.000936		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00231	0.00149		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.0144	0.000533		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	
Naphthalene	0.0238	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	
Phenanthrene	ND	0.00189		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW

18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.0037	0.00152		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.421		84 %	30-130		27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.73		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.72		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.21		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.17		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.17		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	28.2	2.6		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
Octa CDF	ND	3.16		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	2.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW

18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.72		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.17		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.17		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1540		77 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1740		87 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1800		90 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1840		92 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1780		89 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1740		87 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1980		99 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1820		91 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1900		95 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1620		81 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1780		89 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1720		86 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1880		94 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1740		87 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1440		72 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3880		97 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3500		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3500		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	91.7		91.7 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	2600	1800		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Jd

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-01-SW
18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6200		9000	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	103		<i>103 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SW

18J0401-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	54.0			<i>108 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.5			<i>91.0 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	51.6			<i>103 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	49.2			<i>98.4 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SW

18J0401-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0016	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0025	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0802	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0008	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0024	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0018	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0013	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0765	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00030	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

HSCNew-NMP-02-SW

18J0401-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0647			64.7 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0942			78.5 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SW

18J0401-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.205	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.074		73.8 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.088		73.3 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0884	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	7.60	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.079		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	24.9		<i>123 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>N</i>
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	18.7		<i>92 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	10.6		<i>52 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	0.116		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.188	0.082		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.182		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SW

18J0401-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1.01	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	20.8		<i>103 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	8.63		<i>43 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	20		<i>99 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.362		<i>72 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00161		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	ND	0.00084		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.458		<i>92 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	ND	0.00127		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(g,h,i)perylene	ND	0.00131		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Chrysene	ND	0.000936		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00196	0.00149		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00739	0.000533		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.0117	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	ND	0.00189		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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Alpha

PAHs by GC/MS SIM

Pyrene	0.0024	0.00152		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.428		86 %		30-130	27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.27		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.26		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.02		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.04		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.04		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.19		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.03		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	16.9		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9441, U
Octa CDF	ND	2.8		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	2.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.26		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.19		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.03		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1540		77 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1660		83 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1760		88 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1740		87 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1740		87 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1660		83 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1900		95 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1780		89 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1980		99 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1680		84 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1680		84 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1640		82 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	2060		103 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1620		81 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1440		72 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3680		92 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	105		105 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SW

18J0401-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6400		9300	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	113		<i>113 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	1.61	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SW

18J0401-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	53.7			<i>107 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	47.2			<i>94.4 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	53.2			<i>106 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	49.7			<i>99.4 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW

18J0401-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0021	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0727	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0011	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0030	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0010	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0017	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0009	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0780	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00090	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	0.00526	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	J
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00433	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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HSCNew-NMP-03-SW

18J0401-03 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0691			69.1 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0894			74.5 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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18J0401-03 (Water)

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.230	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.080		80.1 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.087		72.8 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-03-SW
18J0401-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0688	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	8.00	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	11.9		<i>59 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.66		<i>48 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	5.2		<i>26 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.174	0.081		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW

18J0401-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	9.91		<i>50 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	4.09		<i>20 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	11.3		<i>57 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.288		<i>58 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00161		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	0.00154	0.00084		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00264	0.00148		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.443		<i>89 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00251	0.00127		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00257	0.00131		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00197	0.00117		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Chrysene	0.00211	0.000936		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00324	0.00149		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00876	0.000533		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.00361	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	ND	0.00189		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW

18J0401-03 (Water)

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Alpha

PAHs by GC/MS SIM

Pyrene	0.0048	0.00152		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.417		83 %		30-130	27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.45		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.44		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.03		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.09		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	40		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9441, U
Octa CDF	ND	3.06		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	4.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9441, U

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.45		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.03		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.09		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1440		72 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1660		83 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1800		90 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1760		88 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1760		88 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1720		86 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1900		95 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1780		89 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1920		96 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1620		81 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1660		83 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1620		81 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1940		97 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1660		83 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1420		71 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3640		91 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	103		103 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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Katahdin

TNRCC 1005

C6-C35	ND	6300		9100	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	112		<i>112 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	0.95	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	2.26	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW

18J0401-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	53.0			<i>106 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	47.3			<i>94.6 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	50.2			<i>100 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	49.2			<i>98.4 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SW

18J0401-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0031	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0724	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	0.0022	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0013	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0792	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	0.00388	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SW

18J0401-04 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0607			60.7 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0984			82.0 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SW

18J0401-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.320	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.078		78.2 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.090		75.0 %	30-150		26-Oct-2018	13-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0788	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	6.40	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	11.1		<i>55 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.16		<i>46 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	4.78		<i>24 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.207	0.081		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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Alpha

Semivolatiles by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	10		<i>50 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.96		<i>20 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	9.5		<i>48 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.348		<i>70 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.002	0.00161		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Acenaphthylene	ND	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	ND	0.00084		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.452		<i>90 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	ND	0.00127		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(g,h,i)perylene	ND	0.00131		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Chrysene	0.00125	0.000936		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00242	0.00149		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00769	0.000533		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.00762	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	ND	0.00189		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SW

18J0401-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.0028	0.00152		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.423		85 %		30-130	27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.32		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.5		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.49		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.04		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.24		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.33		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.29		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.25		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.2		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.08		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.12		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	17.2		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9444, U
Octa CDF	ND	3.09		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	2.32		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SW

18J0401-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.5		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.26		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.25		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.12		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1460		73 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1880		94 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	2000		100 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	2100		105 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1980		99 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1960		98 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2120		106 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	2020		101 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1920		96 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1640		82 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1880		94 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1860		93 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	2040		102 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1640		82 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1400		70 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	4280		107 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	96.7		96.7 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-04-SW
18J0401-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6300		9100	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	106		<i>106 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	0.58	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	1.70	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SW

18J0401-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	54.4			<i>109 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.3			<i>90.6 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.8			<i>110 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.4			<i>101 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

HSCNew-NMP-05-SW

18J0401-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0028	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0741	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0028	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0030	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0010	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0025	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0624	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.002	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	0.002	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00376	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SW

18J0401-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0658			65.8 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0942			78.5 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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HSCNew-NMP-05-SW

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Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.290	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	13-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.079			79.1 %	30-150	26-Oct-2018	13-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.086			71.3 %	30-150	26-Oct-2018	13-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0736	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	7.20	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	11.7		<i>59 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.92		<i>50 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	5.88		<i>29 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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HSCNew-NMP-05-SW

18J0401-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	11.1		<i>55 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	4.39		<i>22 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	10.2		<i>51 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.37		<i>74 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00161		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	0.00204	0.00084		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00339	0.00148		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.449		<i>90 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>09-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00307	0.00127		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00308	0.00131		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00245	0.00117		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Chrysene	0.0027	0.000936		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00444	0.00149		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00173		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00894	0.000533		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.00188	0.00177		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	ND	0.00189		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.00659	0.00152		0.01	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.426		85 %		30-130	27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.41		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	A8644, U
1,2,3,4,6,7,8-Hepta CDF	ND	1.31		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.31		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.03		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	0.729		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.04		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	0.783		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.05		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	0.757		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.72		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	0.924		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	0.705		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.841		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.24		10	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	0.869		10	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Octa CDD	31.3	1.65		100	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ja
Octa CDF	ND	1.59		100	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Hepta CDD	3.3	1.02		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ja

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SW

18J0401-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.31		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.05		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	0.742		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.72		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Penta CDF	ND	0.88		50	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.24		10	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	0.869		10	pg/L	28-Nov-2018	02-Dec-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	2020		101 %	35-197		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	2320		116 %	23-140		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	2120		106 %	28-143		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	2340		117 %	32-141		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	2000		100 %	26-152		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	2160		108 %	28-143		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2480		124 %	28-130		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	2160		108 %	26-123		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	2340		117 %	25-181		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1880		94 %	24-185		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	2100		105 %	28-136		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	2000		100 %	29-147		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	2200		110 %	21-178		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	2300		115 %	24-164		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	2180		109 %	24-169		28-Nov-2018	02-Dec-2018	EPA 1613B m	
Surrogate: C13-OCDD	5000		125 %	17-157		28-Nov-2018	02-Dec-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	91.3		91.3 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SW

18J0401-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6300		9200	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	100		<i>100 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	1.91	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SW

18J0401-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	56.4			<i>113 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.6			<i>91.1 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	52.5			<i>105 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.2			<i>100 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SW

18J0401-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0025	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0643	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	0.0023	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0014	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0909	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00040	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	0.013	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00425	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0656			65.6 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.102			85.0 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.290	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.085		84.7 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.10		85.4 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SW

18J0401-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0643	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	12.7	0.667	1.33	3.33	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.079		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	10.6		52 %	15-115		29-Oct-2018	07-Nov-2018	8270D	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.63		48 %	30-130		29-Oct-2018	07-Nov-2018	8270D	
<i>Surrogate: 2-Fluorophenol</i>	4.51		22 %	15-150		29-Oct-2018	07-Nov-2018	8270D	Q-SURR
2-Nitrophenol	ND	0.116		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.082		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.182		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SW

18J0401-06 (Water)

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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	0.116	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1.01	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	10.1		50 %	30-130		29-Oct-2018	07-Nov-2018	8270D	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.55		18 %	15-115		29-Oct-2018	07-Nov-2018	8270D	Q-SURR
<i>Surrogate: Terphenyl-d14</i>	9.43		47 %	30-130		29-Oct-2018	07-Nov-2018	8270D	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.364		72 %	30-130		27-Oct-2018	09-Nov-2018	8270D	
Acenaphthene	ND	0.00163		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00179		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.00196		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00175		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	0.00117	0.000848		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00189	0.00149		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.484		96 %	30-130		27-Oct-2018	09-Nov-2018	8270D	
Benzo(e)pyrene	0.00178	0.00128		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00166	0.00132		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00154	0.00118		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Chrysene	0.00173	0.000945		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000692		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00306	0.0015		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00175		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00813	0.000538		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.00512	0.00179		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	ND	0.00191		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SW

18J0401-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.00322	0.00154		0.0101	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.453		90 %	30-130		27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.65		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	2.08		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	2.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.12		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.23		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.2		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.2		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.15		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.18		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	12.5	1.69		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
Octa CDF	ND	3.08		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	2.65		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	2.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.2		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.15		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.18		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1380		69 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1520		76 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1620		81 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1620		81 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1720		86 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1600		80 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1720		86 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1680		84 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1720		86 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1440		72 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1580		79 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1560		78 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1760		88 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1380		69 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1340		67 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3320		83 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	92.3		92.3 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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Katahdin

TNRCC 1005

C6-C35	ND	6300		9100	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	98.4		<i>98.4 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	2.22	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SW
18J0401-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	57.0			<i>114 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	44.5			<i>88.9 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.4			<i>109 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	48.7			<i>97.3 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SW

18J0401-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0025	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0674	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0009	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0033	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0011	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0017	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0882	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00040	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SW

18J0401-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0622			62.2 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0972			81.0 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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 Vicksburg MS, 39180

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SW

18J0401-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.281	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.067			67.2 %	30-150	26-Oct-2018	14-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.081			67.7 %	30-150	26-Oct-2018	14-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0774	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	8.80	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.079		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	7.85		<i>39 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	7.56		<i>37 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	2.58		<i>13 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>07-Nov-2018</i>	<i>8270D</i>	<i>N</i>
2-Nitrophenol	ND	0.116		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.082		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.182		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub

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Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	ND	0.101		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1.01	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	8.18		40 %	30-130		29-Oct-2018	07-Nov-2018	8270D	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	29-Oct-2018	07-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	2.37		12 %	15-115		29-Oct-2018	07-Nov-2018	8270D	N
<i>Surrogate: Terphenyl-d14</i>	8.95		44 %	30-130		29-Oct-2018	07-Nov-2018	8270D	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.364		71 %	30-130		27-Oct-2018	09-Nov-2018	8270D	
Acenaphthene	ND	0.00166		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00182		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.002		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00178		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	0.00221	0.000866		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00404	0.00152		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.462		90 %	30-130		27-Oct-2018	09-Nov-2018	8270D	
Benzo(e)pyrene	0.00353	0.00131		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.0035	0.00135		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00319	0.00121		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Chrysene	0.00321	0.000965		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000706		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00596	0.00154		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00178		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00969	0.000549		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.00187	0.00182		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	0.00227	0.00195		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SW

18J0401-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.00793	0.00157		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.453		88 %		30-130	27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.02		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.25		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.04		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.21		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.21		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.12		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.02		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.08		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	26.7	1.66		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
Octa CDF	ND	2.69		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	4.08		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, U

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ERDC -- Vicksburg (EL)
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18J0401-07 (Water)

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.04		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.02		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.08		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1360		68 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1680		84 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1760		88 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1740		87 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1760		88 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1700		85 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1860		93 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1820		91 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1760		88 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1500		75 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1680		84 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1620		81 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1720		86 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1500		75 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1360		68 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3600		90 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3500		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3500		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	91.6		91.6 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SW

18J0401-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6200		8900	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	97.8		<i>97.8 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	2.19	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SW

18J0401-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	51.5			<i>103 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.5			<i>91.1 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	52.6			<i>105 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.4			<i>101 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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 ERDC, 3909 Halls Ferry Road
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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SW

18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0021	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0708	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	0.0003	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	0.0021	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0014	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0831	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	0.00550	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00470	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00409	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SW

18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0624			62.4 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.116			97.0 %	25-125	26-Oct-2018	14-Nov-2018	EPA 8081A	

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.272	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.080		80.1 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.094		77.9 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0802	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	8.80	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.098		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.08		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.085		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	10.6		<i>52 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.155		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.102		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.246		2.04	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.743		5.1	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.166		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.171		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.092		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.093		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.89		<i>48 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	4.98		<i>24 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.117		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.197		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.52		2.04	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.102		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.105		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.081		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.602		2.55	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Azobenzene	ND	0.131		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Benzidine	ND	0.473		20.4	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.087		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.095		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.11		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.083		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.087		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.184		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.119		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub

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HSCNew-NMP-08-SW

18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	0.107	0.102		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.08		1.02	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.124		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.087		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.156		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.104		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Isophorone	ND	0.128		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.104		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	11.2		55 %	30-130		29-Oct-2018	08-Nov-2018	8270D	
N-Nitrosodimethylamine	ND	0.074		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.126		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.074		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.439		2.04	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.51	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.66		18 %	15-115		29-Oct-2018	08-Nov-2018	8270D	Q-SURR
<i>Surrogate: Terphenyl-d14</i>	9.38		46 %	30-130		29-Oct-2018	08-Nov-2018	8270D	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.352		68 %	30-130		27-Oct-2018	09-Nov-2018	8270D	
Acenaphthene	ND	0.00166		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00182		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Anthracene	ND	0.002		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00178		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(a)pyrene	ND	0.000866		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(b)fluoranthene	ND	0.00152		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.477		93 %	30-130		27-Oct-2018	09-Nov-2018	8270D	
Benzo(e)pyrene	ND	0.00131		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(g,h,i)perylene	ND	0.00135		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	ND	0.00121		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Chrysene	0.00112	0.000965		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000706		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Fluoranthene	0.00247	0.00154		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Fluorene	ND	0.00178		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00789	0.000549		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Naphthalene	0.00606	0.00182		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
Phenanthrene	ND	0.00195		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Ub

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18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.00264	0.00157		0.0103	ug/l	27-Oct-2018	09-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.449		87 %	30-130		27-Oct-2018	09-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.23		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.12		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.12		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.02		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.02		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.05		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	10.6	2.23		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
Octa CDF	ND	2.41		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.23		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SW

18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.05		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1320		66 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1800		90 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1840		92 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1840		92 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1940		97 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1800		90 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2020		101 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1840		92 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1800		90 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1480		74 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1740		87 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1720		86 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1720		86 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1500		75 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1320		66 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3880		97 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	95.1		95.1 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-08-SW
18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6300		9200	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	103		<i>103 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	2.24	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SW

18J0401-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	55.0			<i>110 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.7			<i>91.4 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	53.4			<i>107 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.7			<i>101 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SW

18J0401-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0012	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0032	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0768	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	0.0002	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0012	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0034	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0012	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0014	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0031	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0580	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00070	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00389	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0624			62.4 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0936			78.0 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.266	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.073		72.8 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.084		69.7 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SW

18J0401-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0777	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	9.20	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	9.84		<i>49 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.9		<i>49 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	4.52		<i>23 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub

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 ERDC, 3909 Halls Ferry Road
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SW

18J0401-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	11.1		<i>55 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.62		<i>18 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	9.99		<i>50 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.342		<i>68 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00163		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00179		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Anthracene	ND	0.00196		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benz(a)anthracene	0.00178	0.00175		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(a)pyrene	0.00259	0.000848		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00449	0.00149		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.444		<i>88 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00401	0.00128		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00394	0.00132		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00344	0.00118		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Chrysene	0.00375	0.000945		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000692		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Fluoranthene	0.00485	0.0015		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Fluorene	ND	0.00175		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00961	0.000538		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Naphthalene	ND	0.00179		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Phenanthrene	0.00215	0.00191		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SW

18J0401-09 (Water)

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Alpha

PAHs by GC/MS SIM

Pyrene	0.00705	0.00154		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.431		85 %	30-130		27-Oct-2018	10-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.49		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, U
1,2,3,4,6,7,8-Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.08		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.2		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.02		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	48.5		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9441, U
Octa CDF	ND	2.39		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	4.69	1.98		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.08		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.12		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.02		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1580		79 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	2080		104 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	2220		111 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	2200		110 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	2340		117 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	2040		102 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2340		117 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	2180		109 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	2120		106 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1720		86 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	2040		102 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	2020		101 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	2000		100 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1760		88 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1600		80 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	4480		112 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	89.1		89.1 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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Katahdin

TNRCC 1005

C6-C35	ND	6300		9100	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	95.6		<i>95.6 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	1.93	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	1.93	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SW
18J0401-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	54.2			<i>108 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.4			<i>90.9 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	52.6			<i>105 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.6			<i>101 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SW

18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0023	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0791	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0008	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0025	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.00089	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0018	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0012	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0653	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00030	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	0.003	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	0.00461	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	0.00356	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00408	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00380	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-10-SW
18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0606			60.6 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0882			73.5 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SW

18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.272	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.074		74.5 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.087		72.2 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0748	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	17.3	0.667	1.33	3.33	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	7.9		<i>39 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	9.03		<i>45 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	3.52		<i>18 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SW

18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	10.3		<i>52 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.02		<i>15 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	7.04		<i>35 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.288		<i>57 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00163		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00179		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Anthracene	ND	0.00196		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benz(a)anthracene	0.00182	0.00175		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(a)pyrene	0.00238	0.000848		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00402	0.00149		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.459		<i>91 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00354	0.00128		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00341	0.00132		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00263	0.00118		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Chrysene	0.00331	0.000945		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000692		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Fluoranthene	0.00527	0.0015		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Fluorene	ND	0.00175		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00953	0.000538		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Naphthalene	ND	0.00179		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Phenanthrene	0.002	0.00191		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-10-SW
18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Pyrene	0.00684	0.00154		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.421		83 %		30-130	27-Oct-2018	10-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.62		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.12		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.962		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.09		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	33.4	2.48		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
Octa CDF	ND	2.01		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.62		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.17		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.01		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.09		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.1		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1260		63 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1880		94 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1940		97 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1880		94 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1960		98 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1880		94 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2160		108 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1960		98 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1760		88 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1440		72 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1820		91 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1800		90 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1780		89 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1420		71 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1320		66 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	4160		104 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	90.8		90.8 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	1900	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Jd

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SW
18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6300		9200	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	95.6		<i>95.6 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	2.03	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SW
18J0401-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	53.2			<i>106 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	43.6			<i>87.2 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.4			<i>109 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	49.0			<i>98.1 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SW
18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0023	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0729	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	0.0003	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0016	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0046	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0015	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0026	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0856	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.001	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	0.00437	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SW

18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0626			62.6 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0966			80.5 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	

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HSCNew-NMP-11-SW

18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.302	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	14-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.074		73.8 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.084		70.3 %	30-150		26-Oct-2018	14-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0838	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	18.7	0.667	1.33	3.33	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.079		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	7.11		35 %	15-115		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	7.75		38 %	30-130		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	2.63		13 %	15-150		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>N</i>
2-Nitrophenol	ND	0.116		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.082		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.086		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.182		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub

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Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SW

18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Di-n-butylphthalate	ND	0.101		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1.01	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	8.9		<i>44 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	2.43		<i>12 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>N</i>
<i>Surrogate: Terphenyl-d14</i>	6.09		<i>30 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.35		<i>70 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00161		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00177		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benz(a)anthracene	0.00192	0.00173		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(a)pyrene	0.00274	0.00084		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00598	0.00148		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.452		<i>90 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00454	0.00127		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00438	0.00131		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00346	0.00117		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Chrysene	0.00453	0.000936		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Fluoranthene	0.00826	0.00149		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Fluorene	ND	0.00173		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.0102	0.000533		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	
Naphthalene	0.00321	0.00177		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Phenanthrene	0.00189	0.00189		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb

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Alpha

PAHs by GC/MS SIM

Pyrene	0.00774	0.00152		0.01	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.424		85 %	30-130		27-Oct-2018	10-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	9.35	1.47		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
1,2,3,4,6,7,8-Hepta CDF	ND	2.62		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, U
1,2,3,4,7,8,9-Hepta CDF	ND	1.39		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.3		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.39		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.35		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.78		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.25		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.62		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.19		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.05		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	73.3		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9441, U
Octa CDF	ND	4.22		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9428, U
Total Hepta CDD	18.7	1.47		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SW
18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	2.95		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, U
Total Hexa CDD	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	1.35	1.32		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ja
Total Penta CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.7		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.19		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.65		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, U

Surrogate: 37CLA 2378 Tetra CDD	1060		53 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1860		93 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1900		95 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1920		96 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1880		94 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1860		93 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2000		100 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1880		94 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1700		85 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1280		64 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1760		88 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1800		90 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1620		81 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1140		57 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1100		55 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	4040		101 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	105		105 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	ND	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SW

18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

C6-C35	ND	6300		9200	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	111		<i>111 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	2.23	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SW

18J0401-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	52.3			<i>105 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.1			<i>90.3 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	53.5			<i>107 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.4			<i>101 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW-Field DUP
18J0401-13 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Arsenic-75 [3]	0.0031	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.0823	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	0.0014	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Copper-63 [1]	0.0032	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0008	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Nickel-60 [1]	0.0021	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0013	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0680	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	0.00090	0.00030	0.00050	0.001	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	J
Chromium (VI)	ND	0.00060	0.001	0.002	mg/L	23-Oct-2018	23-Oct-2018	EPA 7199M	Z-03, U
Mercury	0.003	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	0.00262	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	J
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	0.00436	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW-Field DUP

18J0401-13 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0637			63.7 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0906			75.5 %	25-125	26-Oct-2018	15-Nov-2018	EPA 8081A	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW-Field DUP

18J0401-13 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	0.207	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	25-Oct-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.080			79.6 %	30-150	26-Oct-2018	16-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	0.077			64.5 %	30-150	26-Oct-2018	16-Nov-2018	EPA 8082	
Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0653	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	9.60	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	8.73		<i>44 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	8.54		<i>43 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	3.83		<i>19 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Diethylphthalate	ND	0.18		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub

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Alpha

Semivolatiles by GC-MS

Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	10.1		<i>50 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.64		<i>18 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	6.76		<i>34 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.372		<i>72 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00166		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Acenaphthylene	ND	0.00182		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Anthracene	ND	0.002		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00178		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benzo(a)pyrene	0.000932	0.000866		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00154	0.00152		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.455		<i>88 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00148	0.00131		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00138	0.00135		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	ND	0.00121		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Chrysene	0.0012	0.000965		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000706		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Fluoranthene	0.00239	0.00154		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Fluorene	ND	0.00178		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.00818	0.000549		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Naphthalene	0.00768	0.00182		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Phenanthrene	0.00202	0.00195		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb

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Alpha

PAHs by GC/MS SIM

Pyrene	0.00347	0.00157		0.0103	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.431		84 %	30-130		27-Oct-2018	10-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.62		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, U
1,2,3,4,6,7,8-Hepta CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.15		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.24		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.13		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.13		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.08		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	24.8		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A9441, U
Octa CDF	ND	2.12		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	2.74		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	A8644, Ud

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDF	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.14		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.13		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.08		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CLA 2378 Tetra CDD	1420		71 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1820		91 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1880		94 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	2060		103 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1920		96 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1880		94 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2000		100 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1900		95 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1800		90 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1460		73 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1860		93 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1800		90 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1820		91 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1560		78 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1500		75 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	4040		101 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

TNRCC 1005

>C12-C28	ND	3500		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3500		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
Surrogate: 1-Chlorooctane	102		102 %	70-130		25-Oct-2018	31-Oct-2018	TNRCC 1005	
C6-C12	2200	1800		4500	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Jd

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Katahdin

TNRCC 1005

C6-C35	ND	6200		9000	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	104		<i>104 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	1.53	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
Chloromethane	1.50	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SW-Field DUP
18J0401-13 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	56.6			<i>113 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	45.2			<i>90.5 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.2			<i>108 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.6			<i>103 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-EQPB

18J0401-14 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Mercury	0.005	0.002	0.010	0.020	ug/L	16-Oct-2018	17-Oct-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	19-Nov-2018	26-Nov-2018	GF-AAS 7000 Series	U
Antimony-121 [1]	0.0037	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Arsenic-75 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Barium-135 [1]	ND	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Copper-63 [1]	0.0008	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Nickel-60 [1]	ND	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Silver-107 [1]	0.0033	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Zinc-66 [1]	0.0599	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	

Miscellaneous Physical/Conventional Chemistry Parameters

Sulfide	0.0198	0.00150	0.00500	0.0100	mg/L	15-Oct-2018	15-Oct-2018	EPA 376	H, Z-03
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	H, Z-03, U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	H, Z-03, U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	H, Z-03, U
TOC rep4	0.00413	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	H, Z-03, J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	H, Z-03, U

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00060	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
4,4'-DDE	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
4,4'-DDT	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Aldrin	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
alpha-BHC	ND	0.0004	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
alpha-Chlordane	ND	0.00080	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
beta-BHC	ND	0.0007	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
cis-Nonachlor	ND	0.0004	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
delta-BHC	ND	0.0004	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Dieldrin	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Endosulfan I	ND	0.001	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Endosulfan II	ND	0.0003	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-EQPB

18J0401-14 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Endrin	ND	0.0007	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Endrin aldehyde	ND	0.00040	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
gamma-BHC (Lindane)	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
gamma-Chlordane	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Heptachlor	ND	0.0006	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Heptachlor epoxide	ND	0.0005	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Oxychlordane	ND	0.0007	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Toxaphene	ND	0.049	0.066	0.200	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
trans-Nonachlor	ND	0.0006	0.001	0.004	ug/L	18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0660		55.0 %	25-125		18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03
Surrogate: PCB 198	0.102		84.7 %	25-125		18-Oct-2018	21-Nov-2018	EPA 8081A	H, Z-03

Nutrients

Ammonia as N	ND	0.00880	0.0100	0.0200	mg/L	15-Oct-2018	16-Oct-2018	EPA 350.1	U
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 126	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.13		134 %	30-150		26-Oct-2018	16-Nov-2018	EPA 8082	H
Surrogate: PCB 198	0.10		84.0 %	30-150		26-Oct-2018	16-Nov-2018	EPA 8082	H

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-EQPB

18J0401-14 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	H, U
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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0339	0.0237		0.170	ug/L	13-Oct-2018	26-Oct-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	ND	0.400	0.800	2.00	mg/L	04-Oct-2018	04-Oct-2018	EPA 160.2	H, Z-03, U
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	10.6		53 %	30-130		13-Oct-2018	02-Nov-2018	8270D	
<i>Surrogate: 2-Fluorophenol</i>	5.07		25 %	15-115		13-Oct-2018	02-Nov-2018	8270D	Q-SURR
2-Nitrophenol	ND	0.115		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-EQPB

18J0401-14 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	0.18		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.29	0.1		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	12.1		<i>60 %</i>	<i>30-130</i>		<i>13-Oct-2018</i>	<i>02-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	13-Oct-2018	02-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.77		<i>19 %</i>	<i>15-115</i>		<i>13-Oct-2018</i>	<i>02-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	14.7		<i>74 %</i>	<i>30-130</i>		<i>13-Oct-2018</i>	<i>02-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	307		<i>61 %</i>	<i>30-130</i>		<i>13-Oct-2018</i>	<i>26-Oct-2018</i>	<i>8270D</i>	
Acenaphthene	ND	0.00161		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	Ub
Acenaphthylene	ND	0.00177		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	Ub
Anthracene	ND	0.00194		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	Ub
Benz(a)anthracene	0.018	0.00173		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Benzo(a)pyrene	0.0237	0.00084		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Benzo(b)fluoranthene	0.0245	0.00148		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	457		<i>91 %</i>	<i>30-130</i>		<i>13-Oct-2018</i>	<i>26-Oct-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	18.3	0.00127		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Benzo(g,h,i)perylene	0.0188	0.00131		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Benzo(k)fluoranthene	0.0204	0.00117		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Chrysene	0.0195	0.000936		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Dibenz(a,h)anthracene	0.00416	0.000685		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	Jb
Fluoranthene	0.0241	0.00149		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Fluorene	ND	0.00173		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	0.0192	0.000533		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B

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18J0401-14 (Water)

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Alpha

PAHs by GC/MS SIM

Naphthalene	0.00977	0.00177		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	Jb
Phenanthrene	0.0109	0.00189		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
Pyrene	0.0213	0.00152		0.01	ug/l	13-Oct-2018	26-Oct-2018	8270D	B
<i>Surrogate: Pyrene-d10</i>	441		88 %		30-130	13-Oct-2018	26-Oct-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/l	19-Oct-2018	19-Oct-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.61		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.46		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.45		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.44		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.31		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.47		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.41		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.48		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.36		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.45		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.29		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.26		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.17		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.42		10	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.4		10	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Octa CDD	ND	1.85		100	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Octa CDF	ND	1.67		100	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hepta CDD	ND	1.61		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.46		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.48		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.33		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.45		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.23		50	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.42		10	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.4		10	pg/L	24-Oct-2018	29-Oct-2018	EPA 1613B m	Ud

Surrogate: 37CL4 2378 Tetra CDD	1660		83 %	35-197		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1600		80 %	23-140		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1860		93 %	28-143		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1840		92 %	32-141		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	2180		109 %	26-152		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1500		75 %	28-143		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2300		115 %	28-130		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	2360		118 %	26-123		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1900		95 %	25-181		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1800		90 %	24-185		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1780		89 %	28-136		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1940		97 %	29-147		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1900		95 %	21-178		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1980		99 %	24-164		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1680		84 %	24-169		24-Oct-2018	29-Oct-2018	EPA 1613B m	
Surrogate: C13-OCDD	2600		65 %	17-157		24-Oct-2018	29-Oct-2018	EPA 1613B m	

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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Mercury	ND	0.002	0.010	0.020	ug/L	24-Oct-2018	25-Oct-2018	EPA 7474	U
Selenium	ND	0.0003	0.0010	0.0020	mg/L	29-Oct-2018	29-Oct-2018	GF-AAS 7000 Series	U
Antimony-121 [1]	0.0018	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Arsenic-75 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Barium-135 [1]	0.0023	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Copper-63 [1]	0.0017	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Nickel-60 [1]	ND	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Silver-107 [1]	0.0013	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U
Zinc-66 [1]	0.0653	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	EPA 6020	U

Miscellaneous Physical/Conventional Chemistry Parameters

Sulfide	ND	0.00150	0.00500	0.0100	mg/L	24-Oct-2018	24-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	26-Oct-2018	15-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0699		69.9 %	25-125		26-Oct-2018	15-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0834		69.5 %	25-125		26-Oct-2018	15-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	0.0355	0.00440	0.00500	0.0100	mg/L	25-Oct-2018	26-Oct-2018	EPA 350.1	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 105	ND	0.00030	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 118	ND	0.0008	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 126	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 128	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 138	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 153	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 169	ND	0.0002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 170	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 18	ND	0.004	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 180	ND	0.001	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 187	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 28	ND	0.005	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 44	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 52	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 66	ND	0.0007	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 77	ND	0.002	0.003	0.006	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
PCB 8	ND	0.006	0.006	0.012	ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.093		93.1 %	30-150		26-Oct-2018	16-Nov-2018	EPA 8082	
Surrogate: PCB 198	0.074		61.9 %	30-150		26-Oct-2018	16-Nov-2018	EPA 8082	

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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	0.00				ug/L	26-Oct-2018	16-Nov-2018	EPA 8082	U
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Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.149	0.0237		0.170	ug/L	27-Oct-2018	09-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	ND	0.400	0.800	2.00	mg/L	24-Oct-2018	24-Oct-2018	EPA 160.2	U
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	10.6		<i>53 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	8.82		<i>44 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	4.15		<i>21 %</i>	<i>15-150</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
2-Nitrophenol	ND	0.115		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.109	0.081		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Jb

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-EQPB
18J0401-15 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Butylbenzylphthalate	ND	0.085		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Diethylphthalate	0.493	0.18		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Jb
Dimethylphthalate	ND	0.117		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Di-n-butylphthalate	ND	0.1		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Di-n-octylphthalate	ND	0.079		1	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	10.2		<i>51 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	29-Oct-2018	08-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	3.22		<i>16 %</i>	<i>15-115</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	<i>Q-SURR</i>
<i>Surrogate: Terphenyl-d14</i>	9.57		<i>48 %</i>	<i>30-130</i>		<i>29-Oct-2018</i>	<i>08-Nov-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.36		<i>71 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.00572	0.00163		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Acenaphthylene	0.00415	0.00179		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Anthracene	ND	0.00196		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benz(a)anthracene	ND	0.00175		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Benzo(a)pyrene	0.00139	0.000848		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.0022	0.00149		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.459		<i>91 %</i>	<i>30-130</i>		<i>27-Oct-2018</i>	<i>10-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00144	0.00128		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00138	0.00132		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00133	0.00118		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Chrysene	0.0016	0.000945		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Dibenz(a,h)anthracene	ND	0.000692		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Ub
Fluoranthene	0.00303	0.0015		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Fluorene	0.014	0.00175		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	

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Reported:
 22-May-2019

HSCNew-NMP-EQPB
18J0401-15 (Water)

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Alpha

PAHs by GC/MS SIM

Indeno(1,2,3-cd)pyrene	0.00809	0.000538		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
Naphthalene	0.0754	0.00179		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	
Phenanthrene	0.0113	0.00191		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	
Pyrene	0.00277	0.00154		0.0101	ug/l	27-Oct-2018	10-Nov-2018	8270D	Jb
<i>Surrogate: Pyrene-d10</i>	0.438		87 %		30-130	27-Oct-2018	10-Nov-2018	8270D	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	01-Nov-2018	01-Nov-2018	SW9012B	Cl, U
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.49		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.19		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.03		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.05		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.1		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.07		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.22		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	0.992		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.11		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.18		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	0.76		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	2.36		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

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ERDC -- Vicksburg (EL)
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 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-EQPB

18J0401-15 (Water)

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	2.26		100	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.49		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.18		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.06		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.04		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.09		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.16		50	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.18		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	0.76		10	pg/L	24-Oct-2018	06-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CL4 2378 Tetra CDD	1400		70 %	35-197		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	2020		101 %	23-140		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	2020		101 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	2200		110 %	32-141		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	2080		104 %	26-152		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1940		97 %	28-143		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2200		110 %	28-130		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	2080		104 %	26-123		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1920		96 %	25-181		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1600		80 %	24-185		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1900		95 %	28-136		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1920		96 %	29-147		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1960		98 %	21-178		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1560		78 %	24-164		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1420		71 %	24-169		24-Oct-2018	06-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	4240		106 %	17-157		24-Oct-2018	06-Nov-2018	EPA 1613B m	

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Katahdin

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	95.1		<i>95.1 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	
C6-C12	1900	1800		4600	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Jd
C6-C35	ND	6400		9200	ug/L	25-Oct-2018	31-Oct-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	96.8		<i>96.8 %</i>	<i>70-130</i>		<i>25-Oct-2018</i>	<i>31-Oct-2018</i>	<i>TNRCC 1005</i>	

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		100	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Acetone	9.53	7.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Jc
Benzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua

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Project Manager: Cheryl Montgomery

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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Carbon disulfide	ND	1.00		10.0	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Chloromethane	1.92	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	29-Oct-2018	29-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	53.4			<i>107 %</i>	<i>70-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	44.7			<i>89.5 %</i>	<i>75-120</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	52.0			<i>104 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	50.2			<i>100 %</i>	<i>70-130</i>	<i>29-Oct-2018</i>	<i>29-Oct-2018</i>	<i>SW8260B</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Calibration Check (18K0004-CCV1)

Prepared & Analyzed: 15-Nov-2018

Phenanthrene	510				ug/L	500.0		102	85-115			
Surrogate: 2-Fluorobiphenyl	430				ug/L	500.0		86.4	85-115			
Surrogate: Terphenyl-d14	540				ug/L	500.0		107	85-115			



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ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Calibration Check (18K0004-CCV2)

Prepared: 15-Nov-2018 Analyzed: 12-Dec-2018

Pentachlorophenol	820				ug/L	750.0		110	80-120			
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Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Calibration Check (18K0004-CCV3)

Prepared & Analyzed: 15-Nov-2018

Phenanthrene	510				ug/L	500.0		102	85-115			
Surrogate: 2-Fluorobiphenyl	470				ug/L	500.0		94.6	85-115			
Surrogate: Terphenyl-d14	550				ug/L	500.0		110	85-115			



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Reported:
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Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Calibration Check (18K0004-CCV4)

Prepared: 15-Nov-2018 Analyzed: 12-Dec-2018

Pentachlorophenol	700				ug/L	750.0		92.9	80-120			
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Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Initial Cal Blank (18K0004-ICB1)

Prepared & Analyzed: 15-Nov-2018

Pentachlorophenol	0.0				ug/L							U
Phenanthrene	0.0				ug/L							U
Surrogate: 2-Fluorobiphenyl	0.0				ug/L				30-150			U
Surrogate: Terphenyl-d14	0.0				ug/L				30-150			U



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Reported:
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Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Initial Cal Check (18K0004-ICV1)

Prepared & Analyzed: 15-Nov-2018

Phenanthrene	200				ug/L	200.0		97.5	80-120			
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Reported:
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Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0004 - B18K006

Initial Cal Check (18K0004-ICV2)

Prepared: 15-Nov-2018 Analyzed: 12-Dec-2018

Pentachlorophenol	720				ug/L	750.0		95.5	80-120			
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Semivolatile Organics by GC/MS Selective Ion Monitoring - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Blank (B18K085-BLK1)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.00012	0.00007	0.00025	0.0005	mg/L							J
Arsenic-75 [3]	ND	0.00006	0.00025	0.0005	mg/L							U
Barium-135 [1]	ND	0.0002	0.00025	0.0005	mg/L							U
Beryllium-9 [1]	ND	0.00002	0.00025	0.0005	mg/L							U
Cadmium-111 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Chromium-52 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Copper-63 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Lead-206 [1]	ND	0.00008	0.00025	0.0005	mg/L							U
Nickel-60 [1]	ND	0.00005	0.00025	0.0005	mg/L							U
Silver-107 [1]	0.0001	0.00008	0.00025	0.0005	mg/L							J
Thallium-203 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Zinc-66 [1]	ND	0.0001	0.00025	0.0005	mg/L							U

Blank (B18K085-BLK2)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0001	0.00007	0.00025	0.0005	mg/L							J
Arsenic-75 [3]	ND	0.00006	0.00025	0.0005	mg/L							U
Barium-135 [1]	ND	0.0002	0.00025	0.0005	mg/L							U
Beryllium-9 [1]	0.00002	0.00002	0.00025	0.0005	mg/L							J
Cadmium-111 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Chromium-52 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Copper-63 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Lead-206 [1]	ND	0.00008	0.00025	0.0005	mg/L							U
Nickel-60 [1]	ND	0.00005	0.00025	0.0005	mg/L							U
Silver-107 [1]	0.0001	0.00008	0.00025	0.0005	mg/L							J
Thallium-203 [1]	ND	0.00003	0.00025	0.0005	mg/L							U

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Blank (B18K085-BLK2)

Prepared & Analyzed: 15-Nov-2018

Zinc-66 [1]	ND	0.0001	0.00025	0.0005	mg/L							U
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LCS (B18K085-BS1)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0397	0.00007	0.00025	0.0005	mg/L	0.04000		99.2	70-130			
Arsenic-75 [3]	0.0368	0.00006	0.00025	0.0005	mg/L	0.04000		92.0	70-130			
Barium-135 [1]	0.0399	0.0002	0.00025	0.0005	mg/L	0.04000		99.7	70-130			
Beryllium-9 [1]	0.0385	0.00002	0.00025	0.0005	mg/L	0.04000		96.2	70-130			
Cadmium-111 [1]	0.0400	0.00003	0.00025	0.0005	mg/L	0.04000		100	70-130			
Chromium-52 [1]	0.0398	0.00006	0.00025	0.0005	mg/L	0.04000		99.5	70-130			
Copper-63 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	70-130			
Lead-206 [1]	0.0383	0.00008	0.00025	0.0005	mg/L	0.04000		95.6	70-130			
Nickel-60 [1]	0.0400	0.00005	0.00025	0.0005	mg/L	0.04000		99.9	70-130			
Silver-107 [1]	0.0384	0.00008	0.00025	0.0005	mg/L	0.04000		96.0	70-130			
Thallium-203 [1]	0.0395	0.00003	0.00025	0.0005	mg/L	0.04000		98.7	70-130			
Zinc-66 [1]	0.0450	0.0001	0.00025	0.0005	mg/L	0.04000		113	70-130			

LCS (B18K085-BS2)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0390	0.00007	0.00025	0.0005	mg/L	0.04000		97.6	70-130			
Arsenic-75 [3]	0.0392	0.00006	0.00025	0.0005	mg/L	0.04000		98.1	70-130			
Barium-135 [1]	0.0405	0.0002	0.00025	0.0005	mg/L	0.04000		101	70-130			
Beryllium-9 [1]	0.0416	0.00002	0.00025	0.0005	mg/L	0.04000		104	70-130			
Cadmium-111 [1]	0.0405	0.00003	0.00025	0.0005	mg/L	0.04000		101	70-130			
Chromium-52 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	70-130			
Copper-63 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	70-130			
Lead-206 [1]	0.0393	0.00008	0.00025	0.0005	mg/L	0.04000		98.2	70-130			
Nickel-60 [1]	0.0403	0.00005	0.00025	0.0005	mg/L	0.04000		101	70-130			
Silver-107 [1]	0.0379	0.00008	0.00025	0.0005	mg/L	0.04000		94.8	70-130			
Thallium-203 [1]	0.0397	0.00003	0.00025	0.0005	mg/L	0.04000		99.2	70-130			
Zinc-66 [1]	0.0474	0.0001	0.00025	0.0005	mg/L	0.04000		119	70-130			

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Calibration Check (B18K085-CCV1)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0428	0.00007	0.00025	0.0005	mg/L	0.04000		107	90-110			
Arsenic-75 [3]	0.0386	0.00006	0.00025	0.0005	mg/L	0.04000		96.4	90-110			
Barium-135 [1]	0.0382	0.0002	0.00025	0.0005	mg/L	0.04000		95.6	90-110			
Beryllium-9 [1]	0.0373	0.00002	0.00025	0.0005	mg/L	0.04000		93.3	90-110			
Cadmium-111 [1]	0.0409	0.00003	0.00025	0.0005	mg/L	0.04000		102	90-110			
Chromium-52 [1]	0.0385	0.00006	0.00025	0.0005	mg/L	0.04000		96.2	90-110			
Copper-63 [1]	0.0383	0.00006	0.00025	0.0005	mg/L	0.04000		95.8	90-110			
Lead-206 [1]	0.0376	0.00008	0.00025	0.0005	mg/L	0.04000		93.9	90-110			
Nickel-60 [1]	0.0398	0.00005	0.00025	0.0005	mg/L	0.04000		99.6	90-110			
Silver-107 [1]	0.0422	0.00008	0.00025	0.0005	mg/L	0.04000		105	90-110			
Thallium-203 [1]	0.0387	0.00003	0.00025	0.0005	mg/L	0.04000		96.6	90-110			
Zinc-66 [1]	0.0389	0.0001	0.00025	0.0005	mg/L	0.04000		97.1	90-110			

Calibration Check (B18K085-CCV2)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0508	0.00007	0.00025	0.0005	mg/L	0.05000		102	90-110			
Arsenic-75 [3]	0.0464	0.00006	0.00025	0.0005	mg/L	0.05000		92.9	90-110			
Barium-135 [1]	0.0492	0.0002	0.00025	0.0005	mg/L	0.05000		98.4	90-110			
Beryllium-9 [1]	0.0462	0.00002	0.00025	0.0005	mg/L	0.05000		92.3	90-110			
Cadmium-111 [1]	0.0496	0.00003	0.00025	0.0005	mg/L	0.05000		99.1	90-110			
Chromium-52 [1]	0.0491	0.00006	0.00025	0.0005	mg/L	0.05000		98.2	90-110			
Copper-63 [1]	0.0492	0.00006	0.00025	0.0005	mg/L	0.05000		98.5	90-110			
Lead-206 [1]	0.0485	0.00008	0.00025	0.0005	mg/L	0.05000		97.0	90-110			
Nickel-60 [1]	0.0466	0.00005	0.00025	0.0005	mg/L	0.05000		93.1	90-110			
Silver-107 [1]	0.0481	0.00008	0.00025	0.0005	mg/L	0.05000		96.1	90-110			
Thallium-203 [1]	0.0497	0.00003	0.00025	0.0005	mg/L	0.05000		99.4	90-110			
Zinc-66 [1]	0.0477	0.0001	0.00025	0.0005	mg/L	0.05000		95.3	90-110			

Calibration Check (B18K085-CCV3)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0487	0.00007	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Arsenic-75 [3]	0.0479	0.00006	0.00025	0.0005	mg/L	0.05000		95.9	90-110			

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Calibration Check (B18K085-CCV3)

Prepared & Analyzed: 15-Nov-2018

Barium-135 [1]	0.0509	0.0002	0.00025	0.0005	mg/L	0.05000		102	90-110			
Beryllium-9 [1]	0.0478	0.00002	0.00025	0.0005	mg/L	0.05000		95.6	90-110			
Cadmium-111 [1]	0.0523	0.00003	0.00025	0.0005	mg/L	0.05000		105	90-110			
Chromium-52 [1]	0.0484	0.00006	0.00025	0.0005	mg/L	0.05000		96.9	90-110			
Copper-63 [1]	0.0501	0.00006	0.00025	0.0005	mg/L	0.05000		100	90-110			
Lead-206 [1]	0.0477	0.00008	0.00025	0.0005	mg/L	0.05000		95.4	90-110			
Nickel-60 [1]	0.0469	0.00005	0.00025	0.0005	mg/L	0.05000		93.8	90-110			
Silver-107 [1]	0.0483	0.00008	0.00025	0.0005	mg/L	0.05000		96.5	90-110			
Thallium-203 [1]	0.0486	0.00003	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Zinc-66 [1]	0.0490	0.0001	0.00025	0.0005	mg/L	0.05000		98.0	90-110			

Calibration Check (B18K085-CCV4)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0517	0.00007	0.00025	0.0005	mg/L	0.05000		103	90-110			
Arsenic-75 [3]	0.0490	0.00006	0.00025	0.0005	mg/L	0.05000		97.9	90-110			
Barium-135 [1]	0.0497	0.0002	0.00025	0.0005	mg/L	0.05000		99.5	90-110			
Beryllium-9 [1]	0.0497	0.00002	0.00025	0.0005	mg/L	0.05000		99.4	90-110			
Cadmium-111 [1]	0.0519	0.00003	0.00025	0.0005	mg/L	0.05000		104	90-110			
Chromium-52 [1]	0.0509	0.00006	0.00025	0.0005	mg/L	0.05000		102	90-110			
Copper-63 [1]	0.0521	0.00006	0.00025	0.0005	mg/L	0.05000		104	90-110			
Lead-206 [1]	0.0510	0.00008	0.00025	0.0005	mg/L	0.05000		102	90-110			
Nickel-60 [1]	0.0526	0.00005	0.00025	0.0005	mg/L	0.05000		105	90-110			
Silver-107 [1]	0.0498	0.00008	0.00025	0.0005	mg/L	0.05000		99.6	90-110			
Thallium-203 [1]	0.0510	0.00003	0.00025	0.0005	mg/L	0.05000		102	90-110			
Zinc-66 [1]	0.0516	0.0001	0.00025	0.0005	mg/L	0.05000		103	90-110			

Calibration Check (B18K085-CCV5)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0490	0.00007	0.00025	0.0005	mg/L	0.05000		98.0	90-110			
Arsenic-75 [3]	0.0473	0.00006	0.00025	0.0005	mg/L	0.05000		94.5	90-110			
Barium-135 [1]	0.0487	0.0002	0.00025	0.0005	mg/L	0.05000		97.5	90-110			
Beryllium-9 [1]	0.0476	0.00002	0.00025	0.0005	mg/L	0.05000		95.1	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Calibration Check (B18K085-CCV5)						Prepared & Analyzed: 15-Nov-2018						
Cadmium-111 [1]	0.0503	0.00003	0.00025	0.0005	mg/L	0.05000		101	90-110			
Chromium-52 [1]	0.0486	0.00006	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Copper-63 [1]	0.0492	0.00006	0.00025	0.0005	mg/L	0.05000		98.4	90-110			
Lead-206 [1]	0.0490	0.00008	0.00025	0.0005	mg/L	0.05000		98.0	90-110			
Nickel-60 [1]	0.0484	0.00005	0.00025	0.0005	mg/L	0.05000		96.9	90-110			
Silver-107 [1]	0.0480	0.00008	0.00025	0.0005	mg/L	0.05000		95.9	90-110			
Thallium-203 [1]	0.0493	0.00003	0.00025	0.0005	mg/L	0.05000		98.5	90-110			
Zinc-66 [1]	0.0504	0.0001	0.00025	0.0005	mg/L	0.05000		101	90-110			

Calibration Check (B18K085-CCV6)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0531	0.00007	0.00025	0.0005	mg/L	0.05000		106	90-110			
Arsenic-75 [3]	0.0471	0.00006	0.00025	0.0005	mg/L	0.05000		94.1	90-110			
Barium-135 [1]	0.0482	0.0002	0.00025	0.0005	mg/L	0.05000		96.3	90-110			
Beryllium-9 [1]	0.0482	0.00002	0.00025	0.0005	mg/L	0.05000		96.4	90-110			
Cadmium-111 [1]	0.0524	0.00003	0.00025	0.0005	mg/L	0.05000		105	90-110			
Chromium-52 [1]	0.0486	0.00006	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Copper-63 [1]	0.0491	0.00006	0.00025	0.0005	mg/L	0.05000		98.2	90-110			
Lead-206 [1]	0.0479	0.00008	0.00025	0.0005	mg/L	0.05000		95.9	90-110			
Nickel-60 [1]	0.0480	0.00005	0.00025	0.0005	mg/L	0.05000		96.0	90-110			
Silver-107 [1]	0.0503	0.00008	0.00025	0.0005	mg/L	0.05000		101	90-110			
Thallium-203 [1]	0.0496	0.00003	0.00025	0.0005	mg/L	0.05000		99.3	90-110			
Zinc-66 [1]	0.0491	0.0001	0.00025	0.0005	mg/L	0.05000		98.3	90-110			

Duplicate (B18K085-DUP1)						Source: 18J0401-13		Prepared & Analyzed: 15-Nov-2018				
Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	ND				30		U
Arsenic-75 [3]	0.0029	0.0006	0.0025	0.0050	mg/L	0.0031			5.99	30		J
Barium-135 [1]	0.0745	0.0020	0.0025	0.0050	mg/L	0.0823			9.97	30		
Beryllium-9 [1]	0.0002	0.00015	0.0025	0.0050	mg/L	ND				30		J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	ND				30		U
Chromium-52 [1]	0.0012	0.0006	0.0025	0.0050	mg/L	0.0014			13.5	30		J

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Duplicate (B18K085-DUP1)		Source: 18J0401-13				Prepared & Analyzed: 15-Nov-2018						
Copper-63 [1]	0.0034	0.0006	0.0025	0.0050	mg/L		0.0032			6.39	30	J
Lead-206 [1]	0.00089	0.0008	0.0025	0.0050	mg/L		0.0008			6.15	30	J
Nickel-60 [1]	0.0021	0.0005	0.0025	0.0050	mg/L		0.0021			4.29	30	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L		0.0013				30	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L		ND				30	U
Zinc-66 [1]	0.0653	0.0010	0.0025	0.0050	mg/L		0.0680			3.97	30	

Duplicate (B18K085-DUP2)		Source: 18J0403-12				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0009	0.0007	0.0025	0.0050	mg/L		0.0011			17.6	30	J
Arsenic-75 [3]	0.0017	0.0006	0.0025	0.0050	mg/L		0.0021			16.5	30	J
Barium-135 [1]	0.367	0.0020	0.0025	0.0050	mg/L		0.386			4.95	30	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L		ND				30	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L		ND				30	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L		ND				30	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L		ND				30	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L		ND				30	U
Nickel-60 [1]	0.0017	0.0005	0.0025	0.0050	mg/L		0.0015			13.3	30	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L		0.0011				30	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L		ND				30	U
Zinc-66 [1]	0.182	0.0010	0.0025	0.0050	mg/L		0.184			1.09	30	

Matrix Spike (B18K085-MS1)		Source: 18J0401-13				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.436	0.0007	0.0025	0.0050	mg/L	0.4000	ND	109	70-130			
Arsenic-75 [3]	0.431	0.0006	0.0025	0.0050	mg/L	0.4000	0.0031	107	70-130			
Barium-135 [1]	0.455	0.0020	0.0025	0.0050	mg/L	0.4000	0.0823	93.3	70-130			
Beryllium-9 [1]	0.403	0.00015	0.0025	0.0050	mg/L	0.4000	ND	101	70-130			
Cadmium-111 [1]	0.407	0.0003	0.0025	0.0050	mg/L	0.4000	ND	102	70-130			
Chromium-52 [1]	0.382	0.0006	0.0025	0.0050	mg/L	0.4000	0.0014	95.3	70-130			
Copper-63 [1]	0.347	0.0006	0.0025	0.0050	mg/L	0.4000	0.0032	85.9	70-130			
Lead-206 [1]	0.404	0.0008	0.0025	0.0050	mg/L	0.4000	0.0008	101	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Matrix Spike (B18K085-MS1)		Source: 18J0401-13				Prepared & Analyzed: 15-Nov-2018						
Nickel-60 [1]	0.375	0.0005	0.0025	0.0050	mg/L	0.4000	0.0021	93.2	70-130			
Silver-107 [1]	0.360	0.0008	0.0025	0.0050	mg/L	0.4000	0.0013	89.7	70-130			
Thallium-203 [1]	0.414	0.0003	0.0025	0.0050	mg/L	0.4000	ND	103	70-130			
Zinc-66 [1]	0.460	0.0010	0.0025	0.0050	mg/L	0.4000	0.0680	98.0	70-130			

Matrix Spike (B18K085-MS2)		Source: 18J0403-12				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.436	0.0007	0.0025	0.0050	mg/L	0.4000	0.0011	109	70-130			
Arsenic-75 [3]	0.442	0.0006	0.0025	0.0050	mg/L	0.4000	0.0021	110	70-130			
Barium-135 [1]	0.792	0.0020	0.0025	0.0050	mg/L	0.4000	0.386	101	70-130			
Beryllium-9 [1]	0.403	0.00015	0.0025	0.0050	mg/L	0.4000	ND	101	70-130			
Cadmium-111 [1]	0.407	0.0003	0.0025	0.0050	mg/L	0.4000	ND	102	70-130			
Chromium-52 [1]	0.382	0.0006	0.0025	0.0050	mg/L	0.4000	ND	95.6	70-130			
Copper-63 [1]	0.359	0.0006	0.0025	0.0050	mg/L	0.4000	ND	89.6	70-130			
Lead-206 [1]	0.404	0.0008	0.0025	0.0050	mg/L	0.4000	ND	101	70-130			
Nickel-60 [1]	0.375	0.0005	0.0025	0.0050	mg/L	0.4000	0.0015	93.3	70-130			
Silver-107 [1]	0.362	0.0008	0.0025	0.0050	mg/L	0.4000	0.0011	90.2	70-130			
Thallium-203 [1]	0.426	0.0003	0.0025	0.0050	mg/L	0.4000	ND	106	70-130			
Zinc-66 [1]	0.469	0.0010	0.0025	0.0050	mg/L	0.4000	0.184	71.3	70-130			

Matrix Spike Dup (B18K085-MSD1)		Source: 18J0401-13				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.445	0.0007	0.0025	0.0050	mg/L	0.4000	ND	111	70-130	1.99	30	
Arsenic-75 [3]	0.428	0.0006	0.0025	0.0050	mg/L	0.4000	0.0031	106	70-130	0.746	30	
Barium-135 [1]	0.471	0.0020	0.0025	0.0050	mg/L	0.4000	0.0823	97.3	70-130	4.23	30	
Beryllium-9 [1]	0.404	0.00015	0.0025	0.0050	mg/L	0.4000	ND	101	70-130	0.218	30	
Cadmium-111 [1]	0.412	0.0003	0.0025	0.0050	mg/L	0.4000	ND	103	70-130	1.28	30	
Chromium-52 [1]	0.386	0.0006	0.0025	0.0050	mg/L	0.4000	0.0014	96.1	70-130	0.862	30	
Copper-63 [1]	0.363	0.0006	0.0025	0.0050	mg/L	0.4000	0.0032	89.9	70-130	4.62	30	
Lead-206 [1]	0.402	0.0008	0.0025	0.0050	mg/L	0.4000	0.0008	100	70-130	0.452	30	
Nickel-60 [1]	0.365	0.0005	0.0025	0.0050	mg/L	0.4000	0.0021	90.8	70-130	2.55	30	
Silver-107 [1]	0.368	0.0008	0.0025	0.0050	mg/L	0.4000	0.0013	91.6	70-130	2.19	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Matrix Spike Dup (B18K085-MSD1)		Source: 18J0401-13				Prepared & Analyzed: 15-Nov-2018						
Thallium-203 [1]	0.417	0.0003	0.0025	0.0050	mg/L	0.4000	ND	104	70-130	0.842	30	
Zinc-66 [1]	0.442	0.0010	0.0025	0.0050	mg/L	0.4000	0.0680	93.6	70-130	4.65	30	

Matrix Spike Dup (B18K085-MSD2)		Source: 18J0403-12				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.446	0.0007	0.0025	0.0050	mg/L	0.4000	0.0011	111	70-130	2.18	30	
Arsenic-75 [3]	0.464	0.0006	0.0025	0.0050	mg/L	0.4000	0.0021	115	70-130	4.76	30	
Barium-135 [1]	0.818	0.0020	0.0025	0.0050	mg/L	0.4000	0.386	108	70-130	6.36	30	
Beryllium-9 [1]	0.409	0.00015	0.0025	0.0050	mg/L	0.4000	ND	102	70-130	1.36	30	
Cadmium-111 [1]	0.427	0.0003	0.0025	0.0050	mg/L	0.4000	ND	107	70-130	4.91	30	
Chromium-52 [1]	0.386	0.0006	0.0025	0.0050	mg/L	0.4000	ND	96.5	70-130	0.867	30	
Copper-63 [1]	0.363	0.0006	0.0025	0.0050	mg/L	0.4000	ND	90.6	70-130	1.11	30	
Lead-206 [1]	0.405	0.0008	0.0025	0.0050	mg/L	0.4000	ND	101	70-130	0.248	30	
Nickel-60 [1]	0.371	0.0005	0.0025	0.0050	mg/L	0.4000	0.0015	92.4	70-130	0.949	30	
Silver-107 [1]	0.373	0.0008	0.0025	0.0050	mg/L	0.4000	0.0011	93.0	70-130	3.15	30	
Thallium-203 [1]	0.424	0.0003	0.0025	0.0050	mg/L	0.4000	ND	106	70-130	0.517	30	
Zinc-66 [1]	0.415	0.0010	0.0025	0.0050	mg/L	0.4000	0.184	57.9	70-130	20.8	30	QM-07

Reference (B18K085-SRM1)		Prepared & Analyzed: 15-Nov-2018										
Antimony-121 [1]	0.599	0.0014	0.0050	0.0100	mg/L	0.6160		97.3	70-130			
Arsenic-75 [3]	0.644	0.0011	0.0050	0.0100	mg/L	0.6880		93.6	70-130			
Barium-135 [1]	0.465	0.0040	0.0050	0.0100	mg/L	0.5000		93.0	70-130			
Beryllium-9 [1]	0.236	0.0003	0.0050	0.0100	mg/L	0.2530		93.5	70-130			
Cadmium-111 [1]	0.133	0.00069	0.0050	0.0100	mg/L	0.1320		101	70-130			
Chromium-52 [1]	0.897	0.0013	0.0050	0.0100	mg/L	0.8910		101	70-130			
Copper-63 [1]	0.902	0.0011	0.0050	0.0100	mg/L	0.8790		103	70-130			
Lead-206 [1]	0.528	0.0016	0.0050	0.0100	mg/L	0.5460		96.7	70-130			
Nickel-60 [1]	0.816	0.0010	0.0050	0.0100	mg/L	0.8010		102	70-130			
Silver-107 [1]	0.865	0.0016	0.0050	0.0100	mg/L	0.9170		94.3	70-130			
Thallium-203 [1]	0.765	0.0006	0.0050	0.0100	mg/L	0.7750		98.7	70-130			
Zinc-66 [1]	1.16	0.0020	0.0050	0.0100	mg/L	1.250		93.0	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J140 - *

Blank (B18J140-BLK1)						Prepared: 16-Oct-2018 Analyzed: 17-Oct-2018						
Mercury	0.004	0.002	0.005	0.010	ug/L							J

LCS (B18J140-BS1)						Prepared: 16-Oct-2018 Analyzed: 17-Oct-2018						
Mercury	0.366	0.002	0.005	0.010	ug/L	0.4000		91.5	75-125			

Duplicate (B18J140-DUP1)						Source: 18J0401-14		Prepared: 16-Oct-2018 Analyzed: 17-Oct-2018				
Mercury	0.007	0.004	0.010	0.020	ug/L		0.005			28.1	25	RPD-01, J

Matrix Spike (B18J140-MS1)						Source: 18J0401-14		Prepared: 16-Oct-2018 Analyzed: 17-Oct-2018				
Mercury	0.401	0.004	0.010	0.020	ug/L	0.4000	0.005	99.0	75-125			

Matrix Spike Dup (B18J140-MSD1)						Source: 18J0401-14		Prepared: 16-Oct-2018 Analyzed: 17-Oct-2018				
Mercury	0.407	0.004	0.010	0.020	ug/L	0.4000	0.005	101	75-125	1.59	25	

Reference (B18J140-SRM1)						Prepared: 16-Oct-2018 Analyzed: 29-Nov-2018						
Mercury	22.3	0.002	0.005	0.010	ug/L	22.60		98.6	80-120			

Batch B18J220 - *

Blank (B18J220-BLK1)						Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018						
Mercury	ND	0.002	0.005	0.010	ug/L							U

LCS (B18J220-BS1)						Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018						
Mercury	0.184	0.002	0.005	0.010	ug/L	0.2000		91.8	75-125			

Calibration Check (B18J220-CCV1)						Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018						
Mercury	0.368	0.004	0.010	0.020	ug/L	0.4000		92.1	90-110			

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J220 - *

Calibration Check (B18J220-CCV2)						Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018						
Mercury	0.369	0.004	0.010	0.020	ug/L	0.4000		92.2	90-110			

Calibration Check (B18J220-CCV3)						Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018						
Mercury	0.186	0.004	0.010	0.020	ug/L	0.2000		93.1	90-110			

Calibration Check (B18J220-CCV4)						Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018						
Mercury	0.199	0.004	0.010	0.020	ug/L	0.2000		99.3	90-110			

Duplicate (B18J220-DUP1)						Source: 18J0401-02		Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018				
Mercury	ND	0.004	0.010	0.020	ug/L		ND				25	U

Matrix Spike (B18J220-MS1)						Source: 18J0401-02		Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018				
Mercury	0.379	0.004	0.010	0.020	ug/L	0.4000	ND	94.7	75-125			

Matrix Spike Dup (B18J220-MSD1)						Source: 18J0401-02		Prepared: 24-Oct-2018 Analyzed: 25-Oct-2018				
Mercury	0.380	0.004	0.010	0.020	ug/L	0.4000	ND	94.9	75-125	0.162	25	

Reference (B18J220-SRM1)						Prepared: 24-Oct-2018 Analyzed: 29-Nov-2018						
Mercury	23.7	0.002	0.005	0.010	ug/L	22.60		105	80-120			

Batch B18K086 - Default Prep Metals

Blank (B18K086-BLK1)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.00012	0.00007	0.00025	0.0005	mg/L							J
Arsenic-75 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Barium-135 [1]	ND	0.0002	0.00025	0.0005	mg/L							U
Beryllium-9 [1]	ND	0.00015	0.00025	0.0005	mg/L							U
Cadmium-111 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Chromium-52 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Copper-63 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Lead-206 [1]	ND	0.00008	0.00025	0.0005	mg/L							U
Nickel-60 [1]	ND	0.00005	0.00025	0.0005	mg/L							U
Silver-107 [1]	0.0001	0.00008	0.00025	0.0005	mg/L							J
Thallium-203 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Zinc-66 [1]	ND	0.0001	0.00025	0.0005	mg/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K086 - Default Prep Metals

LCS (B18K086-BS1)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0397	0.00007	0.00025	0.0005	mg/L	0.04000		99.2	70-130			
Arsenic-75 [1]	0.0372	0.00006	0.00025	0.0005	mg/L	0.04000		93.0	80-120			
Barium-135 [1]	0.0399	0.0002	0.00025	0.0005	mg/L	0.04000		99.7	80-120			
Beryllium-9 [1]	0.0385	0.00015	0.00025	0.0005	mg/L	0.04000		96.2	80-120			
Cadmium-111 [1]	0.0400	0.00003	0.00025	0.0005	mg/L	0.04000		100	80-120			
Chromium-52 [1]	0.0398	0.00006	0.00025	0.0005	mg/L	0.04000		99.5	80-120			
Copper-63 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	80-120			
Lead-206 [1]	0.0383	0.00008	0.00025	0.0005	mg/L	0.04000		95.6	80-120			
Nickel-60 [1]	0.0400	0.00005	0.00025	0.0005	mg/L	0.04000		99.9	80-120			
Silver-107 [1]	0.0384	0.00008	0.00025	0.0005	mg/L	0.04000		96.0	80-120			
Thallium-203 [1]	0.0395	0.00003	0.00025	0.0005	mg/L	0.04000		98.7	80-120			
Zinc-66 [1]	0.0450	0.0001	0.00025	0.0005	mg/L	0.04000		113	80-120			

Calibration Check (B18K086-CCV1)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0428	0.00007	0.00025	0.0005	mg/L	0.04000		107	90-110			
Arsenic-75 [1]	0.0380	0.00006	0.00025	0.0005	mg/L	0.04000		95.1	90-110			
Barium-135 [1]	0.0382	0.0002	0.00025	0.0005	mg/L	0.04000		95.6	90-110			
Beryllium-9 [1]	0.0373	0.00015	0.00025	0.0005	mg/L	0.04000		93.3	90-110			
Cadmium-111 [1]	0.0409	0.00003	0.00025	0.0005	mg/L	0.04000		102	90-110			J
Chromium-52 [1]	0.0385	0.00006	0.00025	0.0005	mg/L	0.04000		96.2	90-110			
Copper-63 [1]	0.0383	0.00006	0.00025	0.0005	mg/L	0.04000		95.8	90-110			
Lead-206 [1]	0.0376	0.00008	0.00025	0.0005	mg/L	0.04000		93.9	90-110			
Nickel-60 [1]	0.0398	0.00005	0.00025	0.0005	mg/L	0.04000		99.6	90-110			
Silver-107 [1]	0.0422	0.00008	0.00025	0.0005	mg/L	0.04000		105	90-110			
Thallium-203 [1]	0.0387	0.00003	0.00025	0.0005	mg/L	0.04000		96.6	90-110			J
Zinc-66 [1]	0.0389	0.0001	0.00025	0.0005	mg/L	0.04000		97.1	90-110			

Calibration Check (B18K086-CCV2)

Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0487	0.00007	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Arsenic-75 [1]	0.0478	0.00006	0.00025	0.0005	mg/L	0.05000		95.6	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K086 - Default Prep Metals

Calibration Check (B18K086-CCV2)						Prepared & Analyzed: 15-Nov-2018						
Barium-135 [1]	0.0509	0.0002	0.00025	0.0005	mg/L	0.05000		102	90-110			
Beryllium-9 [1]	0.0488	0.00015	0.00025	0.0005	mg/L	0.05000		97.6	90-110			
Cadmium-111 [1]	0.0523	0.00003	0.00025	0.0005	mg/L	0.05000		105	90-110			J
Chromium-52 [1]	0.0484	0.00006	0.00025	0.0005	mg/L	0.05000		96.9	90-110			
Copper-63 [1]	0.0501	0.00006	0.00025	0.0005	mg/L	0.05000		100	90-110			
Lead-206 [1]	0.0477	0.00008	0.00025	0.0005	mg/L	0.05000		95.4	90-110			
Nickel-60 [1]	0.0469	0.00005	0.00025	0.0005	mg/L	0.05000		93.8	90-110			
Silver-107 [1]	0.0483	0.00008	0.00025	0.0005	mg/L	0.05000		96.5	90-110			
Thallium-203 [1]	0.0486	0.00003	0.00025	0.0005	mg/L	0.05000		97.3	90-110			J
Zinc-66 [1]	0.0477	0.0001	0.00025	0.0005	mg/L	0.05000		95.3	90-110			

Calibration Check (B18K086-CCV3)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0500	0.00007	0.00025	0.0005	mg/L	0.05000		100	90-110			
Arsenic-75 [1]	0.0487	0.00006	0.00025	0.0005	mg/L	0.05000		97.4	90-110			
Barium-135 [1]	0.0472	0.0002	0.00025	0.0005	mg/L	0.05000		94.3	90-110			
Beryllium-9 [1]	0.0488	0.00015	0.00025	0.0005	mg/L	0.05000		97.6	90-110			
Cadmium-111 [1]	0.0496	0.00003	0.00025	0.0005	mg/L	0.05000		99.3	90-110			J
Chromium-52 [1]	0.0493	0.00006	0.00025	0.0005	mg/L	0.05000		98.6	90-110			
Copper-63 [1]	0.0512	0.00006	0.00025	0.0005	mg/L	0.05000		102	90-110			
Lead-206 [1]	0.0478	0.00008	0.00025	0.0005	mg/L	0.05000		95.6	90-110			
Nickel-60 [1]	0.0517	0.00005	0.00025	0.0005	mg/L	0.05000		103	90-110			J
Silver-107 [1]	0.0484	0.00008	0.00025	0.0005	mg/L	0.05000		96.7	90-110			
Thallium-203 [1]	0.0484	0.00003	0.00025	0.0005	mg/L	0.05000		96.7	90-110			J
Thallium-205 [1]	0.0492	0.00003	0.00025	0.0005	mg/L	0.05000		98.5	90-110			J
Zinc-66 [1]	0.0487	0.0001	0.00025	0.0005	mg/L	0.05000		97.4	90-110			

Duplicate (B18K086-DUP1)						Source: 18J0401-15		Prepared & Analyzed: 15-Nov-2018				
Antimony-121 [1]	0.0008	0.0007	0.0025	0.0050	mg/L		0.0018		72.3	30		RPD-01, J
Arsenic-75 [1]	ND	0.0006	0.0025	0.0050	mg/L		ND			20		U
Barium-135 [1]	ND	0.0020	0.0025	0.0050	mg/L		0.0023			20		U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K086 - Default Prep Metals

Duplicate (B18K086-DUP1)		Source: 18J0401-15				Prepared & Analyzed: 15-Nov-2018						
Beryllium-9 [1]	ND	0.0015	0.0025	0.0050	mg/L	ND				20		U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	ND				20		U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	ND				20		U
Copper-63 [1]	0.0016	0.0006	0.0025	0.0050	mg/L	0.0017				5.13	20	J
Lead-206 [1]	0.0018	0.0008	0.0025	0.0050	mg/L	ND				20		J
Nickel-60 [1]	ND	0.0005	0.0025	0.0050	mg/L	ND				20		U
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	0.0013				20		U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	ND				20		U
Zinc-66 [1]	0.0674	0.0010	0.0025	0.0050	mg/L	0.0653				3.21	20	

Matrix Spike (B18K086-MS1)		Source: 18J0401-15				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.404	0.0007	0.0025	0.0050	mg/L	0.4000	0.0018	100	70-130			
Arsenic-75 [1]	0.387	0.0006	0.0025	0.0050	mg/L	0.4000	ND	96.7	80-120			
Barium-135 [1]	0.378	0.0020	0.0025	0.0050	mg/L	0.4000	0.0023	93.9	80-120			
Beryllium-9 [1]	0.411	0.0015	0.0025	0.0050	mg/L	0.4000	ND	103	80-120			
Cadmium-111 [1]	0.426	0.0003	0.0025	0.0050	mg/L	0.4000	ND	106	80-120			
Chromium-52 [1]	0.392	0.0006	0.0025	0.0050	mg/L	0.4000	ND	98.0	80-120			
Copper-63 [1]	0.395	0.0006	0.0025	0.0050	mg/L	0.4000	0.0017	98.4	80-120			
Lead-206 [1]	0.387	0.0008	0.0025	0.0050	mg/L	0.4000	ND	96.8	80-120			
Nickel-60 [1]	0.387	0.0005	0.0025	0.0050	mg/L	0.4000	ND	96.7	80-120			
Silver-107 [1]	0.387	0.0008	0.0025	0.0050	mg/L	0.4000	0.0013	96.4	80-120			
Thallium-203 [1]	0.390	0.0003	0.0025	0.0050	mg/L	0.4000	ND	97.6	80-120			
Zinc-66 [1]	0.494	0.0010	0.0025	0.0050	mg/L	0.4000	0.0653	107	80-120			

Matrix Spike Dup (B18K086-MSD1)		Source: 18J0401-15				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.407	0.0007	0.0025	0.0050	mg/L	0.4000	0.0018	101	70-130	0.872	30	
Arsenic-75 [1]	0.389	0.0006	0.0025	0.0050	mg/L	0.4000	ND	97.3	80-120	0.628	20	
Barium-135 [1]	0.403	0.0020	0.0025	0.0050	mg/L	0.4000	0.0023	100	80-120	6.60	20	
Beryllium-9 [1]	0.390	0.0015	0.0025	0.0050	mg/L	0.4000	ND	97.4	80-120	5.38	20	
Cadmium-111 [1]	0.400	0.0003	0.0025	0.0050	mg/L	0.4000	ND	100	80-120	6.11	20	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K086 - Default Prep Metals

Matrix Spike Dup (B18K086-MSD1)		Source: 18J0401-15				Prepared & Analyzed: 15-Nov-2018						
Chromium-52 [1]	0.414	0.0006	0.0025	0.0050	mg/L	0.4000	ND	103	80-120	5.39	20	
Copper-63 [1]	0.413	0.0006	0.0025	0.0050	mg/L	0.4000	0.0017	103	80-120	4.38	20	
Lead-206 [1]	0.386	0.0008	0.0025	0.0050	mg/L	0.4000	ND	96.5	80-120	0.313	20	
Nickel-60 [1]	0.408	0.0005	0.0025	0.0050	mg/L	0.4000	ND	102	80-120	5.41	20	
Silver-107 [1]	0.387	0.0008	0.0025	0.0050	mg/L	0.4000	0.0013	96.5	80-120	0.0675	20	
Thallium-203 [1]	0.396	0.0003	0.0025	0.0050	mg/L	0.4000	ND	99.0	80-120	1.48	20	
Zinc-66 [1]	0.469	0.0010	0.0025	0.0050	mg/L	0.4000	0.0653	101	80-120	6.04	20	

Reference (B18K086-SRM1)

						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.599	0.0007	0.0025	0.0050	mg/L	0.6160		97.3	70-130			
Arsenic-75 [1]	0.669	0.0006	0.0025	0.0050	mg/L	0.6880		97.3	70-130			
Barium-135 [1]	0.465	0.0020	0.0025	0.0050	mg/L	0.5000		93.0	70-130			
Beryllium-9 [1]	0.236	0.0015	0.0025	0.0050	mg/L	0.2530		93.5	70-130			
Cadmium-111 [1]	0.133	0.0003	0.0025	0.0050	mg/L	0.1320		101	70-130			
Chromium-52 [1]	0.897	0.0006	0.0025	0.0050	mg/L	0.8910		101	70-130			
Copper-63 [1]	0.902	0.0006	0.0025	0.0050	mg/L	0.8790		103	70-130			
Lead-206 [1]	0.528	0.0008	0.0025	0.0050	mg/L	0.5460		96.7	70-130			
Nickel-60 [1]	0.816	0.0005	0.0025	0.0050	mg/L	0.8010		102	70-130			
Silver-107 [1]	0.865	0.0008	0.0025	0.0050	mg/L	0.9170		94.3	70-130			
Thallium-203 [1]	0.765	0.0003	0.0025	0.0050	mg/L	0.7750		98.7	70-130			
Zinc-66 [1]	1.16	0.0020	0.0050	0.0100	mg/L	1.250		93.0	70-130			

Batch B18K100 - Default Prep Metals

Blank (B18K100-BLK1)		Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018											
Selenium	ND	0.00015	0.0005	0.0010	mg/L								U

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K100 - Default Prep Metals

LC5 (B18K100-BS1)						Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018						
Selenium	0.263	0.0015	0.0050	0.0100	mg/L	0.2500		105	80-120			

Calibration Check (B18K100-CCV1)						Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018						
Selenium	0.0403	0.00015	0.0005	0.0010	mg/L	0.04000		101	90-110			

Calibration Check (B18K100-CCV2)						Prepared: 19-Nov-2018 Analyzed: 27-Nov-2018						
Selenium	0.0497	0.00015	0.0005	0.0010	mg/L	0.05000		99.4	90-110			

Calibration Check (B18K100-CCV3)						Prepared: 19-Nov-2018 Analyzed: 27-Nov-2018						
Selenium	0.0488	0.00015	0.0005	0.0010	mg/L	0.05000		97.6	90-110			

Calibration Check (B18K100-CCV4)						Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018						
Selenium	0.0473	0.00015	0.0005	0.0010	mg/L	0.05000		94.5	90-110			

Duplicate (B18K100-DUP1)						Source: 18J0401-13		Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018				
Selenium	ND	0.0015	0.0050	0.0100	mg/L		ND				20	U

Matrix Spike (B18K100-MS1)						Source: 18J0401-13		Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018				
Selenium	0.249	0.0015	0.0050	0.0100	mg/L	0.2500	ND	99.4	80-120			

Matrix Spike Dup (B18K100-MSD1)						Source: 18J0401-13		Prepared: 19-Nov-2018 Analyzed: 26-Nov-2018				
Selenium	0.252	0.0015	0.0050	0.0100	mg/L	0.2500	ND	101	80-120	1.28	20	

Reference (B18K100-SRM1)						Prepared: 19-Nov-2018 Analyzed: 27-Nov-2018						
Selenium	0.935	0.0015	0.0050	0.0100	mg/L	0.9170		102	80-120			

Batch B18K121 - Default Prep Metals

Blank (B18K121-BLK1)						Prepared & Analyzed: 29-Oct-2018						
Selenium	ND	0.00015	0.0005	0.0010	mg/L							U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
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Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K121 - Default Prep Metals

LCS (B18K121-BS1)						Prepared & Analyzed: 29-Oct-2018						
Selenium	0.0242	0.00015	0.0005	0.0010	mg/L	0.02500		96.6	80-120			

Duplicate (B18K121-DUP1)						Source: 18J0401-15 Prepared & Analyzed: 29-Oct-2018						
Selenium	ND	0.0003	0.0010	0.0020	mg/L		ND				20	U

Matrix Spike (B18K121-MS1)						Source: 18J0401-15 Prepared & Analyzed: 29-Oct-2018						
Selenium	0.0475	0.0003	0.0010	0.0020	mg/L	0.04000	ND	119	80-120			

Matrix Spike Dup (B18K121-MSD1)						Source: 18J0401-15 Prepared & Analyzed: 29-Oct-2018						
Selenium	0.0478	0.0003	0.0010	0.0020	mg/L	0.04000	ND	120	80-120	0.646	20	

Reference (B18K121-SRM1)						Prepared & Analyzed: 29-Oct-2018						
Selenium	0.972	0.0015	0.0050	0.0100	mg/L	0.9170		106	80-120			

Batch B18L036 - Default Prep Metals

Blank (B18L036-BLK1)						Prepared & Analyzed: 23-Oct-2018						
Chromium (VI)	ND	0.00030	0.00050	0.001	mg/L							U

LCS (B18L036-BS1)						Prepared & Analyzed: 23-Oct-2018						
Chromium (VI)	0.050	0.00030	0.00050	0.001	mg/L	0.05000		99.0	80-120			

Calibration Check (B18L036-CCV1)						Prepared & Analyzed: 23-Oct-2018						
Chromium (VI)	0.056	0.00030	0.00050	0.001	mg/L	0.05000		112	85-115			

Calibration Check (B18L036-CCV2)						Prepared & Analyzed: 23-Oct-2018						
Chromium (VI)	0.050	0.00030	0.00050	0.001	mg/L	0.05000		99.0	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road

Reported:

Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18L036 - Default Prep Metals

Calibration Check (B18L036-CCV3)

Prepared & Analyzed: 23-Oct-2018

Chromium (VI)	0.050	0.00030	0.00050	0.001	mg/L	0.05000		101	85-115			
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Calibration Check (B18L036-CCV4)

Prepared & Analyzed: 23-Oct-2018

Chromium (VI)	0.051	0.00030	0.00050	0.001	mg/L	0.05000		102	85-115			
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Calibration Check (B18L036-CCV5)

Prepared & Analyzed: 23-Oct-2018

Chromium (VI)	0.052	0.00030	0.00050	0.001	mg/L	0.05000		105	85-115			
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Duplicate (B18L036-DUP1)

Source: 18J0401-13

Prepared & Analyzed: 23-Oct-2018

Chromium (VI)	ND	0.00060	0.001	0.002	mg/L		ND				20	U
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Matrix Spike (B18L036-MS1)

Source: 18J0401-13

Prepared & Analyzed: 23-Oct-2018

Chromium (VI)	0.053	0.00060	0.001	0.002	mg/L	0.05000	ND	106	80-120			
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Matrix Spike Dup (B18L036-MSD1)

Source: 18J0401-13

Prepared & Analyzed: 23-Oct-2018

Chromium (VI)	0.052	0.00060	0.001	0.002	mg/L	0.05000	ND	103	80-120	2.86	20	
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0024 - B18K009

Initial Cal Check (18K0024-ICV1)

Prepared & Analyzed: 19-Nov-2018

Dissolved Organic Carbon	9.89				mg/L	10.00		98.9	90-110			
DOC rep1	9.81				mg/L	10.00		98.1	90-110			
DOC rep2	9.86				mg/L	10.00		98.6	90-110			
DOC rep3	9.95				mg/L	10.00		99.5	90-110			
DOC rep4	9.96				mg/L	10.00		99.6	90-110			
TOC rep1	9.81				mg/L	10.00		98.1	80-120			
TOC rep2	9.86				mg/L	10.00		98.6	80-120			
TOC rep3	9.95				mg/L	10.00		99.5	80-120			
TOC rep4	9.96				mg/L	10.00		99.6	80-120			
Total Organic Carbon	9.89				mg/L	10.00		98.9	80-120			

Batch B18J124 - Default Prep Metals

Blank (B18J124-BLK1)

Prepared & Analyzed: 15-Oct-2018

Sulfide	0.00970	0.00150	0.00500	0.0100	mg/L							J
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LCS (B18J124-BS1)

Prepared & Analyzed: 15-Oct-2018

Sulfide	0.484	0.00150	0.00500	0.0100	mg/L	0.5000		96.8	80-120			
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Calibration Check (B18J124-CCV1)

Prepared & Analyzed: 15-Oct-2018

Sulfide	0.547	0.00150	0.00500	0.0100	mg/L	0.5000		109	85-115			
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Calibration Check (B18J124-CCV2)

Prepared & Analyzed: 15-Oct-2018

Sulfide	0.495	0.00150	0.00500	0.0100	mg/L	0.5000		99.0	85-115			
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Calibration Check (B18J124-CCV3)

Prepared & Analyzed: 15-Oct-2018

Sulfide	0.498	0.00150	0.00500	0.0100	mg/L	0.5000		99.6	85-115			
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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J124 - Default Prep Metals

Duplicate (B18J124-DUP1)		Source: 18J0401-14				Prepared & Analyzed: 15-Oct-2018						
Sulfide	0.0182	0.00150	0.00500	0.0100	mg/L	0.0198				8.42	20	

Matrix Spike (B18J124-MS1)		Source: 18J0401-14				Prepared & Analyzed: 15-Oct-2018						
Sulfide	0.192	0.00150	0.00500	0.0100	mg/L	0.2000	0.0198	86.1	80-120			

Matrix Spike Dup (B18J124-MSD1)		Source: 18J0401-14				Prepared & Analyzed: 15-Oct-2018						
Sulfide	0.197	0.00150	0.00500	0.0100	mg/L	0.2000	0.0198	88.6	80-120	2.57	20	

Batch B18J214 - *

Blank (B18J214-BLK1)						Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.00646	0.00150	0.00500	0.0100	mg/L							

LCS (B18J214-BS1)						Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.194	0.00150	0.00500	0.0100	mg/L	0.2000		97.0	80-120			

Calibration Check (B18J214-CCV1)						Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.192	0.00150	0.00500	0.0100	mg/L	0.2000		96.0	85-115			

Calibration Check (B18J214-CCV2)						Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.496	0.00150	0.00500	0.0100	mg/L	0.5000		99.2	85-115			

Calibration Check (B18J214-CCV3)						Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.495	0.00150	0.00500	0.0100	mg/L	0.5000		99.0	85-115			

Calibration Check (B18J214-CCV4)						Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.492	0.00150	0.00500	0.0100	mg/L	0.5000		98.4	85-115			

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J214 - *

Duplicate (B18J214-DUP1)		Source: 18J0401-02				Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.00182	0.00150	0.00500	0.0100	mg/L	ND					20	J

Matrix Spike (B18J214-MS1)		Source: 18J0401-02				Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.190	0.00150	0.00500	0.0100	mg/L	0.2000	ND	95.0	80-120			

Matrix Spike Dup (B18J214-MSD1)		Source: 18J0401-02				Prepared & Analyzed: 24-Oct-2018						
Sulfide	0.194	0.00150	0.00500	0.0100	mg/L	0.2000	ND	97.0	80-120	2.08	20	

Batch B18K009 - * DEFAULT PREP *****

Blank (B18K009-BLK1)		Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018										
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK2)		Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018										
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK3)		Prepared: 05-Nov-2018 Analyzed: 19-Nov-2018										
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Blank (B18K009-BLK4)												
						Prepared: 05-Nov-2018 Analyzed: 19-Nov-2018						
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK5)												
						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U
Total Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK6)												
						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U
Total Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK7)												
						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U
Total Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK8)												
						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	4.96E-5	3.50E-5	5.00E-5	1.00E-4	%							J
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	3.90E-5	3.50E-5	5.00E-5	1.00E-4	%							J
TOC rep4	3.87E-5	3.50E-5	5.00E-5	1.00E-4	%							J

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18K009 - *** DEFAULT PREP ***												
Blank (B18K009-BLK8)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Total Organic Carbon	4.04E-5	3.50E-5	5.00E-5	1.00E-4	%							J
LCS (B18K009-BS1)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	9.65E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.5	80-120			
DOC rep1	9.55E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		95.5	80-120			
DOC rep2	9.64E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.4	80-120			
DOC rep3	9.67E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.7	80-120			
DOC rep4	9.75E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.5	80-120			
LCS (B18K009-BS2)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	9.13E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		91.3	80-120			
DOC rep1	9.15E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		91.5	80-120			
DOC rep2	9.21E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		92.1	80-120			
DOC rep3	9.27E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		92.7	80-120			
DOC rep4	8.90E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		89.0	80-120			
LCS (B18K009-BS3)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	9.94E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		99.4	80-120			
TOC rep2	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
TOC rep3	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
TOC rep4	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
Total Organic Carbon	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
LCS (B18K009-BS4)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	9.67E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.7	80-120			
TOC rep2	9.73E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.3	80-120			
TOC rep3	9.76E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.6	80-120			
TOC rep4	9.74E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.4	80-120			
Total Organic Carbon	9.73E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.3	80-120			

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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Calibration Check (B18K009-CCV1)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	4.97E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		99.4	90-110			
DOC rep1	4.84E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		96.8	90-110			
DOC rep2	4.94E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		98.8	90-110			
DOC rep3	5.05E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		101	90-110			
DOC rep4	5.01E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		100	90-110			

Calibration Check (B18K009-CCV2)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	5.03E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		101	90-110			
DOC rep1	4.87E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		97.4	90-110			
DOC rep2	4.89E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		97.8	90-110			
DOC rep3	4.95E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		99.0	90-110			
DOC rep4	5.42E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		108	90-110			

Calibration Check (B18K009-CCV3)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	5.08E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
DOC rep1	5.03E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		101	90-110			
DOC rep2	5.08E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
DOC rep3	5.11E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
DOC rep4	5.11E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			

Calibration Check (B18K009-CCV4)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	5.16E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep1	5.14E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep2	5.14E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep3	5.17E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep4	5.20E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			

Calibration Check (B18K009-CCV5)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	5.11E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
TOC rep2	5.16E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
TOC rep3	5.18E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
TOC rep4	5.27E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Calibration Check (B18K009-CCV5) Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

Total Organic Carbon	5.18E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
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Calibration Check (B18K009-CCV6) Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

TOC rep1	5.08E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
TOC rep2	5.16E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
TOC rep3	5.20E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
TOC rep4	5.24E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			
Total Organic Carbon	5.17E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			

Calibration Check (B18K009-CCV7) Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

TOC rep1	5.15E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
TOC rep2	5.21E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
TOC rep3	5.27E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			
TOC rep4	5.42E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		108	90-110			
Total Organic Carbon	5.26E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			

Calibration Check (B18K009-CCV8) Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

TOC rep1	5.39E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		108	90-110			
TOC rep2	5.34E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			
TOC rep3	5.34E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			
TOC rep4	5.36E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			
Total Organic Carbon	5.36E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			

Duplicate (B18K009-DUP1) Source: 18J0401-13 Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND			20		U
DOC rep1	ND	0.00350	0.00500	0.0100	%		ND			20		U
DOC rep2	ND	0.00350	0.00500	0.0100	%		ND			20		U
DOC rep3	ND	0.00350	0.00500	0.0100	%		ND			20		U
DOC rep4	ND	0.00350	0.00500	0.0100	%		ND			20		U
TOC rep1	ND	0.00350	0.00500	0.0100	%		ND			20		U
TOC rep2	ND	0.00350	0.00500	0.0100	%		0.00436			20		U
TOC rep3	ND	0.00350	0.00500	0.0100	%		ND			20		U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Duplicate (B18K009-DUP1) **Source: 18J0401-13** **Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018**

TOC rep4	ND	0.00350	0.00500	0.0100	%		ND				20	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U

Duplicate (B18K009-DUP2) **Source: 18J0403-12** **Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018**

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep1	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep2	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep3	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep4	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep1	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep2	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep3	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep4	0.00372	0.00350	0.00500	0.0100	%		0.00359			3.64	20	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U

Matrix Spike (B18K009-MS1) **Source: 18J0401-13** **Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018**

Dissolved Organic Carbon	0.0951	0.00350	0.00500	0.0100	%	0.1000	ND	95.1	70-130			
DOC rep1	0.0942	0.00350	0.00500	0.0100	%	0.1000	ND	94.2	70-130			
DOC rep2	0.0948	0.00350	0.00500	0.0100	%	0.1000	ND	94.8	70-130			
DOC rep3	0.0953	0.00350	0.00500	0.0100	%	0.1000	ND	95.3	70-130			
DOC rep4	0.0960	0.00350	0.00500	0.0100	%	0.1000	ND	96.0	70-130			

Matrix Spike (B18K009-MS2) **Source: 18J0403-12** **Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018**

Dissolved Organic Carbon	0.0958	0.00350	0.00500	0.0100	%	0.1000	ND	95.8	70-130			
DOC rep1	0.0947	0.00350	0.00500	0.0100	%	0.1000	ND	94.7	70-130			
DOC rep2	0.0958	0.00350	0.00500	0.0100	%	0.1000	ND	95.8	70-130			
DOC rep3	0.0966	0.00350	0.00500	0.0100	%	0.1000	ND	96.6	70-130			
DOC rep4	0.0962	0.00350	0.00500	0.0100	%	0.1000	ND	96.2	70-130			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Matrix Spike (B18K009-MS3)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	0.0956	0.00350	0.00500	0.0100	%	0.1000	ND	95.6	70-130			
TOC rep2	0.0966	0.00350	0.00500	0.0100	%	0.1000	0.00436	92.2	70-130			
TOC rep3	0.0970	0.00350	0.00500	0.0100	%	0.1000	ND	97.0	70-130			
TOC rep4	0.0972	0.00350	0.00500	0.0100	%	0.1000	ND	97.2	70-130			
Total Organic Carbon	0.0966	0.00350	0.00500	0.0100	%	0.1000	ND	96.6	70-130			

Matrix Spike (B18K009-MS4)		Source: 18J0403-12				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	0.0970	0.00350	0.00500	0.0100	%	0.1000	ND	97.0	70-130			
TOC rep2	0.0978	0.00350	0.00500	0.0100	%	0.1000	ND	97.8	70-130			
TOC rep3	0.0985	0.00350	0.00500	0.0100	%	0.1000	ND	98.5	70-130			
Total Organic Carbon	0.0978	0.00350	0.00500	0.0100	%	0.1000	ND	97.8	70-130			

Matrix Spike Dup (B18K009-MSD1)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	0.0974	0.00350	0.00500	0.0100	%	0.1000	ND	97.4	70-130	2.39	20	
DOC rep1	0.0968	0.00350	0.00500	0.0100	%	0.1000	ND	96.8	70-130	2.72	20	
DOC rep2	0.0972	0.00350	0.00500	0.0100	%	0.1000	ND	97.2	70-130	2.50	20	
DOC rep3	0.0974	0.00350	0.00500	0.0100	%	0.1000	ND	97.4	70-130	2.18	20	
DOC rep4	0.0980	0.00350	0.00500	0.0100	%	0.1000	ND	98.0	70-130	2.06	20	

Matrix Spike Dup (B18K009-MSD2)		Source: 18J0403-12				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	0.0931	0.00350	0.00500	0.0100	%	0.1000	ND	93.1	70-130	2.86	20	
DOC rep1	0.0925	0.00350	0.00500	0.0100	%	0.1000	ND	92.5	70-130	2.35	20	
DOC rep2	0.0934	0.00350	0.00500	0.0100	%	0.1000	ND	93.4	70-130	2.54	20	
DOC rep3	0.0932	0.00350	0.00500	0.0100	%	0.1000	ND	93.2	70-130	3.58	20	
DOC rep4	0.0933	0.00350	0.00500	0.0100	%	0.1000	ND	93.3	70-130	3.06	20	

Matrix Spike Dup (B18K009-MSD3)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	0.0961	0.00350	0.00500	0.0100	%	0.1000	ND	96.1	70-130	0.522	20	
TOC rep2	0.0969	0.00350	0.00500	0.0100	%	0.1000	0.00436	92.5	70-130	0.310	20	
TOC rep3	0.0974	0.00350	0.00500	0.0100	%	0.1000	ND	97.4	70-130	0.412	20	
TOC rep4	0.0976	0.00350	0.00500	0.0100	%	0.1000	ND	97.6	70-130	0.411	20	
Total Organic Carbon	0.0970	0.00350	0.00500	0.0100	%	0.1000	ND	97.0	70-130	0.413	20	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV1)

Prepared & Analyzed: 14-Nov-2018

4,4'-DDT	21.2				ug/L	20.00		106	85-150			
Aldrin	22.0				ug/L	20.00		110	85-150			
alpha-BHC	22.3				ug/L	20.00		112	85-150			
alpha-Chlordane	42.8				ug/L	40.00		107	85-150			
beta-BHC	20.5				ug/L	20.00		102	85-150			
cis-Nonachlor	21.1				ug/L	20.00		106	85-150			
delta-BHC	21.1				ug/L	20.00		106	85-150			
Dieldrin	21.7				ug/L	20.00		108	85-150			
Endosulfan I	44.4				ug/L	40.00		111	85-150			
Endosulfan II	21.2				ug/L	20.00		106	85-150			
Endosulfan sulfate	20.4				ug/L	20.00		102	85-150			
Endrin	21.5				ug/L	20.00		108	85-150			
Endrin aldehyde	21.1				ug/L	20.00		106	85-150			
Endrin ketone	19.7				ug/L	20.00		98.5	80-120			
gamma-BHC (Lindane)	20.1				ug/L	20.00		100	85-150			
gamma-Chlordane	21.1				ug/L	20.00		105	85-150			
Heptachlor	21.6				ug/L	20.00		108	85-150			
Heptachlor epoxide	20.8				ug/L	20.00		104	85-150			
Methoxychlor	20.6				ug/L	20.00		103	85-150			
Oxychlordane	20.4				ug/L	20.00		102	85-150			
trans-Nonachlor	42.8				ug/L	40.00		107	85-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	20.4				ug/L	20.00		102	85-115			
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	21.1				ug/L	20.00		106	85-115			

Calibration Check (18K0002-CCV2)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	305				ug/L	300.0		102	85-150			
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV3)

Prepared & Analyzed: 15-Nov-2018

4,4'-DDT	35.3				ug/L	20.00		176	80-120			
Aldrin	36.8				ug/L	20.00		184	80-120			
alpha-BHC	38.1				ug/L	20.00		190	80-120			
alpha-Chlordane	71.4				ug/L	40.00		179	80-120			
beta-BHC	34.7				ug/L	20.00		173	80-120			
cis-Nonachlor	35.1				ug/L	20.00		176	0-200			
delta-BHC	37.7				ug/L	20.00		189	80-120			
Dieldrin	36.8				ug/L	20.00		184	80-120			
Endosulfan I	35.0				ug/L	40.00		87.5	80-120			
Endosulfan II	74.2				ug/L	20.00		371	80-120			
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	37.6				ug/L	20.00		188	80-120			
Endrin aldehyde	35.0				ug/L	20.00		175	80-120			
Endrin ketone	68.8				ug/L	20.00		344	80-120			
gamma-BHC (Lindane)	35.2				ug/L	20.00		176	80-120			
gamma-Chlordane	36.0				ug/L	20.00		180	80-120			
Heptachlor	37.9				ug/L	20.00		189	80-120			
Heptachlor epoxide	36.2				ug/L	20.00		181	80-120			
Methoxychlor	34.6				ug/L	20.00		173	80-120			
Oxychlordane	35.1				ug/L	20.00		175	0-200			
trans-Nonachlor	71.7				ug/L	40.00		179	0-200			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCV4)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	309				ug/L	300.0		103	85-150			
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV5)

Prepared: 14-Nov-2018 Analyzed: 15-Nov-2018

4,4'-DDT	20.0				ug/L	20.00		100	85-150			
Aldrin	21.3				ug/L	20.00		107	85-150			
alpha-BHC	22.0				ug/L	20.00		110	85-150			
alpha-Chlordane	41.4				ug/L	40.00		104	85-150			
beta-BHC	19.7				ug/L	20.00		98.7	85-150			
cis-Nonachlor	20.5				ug/L	20.00		102	85-150			
delta-BHC	21.9				ug/L	20.00		109	85-150			
Dieldrin	20.9				ug/L	20.00		104	85-150			
Endosulfan I	42.9				ug/L	40.00		107	85-150			
Endosulfan II	20.4				ug/L	20.00		102	85-150			
Endosulfan sulfate	20.5				ug/L	20.00		102	85-150			
Endrin	21.3				ug/L	20.00		106	85-150			
Endrin aldehyde	20.2				ug/L	20.00		101	85-150			
Endrin ketone	19.0				ug/L	20.00		95.0	80-120			
gamma-BHC (Lindane)	21.3				ug/L	20.00		106	85-150			
gamma-Chlordane	20.7				ug/L	20.00		103	85-150			
Heptachlor	20.9				ug/L	20.00		105	85-150			
Heptachlor epoxide	21.1				ug/L	20.00		105	85-150			
Methoxychlor	20.2				ug/L	20.00		101	85-150			
Oxychlordane	20.0				ug/L	20.00		100	85-150			
trans-Nonachlor	41.4				ug/L	40.00		104	85-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	19.8				ug/L	20.00		99.0	85-115			
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	20.4				ug/L	20.00		102	85-115			

Calibration Check (18K0002-CCV6)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	300				ug/L	300.0		100	85-150			
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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV7)

Prepared: 14-Nov-2018 Analyzed: 15-Nov-2018

4,4'-DDT	16.7				ug/L	20.00		83.3	85-150			CCV-L
Aldrin	17.4				ug/L	20.00		87.1	85-150			
alpha-BHC	17.9				ug/L	20.00		89.3	85-150			
alpha-Chlordane	34.2				ug/L	40.00		85.5	85-150			
beta-BHC	17.1				ug/L	20.00		85.5	85-150			
cis-Nonachlor	17.1				ug/L	20.00		85.5	85-150			
delta-BHC	17.3				ug/L	20.00		86.5	85-150			
Dieldrin	17.1				ug/L	20.00		85.7	85-150			
Endosulfan I	35.3				ug/L	40.00		88.2	85-150			
Endosulfan II	17.2				ug/L	20.00		86.0	85-150			
Endosulfan sulfate	17.9				ug/L	20.00		89.5	85-150			
Endrin	17.5				ug/L	20.00		87.4	85-150			
Endrin aldehyde	17.6				ug/L	20.00		87.9	85-150			
Endrin ketone	17.2				ug/L	20.00		86.0	80-120			
gamma-BHC (Lindane)	17.8				ug/L	20.00		88.9	85-150			
gamma-Chlordane	17.0				ug/L	20.00		85.2	85-150			
Heptachlor	17.2				ug/L	20.00		86.1	85-150			
Heptachlor epoxide	17.1				ug/L	20.00		85.6	85-150			
Methoxychlor	17.2				ug/L	20.00		86.0	85-150			
Oxychlordane	16.6				ug/L	20.00		82.9	85-150			CCV-L
trans-Nonachlor	34.2				ug/L	40.00		85.4	85-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	17.4				ug/L	20.00		87.0	85-115			
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	17.1				ug/L	20.00		85.5	85-115			

Calibration Check (18K0002-CCV8)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	262				ug/L	300.0		87.3	85-150			
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV9)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.00				ug/L	20.00			80-120			U
Aldrin	0.00				ug/L	20.00			80-120			U
alpha-BHC	0.00				ug/L	20.00			80-120			U
alpha-Chlordane	0.00				ug/L	40.00			80-120			U
beta-BHC	0.00				ug/L	20.00			80-120			U
cis-Nonachlor	0.00				ug/L	20.00			0-200			U
delta-BHC	0.00				ug/L	20.00			80-120			U
Dieldrin	0.00				ug/L	20.00			80-120			U
Endosulfan I	0.00				ug/L	40.00			80-120			U
Endosulfan II	0.00				ug/L	20.00			80-120			U
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	0.00				ug/L	20.00			80-120			U
Endrin aldehyde	0.00				ug/L	20.00			80-120			U
Endrin ketone	0.00				ug/L	20.00			80-120			U
gamma-BHC (Lindane)	0.00				ug/L	20.00			80-120			U
gamma-Chlordane	0.00				ug/L	20.00			80-120			U
Heptachlor	0.00				ug/L	20.00			80-120			U
Heptachlor epoxide	0.00				ug/L	20.00			80-120			U
Methoxychlor	0.00				ug/L	20.00			80-120			U
Oxychlordane	0.00				ug/L	20.00			0-200			U
trans-Nonachlor	0.00				ug/L	40.00			0-200			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCVA)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCVB)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.00				ug/L	20.00			80-120			U
Aldrin	0.00				ug/L	20.00			80-120			U
alpha-BHC	0.00				ug/L	20.00			80-120			U
alpha-Chlordane	0.00				ug/L	40.00			80-120			U
beta-BHC	0.00				ug/L	20.00			80-120			U
cis-Nonachlor	0.00				ug/L	20.00			0-200			U
delta-BHC	0.00				ug/L	20.00			80-120			U
Dieldrin	0.00				ug/L	20.00			80-120			U
Endosulfan I	0.00				ug/L	40.00			80-120			U
Endosulfan II	0.00				ug/L	20.00			80-120			U
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	0.00				ug/L	20.00			80-120			U
Endrin aldehyde	0.00				ug/L	20.00			80-120			U
Endrin ketone	0.00				ug/L	20.00			80-120			U
gamma-BHC (Lindane)	0.00				ug/L	20.00			80-120			U
gamma-Chlordane	0.00				ug/L	20.00			80-120			U
Heptachlor	0.00				ug/L	20.00			80-120			U
Heptachlor epoxide	0.00				ug/L	20.00			80-120			U
Methoxychlor	0.00				ug/L	20.00			80-120			U
Oxychlordane	0.00				ug/L	20.00			0-200			U
trans-Nonachlor	0.00				ug/L	40.00			0-200			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCVC)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCVD)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.00				ug/L	20.00			80-120			U
Aldrin	0.00				ug/L	20.00			80-120			U
alpha-BHC	0.00				ug/L	20.00			80-120			U
alpha-Chlordane	0.00				ug/L	40.00			80-120			U
beta-BHC	0.00				ug/L	20.00			80-120			U
cis-Nonachlor	0.00				ug/L	20.00			0-200			U
delta-BHC	0.00				ug/L	20.00			80-120			U
Dieldrin	0.00				ug/L	20.00			80-120			U
Endosulfan I	0.00				ug/L	40.00			80-120			U
Endosulfan II	0.00				ug/L	20.00			80-120			U
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	0.00				ug/L	20.00			80-120			U
Endrin aldehyde	0.00				ug/L	20.00			80-120			U
Endrin ketone	0.00				ug/L	20.00			80-120			U
gamma-BHC (Lindane)	0.00				ug/L	20.00			80-120			U
gamma-Chlordane	0.00				ug/L	20.00			80-120			U
Heptachlor	0.00				ug/L	20.00			80-120			U
Heptachlor epoxide	0.00				ug/L	20.00			80-120			U
Methoxychlor	0.00				ug/L	20.00			80-120			U
Oxychlordane	0.00				ug/L	20.00			0-200			U
trans-Nonachlor	0.00				ug/L	40.00			0-200			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCVE)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Initial Cal Blank (18K0002-ICB1)

Prepared & Analyzed: 14-Nov-2018

4,4'-DDT	0.00				ug/L							U
Aldrin	0.00				ug/L							U
alpha-BHC	0.00				ug/L							U
alpha-Chlordane	0.00				ug/L							U
beta-BHC	0.00				ug/L							U
cis-Nonachlor	0.00				ug/L							U
delta-BHC	0.00				ug/L							U
Dibutyl Chlorendate	0.00				ug/L				45-135			U
Dibutyl Chlorendate [2]	0.00				ug/L				45-135			U
Dieldrin	0.00				ug/L							U
Endosulfan I	0.00				ug/L							U
Endosulfan II	0.00				ug/L							U
Endosulfan sulfate	0.00				ug/L							U
Endrin	0.00				ug/L							U
Endrin aldehyde	0.00				ug/L							U
Endrin ketone	0.00				ug/L							U
gamma-BHC (Lindane)	0.00				ug/L							U
gamma-Chlordane	0.00				ug/L							U
Heptachlor	0.00				ug/L							U
Heptachlor epoxide	0.00				ug/L							U
Hexachlorobenzene [2]	0.00				ug/L							U
Hexachlorocyclopentadiene (2C)	0.00				ug/L							U
Methoxychlor	0.00				ug/L							U
Oxychlordane	0.00				ug/L							U
Toxaphene	0.00				ug/L							U
trans-Nonachlor	0.00				ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L				30-125			Z-03, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Initial Cal Blank (18K0002-ICB1)

Prepared & Analyzed: 14-Nov-2018

Surrogate:	0.00				ug/L				40-135			U
Decachlorobiphenyl												
Surrogate: PCB 198	0.00				ug/L				30-125			Z-03, U

Initial Cal Check (18K0002-ICV1)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	20.2				ug/L	20.00		101	80-120			
Aldrin	21.5				ug/L	20.00		108	80-120			
alpha-BHC	21.7				ug/L	20.00		108	80-120			
alpha-Chlordane	40.2				ug/L	40.00		100	80-120			
beta-BHC	19.0				ug/L	20.00		95.0	80-120			
cis-Nonachlor	19.7				ug/L	20.00		98.5	80-120			
delta-BHC	25.4				ug/L	20.00		127	80-120			Q
Dieldrin	21.5				ug/L	20.00		108	80-120			
Endosulfan I	42.7				ug/L	40.00		107	80-120			
Endosulfan II	19.5				ug/L	20.00		97.5	80-120			
Endosulfan sulfate	20.1				ug/L	20.00		100	80-120			
Endrin	21.8				ug/L	20.00		109	80-120			
Endrin aldehyde	19.8				ug/L	20.00		99.0	80-120			
Endrin ketone	19.1				ug/L	20.00		95.5	80-120			Q
gamma-BHC (Lindane)	21.0				ug/L	20.00		105	80-120			
gamma-Chlordane	19.6				ug/L	20.00		98.0	80-120			
Heptachlor	19.9				ug/L	20.00		99.5	80-120			
Heptachlor epoxide	21.0				ug/L	20.00		105	80-120			
Methoxychlor	19.6				ug/L	20.00		98.0	80-120			
Oxychlordane	19.1				ug/L	20.00		95.5	80-120			
trans-Nonachlor	40.2				ug/L	40.00		100	80-120			

Initial Cal Check (18K0002-ICV2)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Initial Cal Check (18K0002-ICV3)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			Z-03, U
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVC)

Prepared: 13-Nov-2018 Analyzed: 30-Nov-2018

4,4'-DDD	24.1				ng/mL	20.00		121	85-115			CCV-HA
4,4'-DDE	51.3				ng/mL	40.00		128	85-115			CCV-HA
4,4'-DDT	24.3				ng/mL	20.00		122	85-115			CCV-HA
Aldrin	25.1				ng/mL	20.00		126	85-115			CCV-HA
alpha-BHC	26.1				ng/mL	20.00		130	85-115			CCV-HA
alpha-Chlordane	48.6				ng/mL	40.00		121	85-115			CCV-HA
beta-BHC	24.0				ng/mL	20.00		120	85-115			CCV-HA
cis-Nonachlor	23.8				ng/mL	20.00		119	85-115			CCV-HA
delta-BHC	25.3				ng/mL	20.00		126	85-115			CCV-HA
Dieldrin	24.4				ng/mL	20.00		122	85-115			CCV-HA
Endosulfan I	51.3				ng/mL	40.00		128	85-115			CCV-HA
Endosulfan II	23.7				ng/mL	20.00		118	85-115			CCV-HA
Endosulfan sulfate	23.5				ng/mL	20.00		118	85-115			CCV-HA
Endrin	24.8				ng/mL	20.00		124	85-115			CCV-HA
Endrin aldehyde	23.8				ng/mL	20.00		119	85-115			CCV-HA
Endrin ketone	24.0				ng/mL	20.00		120	85-115			CCV-HA
gamma-BHC (Lindane)	26.0				ng/mL	20.00		130	85-115			CCV-HA
gamma-Chlordane	24.4				ng/mL	20.00		122	85-115			CCV-HA
Heptachlor	25.3				ng/mL	20.00		127	85-115			CCV-HA
Heptachlor epoxide	24.2				ng/mL	20.00		121	85-115			CCV-HA
Methoxychlor	20.8				ng/mL	20.00		104	85-115			CCV-HA
Oxychlordane	23.8				ng/mL	20.00		119	85-115			CCV-HA
trans-Nonachlor	48.6				ng/mL	40.00		121	85-115			CCV-HA
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	23.8				ng/mL	20.00		119	85-115			CCV-HA
Surrogate: PCB 198	22.2				ng/mL	20.00		111	85-115			CCV-HA

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVD)

Prepared: 13-Nov-2018 Analyzed: 01-Dec-2018

4,4'-DDD	17.9				ng/mL	20.00		89.5	85-115			
4,4'-DDE	38.5				ng/mL	40.00		96.3	85-115			
4,4'-DDT	19.0				ng/mL	20.00		95.2	85-115			
Aldrin	17.8				ng/mL	20.00		89.2	85-115			
alpha-BHC	18.8				ng/mL	20.00		94.0	85-115			
alpha-Chlordane	36.8				ng/mL	40.00		91.9	85-115			
beta-BHC	17.2				ng/mL	20.00		86.1	85-115			
cis-Nonachlor	18.1				ng/mL	20.00		90.4	85-115			
delta-BHC	17.9				ng/mL	20.00		89.5	85-115			
Dieldrin	18.7				ng/mL	20.00		93.3	85-115			
Endosulfan I	38.5				ng/mL	40.00		96.2	85-115			
Endosulfan II	18.2				ng/mL	20.00		91.0	85-115			
Endosulfan sulfate	17.7				ng/mL	20.00		88.5	85-115			
Endrin	18.6				ng/mL	20.00		93.2	85-115			
Endrin aldehyde	17.9				ng/mL	20.00		89.5	85-115			
Endrin ketone	18.1				ng/mL	20.00		90.6	85-115			
gamma-BHC (Lindane)	18.7				ng/mL	20.00		93.3	85-115			
gamma-Chlordane	18.3				ng/mL	20.00		91.3	85-115			
Heptachlor	17.5				ng/mL	20.00		87.5	85-115			
Heptachlor epoxide	18.2				ng/mL	20.00		91.0	85-115			
Methoxychlor	17.8				ng/mL	20.00		89.0	85-115			
Oxychlordane	17.2				ng/mL	20.00		86.0	85-115			
trans-Nonachlor	36.8				ng/mL	40.00		91.9	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	18.2				ng/mL	20.00		90.8	85-115			
Surrogate: PCB 198	17.2				ng/mL	20.00		86.2	85-115			

Calibration Check (18K0025-CCVE)

Prepared: 13-Nov-2018 Analyzed: 30-Nov-2018

Toxaphene	277				ng/mL	300.0		92.3	85-115			
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVF)

Prepared: 13-Nov-2018 Analyzed: 20-Nov-2018

Toxaphene	288				ng/mL	300.0		96.0	85-115			
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Initial Cal Check (18K0025-ICV4)

Prepared: 13-Nov-2018 Analyzed: 30-Nov-2018

4,4'-DDD	20.8				ng/mL	20.00		104	80-120			
4,4'-DDE	43.9				ng/mL	40.00		110	80-120			
4,4'-DDT	21.3				ng/mL	20.00		106	80-120			
Aldrin	22.7				ng/mL	20.00		113	80-120			
alpha-BHC	22.4				ng/mL	20.00		112	80-120			
alpha-Chlordane	41.3				ng/mL	40.00		103	80-120			
beta-BHC	19.7				ng/mL	20.00		98.3	80-120			
cis-Nonachlor	20.2				ng/mL	20.00		101	80-120			
delta-BHC	26.8				ng/mL	20.00		134	80-120			Q
Dieldrin	21.9				ng/mL	20.00		110	80-120			
Endosulfan I	43.8				ng/mL	40.00		110	80-120			
Endosulfan II	20.0				ng/mL	20.00		100	80-120			
Endosulfan sulfate	21.2				ng/mL	20.00		106	80-120			
Endrin	22.4				ng/mL	20.00		112	80-120			
Endrin aldehyde	19.5				ng/mL	20.00		97.4	80-120			
Endrin ketone	10.2				ng/mL	20.00		51.0	80-120			Q
gamma-BHC (Lindane)	21.4				ng/mL	20.00		107	80-120			
gamma-Chlordane	20.2				ng/mL	20.00		101	80-120			
Heptachlor	20.5				ng/mL	20.00		103	80-120			
Heptachlor epoxide	21.4				ng/mL	20.00		107	80-120			
Methoxychlor	17.5				ng/mL	20.00		87.4	80-120			
Oxychlordane	19.6				ng/mL	20.00		97.9	80-120			
trans-Nonachlor	41.3				ng/mL	40.00		103	80-120			

Initial Cal Check (18K0025-ICV5)

Prepared: 13-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDD	18.0				ng/mL	20.00		89.8	80-120			
4,4'-DDE	37.0				ng/mL	40.00		92.6	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Initial Cal Check (18K0025-ICV5)

Prepared: 13-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDT	17.1				ng/mL	20.00		85.3	80-120			
Aldrin	18.9				ng/mL	20.00		94.5	80-120			
alpha-BHC	19.0				ng/mL	20.00		94.9	80-120			
alpha-Chlordane	35.5				ng/mL	40.00		88.6	80-120			
beta-BHC	16.7				ng/mL	20.00		83.7	80-120			
delta-BHC	22.2				ng/mL	20.00		111	80-120			
Dieldrin	18.7				ng/mL	20.00		93.7	80-120			
Endosulfan I	37.1				ng/mL	40.00		92.8	80-120			
Endosulfan II	16.8				ng/mL	20.00		84.0	80-120			
Endosulfan sulfate	17.7				ng/mL	20.00		88.5	80-120			
Endrin	19.2				ng/mL	20.00		95.8	80-120			
Endrin aldehyde	17.0				ng/mL	20.00		85.0	80-120			
Endrin ketone	8.58				ng/mL	20.00		42.9	80-120			Q
gamma-BHC (Lindane)	18.8				ng/mL	20.00		94.1	80-120			
gamma-Chlordane	17.2				ng/mL	20.00		86.0	80-120			
Heptachlor	17.5				ng/mL	20.00		87.6	80-120			
Heptachlor epoxide	18.6				ng/mL	20.00		92.8	80-120			
Methoxychlor	18.1				ng/mL	20.00		90.3	80-120			

Batch B18J159 - EPA 3510C

Blank (B18J159-BLK1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.0005	0.001	0.005	ug/L							U
Aldrin	ND	0.0005	0.001	0.005	ug/L							U
alpha-BHC	ND	0.0004	0.001	0.005	ug/L							U
alpha-Chlordane	ND	0.00080	0.001	0.005	ug/L							U
beta-BHC	ND	0.0007	0.001	0.005	ug/L							U
cis-Nonachlor	ND	0.0004	0.001	0.005	ug/L							U
delta-BHC	ND	0.0004	0.001	0.005	ug/L							U
Dieldrin	ND	0.0005	0.001	0.005	ug/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

Blank (B18J159-BLK1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

Endosulfan I	ND	0.001	0.001	0.005	ug/L							U
Endosulfan II	ND	0.0003	0.001	0.005	ug/L							U
Endosulfan sulfate	ND	0.0005	0.001	0.005	ug/L							U
Endrin	ND	0.0007	0.001	0.005	ug/L							U
Endrin aldehyde	ND	0.00040	0.001	0.005	ug/L							U
Endrin ketone	ND	0.0007	0.001	0.005	ug/L							U
gamma-BHC (Lindane)	ND	0.0005	0.001	0.005	ug/L							U
gamma-Chlordane	ND	0.0005	0.001	0.005	ug/L							U
Heptachlor	ND	0.0006	0.001	0.005	ug/L							U
Heptachlor epoxide	ND	0.0005	0.001	0.005	ug/L							U
Methoxychlor	ND	0.0008	0.001	0.005	ug/L							U
Oxychlordane	ND	0.0007	0.001	0.005	ug/L							U
Toxaphene	ND	0.049	0.066	0.200	ug/L							U
trans-Nonachlor	ND	0.0006	0.001	0.005	ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0444				ug/L	0.1200		37.0	30-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	0.0952				ug/L	0.1200		79.3	30-125			

LCS (B18J159-BS1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Aldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
alpha-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
alpha-Chlordane	ND	0.00080	0.001	0.005	ug/L				50-150		30	U
beta-BHC	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
delta-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
Dieldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.001	0.005	ug/L				50-150		30	U
Endosulfan II	ND	0.0003	0.001	0.005	ug/L				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

LCS (B18J159-BS1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

Endosulfan sulfate	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endrin	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00040	0.001	0.005	ug/L				50-150		30	U
Endrin ketone	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Heptachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Methoxychlor	ND	0.0008	0.001	0.005	ug/L				50-150		30	U
Oxychlordane	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Toxaphene	ND	0.049	0.066	0.200	ug/L				50-150		30	U
trans-Nonachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.1200			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.1200			30-120			U

LCS (B18J159-BS2)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	0.110	0.0005	0.001	0.005	ug/L	0.1200		91.7	50-150		30	
Aldrin	0.076	0.0005	0.001	0.005	ug/L	0.1200		63.3	50-150		30	
alpha-BHC	0.095	0.0004	0.001	0.005	ug/L	0.1200		79.3	50-150		30	
alpha-Chlordane	0.187	0.00080	0.001	0.005	ug/L	0.2400		77.8	50-150		30	
beta-BHC	0.090	0.0007	0.001	0.005	ug/L	0.1200		75.0	50-150		30	
cis-Nonachlor	0.106	0.0004	0.001	0.005	ug/L	0.1200		88.3	50-150		30	
delta-BHC	0.113	0.0004	0.001	0.005	ug/L	0.1200		94.0	50-150		30	
Dieldrin	0.104	0.0005	0.001	0.005	ug/L	0.1200		87.0	50-150		30	
Endosulfan I	0.188	0.001	0.001	0.005	ug/L	0.2400		78.3	50-150		30	
Endosulfan II	0.107	0.0003	0.001	0.005	ug/L	0.1200		89.3	50-150		30	
Endosulfan sulfate	0.103	0.0005	0.001	0.005	ug/L	0.1200		85.7	50-150		30	
Endrin	0.104	0.0007	0.001	0.005	ug/L	0.1200		86.7	50-150		30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

LCS (B18J159-BS2)												
						Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018						
Endrin aldehyde	0.103	0.00040	0.001	0.005	ug/L	0.1200		86.0	50-150		30	
Endrin ketone	0.060	0.0007	0.001	0.005	ug/L	0.1200		50.0	50-150		30	
gamma-BHC (Lindane)	0.091	0.0005	0.001	0.005	ug/L	0.1200		75.7	50-150		30	
gamma-Chlordane	0.098	0.0005	0.001	0.005	ug/L	0.1200		81.3	50-150		30	
Heptachlor	0.088	0.0006	0.001	0.005	ug/L	0.1200		73.0	50-150		30	
Heptachlor epoxide	0.096	0.0005	0.001	0.005	ug/L	0.1200		80.3	50-150		30	
Methoxychlor	0.103	0.0008	0.001	0.005	ug/L	0.1200		85.7	50-150		30	
Oxychlordane	0.090	0.0007	0.001	0.005	ug/L	0.1200		75.0	50-150		30	
Toxaphene	ND	0.049	0.066	0.200	ug/L				50-150		30	U
trans-Nonachlor	0.186	0.0006	0.001	0.005	ug/L	0.2400		77.7	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0556				ug/L	0.1200		46.3	25-150			
Surrogate: Decachlorobiphenyl	0.0960				ug/L				30-120			
Surrogate: PCB 198	0.114				ug/L	0.1200		95.0	30-120			

LCS (B18J159-BS3)												
						Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018						
4,4'-DDT	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Aldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
alpha-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
alpha-Chlordane	ND	0.00080	0.001	0.005	ug/L				50-150		30	U
beta-BHC	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
delta-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
Dieldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.001	0.005	ug/L				50-150		30	U
Endosulfan II	ND	0.0003	0.001	0.005	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endrin	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00040	0.001	0.005	ug/L				50-150		30	U
Endrin ketone	ND	0.0007	0.001	0.005	ug/L				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

LCS (B18J159-BS3)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

gamma-BHC (Lindane)	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Heptachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Methoxychlor	ND	0.0008	0.001	0.005	ug/L				50-150		30	U
Oxychlordane	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Toxaphene	0.712	0.049	0.066	0.200	ug/L	1.200		59.3	50-150		30	
trans-Nonachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0640				ug/L	0.1200		53.3	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.0976				ug/L	0.1200		81.3	30-120			

LCS Dup (B18J159-BSD1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Aldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
alpha-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
alpha-Chlordane	ND	0.00080	0.001	0.005	ug/L				50-150		30	U
beta-BHC	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
delta-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
Dieldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.001	0.005	ug/L				50-150		30	U
Endosulfan II	ND	0.0003	0.001	0.005	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endrin	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00040	0.001	0.005	ug/L				50-150		30	U
Endrin ketone	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0005	0.001	0.005	ug/L				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

LCS Dup (B18J159-BSD1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

Heptachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Methoxychlor	ND	0.0008	0.001	0.005	ug/L				50-150		30	U
Oxychlorthane	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Toxaphene	ND	0.049	0.066	0.200	ug/L				50-150		30	U
trans-Nonachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.1200			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.1200			30-120			U

LCS Dup (B18J159-BSD2)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	0.120	0.0005	0.001	0.005	ug/L	0.1200		100	50-150	8.70	30	
Aldrin	0.087	0.0005	0.001	0.005	ug/L	0.1200		72.7	50-150	13.7	30	
alpha-BHC	0.101	0.0004	0.001	0.005	ug/L	0.1200		84.3	50-150	6.11	30	
alpha-Chlordane	0.201	0.00080	0.001	0.005	ug/L	0.2400		83.7	50-150	7.22	30	
beta-BHC	0.096	0.0007	0.001	0.005	ug/L	0.1200		80.3	50-150	6.87	30	
cis-Nonachlor	0.114	0.0004	0.001	0.005	ug/L	0.1200		94.7	50-150	6.92	30	
delta-BHC	0.106	0.0004	0.001	0.005	ug/L	0.1200		88.3	50-150	6.22	30	
Dieldrin	0.113	0.0005	0.001	0.005	ug/L	0.1200		94.0	50-150	7.73	30	
Endosulfan I	0.203	0.001	0.001	0.005	ug/L	0.2400		84.7	50-150	7.77	30	
Endosulfan II	0.114	0.0003	0.001	0.005	ug/L	0.1200		95.3	50-150	6.50	30	
Endosulfan sulfate	0.110	0.0005	0.001	0.005	ug/L	0.1200		91.7	50-150	6.77	30	
Endrin	0.114	0.0007	0.001	0.005	ug/L	0.1200		95.0	50-150	9.17	30	
Endrin aldehyde	0.111	0.00040	0.001	0.005	ug/L	0.1200		92.7	50-150	7.46	30	
Endrin ketone	0.063	0.0007	0.001	0.005	ug/L	0.1200		52.7	50-150	5.19	30	
gamma-BHC (Lindane)	0.098	0.0005	0.001	0.005	ug/L	0.1200		81.3	50-150	7.22	30	
gamma-Chlordane	0.106	0.0005	0.001	0.005	ug/L	0.1200		88.3	50-150	8.25	30	
Heptachlor	0.097	0.0006	0.001	0.005	ug/L	0.1200		81.0	50-150	10.4	30	
Heptachlor epoxide	0.102	0.0005	0.001	0.005	ug/L	0.1200		84.7	50-150	5.25	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

LCS Dup (B18J159-BSD2)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

Methoxychlor	0.112	0.0008	0.001	0.005	ug/L	0.1200		93.3	50-150	8.57	30	
Oxychlorane	0.098	0.0007	0.001	0.005	ug/L	0.1200		82.0	50-150	8.92	30	
Toxaphene	ND	0.049	0.066	0.200	ug/L				50-150		30	U
trans-Nonachlor	0.201	0.0006	0.001	0.005	ug/L	0.2400		83.7	50-150	7.44	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0632				ug/L	0.1200		52.7	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.124				ug/L	0.1200		104	30-120			

LCS Dup (B18J159-BSD3)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Aldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
alpha-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
alpha-Chlordane	ND	0.00080	0.001	0.005	ug/L				50-150		30	U
beta-BHC	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
delta-BHC	ND	0.0004	0.001	0.005	ug/L				50-150		30	U
Dieldrin	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.001	0.005	ug/L				50-150		30	U
Endosulfan II	ND	0.0003	0.001	0.005	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Endrin	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00040	0.001	0.005	ug/L				50-150		30	U
Endrin ketone	ND	0.0007	0.001	0.005	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Heptachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0005	0.001	0.005	ug/L				50-150		30	U
Methoxychlor	ND	0.0008	0.001	0.005	ug/L				50-150		30	U
Oxychlorane	ND	0.0007	0.001	0.005	ug/L				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

LCS Dup (B18J159-BSD3)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

Toxaphene	0.844	0.049	0.066	0.200	ug/L	1.200		70.3	50-150	17.0	30	
trans-Nonachlor	ND	0.0006	0.001	0.005	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0784				ug/L	0.1200		65.3	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.114				ug/L	0.1200		95.0	30-120			

Duplicate (B18J159-DUP1)

Source: 18I2007-08

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.001	0.002	0.010	ug/L		ND				30	U
Aldrin	ND	0.001	0.002	0.010	ug/L		ND				30	U
alpha-BHC	ND	0.0009	0.002	0.010	ug/L		ND				30	U
alpha-Chlordane	ND	0.002	0.002	0.010	ug/L		ND				30	U
beta-BHC	ND	0.001	0.002	0.010	ug/L		ND				30	U
cis-Nonachlor	ND	0.0009	0.002	0.010	ug/L		ND				30	U
delta-BHC	ND	0.0009	0.002	0.010	ug/L		ND				30	U
Dieldrin	ND	0.001	0.002	0.010	ug/L		ND				30	U
Endosulfan I	ND	0.002	0.002	0.010	ug/L		ND				30	U
Endosulfan II	ND	0.0006	0.002	0.010	ug/L		ND				30	U
Endosulfan sulfate	ND	0.001	0.002	0.010	ug/L		ND				30	U
Endrin	ND	0.001	0.002	0.010	ug/L		ND				30	U
Endrin aldehyde	ND	0.00080	0.002	0.010	ug/L		ND				30	U
Endrin ketone	ND	0.001	0.002	0.010	ug/L		ND				30	U
gamma-BHC (Lindane)	ND	0.001	0.002	0.010	ug/L		ND				30	U
gamma-Chlordane	ND	0.001	0.002	0.010	ug/L		ND				30	U
Heptachlor	ND	0.001	0.002	0.010	ug/L		ND				30	U
Heptachlor epoxide	ND	0.001	0.002	0.010	ug/L		ND				30	U
Methoxychlor	ND	0.002	0.002	0.010	ug/L		ND				30	U
Oxychlordane	ND	0.001	0.002	0.010	ug/L		ND				30	U
Toxaphene	ND	0.098	0.133	0.400	ug/L		ND				30	U
trans-Nonachlor	ND	0.001	0.002	0.010	ug/L		ND				30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

Duplicate (B18J159-DUP1)		Source: 18I2007-08				Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018						
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0632				ug/L	0.1200		52.7	30-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	0.108				ug/L	0.1200		90.0	30-125			

Matrix Spike (B18J159-MS1)		Source: 18I2007-08				Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018						
4,4'-DDT	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Aldrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
alpha-BHC	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
beta-BHC	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
delta-BHC	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.0006	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan sulfate	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endrin aldehyde	ND	0.00080	0.002	0.010	ug/L		ND		50-150		30	U
Endrin ketone	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Heptachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
Oxychlordane	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Toxaphene	ND	0.098	0.133	0.400	ug/L		ND		50-150		30	U
trans-Nonachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.2400			25-150			U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

Matrix Spike (B18J159-MS3)	Source: 18I2007-08				Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018							
4,4'-DDT	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Aldrin	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
alpha-BHC	ND	0.0009	0.002	0.010	ug/L	ND			50-150		30	U
alpha-Chlordane	ND	0.002	0.002	0.010	ug/L	ND			50-150		30	U
beta-BHC	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
cis-Nonachlor	ND	0.0009	0.002	0.010	ug/L	ND			50-150		30	U
delta-BHC	ND	0.0009	0.002	0.010	ug/L	ND			50-150		30	U
Dieldrin	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Endosulfan I	ND	0.002	0.002	0.010	ug/L	ND			50-150		30	U
Endosulfan II	ND	0.0006	0.002	0.010	ug/L	ND			50-150		30	U
Endosulfan sulfate	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Endrin	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Endrin aldehyde	ND	0.00080	0.002	0.010	ug/L	ND			50-150		30	U
Endrin ketone	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
gamma-BHC (Lindane)	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
gamma-Chlordane	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Heptachlor	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Heptachlor epoxide	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Methoxychlor	ND	0.002	0.002	0.010	ug/L	ND			50-150		30	U
Oxychlordane	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Toxaphene	1.33	0.195	0.266	0.800	ug/L	2.400	ND	55.3	50-150		30	
trans-Nonachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0984				ug/L	0.2400		41.0	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.136				ug/L	0.2400		56.7	30-120			

Matrix Spike Dup (B18J159-MSD1)	Source: 18I2007-08				Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018							
4,4'-DDT	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U
Aldrin	ND	0.001	0.002	0.010	ug/L	ND			50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

Matrix Spike Dup (B18J159-MSD1)

Source: 18I2007-08

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

alpha-BHC	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
beta-BHC	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
delta-BHC	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.0006	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan sulfate	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endrin aldehyde	ND	0.00080	0.002	0.010	ug/L		ND		50-150		30	U
Endrin ketone	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Heptachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
Oxychlordane	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Toxaphene	ND	0.098	0.133	0.400	ug/L		ND		50-150		30	U
trans-Nonachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.2400			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.2400			30-120			U

Matrix Spike Dup (B18J159-MSD2)

Source: 18I2007-08

Prepared: 18-Oct-2018 Analyzed: 18-Nov-2018

4,4'-DDT	0.202	0.002	0.005	0.020	ug/L	0.2400	ND	84.4	50-150	2.76	30	
Aldrin	0.151	0.002	0.005	0.020	ug/L	0.2400	ND	62.9	50-150	1.87	30	
alpha-BHC	0.187	0.002	0.005	0.020	ug/L	0.2400	ND	77.8	50-150	1.96	30	
alpha-Chlordane	0.343	0.003	0.005	0.020	ug/L	0.4800	ND	71.5	50-150	1.40	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

Matrix Spike Dup (B18J159-MSD2)		Source: 18I2007-08				Prepared: 18-Oct-2018 Analyzed: 18-Nov-2018						
beta-BHC	0.169	0.003	0.005	0.020	ug/L	0.2400	ND	70.3	50-150	5.82	30	
cis-Nonachlor	0.204	0.002	0.005	0.020	ug/L	0.2400	ND	85.0	50-150	3.02	30	
delta-BHC	0.175	0.002	0.005	0.020	ug/L	0.2400	ND	73.0	50-150	1.84	30	
Dieldrin	0.187	0.002	0.005	0.020	ug/L	0.2400	ND	77.9	50-150	4.22	30	
Endosulfan I	0.346	0.004	0.005	0.020	ug/L	0.4800	ND	72.0	50-150	1.40	30	
Endosulfan II	0.189	0.001	0.005	0.020	ug/L	0.2400	ND	78.7	50-150	1.28	30	
Endosulfan sulfate	0.194	0.002	0.005	0.020	ug/L	0.2400	ND	81.0	50-150	2.08	30	
Endrin	0.195	0.003	0.005	0.020	ug/L	0.2400	ND	81.2	50-150	1.82	30	
Endrin aldehyde	0.193	0.002	0.005	0.020	ug/L	0.2400	ND	80.2	50-150	1.83	30	
Endrin ketone	0.113	0.003	0.005	0.020	ug/L	0.2400	ND	47.0	50-150	4.50	30	QM-07
gamma-BHC (Lindane)	0.164	0.002	0.005	0.020	ug/L	0.2400	ND	68.1	50-150	1.67	30	
gamma-Chlordane	0.178	0.002	0.005	0.020	ug/L	0.2400	ND	74.4	50-150	1.54	30	
Heptachlor	0.172	0.002	0.005	0.020	ug/L	0.2400	ND	71.8	50-150	2.52	30	
Heptachlor epoxide	0.178	0.002	0.005	0.020	ug/L	0.2400	ND	74.1	50-150	2.12	30	
Methoxychlor	0.220	0.003	0.005	0.020	ug/L	0.2400	ND	91.6	50-150	10.9	30	
Oxychlordane	0.179	0.003	0.005	0.020	ug/L	0.2400	ND	74.5	50-150	1.04	30	
Toxaphene	ND	0.098	0.133	0.400	ug/L		ND		50-150		30	U
trans-Nonachlor	0.343	0.002	0.005	0.020	ug/L	0.4800	ND	71.4	50-150	1.40	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.119				ug/L	0.2400		49.4	25-150			
Surrogate: Decachlorobiphenyl	2.79				ug/L				30-120			
Surrogate: PCB 198	0.218				ug/L	0.2400		90.9	30-120			

Matrix Spike Dup (B18J159-MSD3)		Source: 18I2007-08				Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018						
4,4'-DDT	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Aldrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
alpha-BHC	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
beta-BHC	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J159 - EPA 3510C

Matrix Spike Dup (B18J159-MSD3)

Source: 18I2007-08

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

delta-BHC	ND	0.0009	0.002	0.010	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.0006	0.002	0.010	ug/L		ND		50-150		30	U
Endosulfan sulfate	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endrin	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Endrin aldehyde	ND	0.00080	0.002	0.010	ug/L		ND		50-150		30	U
Endrin ketone	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Heptachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.002	0.002	0.010	ug/L		ND		50-150		30	U
Oxychlordane	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Toxaphene	1.26	0.195	0.266	0.800	ug/L	2.400	ND	52.7	50-150	4.94	30	
trans-Nonachlor	ND	0.001	0.002	0.010	ug/L		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.106				ug/L	0.2400		44.3	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.140				ug/L	0.2400		58.3	30-120			

Reference (B18J159-SRM1)

Prepared: 18-Oct-2018 Analyzed: 21-Nov-2018

Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.1200			30-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	ND				ug/L	0.1200			30-125			U

Batch B18J226 - EPA 3510C

Blank (B18J226-BLK1)

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L							U
Aldrin	ND	0.0007	0.002	0.007	ug/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Blank (B18J226-BLK1)

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

alpha-BHC	ND	0.0007	0.002	0.007	ug/L							U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L							U
beta-BHC	ND	0.001	0.002	0.007	ug/L							U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L							U
delta-BHC	ND	0.0007	0.002	0.007	ug/L							U
Dieldrin	ND	0.0007	0.002	0.007	ug/L							U
Endosulfan I	ND	0.001	0.002	0.007	ug/L							U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L							U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L							U
Endrin	ND	0.001	0.002	0.007	ug/L							U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L							U
Endrin ketone	ND	0.001	0.002	0.007	ug/L							U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L							U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L							U
Heptachlor	ND	0.0008	0.002	0.007	ug/L							U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L							U
Methoxychlor	ND	0.001	0.002	0.007	ug/L							U
Oxychlordane	ND	0.001	0.002	0.007	ug/L							U
Toxaphene	ND	0.073	0.100	0.300	ug/L							U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0735				ug/L	0.1000		73.5	30-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	0.102				ug/L	0.1200		85.0	30-125			

LCS (B18J226-BS1)

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

4,4'-DDT	0.098	0.0008	0.002	0.007	ug/L	0.1200		81.8	50-150		30	
Aldrin	0.077	0.0007	0.002	0.007	ug/L	0.1200		63.9	50-150		30	
alpha-BHC	0.088	0.0007	0.002	0.007	ug/L	0.1200		73.4	50-150		30	
alpha-Chlordane	0.166	0.001	0.002	0.007	ug/L	0.2400		69.3	50-150		30	

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS (B18J226-BS1)

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

beta-BHC	0.078	0.001	0.002	0.007	ug/L	0.1200		65.2	50-150		30	
cis-Nonachlor	0.097	0.0007	0.002	0.007	ug/L	0.1200		80.8	50-150		30	
delta-BHC	0.087	0.0007	0.002	0.007	ug/L	0.1200		72.8	50-150		30	
Dieldrin	0.092	0.0007	0.002	0.007	ug/L	0.1200		77.0	50-150		30	
Endosulfan I	0.167	0.001	0.002	0.007	ug/L	0.2400		69.5	50-150		30	
Endosulfan II	0.098	0.0005	0.002	0.007	ug/L	0.1200		81.5	50-150		30	
Endosulfan sulfate	0.100	0.0007	0.002	0.007	ug/L	0.1200		83.0	50-150		30	
Endrin	0.099	0.001	0.002	0.007	ug/L	0.1200		82.8	50-150		30	
Endrin aldehyde	0.093	0.00060	0.002	0.007	ug/L	0.1200		77.4	50-150		30	
Endrin ketone	0.083	0.001	0.002	0.007	ug/L	0.1200		69.0	50-150		30	
gamma-BHC (Lindane)	0.082	0.0008	0.002	0.007	ug/L	0.1200		68.0	50-150		30	
gamma-Chlordane	0.090	0.0007	0.002	0.007	ug/L	0.1200		74.8	50-150		30	
Heptachlor	0.083	0.0008	0.002	0.007	ug/L	0.1200		69.3	50-150		30	
Heptachlor epoxide	0.091	0.0007	0.002	0.007	ug/L	0.1200		75.4	50-150		30	
Methoxychlor	0.103	0.001	0.002	0.007	ug/L	0.1200		85.7	50-150		30	
Oxychlordane	0.082	0.001	0.002	0.007	ug/L	0.1200		68.6	50-150		30	
Toxaphene	ND	0.073	0.100	0.300	ug/L				50-150		30	U
trans-Nonachlor	0.166	0.0008	0.002	0.007	ug/L	0.2400		69.3	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0673				ug/L	0.1000		67.3	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.108				ug/L	0.1200		89.7	30-120			

LCS (B18J226-BS2)

Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L				50-150		30	U

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS (B18J226-BS2)

Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018

delta-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endrin	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L				50-150		30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Oxychlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Toxaphene	0.960	0.073	0.100	0.300	ug/L	1.200		80.0	50-150		30	U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0630				ug/L	0.1000		63.0	25-150			
Surrogate: Decachlorobiphenyl	0.0942				ug/L				30-120			
Surrogate: PCB 198	0.0942				ug/L	0.1200		78.5	30-120			

LCS (B18J226-BS3)

Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
delta-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS (B18J226-BS3)

Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018

Endosulfan I	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endrin	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L				50-150		30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Oxychlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Toxaphene	ND	0.073	0.100	0.300	ug/L				50-150		30	U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.1000			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.1200			30-120			U

LCS Dup (B18J226-BSD1)

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

4,4'-DDT	0.102	0.0008	0.002	0.007	ug/L	0.1200		85.0	50-150	3.82	30	
Aldrin	0.078	0.0007	0.002	0.007	ug/L	0.1200		65.3	50-150	2.14	30	
alpha-BHC	0.091	0.0007	0.002	0.007	ug/L	0.1200		75.7	50-150	3.05	30	
alpha-Chlordane	0.173	0.001	0.002	0.007	ug/L	0.2400		72.1	50-150	3.86	30	
beta-BHC	0.082	0.001	0.002	0.007	ug/L	0.1200		68.4	50-150	4.84	30	
cis-Nonachlor	0.102	0.0007	0.002	0.007	ug/L	0.1200		85.3	50-150	5.45	30	
delta-BHC	0.092	0.0007	0.002	0.007	ug/L	0.1200		76.7	50-150	5.23	30	
Dieldrin	0.096	0.0007	0.002	0.007	ug/L	0.1200		80.4	50-150	4.31	30	
Endosulfan I	0.174	0.001	0.002	0.007	ug/L	0.2400		72.5	50-150	4.23	30	
Endosulfan II	0.102	0.0005	0.002	0.007	ug/L	0.1200		85.0	50-150	4.20	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS Dup (B18J226-BSD1)

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

Endosulfan sulfate	0.106	0.0007	0.002	0.007	ug/L	0.1200		88.0	50-150	5.85	30	
Endrin	0.100	0.001	0.002	0.007	ug/L	0.1200		83.6	50-150	0.859	30	
Endrin aldehyde	0.101	0.00060	0.002	0.007	ug/L	0.1200		84.3	50-150	8.50	30	
Endrin ketone	0.089	0.001	0.002	0.007	ug/L	0.1200		74.5	50-150	7.67	30	
gamma-BHC (Lindane)	0.086	0.0008	0.002	0.007	ug/L	0.1200		72.1	50-150	5.79	30	
gamma-Chlordane	0.091	0.0007	0.002	0.007	ug/L	0.1200		76.2	50-150	1.84	30	
Heptachlor	0.087	0.0008	0.002	0.007	ug/L	0.1200		72.4	50-150	4.31	30	
Heptachlor epoxide	0.094	0.0007	0.002	0.007	ug/L	0.1200		78.2	50-150	3.65	30	
Methoxychlor	0.109	0.001	0.002	0.007	ug/L	0.1200		90.9	50-150	5.94	30	
Oxychlordane	0.086	0.001	0.002	0.007	ug/L	0.1200		71.8	50-150	4.62	30	
Toxaphene	ND	0.073	0.100	0.300	ug/L				50-150		30	U
trans-Nonachlor	0.173	0.0008	0.002	0.007	ug/L	0.2400		72.1	50-150	3.86	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0672				ug/L	0.1000		67.2	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.113				ug/L	0.1200		94.5	30-120			

LCS Dup (B18J226-BSD2)

Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
delta-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endrin	ND	0.001	0.002	0.007	ug/L				50-150		30	U

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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS Dup (B18J226-BSD2)

Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018

Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L				50-150		30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Oxychlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Toxaphene	1.06	0.073	0.100	0.300	ug/L	1.200		88.0	50-150	9.52	30	U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0600				ug/L	0.1000		60.0	25-150			
Surrogate: Decachlorobiphenyl	0.0852				ug/L				30-120			
Surrogate: PCB 198	0.0852				ug/L	0.1200		71.0	30-120			

LCS Dup (B18J226-BSD3)

Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
delta-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endrin	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L				50-150		30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L				50-150		30	U

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USACE ERDC-EP-C
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS Dup (B18J226-BSD3)

Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018

gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Oxychlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Toxaphene	ND	0.073	0.100	0.300	ug/L				50-150		30	U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.1000			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.1200			30-120			U

Duplicate (B18J226-DUP1)

Source: 18J0401-13

Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L		ND				30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L		ND				30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L		ND				30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L		ND				30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L		ND				30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L		ND				30	U
delta-BHC	0.019	0.0007	0.002	0.007	ug/L		ND				30	
Dieldrin	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L		ND				30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L		ND				30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Endrin	ND	0.001	0.002	0.007	ug/L		ND				30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L		ND				30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L		ND				30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L		ND				30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L		ND				30	U

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Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Duplicate (B18J226-DUP1)		Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018						
Heptachlor	ND	0.0008	0.002	0.007	ug/L		ND				30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L		ND				30	U
Oxychlorthane	0.043	0.001	0.002	0.007	ug/L		ND				30	
Toxaphene	ND	0.073	0.100	0.300	ug/L		ND				30	U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L		ND				30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0625				ug/L	0.1000		62.5	30-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	0.0822				ug/L	0.1200		68.5	30-125			

Matrix Spike (B18J226-MS1)		Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018						
4,4'-DDT	0.274	0.002	0.004	0.015	ug/L	0.2400	ND	114	50-150		30	
Aldrin	0.157	0.001	0.004	0.015	ug/L	0.2400	ND	65.4	50-150		30	
alpha-BHC	0.194	0.001	0.004	0.015	ug/L	0.2400	ND	80.7	50-150		30	
alpha-Chlordane	0.369	0.002	0.004	0.015	ug/L	0.4800	ND	76.9	50-150		30	
beta-BHC	0.179	0.002	0.004	0.015	ug/L	0.2400	ND	74.7	50-150		30	
cis-Nonachlor	0.206	0.001	0.004	0.015	ug/L	0.2400	ND	85.7	50-150		30	
delta-BHC	0.189	0.001	0.004	0.015	ug/L	0.2400	ND	78.7	50-150		30	
Dieldrin	0.191	0.001	0.004	0.015	ug/L	0.2400	ND	79.8	50-150		30	
Endosulfan I	0.349	0.003	0.004	0.015	ug/L	0.4800	ND	72.8	50-150		30	
Endosulfan II	0.205	0.001	0.004	0.015	ug/L	0.2400	ND	85.5	50-150		30	
Endosulfan sulfate	0.205	0.001	0.004	0.015	ug/L	0.2400	ND	85.5	50-150		30	
Endrin	0.199	0.002	0.004	0.015	ug/L	0.2400	ND	82.8	50-150		30	
Endrin aldehyde	0.204	0.001	0.004	0.015	ug/L	0.2400	ND	85.2	50-150		30	
Endrin ketone	0.185	0.002	0.004	0.015	ug/L	0.2400	ND	77.0	50-150		30	
gamma-BHC (Lindane)	0.181	0.002	0.004	0.015	ug/L	0.2400	ND	75.6	50-150		30	
gamma-Chlordane	0.191	0.001	0.004	0.015	ug/L	0.2400	ND	79.5	50-150		30	
Heptachlor	0.171	0.002	0.004	0.015	ug/L	0.2400	ND	71.2	50-150		30	
Heptachlor epoxide	0.194	0.001	0.004	0.015	ug/L	0.2400	ND	81.0	50-150		30	

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USACE ERDC-EP-C
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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Matrix Spike (B18J226-MS1)	Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018							
Methoxychlor	0.221	0.003	0.004	0.015	ug/L	0.2400	ND	92.3	50-150		30	
Oxychlorane	0.209	0.002	0.004	0.015	ug/L	0.2400	ND	87.1	50-150		30	
Toxaphene	ND	0.146	0.199	0.600	ug/L		ND		50-150		30	U
trans-Nonachlor	0.369	0.002	0.004	0.015	ug/L	0.4800	ND	76.9	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.142				ug/L	0.2000		70.8	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.220				ug/L	0.2400		91.9	30-120			

Matrix Spike (B18J226-MS2)	Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018							
4,4'-DDT	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Aldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
beta-BHC	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
delta-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan sulfate	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endrin	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Endrin aldehyde	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endrin ketone	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Oxychlorane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U

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Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Matrix Spike (B18J226-MS2)		Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018						
Toxaphene	2.46	0.146	0.199	0.600	ug/L	2.400	ND	102	50-150		30	
trans-Nonachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.139				ug/L	0.2000		69.6	25-150			
<i>Surrogate: Decachlorobiphenyl</i>	ND				ug/L				30-120			U
<i>Surrogate: PCB 198</i>	0.192				ug/L	0.2400		80.0	30-120			

Matrix Spike (B18J226-MS3)		Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018						
4,4'-DDT	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Aldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
beta-BHC	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
delta-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan sulfate	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endrin	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Endrin aldehyde	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endrin ketone	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Oxychlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Toxaphene	ND	0.146	0.199	0.600	ug/L		ND		50-150		30	U
trans-Nonachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U

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ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Matrix Spike (B18J226-MS3)		Source: 18J0401-13			Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018							
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.2000			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.2400			30-120			U

Matrix Spike Dup (B18J226-MSD1)		Source: 18J0401-13			Prepared: 26-Oct-2018 Analyzed: 15-Nov-2018							
4,4'-DDT	0.290	0.002	0.004	0.015	ug/L	0.2400	ND	121	50-150	5.61	30	
Aldrin	0.150	0.001	0.004	0.015	ug/L	0.2400	ND	62.7	50-150	4.15	30	
alpha-BHC	0.183	0.001	0.004	0.015	ug/L	0.2400	ND	76.4	50-150	5.52	30	
alpha-Chlordane	0.356	0.002	0.004	0.015	ug/L	0.4800	ND	74.2	50-150	3.66	30	
beta-BHC	0.176	0.002	0.004	0.015	ug/L	0.2400	ND	73.5	50-150	1.69	30	
cis-Nonachlor	0.202	0.001	0.004	0.015	ug/L	0.2400	ND	84.1	50-150	1.85	30	
delta-BHC	0.169	0.001	0.004	0.015	ug/L	0.2400	ND	70.5	50-150	11.0	30	
Dieldrin	0.185	0.001	0.004	0.015	ug/L	0.2400	ND	77.1	50-150	3.42	30	
Endosulfan I	0.342	0.003	0.004	0.015	ug/L	0.4800	ND	71.2	50-150	2.08	30	
Endosulfan II	0.194	0.001	0.004	0.015	ug/L	0.2400	ND	81.0	50-150	5.41	30	
Endosulfan sulfate	0.200	0.001	0.004	0.015	ug/L	0.2400	ND	83.5	50-150	2.37	30	
Endrin	0.195	0.002	0.004	0.015	ug/L	0.2400	ND	81.1	50-150	2.09	30	
Endrin aldehyde	0.200	0.001	0.004	0.015	ug/L	0.2400	ND	83.2	50-150	2.41	30	
Endrin ketone	0.186	0.002	0.004	0.015	ug/L	0.2400	ND	77.5	50-150	0.647	30	
gamma-BHC (Lindane)	0.171	0.002	0.004	0.015	ug/L	0.2400	ND	71.4	50-150	5.71	30	
gamma-Chlordane	0.186	0.001	0.004	0.015	ug/L	0.2400	ND	77.3	50-150	2.81	30	
Heptachlor	0.180	0.002	0.004	0.015	ug/L	0.2400	ND	75.0	50-150	5.20	30	
Heptachlor epoxide	0.194	0.001	0.004	0.015	ug/L	0.2400	ND	80.8	50-150	0.210	30	
Methoxychlor	0.213	0.003	0.004	0.015	ug/L	0.2400	ND	89.0	50-150	3.67	30	
Oxychlorane	0.178	0.002	0.004	0.015	ug/L	0.2400	ND	74.2	50-150	16.1	30	
Toxaphene	ND	0.146	0.199	0.600	ug/L		ND		50-150		30	U
trans-Nonachlor	0.356	0.002	0.004	0.015	ug/L	0.4800	ND	74.2	50-150	3.66	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.145				ug/L	0.2000		72.7	25-150			

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Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Matrix Spike Dup (B18J226-MSD3)

Source: 18J0401-13

Prepared: 26-Oct-2018 Analyzed: 21-Nov-2018

4,4'-DDT	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Aldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
beta-BHC	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
delta-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan sulfate	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endrin	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Endrin aldehyde	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endrin ketone	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Oxychlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Toxaphene	ND	0.146	0.199	0.600	ug/L		ND		50-150		30	U
trans-Nonachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.2000			25-150			U
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	ND				ug/L	0.2400			30-120			U

Reference (B18J226-SRM1)

Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018

Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/L	0.1000			30-150			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Reference (B18J226-SRM1)

Prepared: 26-Oct-2018 Analyzed: 17-Nov-2018

Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	ND				ug/L	0.1200			30-125			U



USACE ERDC-EP-C
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Nutrients - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J111 - *

Blank (B18J111-BLK1)						Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018						
Ammonia as N	0.00570	0.00440	0.00500	0.0100	mg/L							J

LCS (B18J111-BS1)						Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018						
Ammonia as N	0.0941	0.00440	0.00500	0.0100	mg/L	0.1000		94.1	80-120			

Calibration Check (B18J111-CCV1)						Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018						
Ammonia as N	0.401	0.00440	0.00500	0.0100	mg/L	0.4000		100	90-110			

Calibration Check (B18J111-CCV2)						Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018						
Ammonia as N	0.495	0.00440	0.00500	0.0100	mg/L	0.5000		99.0	90-110			

Calibration Check (B18J111-CCV3)						Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018						
Ammonia as N	0.502	0.00440	0.00500	0.0100	mg/L	0.5000		100	90-110			

Duplicate (B18J111-DUP1)						Source: 18J0401-14		Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018				
Ammonia as N	ND	0.00880	0.0100	0.0200	mg/L		ND				30	U

Matrix Spike (B18J111-MS1)						Source: 18J0401-14		Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018				
Ammonia as N	0.182	0.00880	0.0100	0.0200	mg/L	0.2000	ND	91.0	80-120			

Matrix Spike Dup (B18J111-MSD1)						Source: 18J0401-14		Prepared: 15-Oct-2018 Analyzed: 16-Oct-2018				
Ammonia as N	0.182	0.00880	0.0100	0.0200	mg/L	0.2000	ND	91.0	80-120	0.00	30	

Reference (B18J111-SRM1)						Prepared: 15-Oct-2018 Analyzed: 13-Dec-2018						
Ammonia as N	1.01	0.00440	0.00500	0.0100	mg/L	1.000		101	80-120			

Batch B18J221 - *

Blank (B18J221-BLK1)						Prepared & Analyzed: 25-Oct-2018						
Ammonia as N, filtered	ND	0.00440	0.00500	0.0100	mg/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Nutrients - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18J221 - *												
LCS (B18J221-BS1)						Prepared & Analyzed: 25-Oct-2018						
Ammonia as N, filtered	0.107	0.00440	0.00500	0.0100	mg/L	0.1000		107	80-120			
Calibration Check (B18J221-CCV1)						Prepared & Analyzed: 25-Oct-2018						
Ammonia as N, filtered	0.373	0.00440	0.00500	0.0100	mg/L	0.4000		93.2	90-110			
Calibration Check (B18J221-CCV2)						Prepared & Analyzed: 25-Oct-2018						
Ammonia as N, filtered	0.498	0.00440	0.00500	0.0100	mg/L	0.5000		99.6	90-110			
Calibration Check (B18J221-CCV3)						Prepared & Analyzed: 25-Oct-2018						
Ammonia as N, filtered	0.496	0.00440	0.00500	0.0100	mg/L	0.5000		99.2	90-110			
Calibration Check (B18J221-CCV4)						Prepared & Analyzed: 25-Oct-2018						
Ammonia as N, filtered	0.492	0.00440	0.00500	0.0100	mg/L	0.5000		98.4	90-110			
Duplicate (B18J221-DUP1)						Source: 18J0401-02			Prepared & Analyzed: 25-Oct-2018			
Ammonia as N, filtered	0.203	0.00440	0.00500	0.0100	mg/L		0.205			0.980	30	
Matrix Spike (B18J221-MS1)						Source: 18J0401-02			Prepared & Analyzed: 25-Oct-2018			
Ammonia as N, filtered	0.298	0.00440	0.00500	0.0100	mg/L	0.1000	0.205	93.0	80-120			
Matrix Spike Dup (B18J221-MSD1)						Source: 18J0401-02			Prepared & Analyzed: 25-Oct-2018			
Ammonia as N, filtered	0.299	0.00440	0.00500	0.0100	mg/L	0.1000	0.205	94.0	80-120	0.335	30	
Reference (B18J221-SRM1)						Prepared: 25-Oct-2018 Analyzed: 13-Dec-2018						
Ammonia as N, filtered	1.10	0.00440	0.00500	0.0100	mg/L	1.000		110	80-120			
Batch B18J223 - *												
Blank (B18J223-BLK1)						Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018						
Ammonia as N	ND	0.00440	0.00500	0.0100	mg/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Nutrients - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18J223 - *												
LCS (B18J223-BS1)						Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018						
Ammonia as N	0.107	0.00440	0.00500	0.0100	mg/L	0.1000		107	80-120			
Calibration Check (B18J223-CCV1)						Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018						
Ammonia as N	0.372	0.00440	0.00500	0.0100	mg/L	0.4000		93.0	90-110			
Calibration Check (B18J223-CCV2)						Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018						
Ammonia as N	0.501	0.00440	0.00500	0.0100	mg/L	0.5000		100	90-110			
Calibration Check (B18J223-CCV3)						Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018						
Ammonia as N	0.491	0.00440	0.00500	0.0100	mg/L	0.5000		98.2	90-110			
Duplicate (B18J223-DUP1)						Source: 18J0401-15			Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018			
Ammonia as N	0.0374	0.00440	0.00500	0.0100	mg/L		0.0355			5.21	30	
Matrix Spike (B18J223-MS1)						Source: 18J0401-15			Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018			
Ammonia as N	0.134	0.00440	0.00500	0.0100	mg/L	0.1000	0.0355	98.5	80-120			
Matrix Spike Dup (B18J223-MSD1)						Source: 18J0401-15			Prepared: 25-Oct-2018 Analyzed: 26-Oct-2018			
Ammonia as N	0.138	0.00440	0.00500	0.0100	mg/L	0.1000	0.0355	102	80-120	2.94	30	
Reference (B18J223-SRM1)						Prepared: 25-Oct-2018 Analyzed: 13-Dec-2018						
Ammonia as N	1.10	0.00440	0.00500	0.0100	mg/L	1.000		110	80-120			

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ERDC -- Vicksburg (EL)
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCV7)

Prepared & Analyzed: 13-Nov-2018

PCB 101	120				ng/mL	120.0		102	85-115			
PCB 105	37				ng/mL	40.00		93.5	85-115			
PCB 118	38				ng/mL	40.00		95.0	85-115			
PCB 126	86				ng/mL	80.00		108	85-115			
PCB 128	39				ng/mL	40.00		97.1	85-115			
PCB 138	110				ng/mL	120.0		90.6	85-115			
PCB 153	73				ng/mL	80.00		91.6	85-115			
PCB 169	36				ng/mL	40.00		90.8	85-115			
PCB 170	72				ng/mL	80.00		90.6	85-115			
PCB 18	38				ng/mL	40.00		96.2	85-115			
PCB 180	36				ng/mL	40.00		91.1	85-115			
PCB 187	37				ng/mL	40.00		93.4	85-115			
PCB 28	72				ng/mL	80.00		89.7	85-115			
PCB 44	38				ng/mL	40.00		94.1	85-115			
PCB 52	78				ng/mL	80.00		97.6	85-115			
PCB 66	78				ng/mL	80.00		96.9	85-115			
PCB 77	42				ng/mL	40.00		105	85-115			
PCB 8	75				ng/mL	80.00		94.1	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	43				ng/mL	40.00		108	85-115			
Surrogate: PCB 198	36				ng/mL	40.00		90.9	85-115			

Calibration Check (18K0025-CCV8)

Prepared: 13-Nov-2018 Analyzed: 14-Nov-2018

PCB 101	100				ng/mL	120.0		86.9	85-115			
PCB 105	39				ng/mL	40.00		97.2	85-115			
PCB 118	38				ng/mL	40.00		93.9	85-115			
PCB 126	80				ng/mL	80.00		100	85-115			
PCB 128	39				ng/mL	40.00		97.5	85-115			
PCB 138	110				ng/mL	120.0		92.1	85-115			
PCB 153	73				ng/mL	80.00		91.0	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCV8)

Prepared: 13-Nov-2018 Analyzed: 14-Nov-2018

PCB 169	40				ng/mL	40.00		99.6	85-115			
PCB 170	80				ng/mL	80.00		99.7	85-115			
PCB 18	38				ng/mL	40.00		96.2	85-115			
PCB 180	39				ng/mL	40.00		98.5	85-115			
PCB 187	38				ng/mL	40.00		95.0	85-115			
PCB 28	76				ng/mL	80.00		94.8	85-115			
PCB 44	37				ng/mL	40.00		92.6	85-115			
PCB 52	81				ng/mL	80.00		102	85-115			
PCB 66	77				ng/mL	80.00		96.0	85-115			
PCB 77	38				ng/mL	40.00		95.2	85-115			
PCB 8	79				ng/mL	80.00		99.2	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	49				ng/mL	40.00		122	85-115			Q
Surrogate: PCB 198	39				ng/mL	40.00		97.1	85-115			

Calibration Check (18K0025-CCV9)

Prepared: 13-Nov-2018 Analyzed: 16-Nov-2018

PCB 101	100				ng/mL	120.0		85.6	85-115			
PCB 105	36				ng/mL	40.00		91.2	85-115			
PCB 118	37				ng/mL	40.00		92.3	85-115			
PCB 126	83				ng/mL	80.00		104	85-115			
PCB 128	39				ng/mL	40.00		98.4	85-115			
PCB 138	110				ng/mL	120.0		92.5	85-115			
PCB 153	74				ng/mL	80.00		93.0	85-115			
PCB 169	37				ng/mL	40.00		93.5	85-115			
PCB 170	75				ng/mL	80.00		93.4	85-115			
PCB 18	39				ng/mL	40.00		98.0	85-115			
PCB 180	40				ng/mL	40.00		98.8	85-115			
PCB 187	37				ng/mL	40.00		92.7	85-115			
PCB 28	82				ng/mL	80.00		102	85-115			
PCB 44	38				ng/mL	40.00		95.1	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCV9)

Prepared: 13-Nov-2018 Analyzed: 16-Nov-2018

PCB 52	78				ng/mL	80.00		98.0	85-115			
PCB 66	83				ng/mL	80.00		103	85-115			
PCB 77	42				ng/mL	40.00		104	85-115			
PCB 8	84				ng/mL	80.00		106	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	44				ng/mL	40.00		109	85-115			
Surrogate: PCB 198	37				ng/mL	40.00		92.6	85-115			

Calibration Check (18K0025-CCVA)

Prepared: 13-Nov-2018 Analyzed: 16-Nov-2018

PCB 101	110				ng/mL	120.0		90.1	85-115			
PCB 105	37				ng/mL	40.00		91.3	85-115			
PCB 118	37				ng/mL	40.00		92.7	85-115			
PCB 126	80				ng/mL	80.00		100	85-115			
PCB 128	39				ng/mL	40.00		96.5	85-115			
PCB 138	110				ng/mL	120.0		91.4	85-115			
PCB 153	74				ng/mL	80.00		92.5	85-115			
PCB 169	37				ng/mL	40.00		93.1	85-115			
PCB 170	73				ng/mL	80.00		91.7	85-115			
PCB 18	38				ng/mL	40.00		94.5	85-115			
PCB 180	38				ng/mL	40.00		95.0	85-115			
PCB 187	38				ng/mL	40.00		95.4	85-115			
PCB 28	79				ng/mL	80.00		98.3	85-115			
PCB 44	37				ng/mL	40.00		93.2	85-115			
PCB 52	73				ng/mL	80.00		90.7	85-115			
PCB 66	79				ng/mL	80.00		98.5	85-115			
PCB 77	45				ng/mL	40.00		112	85-115			
PCB 8	79				ng/mL	80.00		99.1	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	44				ng/mL	40.00		111	85-115			
Surrogate: PCB 198	36				ng/mL	40.00		90.6	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVB)

Prepared: 13-Nov-2018 Analyzed: 19-Nov-2018

PCB 101	110				ng/mL	120.0		89.3	85-115			
PCB 105	36				ng/mL	40.00		89.3	85-115			
PCB 118	37				ng/mL	40.00		92.8	85-115			
PCB 126	78				ng/mL	80.00		97.0	85-115			
PCB 128	37				ng/mL	40.00		91.8	85-115			
PCB 138	100				ng/mL	120.0		85.8	85-115			
PCB 153	80				ng/mL	80.00		100	85-115			
PCB 169	35				ng/mL	40.00		88.3	85-115			
PCB 170	70				ng/mL	80.00		87.9	85-115			
PCB 18	38				ng/mL	40.00		93.8	85-115			
PCB 180	35				ng/mL	40.00		87.7	85-115			
PCB 187	35				ng/mL	40.00		87.7	85-115			
PCB 28	74				ng/mL	80.00		92.9	85-115			
PCB 44	38				ng/mL	40.00		96.2	85-115			
PCB 52	75				ng/mL	80.00		94.2	85-115			
PCB 66	78				ng/mL	80.00		97.2	85-115			
PCB 77	44				ng/mL	40.00		109	85-115			
PCB 8	78				ng/mL	80.00		97.6	85-115			
Surrogate: PCB 198	35				ng/mL	40.00		87.5	85-115			

Calibration Check (18K0025-CCVI)

Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018

PCB 101	110				ng/mL	120.0		94.2	85-115			
PCB 105	36				ng/mL	40.00		91.0	85-115			
PCB 118	37				ng/mL	40.00		91.5	85-115			
PCB 126	76				ng/mL	80.00		95.1	85-115			
PCB 128	43				ng/mL	40.00		107	85-115			
PCB 138	120				ng/mL	120.0		98.3	85-115			
PCB 153	72				ng/mL	80.00		90.5	85-115			
PCB 169	40				ng/mL	40.00		99.0	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVI)						Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018						
PCB 170	82				ng/mL	80.00		103	85-115			
PCB 18	41				ng/mL	40.00		102	85-115			
PCB 180	42				ng/mL	40.00		106	85-115			
PCB 187	39				ng/mL	40.00		96.5	85-115			
PCB 28	82				ng/mL	80.00		103	85-115			
PCB 44	40				ng/mL	40.00		99.0	85-115			
PCB 52	82				ng/mL	80.00		102	85-115			
PCB 66	84				ng/mL	80.00		105	85-115			
PCB 77	45				ng/mL	40.00		113	85-115			
PCB 8	85				ng/mL	80.00		107	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	48				ng/mL	40.00		119	85-115			Q
Surrogate: PCB 198	40				ng/mL	40.00		99.5	85-115			

Calibration Check (18K0025-CCVJ)						Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018						
PCB 101	120				ng/mL	120.0		98.3	85-115			
PCB 105	39				ng/mL	40.00		98.0	85-115			
PCB 118	38				ng/mL	40.00		94.0	85-115			
PCB 126	80				ng/mL	80.00		100	85-115			
PCB 128	45				ng/mL	40.00		112	85-115			
PCB 138	120				ng/mL	120.0		99.2	85-115			
PCB 153	78				ng/mL	80.00		97.4	85-115			
PCB 169	38				ng/mL	40.00		94.0	85-115			
PCB 170	78				ng/mL	80.00		97.8	85-115			
PCB 18	45				ng/mL	40.00		113	85-115			
PCB 180	37				ng/mL	40.00		92.0	85-115			
PCB 187	38				ng/mL	40.00		95.2	85-115			
PCB 28	88				ng/mL	80.00		110	85-115			
PCB 44	38				ng/mL	40.00		93.8	85-115			
PCB 52	85				ng/mL	80.00		106	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVJ)

Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018

PCB 66	76				ng/mL	80.00		95.4	85-115			
PCB 77	39				ng/mL	40.00		97.0	85-115			
PCB 8	94				ng/mL	80.00		118	85-115			Q
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	57				ng/mL	40.00		142	85-115			Q
Surrogate: PCB 198	38				ng/mL	40.00		93.8	85-115			

Initial Cal Blank (18K0025-ICB1)

Prepared & Analyzed: 13-Nov-2018

PCB 101	0.0				ng/mL							U
PCB 105	0.0				ng/mL							U
PCB 118	0.0				ng/mL							U
PCB 126	0.0				ng/mL							U
PCB 128	0.0				ng/mL							U
PCB 138	0.0				ng/mL							U
PCB 153	0.0				ng/mL							U
PCB 169	0.0				ng/mL							U
PCB 170	0.0				ng/mL							U
PCB 18	0.0				ng/mL							U
PCB 180	0.0				ng/mL							U
PCB 187	0.0				ng/mL							U
PCB 28	0.0				ng/mL							U
PCB 44	0.0				ng/mL							U
PCB 52	0.0				ng/mL							U
PCB 66	0.0				ng/mL							U
PCB 77	0.0				ng/mL							U
PCB 8	0.0				ng/mL							U

Initial Cal Check (18K0025-ICV3)

Prepared & Analyzed: 13-Nov-2018

PCB 101	59				ng/mL	60.00		98.6	80-120			
PCB 105	21				ng/mL	20.00		103	80-120			
PCB 118	21				ng/mL	20.00		105	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Initial Cal Check (18K0025-ICV3)

Prepared & Analyzed: 13-Nov-2018

PCB 126	41				ng/mL	40.00		103	80-120			
PCB 128	22				ng/mL	20.00		112	80-120			
PCB 138	59				ng/mL	60.00		98.1	80-120			
PCB 153	38				ng/mL	40.00		95.5	80-120			
PCB 169	19				ng/mL	20.00		96.9	80-120			
PCB 170	39				ng/mL	40.00		96.7	80-120			
PCB 18	22				ng/mL	20.00		109	80-120			
PCB 180	22				ng/mL	20.00		109	80-120			
PCB 187	22				ng/mL	20.00		111	80-120			
PCB 28	39				ng/mL	40.00		97.9	80-120			
PCB 44	21				ng/mL	20.00		106	80-120			
PCB 52	41				ng/mL	40.00		103	80-120			
PCB 66	33				ng/mL	40.00		82.6	80-120			
PCB 77	24				ng/mL	20.00		120	80-120			
PCB 8	42				ng/mL	40.00		106	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	19				ng/mL	20.00		95.8	80-120			
Surrogate: PCB 198	22				ng/mL	20.00		111	80-120			

Batch B18J226 - EPA 3510C

Blank (B18J226-BLK1)

Prepared: 26-Oct-2018 Analyzed: 13-Nov-2018

PCB 101	ND	0.420	0.004	1.20	ug/L							U
PCB 105	ND	0.420	0.004	1.20	ug/L							U
PCB 118	ND	0.420	0.004	1.20	ug/L							U
PCB 126	ND	0.420	0.004	1.20	ug/L							U
PCB 128	ND	0.420	0.004	1.20	ug/L							U
PCB 138	ND	0.420	0.004	1.20	ug/L							U
PCB 153	ND	0.420	0.004	1.20	ug/L							U
PCB 169	ND	0.420	0.004	1.20	ug/L							U
PCB 170	ND	0.420	0.004	1.20	ug/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Blank (B18J226-BLK1)

Prepared: 26-Oct-2018 Analyzed: 13-Nov-2018

PCB 18	ND	0.420	0.004	1.20	ug/L							U
PCB 180	ND	0.420	0.004	1.20	ug/L							U
PCB 187	ND	0.420	0.004	1.20	ug/L							U
PCB 28	ND	0.420	0.004	1.20	ug/L							U
PCB 44	ND	0.420	0.004	1.20	ug/L							U
PCB 52	ND	0.420	0.004	1.20	ug/L							U
PCB 66	ND	0.420	0.004	1.20	ug/L							U
PCB 77	ND	0.420	0.004	1.20	ug/L							U
PCB 8	ND	0.006	1.50	3.00	ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.077				ug/L	0.1000		76.7	30-150			
Surrogate: PCB 198	0.093				ug/L	0.1200		77.7	30-150			

LCS (B18J226-BS3)

Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018

PCB 101	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 105	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 118	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 126	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 128	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 138	ND	0.420	0.004	1.20	ug/L	0.2400			50-150			U
PCB 153	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 169	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 170	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 18	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 180	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 187	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 28	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 44	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 52	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 66	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

LCS (B18J226-BS3)						Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018						
PCB 77	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 8	0.12	0.006	1.50	3.00	ug/L	0.1600		72.8	50-150			J
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	<i>0.080</i>				<i>ug/L</i>	<i>0.1000</i>		<i>79.8</i>	<i>30-150</i>			
<i>Surrogate: PCB 198</i>	<i>0.065</i>				<i>ug/L</i>	<i>0.1200</i>		<i>54.2</i>	<i>30-150</i>			

LCS Dup (B18J226-BS3)						Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018						
PCB 101	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 105	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 118	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 126	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 128	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 138	ND	0.420	0.004	1.20	ug/L	0.2400			50-150		30	U
PCB 153	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 169	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 170	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 18	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 180	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 187	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 28	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 44	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 52	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 66	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 77	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 8	0.13	0.006	1.50	3.00	ug/L	0.1600		81.8	50-150	11.7	30	J
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	<i>0.088</i>				<i>ug/L</i>	<i>0.1000</i>		<i>87.5</i>	<i>30-150</i>			
<i>Surrogate: PCB 198</i>	<i>0.077</i>				<i>ug/L</i>	<i>0.1200</i>		<i>63.8</i>	<i>30-150</i>			

Duplicate (B18J226-DUP1)						Source: 18J0401-13 Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018						
PCB 101	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 105	ND	0.420	0.004	1.20	ug/L		ND				30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Matrix Spike (B18J226-MS3)		Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018						
PCB 18	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 180	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 187	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 28	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 44	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 52	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 66	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 77	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 8	0.25	0.012	3.00	6.00	ug/L	0.3200	ND	78.8	50-150			J
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.18				ug/L	0.2000		88.0	30-150			
<i>Surrogate: PCB 198</i>	0.15				ug/L	0.2400		61.2	30-150			

Matrix Spike Dup (B18J226-MSD3)		Source: 18J0401-13				Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018						
PCB 101	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 105	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 118	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 126	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 128	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 138	ND	0.840	0.008	2.40	ug/L	0.4800	ND		50-150		30	U
PCB 153	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 169	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 170	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 18	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 180	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 187	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 28	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 44	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 52	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 66	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J226 - EPA 3510C

Matrix Spike Dup (B18J226-MSD3)

Source: 18J0401-13

Prepared: 26-Oct-2018 Analyzed: 14-Nov-2018

PCB 77	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 8	0.21	0.012	3.00	6.00	ug/L	0.3200	ND	64.9	50-150	19.3	30	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.16				ug/L	0.2000		78.9	30-150			
Surrogate: PCB 198	0.12				ug/L	0.2400		51.8	30-150			

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J222 - none

Blank (B18J222-BLK1)

Prepared & Analyzed: 24-Oct-2018

Total Suspended Solids	ND	1.00	2.00	5.00	mg/L							U
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Blank (B18J222-BLK2)

Prepared & Analyzed: 24-Oct-2018

Total Suspended Solids	ND	1.00	2.00	5.00	mg/L							U
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Duplicate (B18J222-DUP1)

Source: 18J0401-06

Prepared & Analyzed: 24-Oct-2018

Total Suspended Solids	12.7	0.667	1.33	3.33	mg/L		12.7			0.00	20	
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Duplicate (B18J222-DUP2)

Source: 18J0401-10

Prepared & Analyzed: 24-Oct-2018

Total Suspended Solids	17.3	0.667	1.33	3.33	mg/L		17.3			0.00	20	
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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167814 - EPA 3510C

BLK (WG1167814-1)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l				-			Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l				-			Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l				-			Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l				-			Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l				-			Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l				-			Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l				-			Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l				-			Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l				-			Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l				-			Ub
2-Chlorophenol	ND	0.091		0.5	ug/l				-			Ub
2-Nitrophenol	ND	0.115		0.5	ug/l				-			Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l				-			Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l				-			Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l				-			Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l				-			Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l				-			Ub
4-Nitrophenol	ND	0.59		2.5	ug/l				-			Ub
Azobenzene	ND	0.128		0.5	ug/l				-			Ub
Benzidine	ND	0.464		20	ug/l				-			Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l				-			Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l				-			Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l				-			Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l				-			Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l				-			Ub
Diethylphthalate	ND	0.18		0.5	ug/l				-			Ub
Dimethylphthalate	ND	0.117		0.5	ug/l				-			Ub
Di-n-butylphthalate	ND	0.1		0.5	ug/l				-			Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167814 - EPA 3510C

BLK (WG1167814-1)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

Di-n-octylphthalate	ND	0.079		1	ug/l				-			Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l				-			Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l				-			Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l				-			Ub
Hexachloroethane	ND	0.102		0.5	ug/l				-			Ub
Isophorone	ND	0.126		0.5	ug/l				-			Ub
Nitrobenzene	ND	0.102		0.5	ug/l				-			Ub
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l				-			Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l				-			Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l				-			Ub
Pentachlorophenol	ND	0.43		2	ug/l				-			Ub
Phenol	ND	0.051		0.5	ug/l				-			Ub
Surrogate: 2-Fluorobiphenyl	13.6				ug/l			68	30-130			
Surrogate: 2-Fluorophenol	8.56				ug/l			43	15-115			
Surrogate: Nitrobenzene-d5	12.6				ug/l			63	30-130			
Surrogate: Phenol-d5	6.22				ug/l			31	15-115			
Surrogate: Terphenyl-d14	17.7				ug/l			89	30-130			

LCS (WG1167814-2)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

1,2,4-Trichlorobenzene	7.55	0.096		0.5	ug/l	10		75	40-140			
1,2-Dichlorobenzene	7.03	0.068		0.5	ug/l	10		70	40-140			
1,3-Dichlorobenzene	6.73	0.078		0.5	ug/l	10		67	40-140			
1,4-Dichlorobenzene	6.8	0.083		0.5	ug/l	10		68	40-140			
2,4-Dichlorophenol	8.38	0.1		0.5	ug/l	10		84	40-140			
2,4-Dimethylphenol	9.78	0.241		2	ug/l	10		98	40-140			
2,4-Dinitrophenol	8.9	0.728		5	ug/l	10		89	40-140			
2,4-Dinitrotoluene	9.57	0.163		0.5	ug/l	10		96	40-140			
2,6-Dinitrotoluene	9.38	0.168		0.5	ug/l	10		94	40-140			
2-Chloronaphthalene	8.32	0.09		0.5	ug/l	10		83	40-140			
2-Chlorophenol	7.32	0.091		0.5	ug/l	10		73	40-140			

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Project Manager: Cheryl Montgomery

Reported:
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Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167814 - EPA 3510C

LCS (WG1167814-2)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

2-Nitrophenol	8.38	0.115		0.5	ug/l	10		84	40-140			
3,3'-Dichlorobenzidine	8.97	0.193		0.5	ug/l	10		90	40-140			
4,6-Dinitro-2-methylphenol	9.07	0.51		2	ug/l	10		91	40-140			
4-Bromophenyl-phenylether	8.89	0.1		0.5	ug/l	10		89	40-140			
4-Chloro-3-methylphenol	8.5	0.103		0.5	ug/l	10		85	40-140			
4-Chlorophenyl-phenylether	8.92	0.079		0.5	ug/l	10		89	40-140			
4-Nitrophenol	3.97	0.59		2.5	ug/l	10		40	17-65			
Azobenzene	8.96	0.128		0.5	ug/l	10		90	40-140			
Benzidine	3.56	0.464		20	ug/l	10		14	10-82			
bis(2-Chloroethoxy)methane	8.39	0.085		0.5	ug/l	10		84	40-140			
bis(2-Chloroethyl)ether	7.72	0.093		0.5	ug/l	10		77	40-140			
bis(2-chloroisopropyl)ether	7.74	0.108		0.5	ug/l	10		77	40-140			
bis(2-Ethylhexyl)phthalate	9.63	0.081		0.5	ug/l	10		96	40-140			
Butylbenzylphthalate	9.16	0.085		0.5	ug/l	10		92	40-140			
Diethylphthalate	9.18	0.18		0.5	ug/l	10		92	40-140			
Dimethylphthalate	8.88	0.117		0.5	ug/l	10		89	40-140			
Di-n-butylphthalate	9.46	0.1		0.5	ug/l	10		95	40-140			
Di-n-octylphthalate	9.87	0.079		1	ug/l	10		99	40-140			
Hexachlorobenzene	8.77	0.122		0.5	ug/l	10		88	40-140			
Hexachlorobutadiene	7.32	0.086		0.5	ug/l	10		73	40-140			
Hexachlorocyclopentadiene	7.81	0.153		0.5	ug/l	10		78	10-109			
Hexachloroethane	6.35	0.102		0.5	ug/l	10		64	10-97			
Isophorone	8.46	0.126		0.5	ug/l	10		84	40-140			
Nitrobenzene	7.95	0.102		0.5	ug/l	10		80	40-140			
N-Nitrosodimethylamine	5.71	0.072		0.5	ug/l	10		57	27-70			
N-Nitroso-di-n-propylamine	8.64	0.123		0.5	ug/l	10		86	40-140			
n-Nitrosodiphenylamine	8.96	0.072		0.5	ug/l	10		90	40-140			
Pentachlorophenol	7.88	0.43		2	ug/l	10		79	40-140			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167814 - EPA 3510C

LCS (WG1167814-2)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

Phenol	4.03	0.051		0.5	ug/l	10		40	18-54			
Surrogate: 2-Fluorobiphenyl	14.9				ug/l			75	30-130			
Surrogate: 2-Fluorophenol	9.28				ug/l			46	15-115			
Surrogate: Nitrobenzene-d5	14.5				ug/l			73	30-130			
Surrogate: Phenol-d5	7.19				ug/l			36	15-115			
Surrogate: Terphenyl-d14	16.3				ug/l			81	30-130			

LCD (WG1167814-3)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

1,2,4-Trichlorobenzene	5.91	0.096		0.5	ug/l	10		59	40-140	24	30	*
1,2-Dichlorobenzene	5.35	0.068		0.5	ug/l	10		53	40-140	28	30	*
1,3-Dichlorobenzene	5.06	0.078		0.5	ug/l	10		50	40-140	29	30	*
1,4-Dichlorobenzene	5.21	0.083		0.5	ug/l	10		52	40-140	27	30	*
2,4-Dichlorophenol	6.31	0.1		0.5	ug/l	10		63	40-140	29	30	*
2,4-Dimethylphenol	7.1	0.241		2	ug/l	10		71	40-140	32	30	*
2,4-Dinitrophenol	8.1	0.728		5	ug/l	10		81	40-140	9	30	
2,4-Dinitrotoluene	8.76	0.163		0.5	ug/l	10		88	40-140	9	30	
2,6-Dinitrotoluene	7.86	0.168		0.5	ug/l	10		78	40-140	19	30	
2-Chloronaphthalene	6.51	0.09		0.5	ug/l	10		65	40-140	24	30	*
2-Chlorophenol	5.46	0.091		0.5	ug/l	10		55	40-140	28	30	*
2-Nitrophenol	6.37	0.115		0.5	ug/l	10		64	40-140	27	30	*
3,3'-Dichlorobenzidine	8.19	0.193		0.5	ug/l	10		82	40-140	9	30	
4,6-Dinitro-2-methylphenol	8.33	0.51		2	ug/l	10		83	40-140	9	30	
4-Bromophenyl-phenylether	7.63	0.1		0.5	ug/l	10		76	40-140	16	30	
4-Chloro-3-methylphenol	6.55	0.103		0.5	ug/l	10		66	40-140	25	30	*
4-Chlorophenyl-phenylether	7.32	0.079		0.5	ug/l	10		73	40-140	20	30	
4-Nitrophenol	3.59	0.59		2.5	ug/l	10		36	17-65	11	30	
Azobenzene	7.5	0.128		0.5	ug/l	10		75	40-140	18	30	
Benzidine	2.13	0.464		20	ug/l	10		8.5	10-82	49	30	*
bis(2-Chloroethoxy)methane	6.47	0.085		0.5	ug/l	10		65	40-140	26	30	*
bis(2-Chloroethyl)ether	6.06	0.093		0.5	ug/l	10		60	40-140	25	30	*

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167814 - EPA 3510C

LCD (WG1167814-3)

Prepared: 13-Oct-2018 Analyzed: 02-Nov-2018

bis(2-chloroisopropyl)ether	6	0.108		0.5	ug/l	10		60	40-140	25	30	*
bis(2-Ethylhexyl)phthalate	9.26	0.081		0.5	ug/l	10		93	40-140	3	30	
Butylbenzylphthalate	8.84	0.085		0.5	ug/l	10		88	40-140	4	30	
Diethylphthalate	8.16	0.18		0.5	ug/l	10		82	40-140	11	30	
Dimethylphthalate	7.67	0.117		0.5	ug/l	10		77	40-140	14	30	
Di-n-butylphthalate	9.11	0.1		0.5	ug/l	10		91	40-140	4	30	
Di-n-octylphthalate	9.65	0.079		1	ug/l	10		96	40-140	3	30	
Hexachlorobenzene	7.8	0.122		0.5	ug/l	10		78	40-140	12	30	
Hexachlorobutadiene	5.81	0.086		0.5	ug/l	10		58	40-140	23	30	*
Hexachlorocyclopentadiene	5.81	0.153		0.5	ug/l	10		58	10-109	29	30	*
Hexachloroethane	4.88	0.102		0.5	ug/l	10		49	10-97	27	30	*
Isophorone	6.67	0.126		0.5	ug/l	10		67	40-140	23	30	*
Nitrobenzene	6.25	0.102		0.5	ug/l	10		62	40-140	25	30	*
N-Nitrosodimethylamine	4.59	0.072		0.5	ug/l	10		46	27-70	21	30	*
N-Nitroso-di-n-propylamine	6.51	0.123		0.5	ug/l	10		65	40-140	28	30	*
n-Nitrosodiphenylamine	7.97	0.072		0.5	ug/l	10		80	40-140	12	30	
Pentachlorophenol	7.25	0.43		2	ug/l	10		72	40-140	9	30	
Phenol	3.14	0.051		0.5	ug/l	10		31	18-54	25	30	*
Surrogate: 2-Fluorobiphenyl	11.6				ug/l			58	30-130			
Surrogate: 2-Fluorophenol	7.06				ug/l			35	15-115			
Surrogate: Nitrobenzene-d5	11.5				ug/l			57	30-130			
Surrogate: Phenol-d5	5.59				ug/l			28	15-115			
Surrogate: Terphenyl-d14	15.7				ug/l			78	30-130			

Batch WG1173490 - EPA 3510C

BLK (WG1173490-1)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l			-				Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l			-				Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l			-				Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l			-				Ub

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Batch WG1173490 - EPA 3510C

BLK (WG1173490-1)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l				-			Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l				-			Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l				-			Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l				-			Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l				-			Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l				-			Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l				-			Ub
2-Chlorophenol	ND	0.091		0.5	ug/l				-			Ub
2-Nitrophenol	ND	0.115		0.5	ug/l				-			Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l				-			Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l				-			Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l				-			Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l				-			Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l				-			Ub
4-Nitrophenol	ND	0.59		2.5	ug/l				-			Ub
Azobenzene	ND	0.128		0.5	ug/l				-			Ub
Benzidine	ND	0.464		20	ug/l				-			Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l				-			Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l				-			Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l				-			Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l				-			Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l				-			Ub
Diethylphthalate	ND	0.18		0.5	ug/l				-			Ub
Dimethylphthalate	ND	0.117		0.5	ug/l				-			Ub
Di-n-butylphthalate	ND	0.1		0.5	ug/l				-			Ub
Di-n-octylphthalate	ND	0.079		1	ug/l				-			Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l				-			Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l				-			Ub

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Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1173490 - EPA 3510C

BLK (WG1173490-1)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l				-			Ub
Hexachloroethane	ND	0.102		0.5	ug/l				-			Ub
Isophorone	ND	0.126		0.5	ug/l				-			Ub
Nitrobenzene	ND	0.102		0.5	ug/l				-			Ub
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l				-			Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l				-			Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l				-			Ub
Pentachlorophenol	ND	0.43		2	ug/l				-			Ub
Phenol	ND	0.051		0.5	ug/l				-			Ub
<i>Surrogate:</i>	<i>11.1</i>				<i>ug/l</i>			<i>56</i>	<i>15-115</i>			
<i>2,4,6-Tribromophenol</i>												
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>10.4</i>				<i>ug/l</i>			<i>52</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>6.56</i>				<i>ug/l</i>			<i>33</i>	<i>15-115</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>11.1</i>				<i>ug/l</i>			<i>56</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d5</i>	<i>4.61</i>				<i>ug/l</i>			<i>23</i>	<i>15-115</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>12.8</i>				<i>ug/l</i>			<i>64</i>	<i>30-130</i>			

LCS (WG1173490-2)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

1,2,4-Trichlorobenzene	3.96	0.096		0.5	ug/l	10		40	40-140			
1,2-Dichlorobenzene	3.84	0.068		0.5	ug/l	10		38	40-140			N
1,3-Dichlorobenzene	3.54	0.078		0.5	ug/l	10		35	40-140			N
1,4-Dichlorobenzene	3.65	0.083		0.5	ug/l	10		36	40-140			N
2,4,6-Trichlorophenol	6.01	0.152		0.5	ug/l	10		60	40-140			
2,4-Dichlorophenol	5.6	0.1		0.5	ug/l	10		56	40-140			
2,4-Dimethylphenol	4.04	0.241		2	ug/l	10		40	40-140			
2,4-Dinitrophenol	5.6	0.728		5	ug/l	10		56	40-140			
2,4-Dinitrotoluene	6.46	0.163		0.5	ug/l	10		64	40-140			
2,6-Dinitrotoluene	6.15	0.168		0.5	ug/l	10		62	40-140			
2-Chloronaphthalene	4.97	0.09		0.5	ug/l	10		50	40-140			
2-Chlorophenol	4.81	0.091		0.5	ug/l	10		48	40-140			
2-Nitrophenol	5.5	0.115		0.5	ug/l	10		55	17-65			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1173490 - EPA 3510C

LCS (WG1173490-2)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

3,3'-Dichlorobenzidine	5.96	0.193		0.5	ug/l	10		60	40-140			
4,6-Dinitro-2-methylphenol	6.05	0.51		2	ug/l	10		60	40-140			
4-Bromophenyl-phenylether	5.81	0.1		0.5	ug/l	10		58	40-140			
4-Chloro-3-methylphenol	5.92	0.103		0.5	ug/l	10		59	40-140			
4-Chlorophenyl-phenylether	5.71	0.079		0.5	ug/l	10		57	40-140			
4-Nitrophenol	2.65	0.59		2.5	ug/l	10		26	40-140			
Azobenzene	5.83	0.128		0.5	ug/l	10		58	40-140			
Benzidine	4.51	0.464		20	ug/l	10		18	10-82			
bis(2-Chloroethoxy)methane	5.79	0.085		0.5	ug/l	10		58	40-140			
bis(2-Chloroethyl)ether	5.39	0.093		0.5	ug/l	10		54	40-140			
bis(2-chloroisopropyl)ether	5.39	0.108		0.5	ug/l	10		54	40-140			
bis(2-Ethylhexyl)phthalate	6.08	0.081		0.5	ug/l	10		61	40-140			
Butylbenzylphthalate	6.01	0.085		0.5	ug/l	10		60	40-140			
Diethylphthalate	6.37	0.18		0.5	ug/l	10		64	40-140			
Dimethylphthalate	6.16	0.117		0.5	ug/l	10		62	40-140			
Di-n-butylphthalate	6.13	0.1		0.5	ug/l	10		61	40-140			
Di-n-octylphthalate	6.08	0.079		1	ug/l	10		61	40-140			
Hexachlorobenzene	5.69	0.122		0.5	ug/l	10		57	40-140			
Hexachlorobutadiene	3.24	0.086		0.5	ug/l	10		32	40-140			N
Hexachlorocyclopentadiene	2.83	0.153		0.5	ug/l	10		28	10-109			
Hexachloroethane	3.21	0.102		0.5	ug/l	10		32	10-97			
Isophorone	5.98	0.126		0.5	ug/l	10		60	40-140			
Nitrobenzene	5.34	0.102		0.5	ug/l	10		53	40-140			
N-Nitrosodimethylamine	3.38	0.072		0.5	ug/l	10		34	27-70			
N-Nitroso-di-n-propylamine	5.85	0.123		0.5	ug/l	10		58	40-140			
n-Nitrosodiphenylamine	6.1	0.072		0.5	ug/l	10		61	40-140			
Pentachlorophenol	5.54	0.43		2	ug/l	10		55	40-140			
Phenol	2.42	0.051		0.5	ug/l	10		24	18-54			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1173490 - EPA 3510C

LCS (WG1173490-2)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

Surrogate:	13.1				ug/l			66	15-115			
2,4,6-Tribromophenol												
Surrogate: 2-Fluorobiphenyl	11				ug/l			55	30-130			
Surrogate: 2-Fluorophenol	6.41				ug/l			32	15-150			
Surrogate: Nitrobenzene-d5	11.4				ug/l			57	30-130			
Surrogate: Phenol-d5	4.73				ug/l			24	15-115			
Surrogate: Terphenyl-d14	12.4				ug/l			62	30-130			

LCD (WG1173490-3)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

1,2,4-Trichlorobenzene	4.31	0.096		0.5	ug/l	10		43	40-140	7	30	
1,2-Dichlorobenzene	4.15	0.068		0.5	ug/l	10		42	40-140	10	30	
1,3-Dichlorobenzene	3.88	0.078		0.5	ug/l	10		39	40-140	11	30	N
1,4-Dichlorobenzene	3.99	0.083		0.5	ug/l	10		40	40-140	11	30	
2,4,6-Trichlorophenol	5.92	0.152		0.5	ug/l	10		59	40-140	2	30	
2,4-Dichlorophenol	5.71	0.1		0.5	ug/l	10		57	40-140	2	30	
2,4-Dimethylphenol	3.95	0.241		2	ug/l	10		40	40-140	0	30	
2,4-Dinitrophenol	5.98	0.728		5	ug/l	10		60	40-140	7	30	
2,4-Dinitrotoluene	6.6	0.163		0.5	ug/l	10		66	40-140	3	30	
2,6-Dinitrotoluene	6.32	0.168		0.5	ug/l	10		63	40-140	2	30	
2-Chloronaphthalene	5.13	0.09		0.5	ug/l	10		51	40-140	2	30	
2-Chlorophenol	5.03	0.091		0.5	ug/l	10		50	40-140	4	30	
2-Nitrophenol	5.73	0.115		0.5	ug/l	10		57	17-65	4	30	
3,3'-Dichlorobenzidine	6.3	0.193		0.5	ug/l	10		63	40-140	5	30	
4,6-Dinitro-2-methylphenol	6.24	0.51		2	ug/l	10		62	40-140	3	30	
4-Bromophenyl-phenylether	5.88	0.1		0.5	ug/l	10		59	40-140	2	30	
4-Chloro-3-methylphenol	6.16	0.103		0.5	ug/l	10		62	40-140	5	30	
4-Chlorophenyl-phenylether	5.82	0.079		0.5	ug/l	10		58	40-140	2	30	
4-Nitrophenol	2.65	0.59		2.5	ug/l	10		26	40-140	0	30	
Azobenzene	5.85	0.128		0.5	ug/l	10		58	40-140	0	30	
Benzidine	4.04	0.464		20	ug/l	10		16	10-82	12	30	
bis(2-Chloroethoxy)methane	5.9	0.085		0.5	ug/l	10		59	40-140	2	30	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1173490 - EPA 3510C

LCD (WG1173490-3)

Prepared: 29-Oct-2018 Analyzed: 07-Nov-2018

bis(2-Chloroethyl)ether	5.54	0.093		0.5	ug/l	10		55	40-140	2	30	
bis(2-chloroisopropyl)ether	5.51	0.108		0.5	ug/l	10		55	40-140	2	30	
bis(2-Ethylhexyl)phthalate	6.29	0.081		0.5	ug/l	10		63	40-140	3	30	
Butylbenzylphthalate	6.12	0.085		0.5	ug/l	10		61	40-140	2	30	
Diethylphthalate	6.43	0.18		0.5	ug/l	10		64	40-140	0	30	
Dimethylphthalate	6.26	0.117		0.5	ug/l	10		62	40-140	0	30	
Di-n-butylphthalate	6.24	0.1		0.5	ug/l	10		62	40-140	2	30	
Di-n-octylphthalate	6.22	0.079		1	ug/l	10		62	40-140	2	30	
Hexachlorobenzene	5.71	0.122		0.5	ug/l	10		57	40-140	0	30	
Hexachlorobutadiene	3.62	0.086		0.5	ug/l	10		36	40-140	12	30	N
Hexachlorocyclopentadiene	3.1	0.153		0.5	ug/l	10		31	10-109	10	30	
Hexachloroethane	3.56	0.102		0.5	ug/l	10		36	10-97	12	30	
Isophorone	6.23	0.126		0.5	ug/l	10		62	40-140	3	30	
Nitrobenzene	5.5	0.102		0.5	ug/l	10		55	40-140	4	30	
N-Nitrosodimethylamine	3.53	0.072		0.5	ug/l	10		35	27-70	3	30	
N-Nitroso-di-n-propylamine	5.92	0.123		0.5	ug/l	10		59	40-140	2	30	
n-Nitrosodiphenylamine	6.22	0.072		0.5	ug/l	10		62	40-140	2	30	
Pentachlorophenol	5.69	0.43		2	ug/l	10		57	40-140	4	30	
Phenol	2.47	0.051		0.5	ug/l	10		25	18-54	4	30	
<i>Surrogate:</i>	<i>12.7</i>				<i>ug/l</i>			<i>64</i>	<i>15-115</i>			
<i>2,4,6-Tribromophenol</i>												
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>10.5</i>				<i>ug/l</i>			<i>53</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>6.42</i>				<i>ug/l</i>			<i>32</i>	<i>15-150</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>11.1</i>				<i>ug/l</i>			<i>56</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d5</i>	<i>4.58</i>				<i>ug/l</i>			<i>23</i>	<i>15-115</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>12.3</i>				<i>ug/l</i>			<i>61</i>	<i>30-130</i>			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167722 - EPA 3510C

BLK (WG1167722-1)

Prepared: 13-Oct-2018 Analyzed: 26-Oct-2018

Acenaphthene	ND	0.00161		0.01	ug/l				-			Ub
Acenaphthylene	ND	0.00177		0.01	ug/l				-			Ub
Anthracene	0.00276	0.00194		0.01	ug/l				-			Jb
Benz(a)anthracene	0.02	0.00173		0.01	ug/l				-			B
Benzo(a)pyrene	0.0259	0.00084		0.01	ug/l				-			B
Benzo(b)fluoranthene	0.0254	0.00148		0.01	ug/l				-			B
Benzo(e)pyrene	0.0195	0.00127		0.01	ug/l				-			B
Benzo(g,h,i)perylene	0.0201	0.00131		0.01	ug/l				-			B
Benzo(k)fluoranthene	0.0214	0.00117		0.01	ug/l				-			B
Chrysene	0.0206	0.000936		0.01	ug/l				-			B
Dibenz(a,h)anthracene	0.00457	0.000685		0.01	ug/l				-			Jb
Fluoranthene	0.0277	0.00149		0.01	ug/l				-			B
Fluorene	ND	0.00173		0.01	ug/l				-			Ub
Indeno(1,2,3-cd)pyrene	0.021	0.000533		0.01	ug/l				-			B
Naphthalene	0.00359	0.00177		0.01	ug/l				-			Jb
Phenanthrene	0.0107	0.00189		0.01	ug/l				-			B
Pyrene	0.0245	0.00152		0.01	ug/l				-			B
Surrogate: 2-Methylnaphthalene-d10	0.362				ug/l			72	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.488				ug/l			98	30-130			
Surrogate: Pyrene-d10	0.49				ug/l			98	30-130			

LCS (WG1167722-2)

Prepared: 13-Oct-2018 Analyzed: 26-Oct-2018

Acenaphthene	0.368	0.00161		0.01	ug/l	0.5		74	40-140		30	
Acenaphthylene	0.373	0.00177		0.01	ug/l	0.5		75	40-140		30	
Anthracene	0.427	0.00194		0.01	ug/l	0.5		85	40-140		30	
Benz(a)anthracene	0.537	0.00173		0.01	ug/l	0.5		107	40-140		30	
Benzo(a)pyrene	0.552	0.00084		0.01	ug/l	0.5		110	40-140		30	
Benzo(b)fluoranthene	0.56	0.00148		0.01	ug/l	0.5		112	40-140		30	
Benzo(e)pyrene	0.56	0.00127		0.01	ug/l	0.5		112	40-140		30	

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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 22-May-2019

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PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167722 - EPA 3510C

LCS (WG1167722-2)

Prepared: 13-Oct-2018 Analyzed: 26-Oct-2018

Benzo(g,h,i)perylene	0.548	0.00131		0.01	ug/l	0.5		110	40-140		30	
Benzo(k)fluoranthene	0.51	0.00117		0.01	ug/l	0.5		102	40-140		30	
Chrysene	0.498	0.000936		0.01	ug/l	0.5		100	40-140		30	
Dibenz(a,h)anthracene	0.53	0.000685		0.01	ug/l	0.5		106	40-140		30	
Fluoranthene	0.506	0.00149		0.01	ug/l	0.5		101	40-140		30	
Fluorene	0.388	0.00173		0.01	ug/l	0.5		78	40-140		30	
Indeno(1,2,3-cd)pyrene	0.584	0.000533		0.01	ug/l	0.5		117	40-140		30	
Naphthalene	0.385	0.00177		0.01	ug/l	0.5		77	40-140		30	
Phenanthrene	0.421	0.00189		0.01	ug/l	0.5		84	40-140		30	
Pyrene	0.468	0.00152		0.01	ug/l	0.5		94	40-140		30	
Surrogate: 2-Methylnaphthalene-d10	0.386				ug/l			77	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.514				ug/l			103	30-130			
Surrogate: Pyrene-d10	0.517				ug/l			103	30-130			

LCD (WG1167722-3)

Prepared: 13-Oct-2018 Analyzed: 26-Oct-2018

Acenaphthene	0.378	0.00161		0.01	ug/l	0.5		76	40-140	3	30	
Acenaphthylene	0.383	0.00177		0.01	ug/l	0.5		77	40-140	3	30	
Anthracene	0.457	0.00194		0.01	ug/l	0.5		91	40-140	7	30	
Benz(a)anthracene	0.566	0.00173		0.01	ug/l	0.5		113	40-140	5	30	
Benzo(a)pyrene	0.594	0.00084		0.01	ug/l	0.5		119	40-140	8	30	
Benzo(b)fluoranthene	0.589	0.00148		0.01	ug/l	0.5		118	40-140	5	30	
Benzo(e)pyrene	0.592	0.00127		0.01	ug/l	0.5		118	40-140	5	30	
Benzo(g,h,i)perylene	0.582	0.00131		0.01	ug/l	0.5		116	40-140	5	30	
Benzo(k)fluoranthene	0.548	0.00117		0.01	ug/l	0.5		110	40-140	8	30	
Chrysene	0.528	0.000936		0.01	ug/l	0.5		106	40-140	6	30	
Dibenz(a,h)anthracene	0.556	0.000685		0.01	ug/l	0.5		111	40-140	5	30	
Fluoranthene	0.541	0.00149		0.01	ug/l	0.5		108	40-140	7	30	
Fluorene	0.414	0.00173		0.01	ug/l	0.5		83	40-140	6	30	
Indeno(1,2,3-cd)pyrene	0.615	0.000533		0.01	ug/l	0.5		123	40-140	5	30	

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USACE ERDC-EP-C
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167722 - EPA 3510C

LCD (WG1167722-3)						Prepared: 13-Oct-2018 Analyzed: 26-Oct-2018						
Naphthalene	0.369	0.00177		0.01	ug/l	0.5		74	40-140	4	30	
Phenanthrene	0.449	0.00189		0.01	ug/l	0.5		90	40-140	7	30	
Pyrene	0.472	0.00152		0.01	ug/l	0.5		94	40-140	0	30	
Surrogate: 2-Methylnaphthalene-d10	0.41				ug/l			82	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.513				ug/l			103	30-130			
Surrogate: Pyrene-d10	0.485				ug/l			97	30-130			

Batch WG1173002 - EPA 3510C

BLK (WG1173002-1)						Prepared: 27-Oct-2018 Analyzed: 09-Nov-2018						
Acenaphthene	ND	0.00161		0.01	ug/l				-			Ub
Acenaphthylene	ND	0.00177		0.01	ug/l				-			Ub
Anthracene	ND	0.00194		0.01	ug/l				-			Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l				-			Ub
Benzo(a)pyrene	ND	0.00084		0.01	ug/l				-			Ub
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l				-			Ub
Benzo(c)pyrene	ND	0.00127		0.01	ug/l				-			Ub
Benzo(g,h,i)perylene	ND	0.00131		0.01	ug/l				-			Ub
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l				-			Ub
Chrysene	ND	0.000936		0.01	ug/l				-			Ub
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l				-			Ub
Fluoranthene	ND	0.00149		0.01	ug/l				-			Ub
Fluorene	ND	0.00173		0.01	ug/l				-			Ub
Indeno(1,2,3-cd)pyrene	ND	0.000533		0.01	ug/l				-			Ub
Naphthalene	ND	0.00177		0.01	ug/l				-			Ub
Phenanthrene	ND	0.00189		0.01	ug/l				-			Ub
Pyrene	ND	0.00152		0.01	ug/l				-			Ub
Surrogate: 2-Methylnaphthalene-d10	0.345				ug/l			69	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.466				ug/l			93	30-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1173002 - EPA 3510C

BLK (WG1173002-1)

Prepared: 27-Oct-2018 Analyzed: 09-Nov-2018

Surrogate: Pyrene-d10	0.422				ug/l			84	30-130			
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LCS (WG1173002-2)

Prepared: 27-Oct-2018 Analyzed: 09-Nov-2018

Acenaphthene	0.383	0.00161		0.01	ug/l	0.5		76	40-140		30	
Acenaphthylene	0.358	0.00177		0.01	ug/l	0.5		72	40-140		30	
Anthracene	0.416	0.00194		0.01	ug/l	0.5		83	40-140		30	
Benz(a)anthracene	0.418	0.00173		0.01	ug/l	0.5		84	40-140		30	
Benzo(a)pyrene	0.453	0.00084		0.01	ug/l	0.5		90	40-140		30	
Benzo(b)fluoranthene	0.443	0.00148		0.01	ug/l	0.5		88	40-140		30	
Benzo(e)pyrene	0.475	0.00127		0.01	ug/l	0.5		95	40-140		30	
Benzo(g,h,i)perylene	0.48	0.00131		0.01	ug/l	0.5		96	40-140		30	
Benzo(k)fluoranthene	0.467	0.00117		0.01	ug/l	0.5		93	40-140		30	
Chrysene	0.451	0.000936		0.01	ug/l	0.5		90	40-140		30	
Dibenz(a,h)anthracene	0.496	0.000685		0.01	ug/l	0.5		99	40-140		30	
Fluoranthene	0.445	0.00149		0.01	ug/l	0.5		89	40-140		30	
Fluorene	0.393	0.00173		0.01	ug/l	0.5		79	40-140		30	
Indeno(1,2,3-cd)pyrene	0.421	0.000533		0.01	ug/l	0.5		84	40-140		30	
Naphthalene	0.362	0.00177		0.01	ug/l	0.5		72	40-140		30	
Phenanthrene	0.402	0.00189		0.01	ug/l	0.5		80	40-140		30	
Pyrene	0.378	0.00152		0.01	ug/l	0.5		76	40-140		30	
Surrogate: 2-Methylnaphthalene-d10	0.346				ug/l			69	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.419				ug/l			84	30-130			
Surrogate: Pyrene-d10	0.393				ug/l			79	30-130			

LCD (WG1173002-3)

Prepared: 27-Oct-2018 Analyzed: 09-Nov-2018

Acenaphthene	0.429	0.00161		0.01	ug/l	0.5		86	40-140	12	30	
Acenaphthylene	0.404	0.00177		0.01	ug/l	0.5		81	40-140	12	30	
Anthracene	0.474	0.00194		0.01	ug/l	0.5		95	40-140	13	30	
Benz(a)anthracene	0.46	0.00173		0.01	ug/l	0.5		92	40-140	9	30	
Benzo(a)pyrene	0.462	0.00084		0.01	ug/l	0.5		92	40-140	2	30	

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1173002 - EPA 3510C

LCD (WG1173002-3)

Prepared: 27-Oct-2018 Analyzed: 09-Nov-2018

Benzo(b)fluoranthene	0.458	0.00148		0.01	ug/l	0.5		92	40-140	4	30	
Benzo(e)pyrene	0.503	0.00127		0.01	ug/l	0.5		101	40-140	6	30	
Benzo(g,h,i)perylene	0.5	0.00131		0.01	ug/l	0.5		100	40-140	4	30	
Benzo(k)fluoranthene	0.508	0.00117		0.01	ug/l	0.5		102	40-140	9	30	
Chrysene	0.492	0.000936		0.01	ug/l	0.5		98	40-140	9	30	
Dibenz(a,h)anthracene	0.518	0.000685		0.01	ug/l	0.5		104	40-140	5	30	
Fluoranthene	0.499	0.00149		0.01	ug/l	0.5		100	40-140	12	30	
Fluorene	0.442	0.00173		0.01	ug/l	0.5		88	40-140	11	30	
Indeno(1,2,3-cd)pyrene	0.437	0.000533		0.01	ug/l	0.5		87	40-140	4	30	
Naphthalene	0.406	0.00177		0.01	ug/l	0.5		81	40-140	12	30	
Phenanthrene	0.454	0.00189		0.01	ug/l	0.5		91	40-140	13	30	
Pyrene	0.418	0.00152		0.01	ug/l			84	30-130	10	30	
Surrogate: 2-Methylnaphthalene-d10	0.383				ug/l			77	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.443				ug/l			89	30-130			
Surrogate: Pyrene-d10	0.439				ug/l			88	40-140			

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0650 - No Prep Wet Chem

Blank (BBJ0650-BLK1)						Prepared & Analyzed: 19-Oct-2018						
Cyanide	ND	10		10	ug/l				-			Ua

LCS (BBJ0650-BS1)						Prepared & Analyzed: 19-Oct-2018						
Cyanide	270				ug/l	250		108	80-120			

LCS Dup (BBJ0650-BSD1)						Prepared & Analyzed: 19-Oct-2018						
Cyanide	260				ug/l	250		103	80-120	4.54	20	

Matrix Spike (BBJ0650-MS1)						Source: 18J0711-01		Prepared & Analyzed: 19-Oct-2018				
Cyanide	230	10		10	ug/l	250	ND	92.1	80-120			

Matrix Spike (BBJ0650-MS2)						Source: 18J0507-05		Prepared & Analyzed: 19-Oct-2018				
Cyanide	230	10		10	ug/l	250	ND	92.4	80-120			

Matrix Spike Dup (BBJ0650-MSD1)						Source: 18J0711-01		Prepared & Analyzed: 19-Oct-2018				
Cyanide	250	10		10	ug/l	250	ND	101	80-120	9.16	20	

Matrix Spike Dup (BBJ0650-MSD2)						Source: 18J0507-05		Prepared & Analyzed: 19-Oct-2018				
Cyanide	250	10		10	ug/l	250	ND	101	80-120	9.25	20	

Batch BBK0038 - No Prep Wet Chem

Blank (BBK0038-BLK1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	ND	10		10	ug/L				-			Ua

LCS (BBK0038-BS1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	270				ug/L	250		107	80-120			

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0038 - No Prep Wet Chem

LCS Dup (BBK0038-BSD1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	270				ug/L	250		108	80-120	0.890	20	

MRL Check (BBK0038-MRL1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	20				ug/L	20		112	0-200			

Matrix Spike (BBK0038-MS1)						Source: 18J0401-02		Prepared & Analyzed: 01-Nov-2018				
Cyanide	240	10		10	ug/L	250	ND	94.5	80-120			

Matrix Spike (BBK0038-MS2)						Source: 18J0401-13		Prepared & Analyzed: 01-Nov-2018				
Cyanide	240	10		10	ug/L	250	ND	94.0	80-120			

Matrix Spike Dup (BBK0038-MSD1)						Source: 18J0401-02		Prepared & Analyzed: 01-Nov-2018				
Cyanide	240	10		10	ug/L	250	ND	97.6	80-120	3.21	20	

Matrix Spike Dup (BBK0038-MSD2)						Source: 18J0401-13		Prepared & Analyzed: 01-Nov-2018				
Cyanide	250	10		10	ug/L	250	ND	99.6	80-120	5.74	20	

Batch BBK0039 - No Prep Wet Chem

Blank (BBK0039-BLK1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	ND	10		10	ug/L				-			Ua

LCS (BBK0039-BS1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	280				ug/L	250		112	80-120			

LCS Dup (BBK0039-BSD1)						Prepared & Analyzed: 01-Nov-2018						
Cyanide	270				ug/L	250		109	80-120	2.39	20	

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Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0039 - No Prep Wet Chem

Matrix Spike (BBK0039-MS1)		Source: 18J0917-01			Prepared & Analyzed: 01-Nov-2018							
Cyanide	230	10		10	ug/L	250	ND	91.0	80-120			

Matrix Spike Dup (BBK0039-MSD1)		Source: 18J0917-01			Prepared & Analyzed: 01-Nov-2018							
Cyanide	240	10		10	ug/L	250	ND	96.7	80-120	6.09	20	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5807224 - NA

Blank (5807224-BLK)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

1,2,3,4,6,7,8-Hepta CDD	ND	1.2		50	pg/L				-			Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.44		50	pg/L				-			Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.43		50	pg/L				-			Ud
1,2,3,4,7,8-Hexa CDD	ND	1.43		50	pg/L				-			Ud
1,2,3,4,7,8-Hexa CDF	1.49	1.21		50	pg/L				-			Ja
1,2,3,6,7,8-Hexa CDD	ND	1.45		50	pg/L				-			Ud
1,2,3,6,7,8-Hexa CDF	ND	1.3		50	pg/L				-			Ud
1,2,3,7,8,9-Hexa CDD	ND	1.46		50	pg/L				-			Ud
1,2,3,7,8,9-Hexa CDF	1.9	1.26		50	pg/L				-			Ja
1,2,3,7,8-Penta CDD	ND	1.25		50	pg/L				-			Ud
1,2,3,7,8-Penta CDF	ND	1.23		50	pg/L				-			Ud
2,3,4,6,7,8-Hexa CDF	1.74	1.17		50	pg/L				-			Ja
2,3,4,7,8-Penta CDF	ND	1.12		50	pg/L				-			Ud
2,3,7,8-Tetra CDD	ND	1.2		10	pg/L				-			Ud
2,3,7,8-Tetra CDF	ND	1.4		10	pg/L				-			Ud
Octa CDD	ND	2.2		100	pg/L				-			Ud
Octa CDF	ND	2.27		100	pg/L				-			Ud
Total Hepta CDD	ND	1.2		50	pg/L				-			Ud
Total Hepta CDF	ND	1.44		50	pg/L				-			Ud
Total Hexa CDD	ND	1.46		50	pg/L				-			Ud
Total Hexa CDF	5.12	1.23		50	pg/L				-			Ja
Total Penta CDD	ND	1.25		50	pg/L				-			Ud
Total Penta CDF	ND	1.18		50	pg/L				-			Ud
Total Tetra CDD	ND	1.2		10	pg/L				-			Ud
Total Tetra CDF	ND	1.4		10	pg/L				-			Ud
Surrogate: 37CL4 2378 Tetra CDD	1400				pg/L	2000		70	35-197			
Surrogate: C13-1234678 HeptaCDD	1260				pg/L	2000		63	23-140			

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EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5807224 - NA

Blank (5807224-BLK)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

Surrogate: C13-1234678 HeptaCDF	1500				pg/L	2000		75	28-143			
Surrogate: C13-123478 HexaCDD	1360				pg/L	2000		68	32-141			
Surrogate: C13-123478 HexaCDF	1680				pg/L	2000		84	26-152			
Surrogate: C13-1234789 HeptaCDF	1260				pg/L	2000		63	28-143			
Surrogate: C13-123678 HexaCDD	1740				pg/L	2000		87	28-130			
Surrogate: C13-123678 HexaCDF	1740				pg/L	2000		87	26-123			
Surrogate: C13-12378 PentaCDD	1820				pg/L	2000		91	25-181			
Surrogate: C13-12378 PentaCDF	1820				pg/L	2000		91	24-185			
Surrogate: C13-123789 HexaCDF	1660				pg/L	2000		83	28-136			
Surrogate: C13-234678 HexaCDF	1520				pg/L	2000		76	29-147			
Surrogate: C13-23478 PentaCDF	2020				pg/L	2000		101	21-178			
Surrogate: C13-2378 TetraCDD	1680				pg/L	2000		84	24-164			
Surrogate: C13-2378 TetraCDF	1520				pg/L	2000		76	24-169			
Surrogate: C13-OCDD	2080				pg/L	4000		52	17-157			

LCS (5807224-LCS)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

1,2,3,4,6,7,8-Hepta CDD	91	1.12		50	pg/L	100		91	70-140			
1,2,3,4,6,7,8-Hepta CDF	92	1.47		50	pg/L	100		92	82-122			
1,2,3,4,7,8,9-Hepta CDF	97	1.46		50	pg/L	100		97	78-138			
1,2,3,4,7,8-Hexa CDD	97	1.43		50	pg/L	100		97	70-164			
1,2,3,4,7,8-Hexa CDF	93	1.43		50	pg/L	100		93	72-134			
1,2,3,6,7,8-Hexa CDD	90	1.45		50	pg/L	100		90	76-134			
1,2,3,6,7,8-Hexa CDF	94	1.53		50	pg/L	100		94	84-130			
1,2,3,7,8,9-Hexa CDD	110	1.46		50	pg/L	100		110	64-162			
1,2,3,7,8,9-Hexa CDF	95	1.48		50	pg/L	100		95	78-130			
1,2,3,7,8-Penta CDD	92	1.36		50	pg/L	100		92	25-181			

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MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5807224 - NA

LCS (5807224-LCS)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

1,2,3,7,8-Penta CDF	90	1.31		50	pg/L	100		90	80-134			
2,3,4,6,7,8-Hexa CDF	98	1.38		50	pg/L	100		98	70-156			
2,3,4,7,8-Penta CDF	95	1.19		50	pg/L	100		95	68-160			
2,3,7,8-Tetra CDD	89	1.4		10	pg/L	100		89	67-158			
2,3,7,8-Tetra CDF	91	1.23		10	pg/L	100		91	75-158			
Octa CDD	89	2.73		100	pg/L	100		89	78-144			
Octa CDF	87	1.43		100	pg/L	100		87	63-170			
Surrogate: 37CL4 2378 Tetra CDD	1640				pg/L	2000		82	35-197			
Surrogate: C13-1234678 HeptaCDD	1420				pg/L	2000		71	23-140			
Surrogate: C13-1234678 HeptaCDF	1600				pg/L	2000		80	28-143			
Surrogate: C13-123478 HexaCDD	1480				pg/L	2000		74	32-141			
Surrogate: C13-123478 HexaCDF	1800				pg/L	2000		90	26-152			
Surrogate: C13-1234789 HeptaCDF	1360				pg/L	2000		68	28-143			
Surrogate: C13-123678 HexaCDD	1960				pg/L	2000		98	28-130			
Surrogate: C13-123678 HexaCDF	1860				pg/L	2000		93	26-123			
Surrogate: C13-12378 PentaCDD	2020				pg/L	2000		101	25-181			
Surrogate: C13-12378 PentaCDF	2020				pg/L	2000		101	24-185			
Surrogate: C13-123789 HexaCDF	1780				pg/L	2000		89	28-136			
Surrogate: C13-234678 HexaCDF	1660				pg/L	2000		83	29-147			
Surrogate: C13-23478 PentaCDF	2100				pg/L	2000		105	21-178			
Surrogate: C13-2378 TetraCDD	1700				pg/L	2000		85	24-164			
Surrogate: C13-2378 TetraCDF	1580				pg/L	2000		79	24-169			
Surrogate: C13-OCDD	2320				pg/L	4000		58	17-157			

LCS Dup (5807224-LCS Dup)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

1,2,3,4,6,7,8-Hepta CDD	98	1.36		50	pg/L	100		98	70-140	7.4	25	
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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5807224 - NA

LCS Dup (5807224-LCS Dup)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

1,2,3,4,6,7,8-Hepta CDF	94	1.06		50	pg/L	100		94	82-122	2.2	25	
1,2,3,4,7,8,9-Hepta CDF	99	1.05		50	pg/L	100		99	78-138	2.0	25	
1,2,3,4,7,8-Hexa CDD	90	1.39		50	pg/L	100		90	70-164	7.5	25	
1,2,3,4,7,8-Hexa CDF	95	1.44		50	pg/L	100		95	72-134	2.1	25	
1,2,3,6,7,8-Hexa CDD	95	1.42		50	pg/L	100		95	76-134	5.4	25	
1,2,3,6,7,8-Hexa CDF	100	1.55		50	pg/L	100		100	84-130	6.2	25	
1,2,3,7,8,9-Hexa CDD	92	1.43		50	pg/L	100		92	64-162	18	25	
1,2,3,7,8,9-Hexa CDF	100	1.5		50	pg/L	100		100	78-130	5.1	25	
1,2,3,7,8-Penta CDD	95	1.3		50	pg/L	100		95	25-181	3.2	25	
1,2,3,7,8-Penta CDF	93	1.28		50	pg/L	100		93	80-134	3.3	25	
2,3,4,6,7,8-Hexa CDF	103	1.39		50	pg/L	100		103	70-156	5.0	25	
2,3,4,7,8-Penta CDF	98	1.17		50	pg/L	100		98	68-160	3.1	25	
2,3,7,8-Tetra CDD	89	1.33		10	pg/L	100		89	67-158	0	25	
2,3,7,8-Tetra CDF	90	1.12		10	pg/L	100		90	75-158	1.1	25	
Octa CDD	91	1.02		100	pg/L	100		91	78-144	0	25	
Octa CDF	88	1.52		100	pg/L	100		88	63-170	0	25	
Surrogate: 37CL4 2378 Tetra CDD	1780				pg/L	2000		89	35-197			
Surrogate: C13-1234678 HeptaCDD	1580				pg/L	2000		79	23-140			
Surrogate: C13-1234678 HeptaCDF	1840				pg/L	2000		92	28-143			
Surrogate: C13-123478 HexaCDD	1740				pg/L	2000		87	32-141			
Surrogate: C13-123478 HexaCDF	2220				pg/L	2000		111	26-152			
Surrogate: C13-1234789 HeptaCDF	1540				pg/L	2000		77	28-143			
Surrogate: C13-123678 HexaCDD	2280				pg/L	2000		114	28-130			
Surrogate: C13-123678 HexaCDF	2240				pg/L	2000		112	26-123			
Surrogate: C13-12378 PentaCDD	1960				pg/L	2000		98	25-181			
Surrogate: C13-12378 PentaCDF	1940				pg/L	2000		97	24-185			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5807224 - NA

LCS Dup (5807224-LCS Dup)

Prepared: 24-Oct-2018 Analyzed: 29-Oct-2018

Surrogate: C13-123789 HexaCDF	1860				pg/L	2000		93	28-136			
Surrogate: C13-234678 HexaCDF	1980				pg/L	2000		99	29-147			
Surrogate: C13-23478 PentaCDF	2000				pg/L	2000		100	21-178			
Surrogate: C13-2378 TetraCDD	1860				pg/L	2000		93	24-164			
Surrogate: C13-2378 TetraCDF	1800				pg/L	2000		90	24-169			
Surrogate: C13-OCDD	2640				pg/L	4000		66	17-157			

Batch 5818560 - NA

Blank (5818560-BLK)

Prepared: 24-Oct-2018 Analyzed: 05-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	ND	2.59		50	pg/L				-			Ud
1,2,3,4,6,7,8-Hepta CDF	ND	2.3		50	pg/L				-			A9439, U
1,2,3,4,7,8,9-Hepta CDF	3.54	1.6		50	pg/L				-			Ja
1,2,3,4,7,8-Hexa CDD	ND	1.27		50	pg/L				-			Ud
1,2,3,4,7,8-Hexa CDF	ND	2.02		50	pg/L				-			A9441, U
1,2,3,6,7,8-Hexa CDD	ND	1.3		50	pg/L				-			Ud
1,2,3,6,7,8-Hexa CDF	2.09	1.24		50	pg/L				-			Ja
1,2,3,7,8,9-Hexa CDD	ND	1.31		50	pg/L				-			Ud
1,2,3,7,8,9-Hexa CDF	ND	1.2		50	pg/L				-			Ud
1,2,3,7,8-Penta CDD	ND	2.03		50	pg/L				-			Ud
1,2,3,7,8-Penta CDF	1.99	1.42		50	pg/L				-			Ja
2,3,4,6,7,8-Hexa CDF	2.74	1.12		50	pg/L				-			Ja
2,3,4,7,8-Penta CDF	2.45	1.29		50	pg/L				-			Ja
2,3,7,8-Tetra CDD	ND	1.15		10	pg/L				-			Ud
2,3,7,8-Tetra CDF	ND	1.29		10	pg/L				-			Ud
Octa CDD	7.66	2.5		100	pg/L				-			Ja
Octa CDF	ND	6.77		100	pg/L				-			A9428, U
Total Hepta CDD	ND	2.59		50	pg/L				-			Ud
Total Hepta CDF	3.54	1.61		50	pg/L				-			Ja

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5818560 - NA

Blank (5818560-BLK)

Prepared: 24-Oct-2018 Analyzed: 05-Nov-2018

Total Hexa CDD	ND	1.31		50	pg/L				-			Ud
Total Hexa CDF	4.83	1.18		50	pg/L				-			Ja
Total Penta CDD	ND	2.03		50	pg/L				-			Ud
Total Penta CDF	4.44	1.35		50	pg/L				-			Ja
Total Tetra CDD	ND	1.15		10	pg/L				-			Ud
Total Tetra CDF	ND	1.29		10	pg/L				-			Ud
Surrogate: 37CL4 2378 Tetra CDD	1380				pg/L	2000		69	35-197			
Surrogate: C13-1234678 HeptaCDD	1460				pg/L	2000		73	23-140			
Surrogate: C13-1234678 HeptaCDF	1460				pg/L	2000		73	28-143			
Surrogate: C13-123478 HexaCDD	1440				pg/L	2000		72	32-141			
Surrogate: C13-123478 HexaCDF	1400				pg/L	2000		70	26-152			
Surrogate: C13-1234789 HeptaCDF	1360				pg/L	2000		68	28-143			
Surrogate: C13-123678 HexaCDD	1640				pg/L	2000		82	28-130			
Surrogate: C13-123678 HexaCDF	1440				pg/L	2000		72	26-123			
Surrogate: C13-12378 PentaCDD	1880				pg/L	2000		94	25-181			
Surrogate: C13-12378 PentaCDF	1580				pg/L	2000		79	24-185			
Surrogate: C13-123789 HexaCDF	1540				pg/L	2000		77	28-136			
Surrogate: C13-234678 HexaCDF	1380				pg/L	2000		69	29-147			
Surrogate: C13-23478 PentaCDF	1880				pg/L	2000		94	21-178			
Surrogate: C13-2378 TetraCDD	1500				pg/L	2000		75	24-164			
Surrogate: C13-2378 TetraCDF	1380				pg/L	2000		69	24-169			
Surrogate: C13-OCDD	3080				pg/L	4000		77	17-157			

LCS (5818560-LCS)

Prepared: 24-Oct-2018 Analyzed: 06-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	101	1.11		50	pg/L	100		101	70-140			
1,2,3,4,6,7,8-Hepta CDF	92	1.02		50	pg/L	100		92	82-122			

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5818560 - NA

LCS (5818560-LCS)

Prepared: 24-Oct-2018 Analyzed: 06-Nov-2018

1,2,3,4,7,8,9-Hepta CDF	94	1.01		50	pg/L	100		94	78-138			
1,2,3,4,7,8-Hexa CDD	94	1.01		50	pg/L	100		94	70-164			
1,2,3,4,7,8-Hexa CDF	91	1.17		50	pg/L	100		91	72-134			
1,2,3,6,7,8-Hexa CDD	91	1.03		50	pg/L	100		91	76-134			
1,2,3,6,7,8-Hexa CDF	97	1.25		50	pg/L	100		97	84-130			
1,2,3,7,8,9-Hexa CDD	95	1.04		50	pg/L	100		95	64-162			
1,2,3,7,8,9-Hexa CDF	94	1.21		50	pg/L	100		94	78-130			
1,2,3,7,8-Penta CDD	97	1.12		50	pg/L	100		97	25-181			
1,2,3,7,8-Penta CDF	95	1.15		50	pg/L	100		95	80-134			
2,3,4,6,7,8-Hexa CDF	93	1.13		50	pg/L	100		93	70-156			
2,3,4,7,8-Penta CDF	97	1.05		50	pg/L	100		97	68-160			
2,3,7,8-Tetra CDD	88	1.02		10	pg/L	100		88	67-158			
2,3,7,8-Tetra CDF	92	1.15		10	pg/L	100		92	75-158			
Octa CDD	92	2.08		100	pg/L	100		92	78-144			
Octa CDF	90	1.69		100	pg/L	100		90	63-170			
Surrogate: 37CL4 2378 Tetra CDD	1400				pg/L	2000		70	35-197			
Surrogate: C13-1234678 HeptaCDD	1580				pg/L	2000		79	23-140			
Surrogate: C13-1234678 HeptaCDF	1660				pg/L	2000		83	28-143			
Surrogate: C13-123478 HexaCDD	1720				pg/L	2000		86	32-141			
Surrogate: C13-123478 HexaCDF	1620				pg/L	2000		81	26-152			
Surrogate: C13-1234789 HeptaCDF	1600				pg/L	2000		80	28-143			
Surrogate: C13-123678 HexaCDD	1880				pg/L	2000		94	28-130			
Surrogate: C13-123678 HexaCDF	1600				pg/L	2000		80	26-123			
Surrogate: C13-12378 PentaCDD	1840				pg/L	2000		92	25-181			
Surrogate: C13-12378 PentaCDF	1520				pg/L	2000		76	24-185			
Surrogate: C13-123789 HexaCDF	1640				pg/L	2000		82	28-136			

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5818560 - NA

LCS (5818560-LCS)

Prepared: 24-Oct-2018 Analyzed: 06-Nov-2018

Surrogate: C13-234678 HexaCDF	1620				pg/L	2000		81	29-147			
Surrogate: C13-23478 PentaCDF	1900				pg/L	2000		95	21-178			
Surrogate: C13-2378 TetraCDD	1600				pg/L	2000		80	24-164			
Surrogate: C13-2378 TetraCDF	1440				pg/L	2000		72	24-169			
Surrogate: C13-OCDD	3520				pg/L	4000		88	17-157			

LCS Dup (5818560-LCS Dup)

Prepared: 24-Oct-2018 Analyzed: 06-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	94	1.13		50	pg/L	100		94	70-140	7.2	25	
1,2,3,4,6,7,8-Hepta CDF	96	1.17		50	pg/L	100		96	82-122	4.3	25	
1,2,3,4,7,8,9-Hepta CDF	95	1.16		50	pg/L	100		95	78-138	1.1	25	
1,2,3,4,7,8-Hexa CDD	96	1.09		50	pg/L	100		96	70-164	2.1	25	
1,2,3,4,7,8-Hexa CDF	91	1.13		50	pg/L	100		91	72-134	0	25	
1,2,3,6,7,8-Hexa CDD	92	1.11		50	pg/L	100		92	76-134	1.1	25	
1,2,3,6,7,8-Hexa CDF	93	1.22		50	pg/L	100		93	84-130	4.2	25	
1,2,3,7,8,9-Hexa CDD	110	1.12		50	pg/L	100		110	64-162	15	25	
1,2,3,7,8,9-Hexa CDF	99	1.18		50	pg/L	100		99	78-130	5.2	25	
1,2,3,7,8-Penta CDD	96	1.14		50	pg/L	100		96	25-181	1.0	25	
1,2,3,7,8-Penta CDF	96	1.16		50	pg/L	100		96	80-134	1.0	25	
2,3,4,6,7,8-Hexa CDF	94	1.1		50	pg/L	100		94	70-156	1.1	25	
2,3,4,7,8-Penta CDF	94	1.06		50	pg/L	100		94	68-160	3.1	25	
2,3,7,8-Tetra CDD	91	1.02		10	pg/L	100		91	67-158	3.4	25	
2,3,7,8-Tetra CDF	89	1.04		10	pg/L	100		89	75-158	3.3	25	
Octa CDD	95	2.48		100	pg/L	100		95	78-144	0	25	
Octa CDF	93	1.67		100	pg/L	100		93	63-170	0	25	
Surrogate: 37CL4 2378 Tetra CDD	1820				pg/L	2000		91	35-197			
Surrogate: C13-1234678 HeptaCDD	1800				pg/L	2000		90	23-140			
Surrogate: C13-1234678 HeptaCDF	1820				pg/L	2000		91	28-143			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5818560 - NA

LCS Dup (5818560-LCS Dup)

Prepared: 24-Oct-2018 Analyzed: 06-Nov-2018

Surrogate: C13-123478 HexaCDD	1920				pg/L	2000		96	32-141			
Surrogate: C13-123478 HexaCDF	1860				pg/L	2000		93	26-152			
Surrogate: C13-1234789 HeptaCDF	1760				pg/L	2000		88	28-143			
Surrogate: C13-123678 HexaCDD	2080				pg/L	2000		104	28-130			
Surrogate: C13-123678 HexaCDF	1820				pg/L	2000		91	26-123			
Surrogate: C13-12378 PentaCDD	2260				pg/L	2000		113	25-181			
Surrogate: C13-12378 PentaCDF	1880				pg/L	2000		94	24-185			
Surrogate: C13-123789 HexaCDF	1860				pg/L	2000		93	28-136			
Surrogate: C13-234678 HexaCDF	1780				pg/L	2000		89	29-147			
Surrogate: C13-23478 PentaCDF	2240				pg/L	2000		112	21-178			
Surrogate: C13-2378 TetraCDD	2060				pg/L	2000		103	24-164			
Surrogate: C13-2378 TetraCDF	1860				pg/L	2000		93	24-169			
Surrogate: C13-OCDD	3840				pg/L	4000		96	17-157			

Batch 5861463 - NA

Blank (5861463-BLK)

Prepared: 28-Nov-2018 Analyzed: 02-Dec-2018

1,2,3,4,6,7,8-Hepta CDD	ND	1.25		50	pg/L			-				Ud
1,2,3,4,6,7,8-Hepta CDF	ND	0.705		50	pg/L			-				Ud
1,2,3,4,7,8,9-Hepta CDF	ND	0.701		50	pg/L			-				Ud
1,2,3,4,7,8-Hexa CDD	ND	1.19		50	pg/L			-				Ud
1,2,3,4,7,8-Hexa CDF	ND	1.08		50	pg/L			-				Ud
1,2,3,6,7,8-Hexa CDD	ND	1.21		50	pg/L			-				Ud
1,2,3,6,7,8-Hexa CDF	ND	1.16		50	pg/L			-				Ud
1,2,3,7,8,9-Hexa CDD	ND	1.22		50	pg/L			-				Ud
1,2,3,7,8,9-Hexa CDF	ND	1.12		50	pg/L			-				Ud
1,2,3,7,8-Penta CDD	ND	1.35		50	pg/L			-				Ud

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5861463 - NA

Blank (5861463-BLK)

Prepared: 28-Nov-2018 Analyzed: 02-Dec-2018

1,2,3,7,8-Penta CDF	ND	1.59		50	pg/L				-			Ud
2,3,4,6,7,8-Hexa CDF	ND	1.05		50	pg/L				-			Ud
2,3,4,7,8-Penta CDF	ND	1.45		50	pg/L				-			Ud
2,3,7,8-Tetra CDD	ND	1.15		10	pg/L				-			Ud
2,3,7,8-Tetra CDF	ND	0.775		10	pg/L				-			Ud
Octa CDD	ND	2.12		100	pg/L				-			Ud
Octa CDF	ND	2.17		100	pg/L				-			Ud
Total Hepta CDD	ND	1.25		50	pg/L				-			Ud
Total Hepta CDF	ND	0.703		50	pg/L				-			Ud
Total Hexa CDD	ND	1.22		50	pg/L				-			Ud
Total Hexa CDF	ND	1.1		50	pg/L				-			Ud
Total Penta CDD	ND	1.35		50	pg/L				-			Ud
Total Penta CDF	ND	1.51		50	pg/L				-			Ud
Total Tetra CDD	ND	1.15		10	pg/L				-			Ud
Total Tetra CDF	ND	0.775		10	pg/L				-			Ud
Surrogate: 37CL4 2378 Tetra CDD	1880				pg/L	2000		94	35-197			
Surrogate: C13-1234678 HeptaCDD	1980				pg/L	2000		99	23-140			
Surrogate: C13-1234678 HeptaCDF	2020				pg/L	2000		101	28-143			
Surrogate: C13-123478 HexaCDD	2140				pg/L	2000		107	32-141			
Surrogate: C13-123478 HexaCDF	1900				pg/L	2000		95	26-152			
Surrogate: C13-1234789 HeptaCDF	1940				pg/L	2000		97	28-143			
Surrogate: C13-123678 HexaCDD	2300				pg/L	2000		115	28-130			
Surrogate: C13-123678 HexaCDF	2140				pg/L	2000		107	26-123			
Surrogate: C13-12378 PentaCDD	2200				pg/L	2000		110	25-181			
Surrogate: C13-12378 PentaCDF	1800				pg/L	2000		90	24-185			
Surrogate: C13-123789 HexaCDF	2000				pg/L	2000		100	28-136			

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5861463 - NA

Blank (5861463-BLK)

Prepared: 28-Nov-2018 Analyzed: 02-Dec-2018

Surrogate: C13-234678 HexaCDF	1980				pg/L	2000		99	29-147			
Surrogate: C13-23478 PentaCDF	2080				pg/L	2000		104	21-178			
Surrogate: C13-2378 TetraCDD	1940				pg/L	2000		97	24-164			
Surrogate: C13-2378 TetraCDF	1980				pg/L	2000		99	24-169			
Surrogate: C13-OCDD	4080				pg/L	4000		102	17-157			

LCS (5861463-LCS)

Prepared: 28-Nov-2018 Analyzed: 01-Dec-2018

1,2,3,4,6,7,8-Hepta CDD	93	1.47		50	pg/L	100		93	70-140			
1,2,3,4,6,7,8-Hepta CDF	91	1.54		50	pg/L	100		91	82-122			
1,2,3,4,7,8,9-Hepta CDF	96	1.53		50	pg/L	100		96	78-138			
1,2,3,4,7,8-Hexa CDD	81	1.07		50	pg/L	100		81	70-164			
1,2,3,4,7,8-Hexa CDF	97	1.35		50	pg/L	100		97	72-134			
1,2,3,6,7,8-Hexa CDD	98	1.09		50	pg/L	100		98	76-134			
1,2,3,6,7,8-Hexa CDF	99	1.45		50	pg/L	100		99	84-130			
1,2,3,7,8,9-Hexa CDD	92	1.1		50	pg/L	100		92	64-162			
1,2,3,7,8,9-Hexa CDF	94	1.4		50	pg/L	100		94	78-130			
1,2,3,7,8-Penta CDD	98	2.72		50	pg/L	100		98	25-181			
1,2,3,7,8-Penta CDF	94	1.84		50	pg/L	100		94	80-134			
2,3,4,6,7,8-Hexa CDF	98	1.3		50	pg/L	100		98	70-156			
2,3,4,7,8-Penta CDF	93	1.68		50	pg/L	100		93	68-160			
2,3,7,8-Tetra CDD	85	1.9		10	pg/L	100		85	67-158			
2,3,7,8-Tetra CDF	88	2.03		10	pg/L	100		88	75-158			
Octa CDD	95	3.21		100	pg/L	100		95	78-144			
Octa CDF	89	2.1		100	pg/L	100		89	63-170			
Surrogate: 37CL4 2378 Tetra CDD	1960				pg/L	2000		98	35-197			
Surrogate: C13-1234678 HeptaCDD	1960				pg/L	2000		98	23-140			
Surrogate: C13-1234678 HeptaCDF	1800				pg/L	2000		90	28-143			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5861463 - NA

LCS (5861463-LCS)						Prepared: 28-Nov-2018 Analyzed: 01-Dec-2018						
Surrogate: C13-123478 HexaCDD	2240				pg/L	2000		112	32-141			
Surrogate: C13-123478 HexaCDF	1900				pg/L	2000		95	26-152			
Surrogate: C13-1234789 HeptaCDF	1840				pg/L	2000		92	28-143			
Surrogate: C13-123678 HexaCDD	2340				pg/L	2000		117	28-130			
Surrogate: C13-123678 HexaCDF	2000				pg/L	2000		100	26-123			
Surrogate: C13-12378 PentaCDD	2500				pg/L	2000		125	25-181			
Surrogate: C13-12378 PentaCDF	2020				pg/L	2000		101	24-185			
Surrogate: C13-123789 HexaCDF	1960				pg/L	2000		98	28-136			
Surrogate: C13-234678 HexaCDF	1920				pg/L	2000		96	29-147			
Surrogate: C13-23478 PentaCDF	2360				pg/L	2000		118	21-178			
Surrogate: C13-2378 TetraCDD	2260				pg/L	2000		113	24-164			
Surrogate: C13-2378 TetraCDF	2080				pg/L	2000		104	24-169			
Surrogate: C13-OCDD	4120				pg/L	4000		103	17-157			

LCS Dup (5861463-LCS Dup)						Prepared: 28-Nov-2018 Analyzed: 01-Dec-2018						
1,2,3,4,6,7,8-Hepta CDD	94	1.05		50	pg/L	100		94	70-140	1.1	25	
1,2,3,4,6,7,8-Hepta CDF	90	1.03		50	pg/L	100		90	82-122	1.1	25	
1,2,3,4,7,8,9-Hepta CDF	96	1.03		50	pg/L	100		96	78-138	0	25	
1,2,3,4,7,8-Hexa CDD	80	0.953		50	pg/L	100		80	70-164	1.2	25	
1,2,3,4,7,8-Hexa CDF	94	0.944		50	pg/L	100		94	72-134	3.1	25	
1,2,3,6,7,8-Hexa CDD	94	0.971		50	pg/L	100		94	76-134	4.2	25	
1,2,3,6,7,8-Hexa CDF	94	1.01		50	pg/L	100		94	84-130	5.2	25	
1,2,3,7,8,9-Hexa CDD	88	0.978		50	pg/L	100		88	64-162	4.4	25	
1,2,3,7,8,9-Hexa CDF	97	0.98		50	pg/L	100		97	78-130	3.1	25	
1,2,3,7,8-Penta CDD	97	1.48		50	pg/L	100		97	25-181	1.0	25	
1,2,3,7,8-Penta CDF	94	1.73		50	pg/L	100		94	80-134	0	25	
2,3,4,6,7,8-Hexa CDF	96	0.912		50	pg/L	100		96	70-156	2.1	25	

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5861463 - NA

LCS Dup (5861463-LCS Dup)

Prepared: 28-Nov-2018 Analyzed: 01-Dec-2018

2,3,4,7,8-Penta CDF	89	1.57		50	pg/L	100		89	68-160	4.4	25	
2,3,7,8-Tetra CDD	84	1.26		10	pg/L	100		84	67-158	1.2	25	
2,3,7,8-Tetra CDF	89	1.16		10	pg/L	100		89	75-158	1.1	25	
Octa CDD	92	4.07		100	pg/L	100		92	78-144	0	25	
Octa CDF	90	2.36		100	pg/L	100		90	63-170	0	25	
Surrogate: 37CLA 2378 Tetra CDD	2080				pg/L	2000		104	35-197			
Surrogate: C13-1234678 HeptaCDD	2160				pg/L	2000		108	23-140			
Surrogate: C13-1234678 HeptaCDF	2200				pg/L	2000		110	28-143			
Surrogate: C13-123478 HexaCDD	2580				pg/L	2000		129	32-141			
Surrogate: C13-123478 HexaCDF	2240				pg/L	2000		112	26-152			
Surrogate: C13-1234789 HeptaCDF	2160				pg/L	2000		108	28-143			
Surrogate: C13-123678 HexaCDD	2500				pg/L	2000		125	28-130			
Surrogate: C13-123678 HexaCDF	2340				pg/L	2000		117	26-123			
Surrogate: C13-12378 PentaCDD	2660				pg/L	2000		133	25-181			
Surrogate: C13-12378 PentaCDF	2180				pg/L	2000		109	24-185			
Surrogate: C13-123789 HexaCDF	2160				pg/L	2000		108	28-136			
Surrogate: C13-234678 HexaCDF	2140				pg/L	2000		107	29-147			
Surrogate: C13-23478 PentaCDF	2540				pg/L	2000		127	21-178			
Surrogate: C13-2378 TetraCDD	2320				pg/L	2000		116	24-164			
Surrogate: C13-2378 TetraCDF	2180				pg/L	2000		109	24-169			
Surrogate: C13-OCDD	4560				pg/L	4000		114	17-157			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

TNRCC 1005 - Quality Control

Katahdin

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG239722 - TPH TCEQ 1005

BLK (WG239722-1)

Prepared & Analyzed: 31-Oct-2018

>C12-C28	ND	3900		5000	ug/L				-			Uc
>C28-C35	ND	3900		5000	ug/L				-			Uc
C6-C12	ND	2000		5000	ug/L				-			Uc
C6-C35	ND	6900		10000	ug/L				-			Uc
Surrogate: 1-Chlorooctane	88.0				%			88.0	70-130			
Surrogate: O-TERPHENYL	97.5				%			97.5	70-130			

BS (WG239722-2)

Prepared & Analyzed: 31-Oct-2018

>C12-C28	35700	3900		5000	ug/L	33300		107	70-125			
C6-C12	33500	2000		5000	ug/L	33300		101	75-125			
C6-C35	68800	6900		10000	ug/L	66700		103	70-125			
Surrogate: 1-Chlorooctane	104				%			104	70-130			
Surrogate: O-TERPHENYL	99.5				%			99.5	70-130			



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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

Blank (BBJ0914-BLK1)

Prepared & Analyzed: 29-Oct-2018

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L				-			Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L				-			Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L				-			Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L				-			Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L				-			Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L				-			Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L				-			Ua
1,2,4-Trichlorobenzene	ND	0.50		1.00	ug/L				-			Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		4.00	ug/L				-			Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L				-			Ua
1,2-Dichlorobenzene	ND	0.40		1.00	ug/L				-			Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L				-			Ua
1,2-Dichloropropane	ND	0.40		1.00	ug/L				-			Ua
1,3-Dichlorobenzene	ND	0.30		1.00	ug/L				-			Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L				-			Ua
1,4-Dioxane	ND	40.0		100	ug/L				-			Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L				-			Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L				-			Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L				-			Ua
Acetone	ND	7.00		10.0	ug/L				-			Ua
Benzene	ND	0.40		1.00	ug/L				-			Ua
Bromodichloromethane	ND	0.40		0.50	ug/L				-			Ua
Bromoform	ND	0.40		1.00	ug/L				-			Ua
Bromomethane	ND	0.80		1.00	ug/L				-			Ua
Carbon disulfide	ND	1.00		10.0	ug/L				-			Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L				-			Ua
Chlorobenzene	ND	0.40		1.00	ug/L				-			Ua
Chloroethane	ND	0.70		1.00	ug/L				-			Ua

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ERDC -- Vicksburg (EL)
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Reported:
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Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

Blank (BBJ0914-BLK1)

Prepared & Analyzed: 29-Oct-2018

Chloroform	ND	0.50		0.50	ug/L				-			Ua
Chloromethane	ND	0.95		1.00	ug/L				-			Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L				-			Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L				-			Ua
Cyclohexane	ND	0.50		1.00	ug/L				-			Ua
Dibromochloromethane	ND	0.35		1.00	ug/L				-			Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L				-			Ua
Ethylbenzene	ND	0.40		1.00	ug/L				-			Ua
Isopropylbenzene	ND	0.50		1.00	ug/L				-			Ua
m+p-Xylenes	ND	0.60		2.00	ug/L				-			Ua
Methyl acetate	ND	1.00		4.00	ug/L				-			Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L				-			Ua
Methylene chloride	ND	1.00		4.00	ug/L				-			Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L				-			Ua
o-Xylene	ND	0.40		1.00	ug/L				-			Ua
Styrene	ND	0.40		1.00	ug/L				-			Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L				-			Ua
Toluene	ND	0.50		1.00	ug/L				-			Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L				-			Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L				-			Ua
Trichloroethylene	ND	0.40		1.00	ug/L				-			Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L				-			Ua
Vinyl chloride	ND	0.50		0.50	ug/L				-			Ua
Surrogate: 1,2-Dichloroethane-d4 (Surr)	51.9				ug/L	50.0		104	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	45.9				ug/L	50.0		91.8	75-120			
Surrogate: Dibromofluoromethane (Surr)	52.1				ug/L	50.0		104	70-130			
Surrogate: Toluene-d8 (Surr)	51.0				ug/L	50.0		102	70-130			

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
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Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

LCS (BBJ0914-BS1)

Prepared & Analyzed: 29-Oct-2018

1,1,1-Trichloroethane	53.5				ug/L	50.0		107	65-130			
1,1,2,2-Tetrachloroethane	51.1				ug/L	50.0		102	65-130			
1,1,2-Trichloroethane	55.4				ug/L	50.0		111	75-125			
1,1-Dichloroethane	54.5				ug/L	50.0		109	70-135			
1,1-Dichloroethylene	52.7				ug/L	50.0		105	70-130			
1,2,3-Trichlorobenzene	54.0				ug/L	50.0		108	55-140			
1,2,4-Trichlorobenzene	53.7				ug/L	50.0		107	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	48.4				ug/L	50.0		96.7	50-130			
1,2-Dibromoethane (EDB)	52.4				ug/L	50.0		105	80-120			
1,2-Dichlorobenzene	52.6				ug/L	50.0		105	70-120			
1,2-Dichloroethane	47.5				ug/L	50.0		94.9	70-130			
1,2-Dichloropropane	49.7				ug/L	50.0		99.3	75-125			
1,3-Dichlorobenzene	55.6				ug/L	50.0		111	75-125			
1,4-Dichlorobenzene	53.1				ug/L	50.0		106	75-125			
2-Butanone (MEK)	49.2				ug/L	50.0		98.4	30-150			
2-Hexanone (MBK)	44.6				ug/L	50.0		89.2	55-130			
4-Methyl-2-pentanone (MIBK)	47.4				ug/L	50.0		94.9	60-135			
Acetone	48.4				ug/L	50.0		96.8	40-140			
Benzene	54.3				ug/L	50.0		109	80-120			
Bromodichloromethane	52.7				ug/L	50.0		105	75-120			
Bromoform	55.4				ug/L	50.0		111	70-130			
Bromomethane	46.5				ug/L	50.0		93.0	30-145			
Carbon disulfide	48.0				ug/L	50.0		96.0	35-160			
Carbon tetrachloride	53.3				ug/L	50.0		107	65-140			
Chlorobenzene	50.9				ug/L	50.0		102	80-120			
Chloroethane	52.0				ug/L	50.0		104	60-135			
Chloroform	53.1				ug/L	50.0		106	65-135			
Chloromethane	50.4				ug/L	50.0		101	40-125			

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

LCS (BBJ0914-BS1)						Prepared & Analyzed: 29-Oct-2018						
cis-1,2-Dichloroethylene	54.3				ug/L	50.0		109	70-125			
cis-1,3-Dichloropropene	52.6				ug/L	50.0		105	70-130			
Dibromochloromethane	52.4				ug/L	50.0		105	60-135			
Dichlorodifluoromethane	44.5				ug/L	50.0		88.9	30-155			
Ethylbenzene	55.5				ug/L	50.0		111	75-125			
Isopropylbenzene	59.0				ug/L	50.0		118	75-125			
m+p-Xylenes	113				ug/L	100		113	75-130			
Methylene chloride	51.6				ug/L	50.0		103	55-140			
Methyl-t-butyl ether (MTBE)	52.5				ug/L	50.0		105	65-125			
o-Xylene	56.1				ug/L	50.0		112	80-120			
Styrene	53.7				ug/L	50.0		107	65-135			
Tetrachloroethylene (PCE)	78.4				ug/L	50.0		157	45-150			L
Toluene	52.1				ug/L	50.0		104	75-120			
trans-1,2-Dichloroethylene	52.1				ug/L	50.0		104	60-140			
trans-1,3-Dichloropropene	52.2				ug/L	50.0		104	55-140			
Trichloroethylene	53.5				ug/L	50.0		107	70-125			
Trichlorofluoromethane	45.1				ug/L	50.0		90.2	60-145			
Vinyl chloride	45.8				ug/L	50.0		91.6	50-145			
Surrogate: 1,2-Dichloroethane-d4 (Surr)	51.5				ug/L	50.0		103	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	53.1				ug/L	50.0		106	75-120			
Surrogate: Dibromofluoromethane (Surr)	48.8				ug/L	50.0		97.6	70-130			
Surrogate: Toluene-d8 (Surr)	50.1				ug/L	50.0		100	70-130			

Matrix Spike (BBJ0914-MS1)						Source: 18J0401-13		Prepared & Analyzed: 29-Oct-2018				
1,1,1-Trichloroethane	53.0				ug/L	50.0	0.00	106	65-130			
1,1,1,2-Tetrachloroethane	49.7				ug/L	50.0	0.00	99.3	65-130			
1,1,2-Trichloroethane	55.2				ug/L	50.0	0.00	110	75-125			
1,1-Dichloroethane	53.3				ug/L	50.0	0.00	107	70-135			
1,1-Dichloroethylene	46.4				ug/L	50.0	0.00	92.8	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

Matrix Spike (BBJ0914-MS1)	Source: 18J0401-13	Prepared & Analyzed: 29-Oct-2018
1,2,3-Trichlorobenzene	46.9	ug/L 50.0 0.00 93.9 55-140
1,2,4-Trichlorobenzene	45.8	ug/L 50.0 0.00 91.6 65-135
1,2-Dibromo-3-chloropropane (DBCP)	45.5	ug/L 50.0 0.00 90.9 50-130
1,2-Dibromoethane (EDB)	51.6	ug/L 50.0 0.00 103 80-120
1,2-Dichlorobenzene	47.8	ug/L 50.0 0.00 95.5 70-120
1,2-Dichloroethane	49.6	ug/L 50.0 0.00 99.3 70-130
1,2-Dichloropropane	46.7	ug/L 50.0 0.00 93.4 75-125
1,3-Dichlorobenzene	50.1	ug/L 50.0 0.00 100 75-125
1,4-Dichlorobenzene	49.2	ug/L 50.0 0.00 98.4 75-125
2-Butanone (MEK)	46.6	ug/L 50.0 0.00 93.3 30-150
2-Hexanone (MBK)	46.5	ug/L 50.0 0.00 92.9 55-130
4-Methyl-2-pentanone (MIBK)	48.7	ug/L 50.0 0.00 97.4 60-135
Acetone	55.2	ug/L 50.0 0.00 110 40-140
Benzene	51.4	ug/L 50.0 0.00 103 80-120
Bromodichloromethane	53.6	ug/L 50.0 0.00 107 75-120
Bromoform	55.3	ug/L 50.0 0.00 111 70-130
Bromomethane	40.8	ug/L 50.0 0.00 81.7 30-145
Carbon disulfide	45.8	ug/L 50.0 0.00 91.7 35-160
Carbon tetrachloride	53.2	ug/L 50.0 0.00 106 65-140
Chlorobenzene	49.3	ug/L 50.0 0.00 98.6 80-120
Chloroethane	48.2	ug/L 50.0 0.00 96.5 60-135
Chloroform	53.5	ug/L 50.0 1.53 104 65-135
Chloromethane	46.6	ug/L 50.0 1.50 90.1 40-125
cis-1,2-Dichloroethylene	51.8	ug/L 50.0 0.00 104 70-125
cis-1,3-Dichloropropene	49.3	ug/L 50.0 0.00 98.7 70-130
Dibromochloromethane	52.0	ug/L 50.0 0.00 104 60-135
Dichlorodifluoromethane	43.0	ug/L 50.0 0.00 86.0 30-155
Ethylbenzene	52.2	ug/L 50.0 0.00 104 75-125

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

Matrix Spike (BBJ0914-MS1)	Source: 18J0401-13		Prepared & Analyzed: 29-Oct-2018									
Isopropylbenzene	55.5				ug/L	50.0	0.00	111	75-125			
m+p-Xylenes	108				ug/L	100	0.00	108	75-130			
Methylene chloride	49.0				ug/L	50.0	0.00	98.0	55-140			
Methyl-t-butyl ether (MTBE)	50.9				ug/L	50.0	0.00	102	65-125			
o-Xylene	54.2				ug/L	50.0	0.00	108	80-120			
Styrene	51.6				ug/L	50.0	0.00	103	65-135			
Tetrachloroethylene (PCE)	74.7				ug/L	50.0	0.00	149	45-150			
Toluene	50.0				ug/L	50.0	0.00	100	75-120			
trans-1,2-Dichloroethylene	46.3				ug/L	50.0	0.00	92.7	60-140			
trans-1,3-Dichloropropene	48.9				ug/L	50.0	0.00	97.8	55-140			
Trichloroethylene	49.8				ug/L	50.0	0.00	99.7	70-125			
Trichlorofluoromethane	43.9				ug/L	50.0	0.00	87.8	60-145			
Vinyl chloride	43.4				ug/L	50.0	0.00	86.8	50-145			
<i>Surrogate:</i>	<i>50.6</i>				<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-120</i>			
<i>1,2-Dichloroethane-d4 (Surr)</i>												
<i>Surrogate:</i>	<i>52.0</i>				<i>ug/L</i>	<i>50.0</i>		<i>104</i>	<i>75-120</i>			
<i>4-Bromofluorobenzene (Surr)</i>												
<i>Surrogate:</i>	<i>49.7</i>				<i>ug/L</i>	<i>50.0</i>		<i>99.3</i>	<i>70-130</i>			
<i>Dibromofluoromethane (Surr)</i>												
<i>Surrogate: Toluene-d8 (Surr)</i>	<i>49.9</i>				<i>ug/L</i>	<i>50.0</i>		<i>99.7</i>	<i>70-130</i>			

Matrix Spike Dup (BBJ0914-MSD1)	Source: 18J0401-13		Prepared & Analyzed: 29-Oct-2018									
1,1,1-Trichloroethane	51.5				ug/L	50.0	0.00	103	65-130	3.00	30	
1,1,2,2-Tetrachloroethane	49.4				ug/L	50.0	0.00	98.9	65-130	0.444	30	
1,1,2-Trichloroethane	55.0				ug/L	50.0	0.00	110	75-125	0.327	30	
1,1-Dichloroethane	50.2				ug/L	50.0	0.00	100	70-135	5.91	30	
1,1-Dichloroethylene	47.0				ug/L	50.0	0.00	94.0	70-130	1.26	30	
1,2,3-Trichlorobenzene	50.7				ug/L	50.0	0.00	101	55-140	7.68	30	
1,2,4-Trichlorobenzene	46.5				ug/L	50.0	0.00	93.0	65-135	1.47	30	
1,2-Dibromo-3-chloropropane (DBCP)	51.5				ug/L	50.0	0.00	103	50-130	12.5	30	
1,2-Dibromoethane (EDB)	50.7				ug/L	50.0	0.00	101	80-120	1.70	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0914 - SW5030B

Matrix Spike Dup (BBJ0914-MSD1)	Source: 18J0401-13	Prepared & Analyzed: 29-Oct-2018
1,2-Dichlorobenzene	47.8	ug/L 50.0 0.00 95.6 70-120 0.126 30
1,2-Dichloroethane	48.6	ug/L 50.0 0.00 97.2 70-130 2.12 30
1,2-Dichloropropane	47.6	ug/L 50.0 0.00 95.2 75-125 1.99 30
1,3-Dichlorobenzene	51.3	ug/L 50.0 0.00 103 75-125 2.43 30
1,4-Dichlorobenzene	48.9	ug/L 50.0 0.00 97.8 75-125 0.530 30
2-Butanone (MEK)	53.2	ug/L 50.0 0.00 106 30-150 13.1 30
2-Hexanone (MBK)	50.2	ug/L 50.0 0.00 100 55-130 7.84 30
4-Methyl-2-pentanone (MIBK)	48.8	ug/L 50.0 0.00 97.6 60-135 0.185 30
Acetone	55.9	ug/L 50.0 0.00 112 40-140 1.40 30
Benzene	51.6	ug/L 50.0 0.00 103 80-120 0.349 30
Bromodichloromethane	53.4	ug/L 50.0 0.00 107 75-120 0.243 30
Bromoform	54.3	ug/L 50.0 0.00 109 70-130 1.82 30
Bromomethane	44.4	ug/L 50.0 0.00 88.7 30-145 8.24 30
Carbon disulfide	47.0	ug/L 50.0 0.00 94.0 35-160 2.50 30
Carbon tetrachloride	53.8	ug/L 50.0 0.00 108 65-140 1.07 30
Chlorobenzene	49.2	ug/L 50.0 0.00 98.5 80-120 0.122 30
Chloroethane	48.2	ug/L 50.0 0.00 96.3 60-135 0.166 30
Chloroform	52.6	ug/L 50.0 1.53 102 65-135 1.75 30
Chloromethane	47.9	ug/L 50.0 1.50 92.8 40-125 2.82 30
cis-1,2-Dichloroethylene	50.2	ug/L 50.0 0.00 100 70-125 3.08 30
cis-1,3-Dichloropropene	50.5	ug/L 50.0 0.00 101 70-130 2.28 30
Dibromochloromethane	52.5	ug/L 50.0 0.00 105 60-135 1.07 30
Dichlorodifluoromethane	43.3	ug/L 50.0 0.00 86.6 30-155 0.672 30
Ethylbenzene	51.2	ug/L 50.0 0.00 102 75-125 1.97 30
Isopropylbenzene	54.4	ug/L 50.0 0.00 109 75-125 1.96 30
m+p-Xylenes	109	ug/L 100 0.00 109 75-130 0.894 30
Methylene chloride	52.0	ug/L 50.0 0.00 104 55-140 5.86 30
Methyl-t-butyl ether (MTBE)	50.0	ug/L 50.0 0.00 100 65-125 1.84 30

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
---------	--------	-----	----	----	-------	-------------	---------------	------	-------------	-----	-----------	-------

Batch BBJ0914 - SW5030B

Matrix Spike Dup (BBJ0914-MSD1)	Source: 18J0401-13		Prepared & Analyzed: 29-Oct-2018									
o-Xylene	53.7				ug/L	50.0	0.00	107	80-120	0.834	30	
Styrene	49.8				ug/L	50.0	0.00	99.6	65-135	3.63	30	
Tetrachloroethylene (PCE)	72.3				ug/L	50.0	0.00	145	45-150	3.22	30	
Toluene	50.6				ug/L	50.0	0.00	101	75-120	1.17	30	
trans-1,2-Dichloroethylene	46.4				ug/L	50.0	0.00	92.8	60-140	0.0863	30	
trans-1,3-Dichloropropene	50.0				ug/L	50.0	0.00	100	55-140	2.28	30	
Trichloroethylene	51.8				ug/L	50.0	0.00	104	70-125	3.84	30	
Trichlorofluoromethane	43.8				ug/L	50.0	0.00	87.6	60-145	0.228	30	
Vinyl chloride	44.6				ug/L	50.0	0.00	89.2	50-145	2.75	30	
<i>Surrogate:</i>	<i>49.8</i>				<i>ug/L</i>	<i>50.0</i>		<i>99.6</i>	<i>70-120</i>			
<i>1,2-Dichloroethane-d4 (Surr)</i>												
<i>Surrogate:</i>	<i>51.6</i>				<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>75-120</i>			
<i>4-Bromofluorobenzene (Surr)</i>												
<i>Surrogate:</i>	<i>50.0</i>				<i>ug/L</i>	<i>50.0</i>		<i>100</i>	<i>70-130</i>			
<i>Dibromofluoromethane (Surr)</i>												
<i>Surrogate: Toluene-d8 (Surr)</i>	<i>50.2</i>				<i>ug/L</i>	<i>50.0</i>		<i>100</i>	<i>70-130</i>			

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1850461

Sampling Company: POC: Neil Hentborne Address: Houston Ship Channel North of Morgan's Point Phone:		ERDC: Project Manager: Address: 696 Virginia Road Concord, MA 01742 Email: eric.montgomery@usace.army.mil Phone:		EL CEERD-EP-R Chery Montgomery 3909 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180 Phone: W. 978-318-8644 C. 781-530-8317		EL CEERD-EP-R Dan Farrer 3909 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180 Phone: W. 601-634-2118 M. 601-529-8042		Additional Notes: Equip blank kit, 25 VOA vials, 8 hdpe jars, 1/3/18 10L cubitainers.
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Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/ Furans, OC Pests, PAH/PCP, PCBs, SVOC	TPH high-level	TOC	Total Hg and Se	TSS	VOC	Cr III and VI	Sediment				
																			VOC (3.40 ml Clear VOA w/ NaHSO4)	VOC (1.40 ml Clear VOA w/ MeOH)	TPH		
1 HSCNew-NWP-02 SW	10/27/18	1002	3.5ft	W	14	02	X	X	X	X	X	X	X	X	X	X	X	X	X				
2 HSCNew-NWP-04 SW		1030	12.5ft	W	14	04	X	X	X	X	X	X	X	X	X	X	X	X	X				
3 HSCNew-NWP-06 SW		1125	5.1	W	14	06	X	X	X	X	X	X	X	X	X	X	X	X	X				
4 HSCNew-NWP-08 SW		1200	20.1	W	14	08	X	X	X	X	X	X	X	X	X	X	X	X	X				
5 HSCNew-NWP-10 SW		1230	16.0	W	14	10	X	X	X	X	X	X	X	X	X	X	X	X	X				
6 HSCNew-NWP-COB		0900	-	W	33	-	X	X	X	X	X	X	X	X	X	X	X	X	X				
7																							
8																							
9																							
10																							
11																							
12																							
13																							
14																							
15																							
Total																							

1. I have transferred sample containers ERDC. Samples have been properly labeled and refrigerated or re-organized.

Signature

Date

2. I accept these samples for transfer to ERDC.

Signature of ERDC Representative

Date

Temperature of Cooler

Neil Hentborne

10-23-18

49

includes 5 Sgalcobis
 " "
 " "
 " "

Sampling Company:	ERDC:	EL CEERD-EPR
POC: <u>Mel Hill</u>	Project Manager:	Cheryl Montgomery
Address:	Address:	896 Virginia Road Concord, MA 01742
Email:	Email:	cheryl.montgomery@usace.army.mil
Phone:	Phone:	W: 978-318-8644 C: 781-530-8317
		EL CEERD-EPR Dan Ferrar 3909 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180 dan.ferrar@usace.army.mil
		W: 601-634-2118 M: 601-529-8042
Additional Notes:		

Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/ Furans, OC Pests, PAH/PCP, PCBs, SVOC	TPH high-level	TOC	Total Hg and Se	TSS	VOC	Cr III and VI	Sediment		
																			VOC (3.40 ml Clear VOA w/ NaHSO4)	VOC (1.40 ml Clear VOA w/ MeOH)	TPH
1 HSC New - NMP - 015W	10-22-18	10:00	N/A	H2O	14	1	X	X	X	X	X	X	X	X	X	X	X	X			
2 HSC New - NMP - 03-SW	10-22-18	10:53			14	3	X	X	X	X	X	X	X	X	X	X	X	X			
3 HSC New - NMP - 05-SW	10-22-18	11:30			9	BW	X	X	X	X	X	X	X	X	X	X	X	X			
4 HSC New - NMP - 05-SW	10-22-18	12:00			14	5	X	X	X	X	X	X	X	X	X	X	X	X			
5 HSC New - NMP - 07-SW	10-22-18	12:40			14	7	X	X	X	X	X	X	X	X	X	X	X	X			
6 HSC New - NMP - 07-SW	10-22-18	13:10			14	9	X	X	X	X	X	X	X	X	X	X	X	X			
7 HSC New - NMP - 01-SW	10-22-18	13:40			14	11	X	X	X	X	X	X	X	X	X	X	X	X			
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
Total																					

X 5 gallon cubitainers

1. All samples must be properly labeled and kept on ice or refrigerated.

Signature

Date

2. I accept these samples for transfer to EROD.

Signature of EROD Representative

10-23-18

Date

49

Temperature of Cooler

[Handwritten Signature]

*Bulk sediment includes (3) - two gallon buckets

CHAIN OF CUSTODY RECORD										Page										
USACE ERDC Laboratories, 3809 Halls Ferry Road, Vicksburg, MS 39180					EL, CEERD-EP-R					EL, CEERD-EP-R										
Sampling Company:					Project Manager:					Additional Notes:										
POC:					Address:															
Houston Ship Channel North of Morgan's Point					Cheryl Montgomery															
Address:					696 Virginia Road					3809 Halls Ferry Road Bldg 6009										
Email:					concord, MA 01742					Vicksburg, MS 39180										
Phone:					cheryl.montgomery@usace.army.mil					denise.farrar@erdc.dren.mil										
Phone:					W: 978-318-8644					W: 601-634-2118										
Phone:					C: 761-530-8317					M: 601-529-8042										
Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/Furans, OC Pests, PAH/PCP, PCBs, SVOC	2.40 ml Clean VOA, pre-filtered, 48 hours Hold Time: 7 days	2.1L HDPE Cubitainer, non-filtered Hold Time: 48 hours	3.40 ml Clean VOA, pre-filtered, 48 hours Hold Time: 7 days	128 ml HDPE pre-filtered, 48 hours Hold Time: 24 HOURS	VOC (30 ml Clear VOA w/ NMSO4)	VOC (40 ml Clear VOA w/ MeOH)	Terra Core Kit Hold Time: 14 days	1.4 oz. clear glass jar, Hold Time: 14 days
1 HSCNew-NMP-06	10-4-18	0750	NA	Sed	8															
2 HSCNew-NMP-05	10-4-18	1215			8															
3 HSCNew-NMP-04	10-5-18	0940			8															
4 HSCNew-NMP-03	10-5-18	1430			8															
5 HSCNew-NMP-02	10-6-18	0920			8															
6 HSCNew-NMP-01	10-6-18	1220			8															
7 HSCNew-NMP-03-DUP	10-5-18	1710			8															
8 HSCNew-NMP-EGPB	10-6-18	7414		H2O	10/11															
9 HSCNew-NMP-02-SCDQD	10-6-18	0920		Sed	5															
10																				
11																				
12																				
13																				
14																				
15																				
Total																				

1. I hereby transfer the samples, containers to ERDC. Samples have been properly labeled and kept in ice or refrigerated.
 Date: 10-1-18
 Signature: [Signature]

2. I accept these samples for transfer to ERDC.
 Date: 10/4/18
 Signature: [Signature]
 Temperature of Cooler

ERDC SAMPLE RECEIPT CHECKLIST

Client: ERDC-Vicksburg (EL)			Work Order: 18J0401		
Project: Houston Ship Channel North of			Date/Time Received 10/9/18 10/23/18		
Shipping Company: N/A Morgan's Point					
Suspected Hazard Information	Yes	No	NA	Comments:	
Shipped as DOT Hazardous?		X			
Samples identified as Foreign Material?		X			
Sample Receipt Criteria	Yes	No	NA	Comments:	
1. Shipping containers received intact and sealed?	X				
2. Chain of Custody documents included with shipment?	X				
3. COC form is properly signed in relinquished/received sections?	X				
4. Samples requiring chemical preservation at proper pH?	X				
5. Samples requiring cold preservation within 0-5°C?	X			4.9°C	
6. Samples IDs on COC match IDs on containers?	X				
7. Date and time of COC match date and time on containers?	X				
8. Number of containers received match number indicated on COC?	X				
9. Samples received within holding time?	X				
10. Aqueous samples found to have visible solids?		X			
Additional Comments: received 18J0401-14 on 10/9/18 received remaining samples on 10/23/18					
Checklist preformed by: Kelli Hartman					
Time/Date Completed: 10/23/18					

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Data included from: W:\TransferIn\18J0401 TRANSFER 14 Dec 2018 1022.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1651.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1652.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1719.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1720.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1724.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1826.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1827.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 1912.mdb
			Data included from: W:\TransferIn\18J0401 TRANSFER 16 Dec 2018 2037.mdb

Analytical Reports: Sediment



**USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199**

22 May 2019

Cheryl Montgomery
ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg, MS 39180

RE: Houston Ship Channel-North of Morgan's Point

Enclosed are the results of analyses for samples received by the laboratory on 09-Oct-2018. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer than these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam
Database Manager



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
22-May-2019

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
HSCNew-NMP-01-SD	18J0402-01	Soil/Sediment	06-Oct-2018	09-Oct-2018
HSCNew-NMP-02-SD	18J0402-02	Soil/Sediment	06-Oct-2018	09-Oct-2018
HSCNew-NMP-03-SD	18J0402-03	Soil/Sediment	05-Oct-2018	09-Oct-2018
HSCNew-NMP-04-SD	18J0402-04	Soil/Sediment	05-Oct-2018	09-Oct-2018
HSCNew-NMP-05-SD	18J0402-05	Soil/Sediment	04-Oct-2018	09-Oct-2018
HSCNew-NMP-06-SD	18J0402-06	Soil/Sediment	04-Oct-2018	09-Oct-2018
HSCNew-NMP-07-SD	18J0402-07	Soil/Sediment	03-Oct-2018	09-Oct-2018
HSCNew-NMP-08-SD	18J0402-08	Soil/Sediment	03-Oct-2018	09-Oct-2018
HSCNew-NMP-09-SD	18J0402-09	Soil/Sediment	02-Oct-2018	09-Oct-2018
HSCNew-NMP-10-SD	18J0402-10	Soil/Sediment	02-Oct-2018	09-Oct-2018
HSCNew-NMP-11-SD	18J0402-11	Soil/Sediment	02-Oct-2018	09-Oct-2018
HSCNew-NMP-03-DUP	18J0402-12	Soil/Sediment	05-Oct-2018	09-Oct-2018

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Case Narrative



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No issues were experienced during the analysis of Work Order 18J0402 unless specified below.

SVOC/PAH/PCP- The RLs ranging from 933-2180 ug/kg exceeded the TDL of 5 ug/kg for benzidine for all samples. Benzidine was not detected in any of the samples. The RL ranging from 200-468 ug/kg exceeded the TDL of 100ug/kg for pentachlorophenol. However, the MDLs ranging from 59.9-98.7 ug/kg were below the TDL except for HSCNew-NMP-01-SD, which had a MDL of 140 ug/kg. PCP was not detected in any of the sample. Azobenzene was reported instead of 1,2-phenylhydrazine due to the degradation of 1,2-phenylhydrazine in the injection port of the GC/MS. The WG1167103-2/-3 LCS/LCSD recoveries/RPD, associated with all sediment samples, were outside of the acceptance criteria for benzoic acid (2%/6% and 95% RPD); however, it has been identified as a "difficult" analyte. The results of the associated samples are reported. The MS/MSD for aniline had low recoveries of 3 and 1% (Projects Limits=50-150%), respectively, as well as an elevated RPD of 60% (Project Limits=30%). The LCS/LCD for aniline had acceptable recoveries of 71 and 70%, respectively, as well as an acceptable RPD of 1%. Some of the SVOC analytes had slightly elevated RPDs in the MS/MSD ranging from 31-41% (Project Limits=30%). Some of the SVOC analytes had low recoveries in the MS/MSD ranging from 0-32% (Project Limits=30%). All of the SVOC analytes have acceptable recoveries and RPDs in the LCS/LCD. Some bias was suspected for the benzoic acid and aniline based on the quality control samples.

Pests- There were some elevated recoveries in the CCVs ranging from 116-126% (Project Limits=85-115%), however, several analytes were within DOD QSM 5.1 limits of 80-120%. The results of toxaphene for the ICV was not reportable. The ICV is a second source standard that did not match the pattern of the standard used for the calibration. SW846 states that some toxaphene components, particularly the more heavily chlorinated components, are subject to dechlorination reactions. As a result, standards from different vendors may exhibit differences, which could lead to possible false negative results or large differences in quantitative results. The LCS had low recoveries of 25.4 and 42.3% (Project Limits =50-150%) and an RPD of 50% (Project Limits 30%) for endrin aldehyde but that analyte had acceptable MS recoveries. The recovery of beta-BHC could not be determined in the matrix spikes due to an interfering peak but that analyte had acceptable recoveries in the LCSs (Project Limits=50-150%). The MSs had low recoveries of 22.6 and 22.7% (Project Limits=50-150%) for endosulfan I but that analyte had acceptable recoveries in the LCSs (Project Limit=50-150%). The SRM recoveries were within manufacturer's acceptance limits. No bias was observed for the pesticide results based on the quality control samples.

PCBs- The surrogate, 2,4,5,6 tetrachloro-m-xylene (TMX), had elevated recoveries of 119, 122, and 142% in the CCVs and PCB 8 had an elevated recovery of 118% in one of the CCVs. The recoveries of TMX were low in both the LCS and LSD at 14 and 10% (Project Limits=30-150%), respectively. The recoveries of PCBs 18, 44, and 52 could not be determined in the matrix spikes since the inherent analyte concentration in the samples were greater than the spiked concentrations; however, the LCSs for these analytes were within acceptable ranges (Project Limits=50-150%). PCB 28 had a low recovery of 47.7% in one of the matrix spikes but had acceptable recoveries in the other MS/MSD. The SRM recoveries were within manufacturer's acceptance limits. No bias was observed for the PCB congener results based on the quality control samples.

TPH- The RL of 50-100 mg/kg exceeded the TDL of 5 mg/kg for TPH by TCEQ (TNRRC) 1005. Due to a laboratory error, another aliquot of the extraction surrogate, 1-chlorooctane, was added to the LCS QG238699-2, instead of the spike mix. Consequently, the LCS had an elevated surrogate recoveries of 4.84-3730% (Laboratory Limits=70-130%) and very low recoveries of the hydrocarbons ranges. All of the associated samples were re-extracted within holding time, except for samples: HSCNew-NMP-10-SD, HSCNew-NMP-11-SD, and HSCNew-NMP-12-SD, which were extracted 1 day outside of holding time. The surrogate, 1-chlorooctane, had low recoveries ranging from 46.8-67.8% (Laboratory Limits=70-130%) in samples: HSCNew-NMP-01-SD, HSCNew-NMP-02-SD, HSCNew-NMP-03-SD, HSCNew-NMP-05-SD, HSCNew-NMP-07-SD, and HSCNew-NMP-08-SD. However, the second surrogate, o-terphenyl, had acceptable recoveries of 91.7-128% (Laboratory Limits=70-130%). No significant bias was observed for the TPH results.



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VOC- The laboratory control sample had an elevated recovery of 166% (Laboratory Limits=65-140%) for tetrachloroethylene (TCE). The matrix spike/matrix spike duplicate elevated recoveries of 156 and 146%, respectively (Laboratory Limits = 45-150%). TCE was not detected in any of the sediments; therefore, a positive bias was not suspected. The laboratory control sample had a slightly elevated recovery of 129% (Laboratory Limits=75-125%) for 1,1-dichloroethane. The analyte, 1,1-dichloroethane, was not detected in any of the sediments; therefore, a positive bias was not suspected.

TOC- The method blank had TOC concentrations of 0.00559 and 0.00725 mg/kg, which was slightly above the RL of 0.005%. The MS/MSD had recoveries ranging from 125-168% (Project Limits=75-125%). The MSD had elevated RPDs ranging from 21.5-26.5% (Project Limits=20%). These results suggest a positive bias.

Dioxins/Furans- The peak detected does not meet ratio criteria and has resulted in an elevated detection limit of 0.640 pg/g for 1,2,3,7,8,9-hexa CDF for sample HSCNew-NMP-04-SD. The retention time for the detected peak was > 3 seconds when compared to the expected retention time from the internal standard for the analysis of 1,2,3,7,8-penta CDF in HSCNew-NMP-04-SD. The peak detected does not meet ratio criteria and has resulted in an elevated detection limit of 1.96 pg/g for 1,2,3,6,7,8- hexa CDF in HSCNew-NMP-10-SD.

Metals- The MS/MSD had low recoveries for antimony of 55.3 and 54.4% (Project Limits=70-130%), respectively. Some negative bias was possibly observed for the results of antimony due to matrix interferences. The method blank had a concentration of 2.4 mg/kg for barium that was above the RL of 0.1 mg/kg; however, the concentration was <10% of the sample results, which was negligible according to the USEPA 6020 method criteria. One of the four CCVs had a slightly low recovery of 89.1 % (Project Limits=90-110%) for selenium. The duplicate had an elevated RPD of 46.1% (Project Limits=30%); however, the MS/MSD had an acceptable RPD of 27.2%. The method blank had a concentration of 0.192 mg/kg for silver that was slightly above the RL of 0.1 mg/kg. Two of the four CCVs had slightly low recoveries of 88.5 and 86.6% (Project Limits=85-115%). The duplicate had a slightly elevated RPD of 33.7% (Project Limits=30%) for silver. There could be a potential for positive bias for silver in the sediment samples. The standard reference material (SRM) had an elevated recovery of 173% (Project Limit=70-130%) for mercury. The SRM has an acceptable concentration of 31.3 mg/kg based on the certificate of analyses from NSI labs for the SQCI-001 which states the acceptable limits for mercury is between 12.3-35.5 mg/kg. Cr(VI) was not detected in any of the sediment samples, and both the matrix spike and matrix spike duplicate yielded a 0% recovery (Project Limits=50-150%), despite acceptable recoveries of 96.5-97% for the two LCSs. USEPA method 3060, alkaline extraction for Cr(VI), requires a post digestion spike, which was also performed, with low recovery of approximately 23%. Section 8.5.1 of method 3060 describes sediment samples that are incompatible with Cr(VI) and where no native Cr(VI) can be present. The Eh of the sediments in question was measured, with all values measured ranging from -22 to 58 mV. Section 8.5.1 and Figure 2 in method 3060 indicate any sample with an Eh less than approximately 300mV (lowest possible Eh at any relevant pH) will be incompatible with Cr(VI). Therefore, since all samples measured had Eh values substantially below this value, no Cr(VI) is present in any sample and the data cannot be qualified or rejected.



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Notes and Definitions

- A1065 Recovery outside method acceptance criteria due to matrix effects
From 5X dilution.
- CCV-L The CCV was below acceptable limits leading to negative bias in the results for this analyte.
- CCV-HA The CCV was above acceptable limits meaning that the instrument became more sensitive during the analysis. Since the result was non-detect for all analytes, the batch was accepted based on EPA SW-846 criteria.
- CCV-H The CCV was above acceptable limits leading to positive bias in the results for this analyte.
- Bb Indicates the analyte was detected in the laboratory method blank analyzed concurrently with the sample.
- Ba Blank contamination. The recorded result is associated with a contaminated blank.
- B Analyte is found in the associated blank as well as in the sample.
- A2949 Result from 5X dilution
- A2946 EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
- * [Undefined]
- A1369 From 5X dilution.
- Ja Estimated value. This analyte was detected in the sample at a concentration less than the laboratory Limit of Quantitation, but above the Method Detection Limit.
- A1 Exceedence
- A0797 Recovery outside method acceptance criteria due to matrix effects
- A0553 RT > 3 seconds - PCDD/DF analysis - Peak detected exceeds expected retention time (from internal standard) by greater than 3 seconds.
- A0145 Recovery outside method acceptance criteria due to matrix effects attributed possibly to sample heterogeneity
- *a Duplicate analysis not within control limits
- * Compound recovery or percent RPD was outside of quality control limits.
- U [Undefined]
- P [Undefined]
- A0550 [Undefined]
- A1626 From 20X dilution.
- Q The quality control sample exceeds the associated acceptance criteria.
- Z-02 Analyte could not be quantitated due to interfering peak/s.
- Uc Undetected at the limit of quantitation.
- Ub Compound was analyzed for but was not detected (non-detect)



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Notes and Definitions

- Ua Analyte included in the analysis, but not detected at or above the Reporting Limit
- U Analyte included in the analysis, but not detected
- S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate/s.
- RPD-06 RPD exceeds acceptance limit.
- QM-11 The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to inherent analyte concentration greater than the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- E Reported concentration exceeds the calibration range of the instrument for that specific analysis for organics. Reported value is estimated due to the presence of an interference for inorganics
- Qa Value is outside of acceptance limits.
- J Detected but below the Reporting Limit (Limit of Quantitation); therefore, result is an estimated concentration.
- P Duplicate analysis does not meet the acceptance criteria for precision
- N Spiked sample recovery not within control limits
- MB-02 The method blank contains the analyte at a concentration above the MRL due to memory interferences.
- M2 Sample was diluted due to matrix interference.
- M Matrix spike recovery is outside established acceptance limits
- L LCS recovery is outside of established acceptance limits
- Jc Estimated value less than RL
- Jb Estimated concentration between the EDL and RDL
- Z-03 See case narrative.
- Q-CCV The percent recovery is outside of the project limits but within DOD QSM limits.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference



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HSCNew-NMP-01-SD
18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	947.61	71.610		150.62	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	49.9	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	26.0	0.0385	0.0577	0.135	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0220	0.0110	0.0183	0.0366	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.200	0.00028	0.00243	0.00486	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	90.3	0.216	0.985	3.94	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	4.11	0.0084	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	129	0.0394	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.992	0.0260	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.182	0.0047	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	26.0	0.0275	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	13.6	0.0151	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	25.2	0.0041	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	15.1	0.0119	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	3.90	0.0394	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.232	0.0394	0.0394	0.0985	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	50.1	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	0.587	0.039	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	0.297	0.040	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.032	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.031	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.046	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	0.045	0.041	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	J
beta-BHC	ND	0.077	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.044	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.045	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.030	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.040	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.035	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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HSCNew-NMP-01-SD
18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.039	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.034	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.042	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.036	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.030	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.081	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.034	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.040	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.90	3.48	11.6	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.044	0.093	0.290	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.41		44.0 %	30-150		12-Oct-2018	20-Nov-2018	EPA 8081A	
Surrogate: PCB 198	5.34		97.4 %	30-150		12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	123	0.361	0.468	0.935	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	0.515	0.060	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	ND	0.029	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 118	0.173	0.042	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 126	0.338	0.057	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 128	ND	0.042	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	0.332	0.027	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 153	0.524	0.070	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.032	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	ND	0.028	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 18	0.641	0.058	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	0.148	0.051	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 187	0.088	0.026	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 28	1.10	0.056	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	0.734	0.067	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	1.08	0.062	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	0.611	0.070	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.079	0.065	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 8	0.718	0.055	0.151	0.464	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	3.4		62.5 %	30-150		12-Oct-2018	19-Nov-2018	EPA 8082	
Surrogate: PCB 198	3.5		64.0 %	30-150		12-Oct-2018	19-Nov-2018	EPA 8082	

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HSCNew-NMP-01-SD
18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	7.9	0.9	3.6	9.0	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	J
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	169	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	132	0.14		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	20.3	0.117		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	2.66	0.116		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	1.15	0.143		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	3.84	0.137		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDD	2.64	0.145		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	1.54	0.147		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	4.89	0.146		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.142		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	0.662	0.146		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	1.94	0.141		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	0.719	0.132		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	1.17	0.128		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	18	0.147		0.995	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	46.2	0.142		0.995	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Octa CDD	3080	0.126		9.95	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Octa CDF	513	0.102		9.95	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Hepta CDD	451	0.14		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Hepta CDF	46.5	0.117		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD
18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	95.4	0.146		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Hexa CDF	19.9	0.14		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Penta CDD	16.8	0.146		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Penta CDF	12.8	0.134		4.98	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Tetra CDD	19.1	0.147		0.995	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Tetra CDF	74	0.142		0.995	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	18.8		94 %	35-197		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	78		78 %	23-140		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	79		79 %	28-143		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	88		88 %	32-141		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	83		83 %	26-152		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	75		75 %	26-138		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	97		97 %	28-130		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	83		83 %	26-123		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	88		88 %	25-181		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	79		79 %	24-185		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	79		79 %	29-147		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	79		79 %	28-136		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	83		83 %	21-178		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	19.4		97 %	25-164		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	8.6		43 %	24-169		22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	206		103 %	17-157		22-Oct-2018	07-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	49.5	0.12		1	pg/g	22-Oct-2018	08-Nov-2018	EPA M8290A /M1613	
Surrogate: C13-2378 TetraCDF	43		43 %	40-135		22-Oct-2018	08-Nov-2018	EPA M8290A /M1613	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD
18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.47		1.47	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.584	0.343		0.343	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.465	0.343		0.343	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	ND	0.343		0.343	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	Ua
Volatile Solids	35800	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	4.82		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	17		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	15.9		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	16.2		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	2190		<i>70 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	6.97		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	8.38		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	12.8		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	133		468	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	5.46		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	20.1		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	5.43		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	5.15		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	2100		<i>67 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	1580		<i>51 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	8.41		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	13.3		156	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	150		468	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	7.33		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	11.3		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	7.52		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	429		1300	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	5.76		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	506		2180	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	7.85		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	14.3		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	13		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	99.9	20.4		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	15.8		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD
18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	7.97		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	6.08		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	7.43		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	32.3		156	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	7.6		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	32	15.1		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
Hexachlorocyclopentadiene	ND	85.5		468	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	13		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	8.55		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	8.13		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	2020		<i>65 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	19.7		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	13.3		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	5.48		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	140		468	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	7.41		78	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1940		<i>62 %</i>		<i>15-115</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	2580		<i>83 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	648		<i>59 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	9.22	3.44		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	12.1	3.47		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	19.6	6.06		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	44.9	4.36		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	62.8	2.57		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	60.6	4.24		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	951		<i>86 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	63.9	4.86		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	108	5.7		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	46.4	2.54		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	53.1	3.22		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	8.19	5.25		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Fluoranthene	126	4.08		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	10.2	5.24		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	58.1	2.52		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD

18J0402-01 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	8.9	3.47		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	44.6	5.7		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	211	4.89		8.86	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	1020		92 %		30-130	11-Oct-2018	01-Nov-2018	8270D	



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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD
18J0402-01RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.271	0.0199	0.0398	0.0996	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.233	0.0084	0.0398	0.0996	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.346		0.691	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	ND	0.0864		0.0864	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Benzene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD
18J0402-01RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00346		0.00346	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0432		0.0432	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.439			102 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.395			91.4 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.460			106 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.435			101 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-SD
18J0402-01RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	30	11.		56.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
>C28-C35	19	11.		56.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: 1-Chlorooctane</i>	46.8			<i>46.8 %</i>	<i>70-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	<i>*</i>
C6-C12	19	11.		56.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	62	21.		110	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: O-TERPHENYL</i>	116.			<i>116. %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	3553.5	47.620		100.13	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	65.1	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	22.7	0.0393	0.0591	0.139	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0198	0.0119	0.0198	0.0396	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.397	0.000719	0.00624	0.0125	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	58.8	0.215	0.983	3.93	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	2.59	0.0084	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	108	0.0393	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.749	0.0259	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.300	0.0047	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	22.7	0.0274	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	10.9	0.0151	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	31.5	0.0041	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	13.7	0.0119	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	3.62	0.0393	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.170	0.0393	0.0393	0.0983	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	34.9	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	9.83	0.031	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	3.39	0.032	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.025	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.025	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.037	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.033	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.062	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.036	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.036	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.024	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.032	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.028	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.032	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.027	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.034	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	0.857	0.029	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
gamma-Chlordane	2.15	0.024	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Heptachlor	ND	0.066	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.027	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	3.61	0.032	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Toxaphene	ND	2.34	2.81	9.36	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.036	0.075	0.234	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	3.28		74.1 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	7.04		159 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	Qa

Nutrients

Ammonia as N	114	0.393	0.508	1.02	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	5.07	0.049	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	1.71	0.023	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	2.83	0.034	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.046	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.034	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	4.55	0.022	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	4.81	0.056	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.026	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	1.35	0.022	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	5.52	0.047	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	1.47	0.041	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	0.990	0.021	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	2.71	0.045	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	5.13	0.054	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	6.50	0.050	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	4.81	0.056	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.990	0.052	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	ND	0.044	0.122	0.374	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	3.0		68.7 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	3.6		82.1 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	49.2	0.7	1.8	7.2	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	567	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	61.1	0.119		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	18.4	0.131		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	2.27	0.13		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	0.497	0.125		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	6.21	0.108		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDD	2.42	0.127		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	1.66	0.116		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	1.94	0.128		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.113		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	1.6	0.135		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	4.37	0.154		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	0.624	0.105		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	3.82	0.141		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	130	0.148		0.999	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	306	0.142		0.999	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Octa CDD	1020	0.114		9.99	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Octa CDF	769	0.139		9.99	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Hepta CDD	165	0.119		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Hepta CDF	43.9	0.131		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	31.9	0.128		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Hexa CDF	23.6	0.11		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Penta CDD	7.67	0.135		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Penta CDF	25.9	0.147		5	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Tetra CDD	137	0.148		0.999	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Total Tetra CDF	582	0.142		0.999	pg/g	22-Oct-2018	07-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	20		100 %		35-197	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	84		84 %		23-140	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	82		82 %		28-143	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	101		101 %		32-141	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	93		93 %		26-152	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	82		82 %		26-138	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	104		104 %		28-130	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	92		92 %		26-123	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	98		98 %		25-181	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	84		84 %		24-185	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	87		87 %		29-147	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	88		88 %		28-136	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	88		88 %		21-178	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	21.2		106 %		25-164	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	8.6		43 %		24-169	22-Oct-2018	07-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	206		103 %		17-157	22-Oct-2018	07-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	304	0.63		5	pg/g	22-Oct-2018	12-Nov-2018	EPA M8290A / M1613	A1369
Surrogate: C13-2378 TetraCDF	36		36 %		40-135	22-Oct-2018	12-Nov-2018	EPA M8290A / M1613	A1065, A1

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.19		1.19	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.313	0.192		0.192	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.298	0.192		0.192	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.266	0.192		0.192	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	29600	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	2.96		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	10.4		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	35.7	9.76		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
1,4-Dichlorobenzene	ND	9.96		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1140		<i>60 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.28		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.14		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	7.89		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	81.6		287	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.35		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	12.4		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.33		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.16		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1380		<i>72 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	924		<i>48 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.16		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	8.17		95.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	91.9		287	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.5		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	6.91		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.61		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	263		795	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.53		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	310		1340	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.82		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	8.79		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	7.98		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	229	12.5		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	9.67		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	4.89		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.73		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4.56		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	19.8		95.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.66		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	11.3	9.29		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
Hexachlorocyclopentadiene	ND	52.5		287	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	8		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.25		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	4.99		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1230		<i>64 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	12.1		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	8.15		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.36		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	86.1		287	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.55		47.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1120		<i>59 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1480		<i>77 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	456		<i>62 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	66	2.29		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	88.6	2.31		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	56	4.03		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	82.3	2.9		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	159	1.71		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	76	2.82		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	635		<i>86 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	132	3.23		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	526	3.79		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	45	1.69		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	76.1	2.14		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	4.62	3.49		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Fluoranthene	543	2.71		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	51.4	3.48		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	171	1.68		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	77.5	2.31		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	239	3.79		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	1160	3.25		5.89	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	667			91 %	30-130	11-Oct-2018	01-Nov-2018	8270D	



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HSCNew-NMP-02-SD
18J0402-02RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.188	0.0198	0.0398	0.0995	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.138	0.0084	0.0398	0.0995	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	0.00792	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
1,4-Dichlorobenzene	ND	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.286		0.571	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.0794	0.0714		0.0714	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	0.0111	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Bromodichloromethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	0.0146	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Isopropylbenzene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	0.00642	0.00286		0.00286	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
trans-1,2-Dichloroethylene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0357		0.0357	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.371			104 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.338			94.7 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.382			107 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.356			99.8 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-02-SD
18J0402-02RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	250	9.0		47.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	46	9.0		47.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: 1-Chlorooctane</i>	67.8			<i>67.8 %</i>	<i>70-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	*
C6-C12	41	9.2		47.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	340	18.		93.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
<i>Surrogate: O-TERPHENYL</i>	111.			<i>111. %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	

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HSCNew-NMP-03-SD
18J0402-03 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	107.85	38.350		80.580	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	81.3	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	10.4	0.0378	0.0570	0.133	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0223	0.0111	0.0186	0.0371	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.0122	0.000282	0.00245	0.00489	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	20.4	0.210	0.961	3.84	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	2.08	0.0082	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	65.9	0.0384	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.414	0.0253	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.0579	0.0046	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Chromium-52 [1]	10.4	0.0268	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	4.63	0.0147	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	8.43	0.0040	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	7.92	0.0116	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	2.75	0.0384	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.0995	0.0384	0.0384	0.0961	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	18.7	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	0.814	0.026	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	0.404	0.027	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	0.082	0.021	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	J
Aldrin	ND	0.021	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.031	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.027	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.052	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.030	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.030	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.020	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.026	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.024	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SD
18J0402-03 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.026	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.023	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.028	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.024	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	0.097	0.020	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	J
Heptachlor	ND	0.054	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.023	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.027	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	1.94	2.33	7.76	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.030	0.062	0.194	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.10		57.1 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	3.51		95.7 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	13.3	0.356	0.460	0.920	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	0.175	0.040	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 105	0.051	0.019	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 118	0.096	0.028	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 126	ND	0.038	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.028	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	0.128	0.018	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 153	0.219	0.047	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 169	ND	0.022	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	ND	0.019	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 18	ND	0.039	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 180	0.056	0.034	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 187	0.034	0.017	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 28	0.301	0.037	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 44	0.153	0.045	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 52	0.237	0.041	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 66	0.158	0.047	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 77	ND	0.043	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 8	ND	0.036	0.101	0.311	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.1		56.2 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	3.3		91.1 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SD
18J0402-03 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	2.7	0.6	1.8	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	J
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	27.4	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	5.53	0.149		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	0.846	0.148		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8,9-Hepta CDF	ND	0.147		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,4,7,8-Hexa CDD	ND	0.142		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,4,7,8-Hexa CDF	0.339	0.167		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDD	0.335	0.144		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	ND	0.179		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8,9-Hexa CDD	0.406	0.145		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb, A0550
1,2,3,7,8,9-Hexa CDF	ND	0.174		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	ND	0.153		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDF	ND	0.195		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
2,3,4,6,7,8-Hexa CDF	ND	0.162		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
2,3,4,7,8-Penta CDF	0.193	0.178		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	2.08	0.129		0.997	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	4.58	0.148		0.997	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDD	114	0.141		9.97	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDF	6.1	0.119		9.97	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Hepta CDD	16.8	0.149		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDF	1.8	0.148		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb

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Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SD
18J0402-03 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	3.95	0.145		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Hexa CDF	0.923	0.17		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Penta CDD	0.253	0.153		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	0.462	0.186		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Tetra CDD	2.08	0.129		0.997	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDF	7.48	0.148		0.997	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	11.4		57 %	35-197		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	58		58 %	23-140		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	59		59 %	28-143		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	63		63 %	32-141		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	63		63 %	26-152		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	55		55 %	26-138		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	77		77 %	28-130		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	67		67 %	26-123		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	73		73 %	25-181		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	61		61 %	24-185		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	61		61 %	29-147		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	63		63 %	28-136		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	69		69 %	21-178		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	12.6		63 %	25-164		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	9.8		49 %	24-169		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	128		64 %	17-157		22-Oct-2018	08-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	5.86	0.1		1	pg/g	22-Oct-2018	09-Nov-2018	EPA M8290A /M1613	
Surrogate: C13-2378 TetraCDF	55		55 %	40-135		22-Oct-2018	09-Nov-2018	EPA M8290A /M1613	

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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.10		1.10	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
Volatile Solids	10600	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	2.57		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	9.07		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	8.49		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	8.66		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	995		<i>60 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	3.72		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	4.47		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	6.86		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	70.9		250	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	2.91		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	10.7		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	2.9		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	2.75		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	990		<i>59 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	772		<i>46 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	4.49		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	7.1		83.2	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	79.9		250	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	3.91		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	6.01		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.01		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	229		691	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.07		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	270		1160	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.19		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	7.64		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	6.94		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	22.4	10.9		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
Butylbenzylphthalate	ND	8.41		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Diethylphthalate	ND	4.25		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.25		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	3.96		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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Alpha

Semivolatile Organics by GC-MS

Di-n-octylphthalate	ND	17.2		83.2	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.05		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	8.07		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	45.6		250	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	6.96		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	4.56		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	4.34		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	966		58 %	30-130		11-Oct-2018	19-Oct-2018	8270D	
N-Nitrosodimethylamine	ND	10.5		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	7.08		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	2.92		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	74.8		250	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	3.95		41.6	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	946		57 %	15-115		11-Oct-2018	19-Oct-2018	8270D	
<i>Surrogate: Terphenyl-d14</i>	1250		75 %	30-130		11-Oct-2018	19-Oct-2018	8270D	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	389		66 %	30-130		11-Oct-2018	01-Nov-2018	8270D	
Acenaphthene	ND	1.84		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Ub
Acenaphthylene	2.2	1.86		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Anthracene	ND	3.24		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Ub
Benz(a)anthracene	8.03	2.33		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	8.9	1.38		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	6.71	2.27		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	523		88 %	30-130		11-Oct-2018	01-Nov-2018	8270D	
Benzo(e)pyrene	6.84	2.6		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	6.98	3.06		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	5.21	1.36		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	7.02	1.72		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	ND	2.81		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Ub
Fluoranthene	13.6	2.19		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	ND	2.8		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Ub
Indeno(1,2,3-cd)pyrene	7.3	1.35		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Naphthalene	2.14	1.86		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Phenanthrene	4.64	3.06		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Pyrene	18.8	2.62		4.74	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL) ERDC, 3909 Halls Ferry Road Vicksburg MS, 39180	Project: Houston Ship Channel-North of Morgan's Point Project Manager: Cheryl Montgomery	Reported: 22-May-2019
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HSCNew-NMP-03-SD
18J0402-03 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

<i>Surrogate: Pyrene-d10</i>	527		89 %	30-130		11-Oct-2018	01-Nov-2018	8270D	
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SD
18J0402-03RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.104	0.0169	0.0339	0.0848	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.0485	0.0071	0.0339	0.0848	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	J, B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.236		0.472	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	ND	0.0591		0.0591	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Benzene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SD
18J0402-03RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00236		0.00236	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0295		0.0295	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.294			99.7 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.272			92.3 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.312			106 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.298			101 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-SD
18J0402-03RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

TOC (Max)	0.236	0.0848		0.0848	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.150	0.0848		0.0848	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.117	0.0848		0.0848	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	

TNRCC 1005

>C12-C28	8.3	5.8		30.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
>C28-C35	11	5.8		30.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: 1-Chlorooctane</i>	48.9			<i>48.9 %</i>	<i>70-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	<i>*</i>
C6-C12	7.8	6.0		30.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	24	12.		61.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: O-TERPHENYL</i>	91.7			<i>91.7 %</i>	<i>70-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	



USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	8703.9	66.470		135.66	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	54.9	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	65.5	0.0396	0.0596	0.139	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0197	0.0118	0.0197	0.0395	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.413	0.00069	0.00599	0.0120	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	237	0.219	0.998	3.99	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	6.22	0.0085	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	263	0.0399	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	1.14	0.0263	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	2.07	0.0048	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	65.5	0.0278	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	40.1	0.0153	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	80.6	0.0042	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	25.7	0.0121	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	4.68	0.0399	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.336	0.0399	0.0399	0.0998	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	45.1	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	10.0	0.035	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	9.19	0.036	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	9.27	0.029	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Aldrin	ND	0.028	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.042	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.037	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.070	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.040	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.040	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.027	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.036	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.032	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.036	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.031	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.038	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.033	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.027	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.074	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.030	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.036	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.63	3.15	10.5	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.040	0.084	0.263	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	6.20			125 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	7.00			141 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	139	0.341	0.442	0.884	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	7.90	0.055	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	1.54	0.026	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	4.69	0.038	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.052	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.038	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	4.91	0.024	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	6.34	0.063	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.029	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	2.54	0.025	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	6.29	0.053	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	2.36	0.046	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	1.74	0.023	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	12.6	0.050	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	5.92	0.061	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	7.57	0.056	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	7.57	0.063	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	1.08	0.059	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	ND	0.049	0.137	0.420	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.3			46.6 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	3.2			64.6 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	73.8	0.8	1.8	7.2	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	1130	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	473	0.177		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	124	0.33		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	11.4	0.328		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8-Hexa CDD	2.07	0.145		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	46.1	0.137		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDD	17.2	0.147		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDF	10.9	0.147		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,7,8,9-Hexa CDD	13.6	0.149		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,7,8,9-Hexa CDF	ND	0.64		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	A2946, U
1,2,3,7,8-Penta CDD	12.1	0.114		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,7,8-Penta CDF	32.2	0.171		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,4,6,7,8-Hexa CDF	3.52	0.132		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	26.3	0.155		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDD	1070	0.938		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	A2949
2,3,7,8-Tetra CDF	2320	0.181		0.998	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDD	5350	5.28		49.9	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	A2949
Octa CDF	1540	0.223		9.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDD	1100	0.177		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDF	343	0.329		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	206	0.149		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hexa CDF	175	0.139		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDD	36.1	0.114		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDF	157	0.163		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDD	1180	0.938		4.99	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDF	4360	0.181		0.998	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	18.8		94 %	35-197		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	70		70 %	23-140		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	59		59 %	28-143		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	61		61 %	32-141		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	84		84 %	26-152		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	72		72 %	26-138		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	88		88 %	28-130		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	76		76 %	26-123		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	110		110 %	25-181		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	87		87 %	24-185		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	76		76 %	29-147		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	62		62 %	28-136		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	104		104 %	21-178		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	16.4		82 %	25-164		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	15.8		79 %	24-169		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	94		47 %	17-157		22-Oct-2018	12-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	2620	2.4		20	pg/g	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	A1626
Surrogate: C13-2378 TetraCDF	87		87 %	40-135		11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	A1626

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.60		1.60	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.556	0.255		0.255	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.538	0.255		0.255	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.497	0.255		0.255	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	62600	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	3.36		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	11.8		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	11.1		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	11.3		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1220		<i>56 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.86		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.84		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	8.96		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	92.6		326	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.81		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	14		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.78		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.59		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	2010		<i>93 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	793		<i>36 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.86		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	9.28		109	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	104		326	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	5.11		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	7.85		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	5.24		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	299		903	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	4.01		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	352		1520	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	5.47		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	9.98		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	9.07		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	2240	14.2		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	11		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
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 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	5.56		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	4.24		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	5.18		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	22.5		109	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	5.3		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	10.5		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	59.6		326	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	9.09		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.96		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	5.66		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1450		<i>67 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	13.7		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	9.25		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.82		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	97.8		326	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	5.16		54.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1170		<i>54 %</i>		<i>15-115</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1690		<i>78 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	550		<i>68 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	311	2.51		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	91.9	2.53		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	162	4.42		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	745	3.18		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	539	1.87		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	471	3.1		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	652		<i>81 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	670	3.55		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	510	4.16		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	238	1.85		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	651	2.34		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	153	3.83		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1240	2.98		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	200	3.82		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	246	1.84		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD

18J0402-04 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	108	2.53		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	888	4.16		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	1550	3.57		6.46	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
<i>Surrogate: Pyrene-d10</i>	649		80 %		30-130	11-Oct-2018	01-Nov-2018	8270D	



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HSCNew-NMP-04-SD
18J0402-04RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.421	0.0188	0.0377	0.0942	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.699	0.0079	0.0377	0.0942	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	0.0154	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
1,4-Dichlorobenzene	ND	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.366		0.733	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.255	0.0916		0.0916	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	0.0474	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Bromodichloromethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-SD
18J0402-04RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	0.00431	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Isopropylbenzene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	0.0465	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Methyl acetate	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00366		0.00366	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0458		0.0458	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.485			106 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.471			103 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.485			106 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.485			106 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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**USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199**

ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
22-May-2019

Project Manager: Cheryl Montgomery

**HSCNew-NMP-04-SD
18J0402-04RE1 (Soil/Sediment)**

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	870	7.8		40.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	140	7.8		40.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
Surrogate: 1-Chlorooctane	95.1		95.1 %		70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C12	94	8.0		40.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C35	1100	15.		81.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
Surrogate: O-TERPHENYL	92.9		92.9 %		70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
PAHs by GC/MS SIM									
Surrogate: 2-Methylnaphthalene-d10	537		66 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Surrogate: Benzo(b)fluoranthene-d12	679		84 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	1480	17.8		32.3	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Surrogate: Pyrene-d10	671		83 %		30-130	11-Oct-2018	01-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	2632.1	50.710		106.59	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	65.5	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	28.4	0.0360	0.0541	0.126	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0144	0.0108	0.0180	0.0360	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.0818	0.000273	0.00237	0.00475	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	98.7	0.198	0.903	3.61	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	3.86	0.0077	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	137	0.0361	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.779	0.0238	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.563	0.0043	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	28.4	0.0252	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	19.1	0.0138	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	31.5	0.0038	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	13.9	0.0109	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	3.30	0.0361	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.173	0.0361	0.0361	0.0903	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	34.5	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	2.36	0.030	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	5.05	0.031	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	2.62	0.024	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Aldrin	ND	0.024	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.036	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.031	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.060	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.034	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.034	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.023	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.031	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.027	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.030	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.026	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.032	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	0.808	0.028	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
gamma-Chlordane	ND	0.023	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.063	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.026	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.031	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.24	2.69	8.96	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.034	0.072	0.224	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	5.41			128 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	5.43			128 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	117	0.379	0.491	0.982	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	2.08	0.047	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.408	0.022	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	1.34	0.032	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.044	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.032	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	2.14	0.021	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	2.82	0.054	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.025	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	0.869	0.021	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	2.15	0.045	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	1.25	0.039	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	ND	0.020	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 28	3.27	0.043	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	1.84	0.052	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	2.37	0.047	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	2.11	0.054	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.521	0.050	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	ND	0.042	0.116	0.358	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.5			58.3 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	3.0			71.0 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	24.1	0.7	1.8	7.2	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	486	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	157	0.157		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	30.9	0.133		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	3.33	0.132		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	1.02	0.126		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	14.9	0.182		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDD	3.89	0.128		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	4.36	0.196		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	3.34	0.129		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	0.348	0.189		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDD	1.27	0.169		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	7.49	0.145		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,4,6,7,8-Hexa CDF	1.05	0.176		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	3.9	0.132		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	76.4	0.142		0.978	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	214	0.191		0.978	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDD	2330	0.38		9.78	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDF	165	0.323		9.78	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDD	400	0.157		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDF	92.1	0.132		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	44.7	0.129		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hexa CDF	48.6	0.185		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDD	4.22	0.169		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	34	0.138		4.89	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDD	86.9	0.142		0.978	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDF	396	0.191		0.978	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	19.6		98 %	35-197		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	73		73 %	23-140		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	74		74 %	28-143		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	82		82 %	32-141		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	85		85 %	26-152		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	76		76 %	26-138		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	92		92 %	28-130		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	83		83 %	26-123		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	96		96 %	25-181		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	84		84 %	24-185		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	82		82 %	29-147		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	79		79 %	28-136		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	94		94 %	21-178		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	18		90 %	25-164		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	16.6		83 %	24-169		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	150		75 %	17-157		22-Oct-2018	12-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	230	0.89		5	pg/g	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	A1369
Surrogate: C13-2378 TetraCDF	80		80 %	40-135		11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	A1369

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.44		1.44	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.406	0.126		0.126	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.393	0.126		0.126	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.361	0.126		0.126	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	39300	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	3.39		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	12		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	11.2		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	11.4		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1620		<i>74 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.91		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.9		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	9.05		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	93.6		329	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.84		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	14.2		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.82		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.62		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1560		<i>71 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	923		<i>42 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.92		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	9.37		110	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	105		329	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	5.16		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	7.93		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	5.29		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	302		912	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	4.05		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	356		1540	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	5.52		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	10.1		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	9.16		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	1020	14.4		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	11.1		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	5.61		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	4.28		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	5.23		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	22.7		110	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	5.35		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	10.6		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	60.2		329	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	9.18		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	6.02		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	5.72		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1380			<i>63 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	13.8		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	9.35		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.85		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	98.7		329	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	5.22		54.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1210			<i>55 %</i>	<i>15-115</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1720			<i>78 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	472			<i>60 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	34.9	2.44		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	22.9	2.46		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	35	4.29		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	201	3.08		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	166	1.82		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	230	3		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	656			<i>84 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	227	3.44		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	180	4.04		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	108	1.8		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	210	2.28		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	40.7	3.72		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	307	2.89		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	49.1	3.7		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	136	1.79		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	93.5	2.46		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	213	4.04		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	378	3.46		6.27	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	662		85 %		30-130	11-Oct-2018	01-Nov-2018	8270D	



USACE ERDC-EP-C
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.282	0.0180	0.0362	0.0905	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.399	0.0076	0.0362	0.0905	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.253		0.506	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.125	0.0632		0.0632	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00253		0.00253	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0316		0.0316	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.322			102 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.308			97.4 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.333			105 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.318			101 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-SD
18J0402-05RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	7.3	5.0		26.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
>C28-C35	12	5.0		26.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
Surrogate: 1-Chlorooctane	61.0		61.0 %		70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	*
C6-C12	7.3	5.1		26.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	24	9.8		52.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
Surrogate: O-TERPHENYL	106.		106. %		30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	4783.3	43.490		91.460	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	67.5	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	31.8	0.0398	0.0599	0.140	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0199	0.0119	0.0199	0.0397	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.124	0.00028	0.00243	0.00485	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	122	0.219	1.00	4.00	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	3.56	0.0086	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	130	0.0400	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.638	0.0264	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.947	0.0048	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	31.8	0.0279	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	23.4	0.0153	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	47.8	0.0042	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	14.5	0.0121	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	3.41	0.0400	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.153	0.0400	0.0400	0.100	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	32.6	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	2.45	0.028	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	8.94	0.029	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.023	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.023	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.033	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	1.90	0.030	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
beta-BHC	ND	0.056	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.032	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.032	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.022	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.029	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.026	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.028	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.025	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.030	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	0.419	0.026	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
gamma-Chlordane	ND	0.022	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.059	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.024	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.029	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.10	2.52	8.41	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	1.37	0.032	0.067	0.210	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	3.72		93.6 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	5.65		142 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	149	0.345	0.447	0.894	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	5.67	0.044	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.982	0.021	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	3.25	0.030	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.041	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.030	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	5.46	0.019	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	6.87	0.050	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.024	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	2.00	0.020	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	3.13	0.042	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	2.95	0.037	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	1.46	0.018	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	4.43	0.040	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	3.96	0.049	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	3.33	0.045	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	2.72	0.050	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.503	0.047	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	ND	0.040	0.109	0.336	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.3		57.5 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	2.8		71.7 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	47.4	0.6	1.8	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	235	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	286	0.143		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	45	0.168		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	3.64	0.167		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	1.32	0.16		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	5.18	0.159		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDD	6.9	0.163		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDF	2.23	0.171		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	4.36	0.164		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.165		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	1	0.152		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	1.93	0.125		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	1.26	0.154		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	1.63	0.113		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	19.1	0.139		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	58.4	0.135		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDD	3660	0.22		9.96	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDF	180	0.2		9.96	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDD	713	0.143		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDF	164	0.168		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	61.5	0.164		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hexa CDF	60	0.162		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDD	4.06	0.152		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	27.9	0.119		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDD	25.7	0.139		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDF	118	0.135		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	19.2			96 %	35-197	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-1234678 HeptaCDD</i>	80			80 %	23-140	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-1234678 HeptaCDF</i>	81			81 %	28-143	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123478 HexaCDD</i>	85			85 %	32-141	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123478 HexaCDF</i>	89			89 %	26-152	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-1234789 HeptaCDF</i>	83			83 %	26-138	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123678 HexaCDD</i>	106			106 %	28-130	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123678 HexaCDF</i>	91			91 %	26-123	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-12378 PentaCDD</i>	106			106 %	25-181	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-12378 PentaCDF</i>	93			93 %	24-185	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123789 HexaCDF</i>	91			91 %	29-147	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-234678 HexaCDF</i>	85			85 %	28-136	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-23478 PentaCDF</i>	102			102 %	21-178	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-2378 TetraCDD</i>	20.8			104 %	25-164	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-2378 TetraCDF</i>	18			90 %	24-169	22-Oct-2018	12-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-OCDD</i>	162			81 %	17-157	22-Oct-2018	12-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	65.7	0.11			1	pg/g	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613
<i>Surrogate: C13-2378 TetraCDF</i>	109			109 %	40-135	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.15		1.15	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.382	0.121		0.121	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.306	0.121		0.121	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.257	0.121		0.121	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	41800	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	2.95		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	10.4		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	9.73		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	9.92		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1500		<i>79 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.26		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.12		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	7.86		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	81.2		286	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.34		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	12.3		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.32		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.15		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1420		<i>75 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	988		<i>52 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.14		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	8.14		95.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	91.6		286	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.48		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	6.88		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.6		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	262		792	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.52		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	309		1340	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.8		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	8.76		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	7.95		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	1800	12.5		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	9.63		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	4.87		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.72		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4.54		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	19.7		95.4	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.64		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	9.25		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	52.3		286	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	7.97		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.23		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	4.97		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1320			<i>69 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	12		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	8.12		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.35		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	85.7		286	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.53		47.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1220			<i>64 %</i>	<i>15-115</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1550			<i>81 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	432			<i>64 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	56.8	2.09		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	20.6	2.11		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	44.3	3.68		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	390	2.65		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	327	1.56		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	502	2.58		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	574			<i>85 %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	361	2.95		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	307	3.46		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	270	1.54		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	370	1.95		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	65.8	3.19		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	739	2.48		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	76.6	3.18		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	283	1.53		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD

18J0402-06 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	9.24	2.11		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	317	3.46		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	644	2.97		5.38	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	551		82 %		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.369	0.0199	0.0399	0.0998	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.766	0.0084	0.0399	0.0998	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.284		0.568	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.206	0.0711		0.0711	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00284		0.00284	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0355		0.0355	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.366			103 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.352			99.2 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.369			104 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.360			101 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-SD
18J0402-06RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	150	8.6		44.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	81	8.6		44.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
<i>Surrogate: 1-Chlorooctane</i>	70.1			<i>70.1 %</i>	<i>70-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	
C6-C12	15	8.8		44.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	240	17.		89.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
<i>Surrogate: O-TERPHENYL</i>	109.			<i>109. %</i>	<i>30-130</i>	<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	11220	68.590		141.35	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	68.1	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	28.5	0.0393	0.0590	0.138	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0159	0.0120	0.0199	0.0398	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.219	0.000269	0.00233	0.00467	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	168	0.214	0.979	3.91	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	3.01	0.0084	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	140	0.0391	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.677	0.0258	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.820	0.0047	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	28.5	0.0273	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	26.6	0.0150	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	70.0	0.0041	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	11.4	0.0118	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	2.43	0.0391	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.153	0.0391	0.0391	0.0979	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	31.9	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	4.46	0.028	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	14.9	0.029	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.023	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.023	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.033	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	1.89	0.029	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
beta-BHC	ND	0.056	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.032	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.032	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.021	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.029	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.025	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.028	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.024	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.030	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	0.756	0.026	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
gamma-Chlordane	ND	0.021	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.059	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.024	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.029	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.09	2.51	8.38	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.032	0.067	0.209	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.55		64.3 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	5.41		137 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	235	0.378	0.489	0.979	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	6.69	0.044	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	1.51	0.021	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	3.81	0.030	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.041	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.030	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	6.07	0.019	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	7.31	0.050	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.023	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	1.68	0.020	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	7.34	0.042	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	2.79	0.037	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	1.49	0.018	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	5.39	0.040	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	4.89	0.049	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	5.96	0.044	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	3.40	0.050	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.644	0.047	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	4.18	0.039	0.109	0.335	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.4		59.8 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	3.3		82.1 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07 (Soil/Sediment)

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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	63.6	0.6	1.8	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	485	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	438	0.16		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	81.3	0.13		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	6.41	0.13		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8-Hexa CDD	2.16	0.129		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	8.65	0.13		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDD	11.4	0.131		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDF	5.07	0.139		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,7,8,9-Hexa CDD	6.47	0.132		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,7,8,9-Hexa CDF	ND	0.135		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	2.05	0.163		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	3.04	0.125		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	2.46	0.125		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	3.41	0.113		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	45.8	0.141		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	142	0.208		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDD	7480	2.11		49.8	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	A2949
Octa CDF	330	0.265		9.96	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDD	1070	0.16		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDF	301	0.13		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	103	0.132		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hexa CDF	120	0.132		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDD	9.71	0.163		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDF	83.2	0.119		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDD	57.1	0.141		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDF	298	0.208		0.996	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	20.6		103 %	35-197		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	72		72 %	23-140		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	72		72 %	28-143		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	81		81 %	32-141		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	86		86 %	26-152		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	74		74 %	26-138		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	95		95 %	28-130		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	84		84 %	26-123		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	101		101 %	25-181		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	88		88 %	24-185		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	86		86 %	29-147		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	77		77 %	28-136		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	99		99 %	21-178		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	19.6		98 %	25-164		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	16		80 %	24-169		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	102		51 %	17-157		22-Oct-2018	12-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	162	0.14		1	pg/g	11-Nov-2018	13-Nov-2018	EPA M8290A /M1613	
Surrogate: C13-2378 TetraCDF	98		98 %	40-135		11-Nov-2018	13-Nov-2018	EPA M8290A /M1613	

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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.21		1.21	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.559	0.141		0.141	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.492	0.141		0.141	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.444	0.141		0.141	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	45200	200		200	mg/kg	16-Oct-2018	16-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	3.03		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	10.7		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	10		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	10.2		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1600		<i>81 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.39		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.27		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	8.09		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	83.6		294	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.44		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	12.7		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.42		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.24		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1520		<i>77 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	991		<i>50 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.29		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	8.37		98.2	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	94.2		294	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.61		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	7.09		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.73		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	270		815	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.62		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	318		1370	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.94		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	9.01		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	8.19		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	1250	12.9		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	9.92		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	5.02		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.83		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4.67		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	20.3		98.2	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.78		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	9.52		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	53.8		294	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	8.21		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.38		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	5.11		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1420		<i>72 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	12.4		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	8.35		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.44		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	88.3		294	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.66		49.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1240		<i>63 %</i>		<i>15-115</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1570		<i>80 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	465		<i>66 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	206	2.2		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	38.9	2.22		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	179	3.87		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	902	2.78		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	709	1.64		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	1110	2.71		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	566		<i>80 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	810	3.1		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	671	3.64		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	545	1.62		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	850	2.05		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	147	3.35		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	2050	2.61		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Fluorene	252	3.34		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	563	1.61		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	25.6	2.22		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	952	3.64		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	1560	3.12		5.65	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
<i>Surrogate: Pyrene-d10</i>	562			79 %	30-130	11-Oct-2018	01-Nov-2018	8270D	



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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.499	0.0195	0.0391	0.0978	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.824	0.0082	0.0391	0.0978	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.294		0.588	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.119	0.0735		0.0735	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	0.00367	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Isopropylbenzene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0367		0.0367	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.355			96.7 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.373			102 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.382			104 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.379			103 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-SD
18J0402-07RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

>C12-C28	77	6.3		33.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	49	6.3		33.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
Surrogate: 1-Chlorooctane	67.6		67.6 %		70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	*
C6-C12	12	6.5		33.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	140	12.		66.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
Surrogate: O-TERPHENYL	122.		122. %		30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

PAHs by GC/MS SIM

Surrogate: 2-Methylnaphthalene-d10	419		59 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Surrogate: Benzo(b)fluoranthene-d12	527		75 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1830	13		28.3	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Pyrene	1430	15.6		28.3	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Surrogate: Pyrene-d10	534		76 %		30-130	11-Oct-2018	01-Nov-2018	8270D	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	9957.0	89.580		176.46	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	69.1	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	33.9	0.0379	0.0570	0.133	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0148	0.0111	0.0184	0.0369	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.156	0.000272	0.00236	0.00473	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	133	0.211	0.965	3.86	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	4.49	0.0083	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	216	0.0386	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.942	0.0254	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.772	0.0046	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	33.9	0.0269	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	25.3	0.0148	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	59.6	0.0041	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	18.9	0.0117	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	3.32	0.0386	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.213	0.0386	0.0386	0.0965	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	30.9	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	4.32	0.023	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	7.23	0.024	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	4.68	0.019	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Aldrin	ND	0.019	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.027	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	1.07	0.024	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
beta-BHC	ND	0.046	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.026	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.027	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.018	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.024	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.021	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.023	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.020	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.025	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.022	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.018	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.048	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.020	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.024	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	1.72	2.07	6.90	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.026	0.055	0.172	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.80		85.9 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	4.65		143 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	165	0.381	0.493	0.987	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	3.77	0.036	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.875	0.017	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	2.60	0.025	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.034	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.025	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	3.72	0.016	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	4.44	0.041	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.019	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	1.13	0.017	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	3.05	0.034	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	1.81	0.030	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	0.927	0.015	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	2.13	0.033	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	2.04	0.040	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	2.85	0.037	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	1.48	0.041	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.466	0.039	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	ND	0.032	0.090	0.276	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	1.8		53.8 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	2.0		62.4 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	31.7	0.5	1.6	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	311	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	294	0.131		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	71.6	0.0645		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	5.31	0.0642		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,4,7,8-Hexa CDD	0.806	0.129		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	12.7	0.133		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDD	8.39	0.131		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDF	4.51	0.143		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	4.11	0.132		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.169		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	A2946, U
1,2,3,7,8-Penta CDD	1.17	0.148		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	5.34	0.177		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,4,6,7,8-Hexa CDF	2.25	0.128		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	3.2	0.161		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	39	0.148		0.997	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	136	0.207		0.997	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDD	3810	0.304		9.97	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Octa CDF	211	0.183		9.97	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDD	724	0.131		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hepta CDF	248	0.0644		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	72.6	0.132		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Hexa CDF	117	0.135		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDD	5.49	0.148		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Penta CDF	76.6	0.169		4.98	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDD	47.2	0.148		0.997	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	
Total Tetra CDF	268	0.207		0.997	pg/g	22-Oct-2018	12-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	24		120 %	35-197		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	90		90 %	23-140		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	88		88 %	28-143		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	104		104 %	32-141		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	108		108 %	26-152		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	91		91 %	26-138		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	111		111 %	28-130		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	103		103 %	26-123		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	128		128 %	25-181		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	112		112 %	24-185		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	105		105 %	29-147		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	92		92 %	28-136		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	119		119 %	21-178		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	24.8		124 %	25-164		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	19.6		98 %	24-169		22-Oct-2018	12-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	174		87 %	17-157		22-Oct-2018	12-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	156	0.12		1	pg/g	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	
Surrogate: C13-2378 TetraCDF	125		125 %	40-135		11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.34		1.34	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.400	0.122		0.122	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.370	0.122		0.122	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.333	0.122		0.122	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	56800	200		200	mg/kg	16-Oct-2018	16-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	3.13		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	11		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	10.3		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	10.5		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1320		<i>65 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.53		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.45		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	8.36		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	86.4		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.55		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	13.1		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.53		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.35		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1720		<i>85 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	1080		<i>54 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.47		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	8.65		101	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	97.4		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.77		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	7.32		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.89		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	279		842	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.74		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	329		1420	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	5.1		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	9.31		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	8.46		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	598	13.3		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	10.2		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	5.18		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.96		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4.83		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	21		101	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.94		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	9.84		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	55.6		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	8.48		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.56		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	5.28		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1750		86 %		30-130	11-Oct-2018	19-Oct-2018	8270D	
N-Nitrosodimethylamine	ND	12.8		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	8.63		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.56		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	91.2		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.82		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1370		68 %		15-115	11-Oct-2018	19-Oct-2018	8270D	
<i>Surrogate: Terphenyl-d14</i>	1650		82 %		30-130	11-Oct-2018	19-Oct-2018	8270D	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	572		75 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthene	476	2.37		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	55.4	2.39		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	733	4.17		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	640	3		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	292	1.77		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	406	2.92		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	653		86 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Benzo(e)pyrene	360	3.34		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	222	3.92		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	250	1.75		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	536	2.21		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	40.5	3.61		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	2090	2.81		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Fluorene	614	3.6		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	181	1.74		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Naphthalene	61.1	2.39		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	2080	3.92		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Pyrene	1600	3.36		6.09	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
<i>Surrogate: Pyrene-d10</i>	639			84 %	30-130	11-Oct-2018	01-Nov-2018	8270D	



USACE ERDC-EP-C
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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.431	0.0168	0.0336	0.0841	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.621	0.0071	0.0336	0.0841	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.294		0.588	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.134	0.0735		0.0735	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	0.0262	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Bromodichloromethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	0.0419	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Isopropylbenzene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	0.0782	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Methyl acetate	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	0.137	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Methylene chloride	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	0.0751	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Styrene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	0.0149	0.00294		0.00294	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
trans-1,2-Dichloroethylene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0368		0.0368	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.373			101 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.379			103 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.372			101 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.382			104 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-SD
18J0402-08RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

>C12-C28	130	5.0		26.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	44	5.0		26.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
Surrogate: 1-Chlorooctane	67.8		67.8 %		70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	*
C6-C12	17	5.1		26.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	190	9.8		52.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
Surrogate: O-TERPHENYL	112.		112. %		30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

PAHs by GC/MS SIM

Surrogate: 2-Methylnaphthalene-d10	503		66 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Surrogate: Benzo(b)fluoranthene-d12	609		80 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1800	14		30.4	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Phenanthrene	1860	19.6		30.4	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Pyrene	1430	16.8		30.4	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Surrogate: Pyrene-d10	618		81 %		30-130	11-Oct-2018	01-Nov-2018	8270D	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	7173.4	68.980		138.00	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	69.3	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	31.0	0.0377	0.0567	0.132	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0183	0.0110	0.0183	0.0366	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.0478	0.000275	0.00239	0.00478	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	96.1	0.210	0.959	3.84	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	4.86	0.0082	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	211	0.0384	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	1.79	0.0253	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.388	0.0046	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	31.0	0.0267	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	18.9	0.0147	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	26.0	0.0040	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	22.0	0.0116	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	10.9	0.0384	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.239	0.0384	0.0384	0.0959	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	30.7	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	0.857	0.030	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	1.60	0.031	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.025	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	0.466	0.025	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
alpha-BHC	0.475	0.036	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
alpha-Chlordane	0.706	0.032	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
beta-BHC	ND	0.061	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.035	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.035	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.023	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.031	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.028	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.031	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.027	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.033	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.028	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	1.16	0.023	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Heptachlor	ND	0.064	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.026	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.031	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.27	2.73	9.09	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	0.786	0.035	0.073	0.227	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.56			59.7 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	4.89			114 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	110	0.345	0.446	0.892	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	1.62	0.047	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.240	0.023	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 118	0.852	0.033	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	0.244	0.045	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 128	ND	0.033	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	1.47	0.021	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	2.01	0.055	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.025	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	0.438	0.022	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	1.07	0.045	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	0.958	0.040	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	0.559	0.020	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	1.29	0.044	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	1.09	0.053	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	0.886	0.048	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	0.547	0.055	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.126	0.051	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 8	0.492	0.043	0.118	0.364	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.4			55.5 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	2.5			57.1 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	14.3	0.7	1.8	7.2	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	48.0	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	102	0.128		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	16.4	0.149		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	1	0.148		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	ND	0.311		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	A2946, U
1,2,3,4,7,8-Hexa CDF	1.31	0.147		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDD	2.62	0.137		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	0.762	0.157		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	1.74	0.138		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb, A0550
1,2,3,7,8,9-Hexa CDF	ND	0.152		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	0.349	0.143		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	ND	0.404		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	A0553, U
2,3,4,6,7,8-Hexa CDF	0.505	0.142		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	0.389	0.132		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	1.94	0.135		0.998	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	6.05	0.138		0.998	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDD	1490	0.133		9.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDF	51.8	0.103		9.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDD	284	0.128		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDF	55.3	0.149		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	

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HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	23.7	0.138		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hexa CDF	20.3	0.149		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Penta CDD	1.93	0.143		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	13.7	0.138		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDD	2.46	0.135		0.998	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDF	9.34	0.138		0.998	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	15		75 %	35-197		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	65		65 %	23-140		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	63		63 %	28-143		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	73		73 %	32-141		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	63		63 %	26-152		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	62		62 %	26-138		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	84		84 %	28-130		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	66		66 %	26-123		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	78		78 %	25-181		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	64		64 %	24-185		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	66		66 %	29-147		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	67		67 %	28-136		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	70		70 %	21-178		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	16		80 %	25-164		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	9.4		47 %	24-169		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	126		63 %	17-157		22-Oct-2018	08-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	7.35	0.1		1	pg/g	22-Oct-2018	09-Nov-2018	EPA M8290A / M1613	
Surrogate: C13-2378 TetraCDF	50		50 %	40-135		22-Oct-2018	09-Nov-2018	EPA M8290A / M1613	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.19		1.19	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.424	0.125		0.125	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.377	0.125		0.125	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.344	0.125		0.125	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	50500	200		200	mg/kg	16-Oct-2018	16-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	3.02		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	10.6		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	9.97		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	10.2		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1330		<i>68 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.37		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.25		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	8.05		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	83.3		293	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.42		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	12.6		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.4		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.22		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1400		<i>72 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	997		<i>51 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.27		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	8.34		97.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	93.8		293	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.59		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	7.06		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.71		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	269		811	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.61		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	317		1370	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.92		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	8.97		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	8.15		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	293	12.8		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	17.3	9.87		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	8.11	4.99		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
Dimethylphthalate	ND	3.81		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4.65		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	20.2		97.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.76		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	9.48		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	53.6		293	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	8.17		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.36		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	5.09		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1340		<i>69 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	12.3		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	8.32		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.43		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	87.9		293	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.64		48.9	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1260		<i>65 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1620		<i>83 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	640	15.		77.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	190	15.		77.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
<i>Surrogate: 1-Chlorooctane</i>	83.5		<i>83.5 %</i>	<i>70-130</i>		<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	
C6-C12	48	15.		77.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	870	29.		150	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
<i>Surrogate: O-TERPHENYL</i>	99.0		<i>99.0 %</i>	<i>70-130</i>		<i>11-Oct-2018</i>	<i>18-Oct-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	438		<i>64 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	683	2.14		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	21	2.16		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	465	3.77		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	351	2.71		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	187	1.6		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	263	2.64		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	584		<i>85 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	201	3.03		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	149	3.55		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	164	1.58		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	291	2		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	31.8	3.27		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1220	2.54		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Fluorene	602	3.26		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	142	1.57		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Naphthalene	17.6	2.16		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	1740	3.55		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Pyrene	865	3.04		5.52	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	580		<i>84 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.405	0.0189	0.0378	0.0946	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.318	0.0079	0.0378	0.0946	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.281		0.563	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.151	0.0703		0.0703	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00281		0.00281	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0352		0.0352	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.354			101 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.345			98.1 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.363			103 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.356			101 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-SD
18J0402-09RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

>C12-C28	310	7.8		41.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	100	7.8		41.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
Surrogate: 1-Chlorooctane	74.7			74.7 %	70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C12	23	8.1		41.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	430	16.		82.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
Surrogate: O-TERPHENYL	113.			113. %	30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

PAHs by GC/MS SIM

Surrogate: 2-Methylnaphthalene-d10	408			59 %	30-130	11-Oct-2018	01-Nov-2018	8270D	
Surrogate: Benzo(b)fluoranthene-d12	555			81 %	30-130	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1120	12.7		27.6	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Phenanthrene	1620	17.8		27.6	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Surrogate: Pyrene-d10	543			79 %	30-130	11-Oct-2018	01-Nov-2018	8270D	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	9643.2	82.750		162.98	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	66.1	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	25.9	0.0388	0.0582	0.136	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0148	0.0111	0.0185	0.0369	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.109	0.000273	0.00237	0.00473	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	139	0.218	0.994	3.97	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	4.13	0.0085	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	178	0.0397	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.855	0.0262	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.638	0.0047	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	25.9	0.0277	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	25.0	0.0152	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	37.7	0.0042	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	15.0	0.0120	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	3.36	0.0397	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.174	0.0397	0.0397	0.0994	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	33.9	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	1.81	0.025	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	2.03	0.025	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.020	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.020	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.029	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	0.756	0.026	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
beta-BHC	ND	0.049	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.028	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.028	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.019	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.025	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.022	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.025	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.021	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.026	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.023	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.019	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.052	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.021	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.025	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	1.84	2.21	7.36	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	0.606	0.028	0.059	0.184	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.15		61.8 %	30-150		12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	3.90		112 %	30-150		12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	170	0.342	0.443	0.886	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	2.27	0.038	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.582	0.018	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	1.14	0.026	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.036	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.026	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	1.97	0.017	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	2.72	0.044	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.021	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	0.636	0.018	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	1.68	0.037	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	1.33	0.032	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	0.573	0.016	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	2.60	0.035	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	1.54	0.043	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	1.65	0.039	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	0.799	0.044	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.310	0.041	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	1.36	0.035	0.096	0.294	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.3		67.1 %	30-150		12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	2.3		66.4 %	30-150		12-Oct-2018	19-Nov-2018	EPA 8082	

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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	21.6	0.6	1.8	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	188	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	311	0.192		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	52.4	0.186		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	3.18	0.185		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	1.02	0.15		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	3.86	0.14		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDD	6.83	0.153		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
1,2,3,6,7,8-Hexa CDF	ND	1.96		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	A2946, U
1,2,3,7,8,9-Hexa CDD	3.89	0.154		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.145		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	0.892	0.143		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	1.03	0.155		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	1.35	0.135		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	1.45	0.142		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	4.83	0.143		0.999	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	16.5	0.162		0.999	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Octa CDD	4730	1.7		50	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	A2949
Octa CDF	191	0.199		9.99	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Total Hepta CDD	891	0.192		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Total Hepta CDF	204	0.186		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	

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HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	68.4	0.154		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Total Hexa CDF	66.3	0.142		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Total Penta CDD	5	0.143		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	36.1	0.148		5	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Total Tetra CDD	9.67	0.143		0.999	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
Total Tetra CDF	47	0.162		0.999	pg/g	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	17			85 %	35-197	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-1234678 HeptaCDD</i>	83			83 %	23-140	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-1234678 HeptaCDF</i>	83			83 %	28-143	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123478 HexaCDD</i>	97			97 %	32-141	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123478 HexaCDF</i>	99			99 %	26-152	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-1234789 HeptaCDF</i>	76			76 %	26-138	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123678 HexaCDD</i>	111			111 %	28-130	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123678 HexaCDF</i>	97			97 %	26-123	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-12378 PentaCDD</i>	119			119 %	25-181	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-12378 PentaCDF</i>	102			102 %	24-185	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-123789 HexaCDF</i>	100			100 %	29-147	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-234678 HexaCDF</i>	91			91 %	28-136	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-23478 PentaCDF</i>	116			116 %	21-178	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-2378 TetraCDD</i>	22.6			113 %	25-164	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-2378 TetraCDF</i>	18.6			93 %	24-169	22-Oct-2018	13-Nov-2018	EPA 1613B m	
<i>Surrogate: C13-OCDD</i>	132			66 %	17-157	22-Oct-2018	13-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	19	0.11		1	pg/g	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	
<i>Surrogate: C13-2378 TetraCDF</i>	116			116 %	40-135	11-Nov-2018	13-Nov-2018	EPA M8290A / M1613	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.24		1.24	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.696	0.165		0.165	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Mean)	0.608	0.165		0.165	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
TOC (Min)	0.548	0.165		0.165	% by Weight dry	23-Oct-2018	23-Oct-2018	SW9060A	
Volatile Solids	46300	200		200	mg/kg	16-Oct-2018	16-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	3.13		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	11		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	10.3		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	10.5		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	2290		<i>113 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.53		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	5.44		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	8.35		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	86.3		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.55		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	13.1		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.53		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	3.34		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1910		<i>94 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	911		<i>45 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	5.46		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	8.64		101	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	97.3		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.76		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	7.32		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.88		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	279		841	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.74		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	328		1420	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	5.1		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	9.3		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	8.45		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	1160	13.3		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	ND	10.2		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	5.18		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.95		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4.82		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	21		101	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.94		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	9.83		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	55.5		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	8.47		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	5.55		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	5.28		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1460			72 %	30-130	11-Oct-2018	19-Oct-2018	8270D	
N-Nitrosodimethylamine	ND	12.8		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	8.62		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.56		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	91.1		304	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.81		50.7	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1180			58 %	15-115	11-Oct-2018	19-Oct-2018	8270D	
<i>Surrogate: Terphenyl-d14</i>	1780			88 %	30-130	11-Oct-2018	19-Oct-2018	8270D	

TNRCC 1005

>C12-C28	84	15.		79.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
>C28-C35	71	15.		79.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: 1-Chlorooctane</i>	89.0			89.0 %	70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C12	26	16.		79.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	170	30.		160	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
<i>Surrogate: O-TERPHENYL</i>	101.			101. %	30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	496		<i>71 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	410	2.19		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	39	2.2		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	288	3.85		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	524	2.77		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	434	1.63		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	604	2.69		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	621		<i>88 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	488	3.09		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	420	3.62		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	439	1.61		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	585	2.04		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	80.2	3.34		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1780	2.59		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Fluorene	436	3.32		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	393	1.6		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Naphthalene	463	2.2		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	1410	3.62		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
Pyrene	1260	3.1		5.62	ug/kg	11-Oct-2018	01-Nov-2018	8270D	E
<i>Surrogate: Pyrene-d10</i>	622		<i>88 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.520	0.0167	0.0336	0.0840	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.526	0.0071	0.0336	0.0840	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.264		0.528	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.187	0.0660		0.0660	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00264		0.00264	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0330		0.0330	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.339			103 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.310			94.0 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.349			106 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.325			98.4 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-SD
18J0402-10RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Katahdin

TNRCC 1005

>C12-C28	42	7.4		39.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
>C28-C35	33	7.4		39.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
Surrogate: 1-Chlorooctane	91.9		91.9 %		70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C12	12	7.7		39.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	84	15.		78.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
Surrogate: O-TERPHENYL	128.		128. %		30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

PAHs by GC/MS SIM

Surrogate: 2-Methylnaphthalene-d10	448		64 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Surrogate: Benzo(b)fluoranthene-d12	581		83 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	1580	13		28.1	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Phenanthrene	1300	18.1		28.1	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Pyrene	1160	15.5		28.1	ug/kg	11-Oct-2018	02-Nov-2018	8270D	
Surrogate: Pyrene-d10	585		83 %		30-130	11-Oct-2018	01-Nov-2018	8270D	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	5491.1	43.420		91.290	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	72.3	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	16.9	0.0388	0.0584	0.137	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0185	0.0111	0.0185	0.0371	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.0630	0.000266	0.00231	0.00463	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	90.5	0.218	0.997	3.99	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	2.64	0.0085	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	124	0.0399	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.488	0.0263	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.502	0.0048	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	16.9	0.0278	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	14.4	0.0153	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	32.6	0.0042	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	10.7	0.0120	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	2.20	0.0399	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.107	0.0399	0.0399	0.0997	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	27.7	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	2.87	0.028	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	5.72	0.030	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.023	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.023	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.034	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	1.59	0.030	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
beta-BHC	ND	0.057	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.033	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.033	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.022	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.029	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.026	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.029	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.025	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.031	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.027	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.022	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.060	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.025	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.029	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	2.14	2.56	8.54	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	1.27	0.033	0.068	0.214	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.97			73.7 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	5.55			138 %	30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	133	0.349	0.452	0.903	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	5.25	0.044	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.663	0.021	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	2.25	0.031	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	ND	0.042	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 128	ND	0.031	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 138	6.98	0.020	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	9.45	0.051	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.024	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	2.97	0.021	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 18	2.24	0.043	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	5.95	0.038	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	3.05	0.019	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	3.88	0.041	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	2.46	0.050	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	2.59	0.045	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	1.88	0.051	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.402	0.048	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 8	1.59	0.040	0.111	0.342	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	2.2			54.6 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
<i>Surrogate: PCB 198</i>	2.1			50.8 %	30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	52.0	0.6	1.8	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	161	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	198	0.119		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	27.9	0.13		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
1,2,3,4,7,8,9-Hepta CDF	2.17	0.129		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	0.639	0.143		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	2.17	0.144		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDD	4.51	0.145		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	1.8	0.154		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	2.98	0.146		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.149		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	0.523	0.133		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	0.621	0.155		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	0.991	0.139		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	0.668	0.141		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	2.22	0.118		0.999	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	6.9	0.149		0.999	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDD	2870	0.138		9.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDF	97.9	0.144		9.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDD	567	0.119		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDF	106	0.129		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
MAXXAM ANALYTICS, Mississauga									
EPA 1613B m									
Total Hexa CDD	45.7	0.146		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hexa CDF	37.6	0.146		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Penta CDD	4.11	0.133		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	17.4	0.147		4.99	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDD	2.34	0.118		0.999	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDF	8.75	0.149		0.999	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	20.4		<i>102 %</i>		<i>35-197</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	77		<i>77 %</i>		<i>23-140</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	75		<i>75 %</i>		<i>28-143</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	87		<i>87 %</i>		<i>32-141</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	77		<i>77 %</i>		<i>26-152</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	72		<i>72 %</i>		<i>26-138</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	95		<i>95 %</i>		<i>28-130</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	79		<i>79 %</i>		<i>26-123</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	93		<i>93 %</i>		<i>25-181</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	73		<i>73 %</i>		<i>24-185</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	78		<i>78 %</i>		<i>29-147</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	80		<i>80 %</i>		<i>28-136</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	81		<i>81 %</i>		<i>21-178</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	19		<i>95 %</i>		<i>25-164</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	5.8		<i>29 %</i>		<i>24-169</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	148		<i>74 %</i>		<i>17-157</i>	<i>22-Oct-2018</i>	<i>08-Nov-2018</i>	<i>EPA 1613B m</i>	
EPA M8290A / M1613									
2,3,7,8-Tetra CDF	8.66	0.11		1	pg/g	22-Oct-2018	09-Nov-2018	EPA M8290A / M1613	
<i>Surrogate: C13-2378 TetraCDF</i>	32		<i>32 %</i>		<i>40-135</i>	<i>22-Oct-2018</i>	<i>09-Nov-2018</i>	<i>EPA M8290A / M1613</i>	<i>A0797, A1</i>

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.29		1.29	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.413	0.122		0.122	% by Weight dry	24-Oct-2018	24-Oct-2018	SW9060A	
TOC (Mean)	0.405	0.122		0.122	% by Weight dry	24-Oct-2018	24-Oct-2018	SW9060A	
TOC (Min)	0.383	0.122		0.122	% by Weight dry	24-Oct-2018	24-Oct-2018	SW9060A	
Volatile Solids	32500	200		200	mg/kg	16-Oct-2018	16-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	2.8		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	9.87		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	9.23		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	9.41		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1100		<i>61 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	4.05		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	4.86		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	7.46		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	77.1		272	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	3.17		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	11.7		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	3.15		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	2.99		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1270		<i>70 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	746		<i>41 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	4.88		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	7.72		90.5	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	86.9		272	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	4.25		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	6.54		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.36		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	249		751	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.34		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	293		1270	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.55		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	8.31		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	7.55		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	726	11.8		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	
Butylbenzylphthalate	15.7	9.14		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	4.62		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	23.5	3.53		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
Di-n-butylphthalate	ND	4.31		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	18.7		90.5	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.41		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	8.78		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	49.6		272	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	7.57		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	4.96		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	4.72		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1090		<i>60 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	11.4		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	7.7		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	3.18		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	81.4		272	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	4.3		45.3	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	992		<i>55 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1450		<i>80 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	120	14.		75.	mg/Kgdrywt	11-Oct-2018	19-Oct-2018	TNRCC 1005	
>C28-C35	100	14.		75.	mg/Kgdrywt	11-Oct-2018	19-Oct-2018	TNRCC 1005	
<i>Surrogate: 1-Chlorooctane</i>	90.0		<i>90.0 %</i>	<i>70-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>TNRCC 1005</i>	
C6-C12	24	15.		75.	mg/Kgdrywt	11-Oct-2018	19-Oct-2018	TNRCC 1005	Ja
C6-C35	240	29.		150	mg/Kgdrywt	11-Oct-2018	19-Oct-2018	TNRCC 1005	Bb
<i>Surrogate: O-TERPHENYL</i>	104.		<i>104. %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	483		72 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthene	118	2.09		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	56.8	2.1		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Anthracene	136	3.67		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	381	2.64		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	324	1.56		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	405	2.57		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	581		87 %		30-130	11-Oct-2018	01-Nov-2018	8270D	
Benzo(e)pyrene	335	2.95		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	290	3.46		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	311	1.54		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	389	1.95		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	61.6	3.18		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluoranthene	990	2.48		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	126	3.18		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	268	1.53		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Naphthalene	19.7	2.1		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Phenanthrene	528	3.46		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	752	2.96		5.37	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	585		87 %		30-130	11-Oct-2018	01-Nov-2018	8270D	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.318	0.0193	0.0388	0.0970	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.362	0.0082	0.0388	0.0970	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.266		0.531	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	0.0781	0.0664		0.0664	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	
Benzene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-SD
18J0402-11RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00266		0.00266	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0332		0.0332	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.338			102 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.333			100 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.331			99.7 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.343			103 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-11-SD
18J0402-11RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	44	6.4		33.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
>C28-C35	26	6.4		33.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: 1-Chlorooctane</i>	77.7			77.7 %	70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C12	11	6.6		33.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	71	13.		67.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
<i>Surrogate: O-TERPHENYL</i>	119.			119. %	30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	

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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-03-DUP
18J0402-12 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Semivolatile Organics by GC/MS Selective Ion Monitoring

Total PAH-CALC	317.30	40.070		84.320	ug/kg	11-Oct-2018	01-Nov-2018	EPA 8270C	
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Classical Chemistry Parameters

% Solids	79.6	0.500		0.500	% Solids	15-Oct-2018	15-Oct-2018	% Calculation	
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Metals by EPA 6000/7000 Series Methods

Chromium (3+)	11.5	0.0380	0.0573	0.133	mg/kg	20-Dec-2018	21-Dec-2018	EPA 7199M	
Chromium (VI)	0.0196	0.0117	0.0196	0.0391	mg/kg	10-Oct-2018	11-Oct-2018	EPA 7199M	J
Mercury	0.0257	0.000245	0.00213	0.00425	mg/kg	25-Oct-2018	29-Oct-2018	EPA 7474	
Zinc	35.6	0.206	0.942	3.77	mg/kg	23-Oct-2018	23-Oct-2018	SW 846/6010	
Arsenic-75 [2]	1.87	0.0081	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	109	0.0377	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	MB-02, B
Beryllium-9 [1]	0.477	0.0248	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Cadmium-111 [1]	0.132	0.0045	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Chromium-52 [1]	11.5	0.0263	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Copper-63 [1]	7.02	0.0144	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Lead-206 [1]	16.4	0.0040	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	7.01	0.0114	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Selenium	2.81	0.0377	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	0.102	0.0377	0.0377	0.0942	mg/kg	15-Nov-2018	15-Nov-2018	SW 846/6020	

Miscellaneous Physical/Conventional Chemistry Parameters

% Moisture	20.4	0.500	0.500	0.500	% by Volume	15-Oct-2018	17-Dec-2018	ASTM D2216-98	
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Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	2.53	0.023	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDE	1.62	0.024	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
4,4'-DDT	ND	0.019	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Aldrin	ND	0.019	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.028	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.025	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.047	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.027	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.027	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Dieldrin	0.793	0.018	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	
Endosulfan I	ND	0.024	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.021	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U

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Reported:
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Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP
18J0402-12 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

Endosulfan sulfate	ND	0.024	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin	ND	0.021	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.025	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.022	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.018	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.049	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.020	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.024	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Toxaphene	ND	1.76	2.12	7.05	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.027	0.056	0.176	ug/kg dry	12-Oct-2018	20-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.43		72.8 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	
Surrogate: PCB 198	4.20		126 %		30-150	12-Oct-2018	20-Nov-2018	EPA 8081A	

Nutrients

Ammonia as N	22.2	0.378	0.489	0.978	mg/kg	15-Oct-2018	20-Oct-2018	EPA 350.1	B
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	1.52	0.037	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 105	0.284	0.018	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 118	1.09	0.025	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 126	0.168	0.035	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 128	0.226	0.025	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 138	1.01	0.016	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 153	1.28	0.042	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 169	ND	0.020	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	U
PCB 170	0.258	0.017	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 18	1.20	0.035	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 180	0.399	0.031	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 187	0.289	0.016	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 28	2.24	0.034	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 44	1.20	0.041	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 52	1.73	0.037	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 66	1.21	0.042	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
PCB 77	0.099	0.040	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	J
PCB 8	0.966	0.033	0.092	0.282	ug/kg dry	12-Oct-2018	19-Nov-2018	EPA 8082	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.4		72.1 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	
Surrogate: PCB 198	2.2		67.0 %		30-150	12-Oct-2018	19-Nov-2018	EPA 8082	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-03-DUP
18J0402-12 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

Total PCB Congeners-CALC	15.4	0.6	1.6	5.4	ug/kg	12-Oct-2018	19-Nov-2018	EPA 8082	
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AVS and SEM Metals by EPA 6000/7000 Series Methods

Acid Volatile Sulfide	27.1	5.00	5.00	10.0	mg/kg	15-Oct-2018	14-Nov-2018	EPA 9030	
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EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	25.8	0.105		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
1,2,3,4,6,7,8-Hepta CDF	4.72	0.125		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8,9-Hepta CDF	0.608	0.124		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDD	0.212	0.138		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,4,7,8-Hexa CDF	1.75	0.137		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDD	1.02	0.14		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,6,7,8-Hexa CDF	0.462	0.147		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDD	0.881	0.141		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8,9-Hexa CDF	ND	0.142		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Uc
1,2,3,7,8-Penta CDD	0.642	0.146		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
1,2,3,7,8-Penta CDF	1.37	0.156		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,4,6,7,8-Hexa CDF	0.215	0.132		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,4,7,8-Penta CDF	1.34	0.142		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
2,3,7,8-Tetra CDD	39.5	0.132		0.996	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
2,3,7,8-Tetra CDF	113	0.113		0.996	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDD	623	0.148		9.96	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Octa CDF	44.8	0.12		9.96	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDD	67.7	0.105		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hepta CDF	12.3	0.124		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	

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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Total Hexa CDD	12.2	0.141		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Hexa CDF	7.48	0.139		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Penta CDD	2.21	0.146		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	Jb
Total Penta CDF	8.51	0.149		4.98	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDD	43.4	0.132		0.996	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	
Total Tetra CDF	203	0.113		0.996	pg/g	22-Oct-2018	08-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	20.4		102 %	35-197		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	81		81 %	23-140		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	79		79 %	28-143		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	90		90 %	32-141		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	87		87 %	26-152		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	78		78 %	26-138		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	107		107 %	28-130		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	87		87 %	26-123		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	99		99 %	25-181		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	79		79 %	24-185		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	86		86 %	29-147		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	87		87 %	28-136		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	90		90 %	21-178		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	20.2		101 %	25-164		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	16.2		81 %	24-169		22-Oct-2018	08-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	170		85 %	17-157		22-Oct-2018	08-Nov-2018	EPA 1613B m	

EPA M8290A / M1613

2,3,7,8-Tetra CDF	122	0.093		1	pg/g	22-Oct-2018	09-Nov-2018	EPA M8290A / M1613	
Surrogate: C13-2378 TetraCDF	93		93 %	40-135		22-Oct-2018	09-Nov-2018	EPA M8290A / M1613	

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Air Water & Soil Laboratories, Inc.

Wet Chemistry Analysis

Cyanide	ND	1.06		1.06	mg/kg dry	15-Oct-2018	15-Oct-2018	SW9012B	Ua
TOC (Max)	0.226	0.130		0.130	% by Weight dry	24-Oct-2018	24-Oct-2018	SW9060A	
TOC (Mean)	0.216	0.130		0.130	% by Weight dry	24-Oct-2018	24-Oct-2018	SW9060A	
TOC (Min)	0.202	0.130		0.130	% by Weight dry	24-Oct-2018	24-Oct-2018	SW9060A	
Volatile Solids	17600	200		200	mg/kg	11-Oct-2018	11-Oct-2018	SM22 2540G-2011	

Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	2.6		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,2-Dichlorobenzene	ND	9.16		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,3-Dichlorobenzene	ND	8.57		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
1,4-Dichlorobenzene	ND	8.74		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	1260		<i>75 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	3.76		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dichlorophenol	ND	4.51		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dimethylphenol	ND	6.93		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrophenol	ND	71.6		252	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,4-Dinitrotoluene	ND	2.94		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2,6-Dinitrotoluene	ND	10.8		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chloronaphthalene	ND	2.92		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
2-Chlorophenol	ND	2.77		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	1100		<i>66 %</i>	<i>30-130</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	861		<i>51 %</i>	<i>15-115</i>		<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
2-Nitrophenol	ND	4.53		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	7.17		84.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	80.7		252	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	3.95		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	6.07		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	4.05		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
4-Nitrophenol	ND	231		698	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Azobenzene	ND	3.1		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Benzidine	ND	272		1180	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	4.23		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	7.72		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	7.01		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	26.1	11		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Jc
Butylbenzylphthalate	ND	8.49		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub

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Alpha

Semivolatile Organics by GC-MS

Diethylphthalate	ND	4.3		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Dimethylphthalate	ND	3.28		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-butylphthalate	ND	4		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Di-n-octylphthalate	ND	17.4		84.1	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobenzene	ND	4.09		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorobutadiene	ND	8.15		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	46.1		252	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Hexachloroethane	ND	7.03		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Isophorone	ND	4.61		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Nitrobenzene	ND	4.38		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	1040		<i>62 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	10.6		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	7.15		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	2.95		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Pentachlorophenol	ND	75.6		252	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
Phenol	ND	3.99		42	ug/kg	11-Oct-2018	19-Oct-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	1020		<i>61 %</i>		<i>15-115</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	1460		<i>87 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>19-Oct-2018</i>	<i>8270D</i>	

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	310		<i>50 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	5.68	1.93		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Acenaphthylene	3.16	1.94		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Anthracene	11.5	3.39		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benz(a)anthracene	20.6	2.44		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(a)pyrene	21.8	1.44		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(b)fluoranthene	23.3	2.37		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	539		<i>87 %</i>		<i>30-130</i>	<i>11-Oct-2018</i>	<i>01-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	19.8	2.72		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(g,h,i)perylene	20.7	3.19		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Benzo(k)fluoranthene	17.1	1.42		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Chrysene	22.8	1.8		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Dibenz(a,h)anthracene	4.11	2.94		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Jc
Fluoranthene	48.6	2.28		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Fluorene	5.27	2.93		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	18.2	1.41		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	

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18J0402-12 (Soil/Sediment)

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Alpha

PAHs by GC/MS SIM

Naphthalene	ND	1.94		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	Ub
Phenanthrene	19.7	3.19		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Pyrene	52.5	2.74		4.96	ug/kg	11-Oct-2018	01-Nov-2018	8270D	
Surrogate: Pyrene-d10	491		79 %		30-130	11-Oct-2018	01-Nov-2018	8270D	



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

HSCNew-NMP-03-DUP
18J0402-12RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.138	0.0195	0.0392	0.0980	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	
Silver-109 [1]	0.109	0.0082	0.0392	0.0980	mg/kg	17-Oct-2018	16-Nov-2018	SW 846/6020	B

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
1,4-Dioxane	ND	0.246		0.492	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Butanone (MEK)	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Acetone	ND	0.0615		0.0615	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Benzene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromodichloromethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromoform	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Bromomethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon disulfide	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chlorobenzene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloroform	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Chloromethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP
18J0402-12RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

cis-1,3-Dichloropropene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Cyclohexane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dibromochloromethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Ethylbenzene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Isopropylbenzene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
m+p-Xylenes	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl acetate	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methylene chloride	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
o-Xylene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Styrene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Toluene	ND	0.00246		0.00246	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichloroethylene	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
Vinyl chloride	ND	0.0308		0.0308	mg/kg dry	12-Oct-2018	12-Oct-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	0.320			104 %	80-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	0.289			94.1 %	85-120	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	0.326			106 %	80-119	12-Oct-2018	12-Oct-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	0.311			101 %	85-115	12-Oct-2018	12-Oct-2018	SW8260B	

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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP
18J0402-12RE1 (Soil/Sediment)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
Katahdin									
TNRCC 1005									
>C12-C28	100	6.2		32.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	
>C28-C35	28	6.2		32.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
<i>Surrogate: 1-Chlorooctane</i>	77.2			77.2 %	70-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	
C6-C12	16	6.4		32.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Ja
C6-C35	140	12.		65.	mg/Kgdrywt	11-Oct-2018	18-Oct-2018	TNRCC 1005	Bb
<i>Surrogate: O-TERPHENYL</i>	122.			122. %	30-130	11-Oct-2018	18-Oct-2018	TNRCC 1005	



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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J213 - Default Prep Metals

Blank (B18J213-BLK1) Prepared & Analyzed: 23-Oct-2018

Zinc	ND	0.219	1.00	4.00	mg/kg							U
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LCS (B18J213-BS1) Prepared & Analyzed: 23-Oct-2018

Zinc	101	0.219	1.00	4.00	mg/kg	100.0	101	80-120				
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Calibration Check (B18J213-CCV1) Prepared & Analyzed: 23-Oct-2018

Zinc	3.93	0.0022	0.0100	0.0400	mg/kg	4.000	98.3	90-110				
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Calibration Check (B18J213-CCV2) Prepared & Analyzed: 23-Oct-2018

Zinc	5.19	0.0022	0.0100	0.0400	mg/kg	5.000	104	90-110				
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Calibration Check (B18J213-CCV3) Prepared & Analyzed: 23-Oct-2018

Zinc	5.33	0.0022	0.0100	0.0400	mg/kg	5.000	107	90-110				
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Calibration Check (B18J213-CCV4) Prepared & Analyzed: 23-Oct-2018

Zinc	5.31	0.0022	0.0100	0.0400	mg/kg	5.000	106	90-110				
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Duplicate (B18J213-DUP1) Source: 18J0402-12 Prepared & Analyzed: 23-Oct-2018

Zinc	34.4	0.211	0.964	3.86	mg/kg		35.6			3.41	20	
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Matrix Spike (B18J213-MS1) Source: 18J0402-12 Prepared & Analyzed: 23-Oct-2018

Zinc	126	0.210	0.959	3.83	mg/kg	95.86	35.6	94.7	80-120			
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Matrix Spike Dup (B18J213-MSD1) Source: 18J0402-12 Prepared & Analyzed: 23-Oct-2018

Zinc	124	0.208	0.950	3.80	mg/kg	94.99	35.6	93.5	80-120	1.30	20	
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Reference (B18J213-SRM1) Prepared & Analyzed: 23-Oct-2018

Zinc	493	1.04	4.77	19.1	mg/kg	469.4		105	60-140			
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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J233 - Default Prep Metals

Blank (B18J233-BLK1)						Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018						
Mercury	ND	0.000288	0.00250	0.00500	mg/kg							U

LCS (B18J233-BS1)						Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018						
Mercury	0.0512	0.000288	0.00250	0.00500	mg/kg	0.05000		102	75-125			

Calibration Check (B18J233-CCV1)						Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018						
Mercury	0.0550	0.000144	0.00125	0.00250	mg/kg	0.05000		110	90-110			

Calibration Check (B18J233-CCV2)						Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018						
Mercury	0.0203	0.000144	0.00125	0.00250	mg/kg	0.02000		102	90-110			

Calibration Check (B18J233-CCV3)						Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018						
Mercury	0.0190	0.000144	0.00125	0.00250	mg/kg	0.02000		94.9	90-110			

Calibration Check (B18J233-CCV4)						Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018						
Mercury	0.0202	0.000144	0.00125	0.00250	mg/kg	0.02000		101	90-110			

Duplicate (B18J233-DUP1)						Source: 18J0402-12		Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018				
Mercury	0.0270	0.000276	0.00240	0.00479	mg/kg		0.0257			4.98	25	

Matrix Spike (B18J233-MS1)						Source: 18J0402-12		Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018				
Mercury	0.0618	0.000239	0.00207	0.00415	mg/kg	0.04148	0.0257	86.9	75-125			

Matrix Spike Dup (B18J233-MSD1)						Source: 18J0402-12		Prepared: 25-Oct-2018 Analyzed: 29-Oct-2018				
Mercury	0.0706	0.000279	0.00242	0.00485	mg/kg	0.04850	0.0257	92.5	75-125	6.20	25	

Reference (B18J233-SRM1)						Prepared: 29-Oct-2018 Analyzed: 06-Dec-2018						
Mercury	31.3	0.118	1.02	2.04	mg/kg	18.06		173	50-150			Z-03

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K087 - Default Prep Metals

Blank (B18K087-BLK1)

Prepared & Analyzed: 15-Nov-2018

Arsenic-75 [2]	0.0107	0.0086	0.0400	0.100	mg/kg							J
Barium-135 [1]	2.40	0.0400	0.0400	0.100	mg/kg							MB-02
Beryllium-9 [1]	ND	0.0264	0.0400	0.100	mg/kg							U
Cadmium-111 [1]	ND	0.0048	0.0400	0.100	mg/kg							U
Chromium-52 [1]	ND	0.0279	0.0400	0.100	mg/kg							U
Copper-63 [1]	0.0256	0.0153	0.0400	0.100	mg/kg							J
Lead-206 [1]	0.0082	0.0042	0.0400	0.100	mg/kg							J
Nickel-60 [1]	ND	0.0121	0.0400	0.100	mg/kg							U
Selenium	ND	0.0400	0.0400	0.100	mg/kg							U
Thallium-203 [1]	ND	0.0400	0.0400	0.100	mg/kg							U

LCS (B18K087-BS1)

Prepared & Analyzed: 15-Nov-2018

Arsenic-75 [2]	24.2	0.0214	0.100	0.250	mg/kg	25.00		97.0	70-130			
Barium-135 [1]	96.4	0.100	0.100	0.250	mg/kg	100.0		96.4	70-130			MB-02, B
Beryllium-9 [1]	22.2	0.0659	0.100	0.250	mg/kg	25.00		88.9	70-130			
Cadmium-111 [1]	24.7	0.0119	0.100	0.250	mg/kg	25.00		98.8	70-130			
Chromium-52 [1]	24.8	0.0697	0.100	0.250	mg/kg	25.00		99.0	70-130			
Copper-63 [1]	49.4	0.0383	0.100	0.250	mg/kg	50.00		98.8	70-130			
Lead-206 [1]	51.1	0.0105	0.100	0.250	mg/kg	50.00		102	70-130			
Nickel-60 [1]	48.1	0.0302	0.100	0.250	mg/kg	50.00		96.2	70-130			
Selenium	20.4	0.100	0.100	0.250	mg/kg	25.00		81.8	70-130			
Thallium-203 [1]	25.5	0.100	0.100	0.250	mg/kg	25.00		102	70-130			

Duplicate (B18K087-DUP1)

Source: 18J0402-12

Prepared & Analyzed: 15-Nov-2018

Arsenic-75 [2]	1.68	0.0083	0.0386	0.0964	mg/kg		1.87			10.4	30	
Barium-135 [1]	110	0.0386	0.0386	0.0964	mg/kg		109			1.34	30	MB-02, B
Beryllium-9 [1]	0.358	0.0254	0.0386	0.0964	mg/kg		0.477			28.5	30	
Cadmium-111 [1]	0.129	0.0046	0.0386	0.0964	mg/kg		0.132			2.50	30	
Chromium-52 [1]	11.3	0.0269	0.0386	0.0964	mg/kg		11.5			2.29	30	
Copper-63 [1]	6.66	0.0148	0.0386	0.0964	mg/kg		7.02			5.25	30	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K087 - Default Prep Metals

Duplicate (B18K087-DUP1)		Source: 18J0402-12				Prepared & Analyzed: 15-Nov-2018						
Lead-206 [1]	16.0	0.0040	0.0386	0.0964	mg/kg	16.4				2.89	30	
Nickel-60 [1]	7.53	0.0116	0.0386	0.0964	mg/kg	7.01				7.18	30	
Selenium	1.76	0.0386	0.0386	0.0964	mg/kg	2.81				46.1	30	RPD-06
Thallium-203 [1]	0.0976	0.0386	0.0386	0.0964	mg/kg	0.102				3.97	30	

Matrix Spike (B18K087-MS1)		Source: 18J0402-12				Prepared & Analyzed: 15-Nov-2018						
Arsenic-75 [2]	24.2	0.0205	0.0959	0.240	mg/kg	23.96	1.87	93.1	70-130			
Barium-135 [1]	226	0.0959	0.0959	0.240	mg/kg	95.86	109	122	70-130			MB-02, B
Beryllium-9 [1]	21.8	0.0632	0.0959	0.240	mg/kg	23.96	0.477	89.0	70-130			
Cadmium-111 [1]	23.9	0.0114	0.0959	0.240	mg/kg	23.96	0.132	99.3	70-130			
Chromium-52 [1]	38.0	0.0668	0.0959	0.240	mg/kg	23.96	11.5	111	70-130			
Copper-63 [1]	55.6	0.0368	0.0959	0.240	mg/kg	47.93	7.02	101	70-130			
Lead-206 [1]	61.0	0.0101	0.0959	0.240	mg/kg	47.93	16.4	93.0	70-130			
Nickel-60 [1]	52.7	0.0289	0.0959	0.240	mg/kg	47.93	7.01	95.3	70-130			
Selenium	27.3	0.0959	0.0959	0.240	mg/kg	23.96	2.81	102	70-130			
Thallium-203 [1]	23.3	0.0959	0.0959	0.240	mg/kg	23.96	0.102	96.9	70-130			

Matrix Spike Dup (B18K087-MSD1)		Source: 18J0402-12				Prepared & Analyzed: 15-Nov-2018						
Arsenic-75 [2]	24.1	0.0203	0.0950	0.237	mg/kg	23.75	1.87	93.7	70-130	0.644	30	
Barium-135 [1]	197	0.0950	0.0950	0.237	mg/kg	94.99	109	92.9	70-130	27.0	30	MB-02, B
Beryllium-9 [1]	19.5	0.0626	0.0950	0.237	mg/kg	23.75	0.477	80.3	70-130	10.4	30	
Cadmium-111 [1]	23.4	0.0113	0.0950	0.237	mg/kg	23.75	0.132	98.1	70-130	1.20	30	
Chromium-52 [1]	37.0	0.0662	0.0950	0.237	mg/kg	23.75	11.5	107	70-130	2.98	30	
Copper-63 [1]	46.7	0.0364	0.0950	0.237	mg/kg	47.50	7.02	83.5	70-130	19.3	30	
Lead-206 [1]	62.1	0.0100	0.0950	0.237	mg/kg	47.50	16.4	96.1	70-130	3.25	30	
Nickel-60 [1]	49.7	0.0287	0.0950	0.237	mg/kg	47.50	7.01	89.9	70-130	5.80	30	
Selenium	21.3	0.0950	0.0950	0.237	mg/kg	23.75	2.81	77.7	70-130	27.2	30	
Thallium-203 [1]	23.6	0.0950	0.0950	0.237	mg/kg	23.75	0.102	98.8	70-130	1.99	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K087 - Default Prep Metals

Reference (B18K087-SRM1)						Prepared & Analyzed: 15-Nov-2018						
Arsenic-75 [2]	78.3	0.0204	0.0954	0.239	mg/kg	79.85		98.1	70-130			
Barium-135 [1]	214	0.0954	0.0954	0.239	mg/kg	221.3		96.9	70-130			MB-02, B
Beryllium-9 [1]	100	0.0629	0.0954	0.239	mg/kg	123.1		81.5	70-130			
Cadmium-111 [1]	191	0.0114	0.0954	0.239	mg/kg	187.0		102	70-130			
Chromium-52 [1]	195	0.0665	0.0954	0.239	mg/kg	210.8		92.4	70-130			
Copper-63 [1]	263	0.0366	0.0954	0.239	mg/kg	303.4		86.7	70-130			
Lead-206 [1]	109	0.0100	0.0954	0.239	mg/kg	114.5		94.9	70-130			
Nickel-60 [1]	382	0.0288	0.0954	0.239	mg/kg	374.0		102	70-130			
Selenium	277	0.0954	0.0954	0.239	mg/kg	344.4		80.5	60-140			
Thallium-203 [1]	291	0.0954	0.0954	0.239	mg/kg	270.9		107	70-130			

Batch B18K112 - Default Prep Metals

Blank (B18K112-BLK1)						Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018						
Antimony-121 [1]	0.0792	0.0199	0.0400	0.100	mg/kg							J
Silver-109 [1]	0.192	0.0084	0.0400	0.100	mg/kg							
LCS (B18K112-BS1)						Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018						
Antimony-121 [1]	50.0	0.0498	0.100	0.250	mg/kg	50.00		100	70-130			
Silver-109 [1]	23.1	0.0210	0.100	0.250	mg/kg	25.00		92.6	80-120			B
Calibration Check (B18K112-CCV1)						Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018						
Antimony-121 [1]	0.0413	0.0001	0.0002	0.0005	mg/kg	0.04000		103	90-110			
Silver-109 [1]	0.0394	0.00004	0.0002	0.0005	mg/kg	0.04000		98.5	90-110			J, B
Calibration Check (B18K112-CCV2)						Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018						
Antimony-121 [1]	0.0473	0.0001	0.0002	0.0005	mg/kg	0.05000		94.6	90-110			
Silver-109 [1]	0.0442	0.00004	0.0002	0.0005	mg/kg	0.05000		88.3	90-110			CCV-L, J, B

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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K112 - Default Prep Metals

Calibration Check (B18K112-CCV3) Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018

Antimony-121 [1]	0.0476	0.0001	0.0002	0.0005	mg/kg	0.05000		95.2	90-110			
Silver-109 [1]	0.0433	0.00004	0.0002	0.0005	mg/kg	0.05000		86.6	90-110			CCV-L, J, B

Calibration Check (B18K112-CCV4) Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018

Antimony-121 [1]	0.0460	0.0001	0.0002	0.0005	mg/kg	0.05000		92.0	90-110			
Silver-109 [1]	0.0455	0.00004	0.0002	0.0005	mg/kg	0.05000		90.9	90-110			J, B

Duplicate (B18K112-DUP1) Source: 18J0402-12RE1 Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018

Antimony-121 [1]	0.136	0.0189	0.0378	0.0946	mg/kg		0.138			1.84	30	
Silver-109 [1]	0.0776	0.0080	0.0378	0.0946	mg/kg		0.109			33.7	20	RPD-06, B, J

Matrix Spike (B18K112-MS1) Source: 18J0402-12RE1 Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018

Antimony-121 [1]	27.6	0.0495	0.0994	0.248	mg/kg	49.68	0.138	55.3	70-130			Z-03
Silver-109 [1]	21.7	0.0209	0.0994	0.248	mg/kg	24.84	0.109	87.1	80-120			B

Matrix Spike Dup (B18K112-MSD1) Source: 18J0402-12RE1 Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018

Antimony-121 [1]	24.9	0.0454	0.0910	0.228	mg/kg	45.51	0.138	54.4	70-130	1.52	30	Z-03
Silver-109 [1]	19.0	0.0191	0.0910	0.228	mg/kg	22.76	0.109	82.9	80-120	4.84	20	B

Reference (B18K112-SRM1) Prepared: 17-Oct-2018 Analyzed: 16-Nov-2018

Antimony-121 [1]	168	0.0461	0.0924	0.231	mg/kg	144.1		116	70-130			
Silver-109 [1]	50.8	0.0194	0.0924	0.231	mg/kg	47.39		107	60-140			B

Batch B18L042 - Default Prep Metals

Blank (B18L042-BLK1) Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018

Chromium (VI)	0.0280	0.0120	0.0200	0.0400	mg/kg							J
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18L042 - Default Prep Metals

Blank (B18L042-BLK2)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	0.0160	0.0120	0.0200	0.0400	mg/kg							J

LCS (B18L042-BS1)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	0.772	0.0120	0.0200	0.0400	mg/kg	0.8000		96.5	80-120			

LCS (B18L042-BS2)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	0.776	0.0120	0.0200	0.0400	mg/kg	0.8000		97.0	80-120			

Calibration Check (B18L042-CCV1)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	18.4	0.0300	0.0500	0.100	mg/kg	20.00		92.2	90-110			

Calibration Check (B18L042-CCV2)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	2.67	0.0300	0.0500	0.100	mg/kg	2.500		107	90-110			

Calibration Check (B18L042-CCV3)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	2.58	0.0300	0.0500	0.100	mg/kg	2.500		103	90-110			

Calibration Check (B18L042-CCV4)						Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018						
Chromium (VI)	2.72	0.0300	0.0500	0.100	mg/kg	2.500		109	90-110			

Duplicate (B18L042-DUP1)						Source: 18J0402-02		Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018				
Chromium (VI)	0.0218	0.0109	0.0182	0.0364	mg/kg		0.0198			9.63	20	J

Matrix Spike (B18L042-MS1)						Source: 18J0402-02		Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018				
Chromium (VI)	0.0319	0.0120	0.0199	0.0399	mg/kg	0.9973	0.0198	1.21	80-120			QM-07, Z-03, J

Matrix Spike (B18L042-MS2)						Source: 18J0402-01		Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018				
Chromium (VI)	24.3				ug/L	100.0	0.549	23.8	80-120			QM-07, Z-03

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18L042 - Default Prep Metals

Matrix Spike Dup (B18L042-MSD1)		Source: 18J0402-02			Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018							
Chromium (VI)	0.0240	0.0120	0.0200	0.0400	mg/kg	1.000	0.0198	0.418	80-120	97.5	20	QM-07, RPD-06,
Matrix Spike Dup (B18L042-MSD2)		Source: 18J0402-01			Prepared: 10-Oct-2018 Analyzed: 11-Oct-2018							
Chromium (VI)	24.1				ug/L	100.0	0.549	23.6	80-120	0.846	20	QM-07, Z-03

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCV1)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

Toxaphene	291				ug/L	300.0		97.0	85-115			
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Calibration Check (18K0023-CCV3)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDT	88.1				ug/L	75.00		117	85-115			Q-CCV
Aldrin	86.0				ug/L	75.00		115	85-115			
alpha-BHC	89.9				ug/L	75.00		120	85-115			Q-CCV
alpha-Chlordane	166				ug/L	150.0		111	85-115			
beta-BHC	83.2				ug/L	75.00		111	85-115			
cis-Nonachlor	85.8				ug/L	75.00		114	85-115			
delta-BHC	90.8				ug/L	75.00		121	85-115			CCV-HA
Dieldrin	87.6				ug/L	75.00		117	85-115			Q-CCV
Endosulfan I	176				ug/L	150.0		117	85-115			Q-CCV
Endosulfan II	84.4				ug/L	75.00		113	85-115			
Endosulfan sulfate	87.0				ug/L	75.00		116	85-115			Q-CCV
Endrin	90.6				ug/L	75.00		121	85-115			CCV-HA
Endrin aldehyde	85.6				ug/L	75.00		114	85-115			
gamma-BHC (Lindane)	90.5				ug/L	75.00		121	85-115			CCV-H
gamma-Chlordane	87.3				ug/L	75.00		116	85-115			Q-CCV
Heptachlor	89.2				ug/L	75.00		119	85-115			Q-CCV
Heptachlor epoxide	82.8				ug/L	75.00		110	85-115			
Methoxychlor	78.8				ug/L	75.00		105	85-115			
Oxychlordane	85.3				ug/L	75.00		114	85-115			
trans-Nonachlor	165				ug/L	150.0		110	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	85.4				ug/L	75.00		114	30-150			
Surrogate: PCB 198	82.5				ug/L	75.00		110	30-150			

Calibration Check (18K0023-CCV4)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

Toxaphene	278				ug/L	300.0		92.7	85-115			
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCV5)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDT	17.4				ug/L	20.00		87.0	85-115			
Aldrin	21.1				ug/L	20.00		106	85-115			
alpha-BHC	23.0				ug/L	20.00		115	85-115			
alpha-Chlordane	43.2				ug/L	40.00		108	85-115			
beta-BHC	22.0				ug/L	20.00		110	85-115			
cis-Nonachlor	19.8				ug/L	20.00		99.0	85-115			
delta-BHC	22.8				ug/L	20.00		114	85-115			
Dieldrin	21.3				ug/L	20.00		106	85-115			
Endosulfan I	45.4				ug/L	40.00		114	85-115			
Endosulfan II	19.8				ug/L	20.00		99.0	85-115			
Endosulfan sulfate	19.4				ug/L	20.00		97.0	85-115			
Endrin	20.4				ug/L	20.00		102	85-115			
Endrin aldehyde	19.5				ug/L	20.00		97.5	85-115			
gamma-BHC (Lindane)	22.3				ug/L	20.00		112	85-115			
gamma-Chlordane	21.2				ug/L	20.00		106	85-115			
Heptachlor	21.8				ug/L	20.00		109	85-115			
Heptachlor epoxide	21.3				ug/L	20.00		106	85-115			
Methoxychlor	18.1				ug/L	20.00		90.5	85-115			
Oxychlordane	20.9				ug/L	20.00		104	85-115			
trans-Nonachlor	43.1				ug/L	40.00		108	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	21.4				ug/L	20.00		107	30-150			
Surrogate: PCB 198	18.6				ug/L	20.00		93.0	30-150			

Calibration Check (18K0023-CCV6)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDT	17.7				ug/L	20.00		88.5	85-115			
Aldrin	22.1				ug/L	20.00		110	85-115			
alpha-BHC	23.0				ug/L	20.00		115	85-115			
alpha-Chlordane	44.8				ug/L	40.00		112	85-115			
beta-BHC	22.1				ug/L	20.00		110	85-115			

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCV6)						Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018						
cis-Nonachlor	21.4				ug/L	20.00		107	85-115			
delta-BHC	22.9				ug/L	20.00		114	85-115			
Dieldrin	22.7				ug/L	20.00		114	85-115			
Endosulfan I	46.7				ug/L	40.00		117	85-115			Q-CCV
Endosulfan II	21.3				ug/L	20.00		106	85-115			
Endosulfan sulfate	20.2				ug/L	20.00		101	85-115			
Endrin	21.5				ug/L	20.00		108	85-115			
Endrin aldehyde	20.8				ug/L	20.00		104	85-115			
gamma-BHC (Lindane)	23.0				ug/L	20.00		115	85-115			
gamma-Chlordane	21.8				ug/L	20.00		109	85-115			
Heptachlor	22.1				ug/L	20.00		110	85-115			
Heptachlor epoxide	21.8				ug/L	20.00		109	85-115			
Methoxychlor	17.1				ug/L	20.00		85.5	85-115			
Oxychlordane	22.0				ug/L	20.00		110	85-115			
trans-Nonachlor	44.7				ug/L	40.00		112	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	20.6				ug/L	20.00		103	30-150			
Surrogate: PCB 198	18.7				ug/L	20.00		93.5	30-150			

Calibration Check (18K0023-CCV7)						Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018						
Toxaphene	287				ug/L	300.0		95.7	85-115			

Calibration Check (18K0023-CCV8)						Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018						
4,4'-DDT	17.2				ug/L	20.00		86.0	85-115			
Aldrin	23.0				ug/L	20.00		115	85-115			
alpha-BHC	24.1				ug/L	20.00		120	85-115			Q-CCV
alpha-Chlordane	47.4				ug/L	40.00		118	85-115			Q-CCV
beta-BHC	22.6				ug/L	20.00		113	85-115			
cis-Nonachlor	20.3				ug/L	20.00		102	85-115			
delta-BHC	23.5				ug/L	20.00		118	85-115			Q-CCV
Dieldrin	23.3				ug/L	20.00		116	85-115			Q-CCV

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Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCV8)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

Endosulfan I	50.2				ug/L	40.00		126	85-115			CCV-HA
Endosulfan II	23.0				ug/L	20.00		115	85-115			
Endosulfan sulfate	22.6				ug/L	20.00		113	85-115			
Endrin	23.0				ug/L	20.00		115	85-115			
Endrin aldehyde	22.9				ug/L	20.00		114	85-115			
gamma-BHC (Lindane)	24.6				ug/L	20.00		123	85-115			CCV-HA
gamma-Chlordane	22.1				ug/L	20.00		110	85-115			
Heptachlor	22.8				ug/L	20.00		114	85-115			
Heptachlor epoxide	22.8				ug/L	20.00		114	85-115			
Methoxychlor	18.9				ug/L	20.00		94.5	85-115			
Oxychlordane	23.0				ug/L	20.00		115	85-115			
trans-Nonachlor	47.4				ug/L	40.00		118	85-115			Q-CCV
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	21.6				ug/L	20.00		108	30-150			
Surrogate: PCB 198	20.4				ug/L	20.00		102	30-150			

Calibration Check (18K0023-CCV9)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

Toxaphene	267				ug/L	300.0		89.0	85-115			
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Initial Cal Blank (18K0023-ICB1)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDT	0.00				ug/L							U
Aldrin	0.00				ug/L							U
alpha-BHC	0.00				ug/L							U
alpha-Chlordane	0.00				ug/L							U
beta-BHC	0.00				ug/L							U
cis-Nonachlor	0.00				ug/L							U
delta-BHC	0.00				ug/L							U
Dieldrin	0.00				ug/L							U
Endosulfan I	0.00				ug/L							U
Endosulfan II	0.00				ug/L							U
Endosulfan sulfate	0.00				ug/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Initial Cal Blank (18K0023-ICB1)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

Endrin	0.00				ug/L							U
Endrin aldehyde	0.00				ug/L							U
gamma-BHC (Lindane)	0.00				ug/L							U
gamma-Chlordane	0.00				ug/L							U
Heptachlor	0.00				ug/L							U
Heptachlor epoxide	0.00				ug/L							U
Methoxychlor	0.00				ug/L							U
Oxychlordane	0.00				ug/L							U
Toxaphene	0.00				ug/L							U
trans-Nonachlor	0.00				ug/L							U

Initial Cal Check (18K0023-ICV1)

Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018

4,4'-DDT	16.1				ug/L	20.00		80.5	80-120			
Aldrin	18.0				ug/L	20.00		90.0	80-120			
alpha-BHC	18.4				ug/L	20.00		92.0	80-120			
alpha-Chlordane	34.8				ug/L	40.00		87.0	80-120			
beta-BHC	16.5				ug/L	20.00		82.5	80-120			
cis-Nonachlor	16.8				ug/L	20.00		84.0	80-120			
delta-BHC	22.6				ug/L	20.00		113	80-120			
Dieldrin	18.4				ug/L	20.00		92.0	80-120			
Endosulfan I	37.0				ug/L	40.00		92.5	80-120			
Endosulfan II	16.7				ug/L	20.00		83.5	80-120			
Endosulfan sulfate	18.3				ug/L	20.00		91.5	80-120			
Endrin	19.1				ug/L	20.00		95.5	80-120			
Endrin aldehyde	17.6				ug/L	20.00		88.0	80-120			
gamma-BHC (Lindane)	18.2				ug/L	20.00		91.0	80-120			
gamma-Chlordane	17.0				ug/L	20.00		85.0	80-120			
Heptachlor	17.3				ug/L	20.00		86.5	80-120			
Heptachlor epoxide	18.2				ug/L	20.00		91.0	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Initial Cal Check (18K0023-ICV1)						Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018						
Methoxychlor	16.7				ug/L	20.00		83.5	80-120			
Oxychlorane	17.3				ug/L	20.00		86.5	80-120			
trans-Nonachlor	34.8				ug/L	40.00		87.0	80-120			

Initial Cal Check (18K0023-ICV2)						Prepared: 18-Nov-2018 Analyzed: 20-Nov-2018						
Toxaphene	0.00				ug/L	300.0			80-120			Z-03, U

Batch B18J145 - EPA 3545

Blank (B18J145-BLK1)						Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018						
4,4'-DDD	ND	0.028	0.068	0.169	ug/kg wet							U
4,4'-DDE	ND	0.029	0.068	0.169	ug/kg wet							U
4,4'-DDT	ND	0.023	0.068	0.169	ug/kg wet							U
Aldrin	ND	0.023	0.068	0.169	ug/kg wet							U
alpha-BHC	ND	0.034	0.068	0.169	ug/kg wet							U
alpha-Chlordane	ND	0.030	0.068	0.169	ug/kg wet							U
beta-BHC	ND	0.056	0.068	0.169	ug/kg wet							U
cis-Nonachlor	ND	0.032	0.068	0.169	ug/kg wet							U
delta-BHC	ND	0.033	0.068	0.169	ug/kg wet							U
Dieldrin	ND	0.022	0.068	0.169	ug/kg wet							U
Endosulfan I	ND	0.029	0.068	0.169	ug/kg wet							U
Endosulfan II	ND	0.026	0.068	0.169	ug/kg wet							U
Endosulfan sulfate	ND	0.029	0.068	0.169	ug/kg wet							U
Endrin	ND	0.025	0.068	0.169	ug/kg wet							U
Endrin aldehyde	ND	0.030	0.068	0.169	ug/kg wet							U
Endrin ketone	ND	0.021	0.053	0.133	ug/kg wet							U
gamma-BHC (Lindane)	ND	0.026	0.068	0.169	ug/kg wet							U
gamma-Chlordane	ND	0.022	0.068	0.169	ug/kg wet							U
Heptachlor	ND	0.059	0.068	0.169	ug/kg wet							U
Heptachlor epoxide	ND	0.025	0.068	0.169	ug/kg wet							U
Methoxychlor	ND	0.029	0.068	0.169	ug/kg wet							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Blank (B18J145-BLK1)

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

Oxychlorane	ND	0.029	0.068	0.169	ug/kg wet							U
Toxaphene	ND	1.90	2.54	8.47	ug/kg wet							U
trans-Nonachlor	ND	0.032	0.068	0.169	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	3.22				ug/kg wet	4.000		80.4	30-150			
Surrogate: PCB 198	4.81				ug/kg wet	4.000		120	30-150			

LCS (B18J145-BS1)

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

4,4'-DDD	4.13	0.028	0.068	0.169	ug/kg wet	4.000		103	50-150		30	
4,4'-DDE	5.86	0.029	0.068	0.169	ug/kg wet	8.000		73.2	50-150		30	
4,4'-DDT	3.64	0.023	0.068	0.169	ug/kg wet	4.000		91.0	50-150		30	
Aldrin	2.95	0.023	0.068	0.169	ug/kg wet	4.000		73.7	50-150		30	
alpha-BHC	3.44	0.034	0.068	0.169	ug/kg wet	4.000		85.9	50-150		30	
alpha-Chlordane	7.08	0.030	0.068	0.169	ug/kg wet	8.000		88.5	50-150		30	
beta-BHC	3.01	0.056	0.068	0.169	ug/kg wet	4.000		75.4	50-150		30	
cis-Nonachlor	3.47	0.032	0.068	0.169	ug/kg wet	4.000		86.8	50-150		30	
delta-BHC	2.95	0.033	0.068	0.169	ug/kg wet	4.000		73.7	50-150		30	
Dieldrin	3.23	0.022	0.068	0.169	ug/kg wet	4.000		80.9	50-150		30	
Endosulfan I	5.88	0.029	0.068	0.169	ug/kg wet	8.000		73.4	50-150		30	
Endosulfan II	2.74	0.026	0.068	0.169	ug/kg wet	4.000		68.6	50-150		30	
Endosulfan sulfate	2.62	0.029	0.068	0.169	ug/kg wet	4.000		65.6	50-150		30	
Endrin	3.25	0.025	0.068	0.169	ug/kg wet	4.000		81.3	50-150		30	
Endrin aldehyde	1.02	0.030	0.068	0.169	ug/kg wet	4.000		25.4	50-150		30	Qa
Endrin ketone	ND	0.021	0.053	0.133	ug/kg wet	4.000			50-150		30	U
gamma-BHC (Lindane)	2.96	0.026	0.068	0.169	ug/kg wet	4.000		74.1	50-150		30	
gamma-Chlordane	3.29	0.022	0.068	0.169	ug/kg wet	4.000		82.1	50-150		30	
Heptachlor	3.39	0.059	0.068	0.169	ug/kg wet	4.000		84.7	50-150		30	
Heptachlor epoxide	3.23	0.025	0.068	0.169	ug/kg wet	4.000		80.9	50-150		30	
Methoxychlor	3.66	0.029	0.068	0.169	ug/kg wet	4.000		91.4	50-150		30	
Oxychlorane	4.25	0.029	0.068	0.169	ug/kg wet	4.000		106	50-150		30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

LCS (B18J145-BS1)

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

Toxaphene	ND	1.90	2.54	8.47	ug/kg wet				50-150		30	U
trans-Nonachlor	7.06	0.032	0.068	0.169	ug/kg wet	8.000		88.3	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.44				ug/kg wet	4.000		61.0	50-150			
Surrogate: PCB 198	4.17				ug/kg wet	4.000		104	50-150			

LCS (B18J145-BS2)

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

4,4'-DDD	ND	0.022	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDE	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDT	ND	0.018	0.053	0.133	ug/kg wet				50-150		30	U
Aldrin	ND	0.018	0.053	0.133	ug/kg wet				50-150		30	U
alpha-BHC	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
alpha-Chlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
beta-BHC	ND	0.044	0.053	0.133	ug/kg wet				50-150		30	U
cis-Nonachlor	ND	0.025	0.053	0.133	ug/kg wet				50-150		30	U
delta-BHC	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
Dieldrin	ND	0.017	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan I	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan II	ND	0.020	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan sulfate	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Endrin	ND	0.019	0.053	0.133	ug/kg wet				50-150		30	U
Endrin aldehyde	ND	0.024	0.053	0.133	ug/kg wet				50-150		30	U
Endrin ketone	ND	0.021	0.053	0.133	ug/kg wet				50-150		30	U
gamma-BHC (Lindane)	ND	0.021	0.053	0.133	ug/kg wet				50-150		30	U
gamma-Chlordane	ND	0.017	0.053	0.133	ug/kg wet				50-150		30	U
Heptachlor	ND	0.047	0.053	0.133	ug/kg wet				50-150		30	U
Heptachlor epoxide	ND	0.019	0.053	0.133	ug/kg wet				50-150		30	U
Methoxychlor	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Oxychlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Toxaphene	39.5	1.90	2.54	8.47	ug/kg wet	40.00		98.6	50-150		30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

LCS (B18J145-BS2)		Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018										
trans-Nonachlor	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.52				ug/kg wet	4.000		63.1	50-150			
Surrogate: PCB 198	5.16				ug/kg wet	4.000		129	50-150			

LCS (B18J145-BS3)		Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018										
4,4'-DDD	ND	0.022	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDE	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDT	ND	0.018	0.053	0.133	ug/kg wet				50-150		30	U
Aldrin	ND	0.018	0.053	0.133	ug/kg wet				50-150		30	U
alpha-BHC	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
alpha-Chlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
beta-BHC	ND	0.044	0.053	0.133	ug/kg wet				50-150		30	U
cis-Nonachlor	ND	0.025	0.053	0.133	ug/kg wet				50-150		30	U
delta-BHC	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
Dieldrin	ND	0.017	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan I	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan II	ND	0.020	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan sulfate	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Endrin	ND	0.019	0.053	0.133	ug/kg wet				50-150		30	U
Endrin aldehyde	ND	0.024	0.053	0.133	ug/kg wet				50-150		30	U
Endrin ketone	ND	0.021	0.053	0.133	ug/kg wet				50-150		30	U
gamma-BHC (Lindane)	ND	0.021	0.053	0.133	ug/kg wet				50-150		30	U
gamma-Chlordane	ND	0.017	0.053	0.133	ug/kg wet				50-150		30	U
Heptachlor	ND	0.047	0.053	0.133	ug/kg wet				50-150		30	U
Heptachlor epoxide	ND	0.019	0.053	0.133	ug/kg wet				50-150		30	U
Methoxychlor	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Oxychlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Toxaphene	ND	1.50	2.00	6.67	ug/kg wet				50-150		30	U
trans-Nonachlor	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

LCS (B18J145-BS3)						Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018						
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/kg wet	4.000			50-150			U
Surrogate: PCB 198	0.00				ug/kg wet	4.000			50-150			U

LCS Dup (B18J145-BSD1)						Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018						
4,4'-DDD	4.13	0.028	0.068	0.169	ug/kg wet	4.000		103	50-150	0.00	30	
4,4'-DDE	6.49	0.029	0.068	0.169	ug/kg wet	8.000		81.1	50-150	10.2	30	
4,4'-DDT	3.96	0.023	0.068	0.169	ug/kg wet	4.000		99.1	50-150	8.46	30	
Aldrin	3.12	0.023	0.068	0.169	ug/kg wet	4.000		77.9	50-150	5.59	30	
alpha-BHC	3.66	0.034	0.068	0.169	ug/kg wet	4.000		91.4	50-150	6.21	30	
alpha-Chlordane	7.72	0.030	0.068	0.169	ug/kg wet	8.000		96.5	50-150	8.70	30	
beta-BHC	3.05	0.056	0.068	0.169	ug/kg wet	4.000		76.2	50-150	1.12	30	
cis-Nonachlor	3.73	0.032	0.068	0.169	ug/kg wet	4.000		93.1	50-150	7.06	30	
delta-BHC	3.20	0.033	0.068	0.169	ug/kg wet	4.000		80.0	50-150	8.26	30	
Dieldrin	3.67	0.022	0.068	0.169	ug/kg wet	4.000		91.9	50-150	12.7	30	
Endosulfan I	6.50	0.029	0.068	0.169	ug/kg wet	8.000		81.3	50-150	10.1	30	
Endosulfan II	3.35	0.026	0.068	0.169	ug/kg wet	4.000		83.8	50-150	20.0	30	
Endosulfan sulfate	3.37	0.029	0.068	0.169	ug/kg wet	4.000		84.2	50-150	24.9	30	
Endrin	3.79	0.025	0.068	0.169	ug/kg wet	4.000		94.8	50-150	15.4	30	
Endrin aldehyde	1.69	0.030	0.068	0.169	ug/kg wet	4.000		42.3	50-150	50.0	30	Qa
Endrin ketone	ND	0.021	0.053	0.133	ug/kg wet	4.000			50-150		30	U
gamma-BHC (Lindane)	3.27	0.026	0.068	0.169	ug/kg wet	4.000		81.7	50-150	9.78	30	
gamma-Chlordane	3.56	0.022	0.068	0.169	ug/kg wet	4.000		88.9	50-150	7.92	30	
Heptachlor	3.71	0.059	0.068	0.169	ug/kg wet	4.000		92.7	50-150	9.07	30	
Heptachlor epoxide	3.67	0.025	0.068	0.169	ug/kg wet	4.000		91.9	50-150	12.7	30	
Methoxychlor	3.98	0.029	0.068	0.169	ug/kg wet	4.000		99.5	50-150	8.43	30	
Oxychlordane	4.79	0.029	0.068	0.169	ug/kg wet	4.000		120	50-150	12.0	30	
Toxaphene	ND	1.50	2.00	6.67	ug/kg wet				50-150		30	U
trans-Nonachlor	7.72	0.032	0.068	0.169	ug/kg wet	8.000		96.5	50-150	8.93	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.61				ug/kg wet	4.000		65.2	50-150			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

LCS Dup (B18J145-BSD1)

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

Surrogate: PCB 198	4.71				ug/kg wet	4.000		118	50-150			
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LCS Dup (B18J145-BSD2)

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

4,4'-DDD	ND	0.022	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDE	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDT	ND	0.018	0.053	0.133	ug/kg wet				50-150		30	U
Aldrin	ND	0.018	0.053	0.133	ug/kg wet				50-150		30	U
alpha-BHC	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
alpha-Chlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
beta-BHC	ND	0.044	0.053	0.133	ug/kg wet				50-150		30	U
cis-Nonachlor	ND	0.025	0.053	0.133	ug/kg wet				50-150		30	U
delta-BHC	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
Dieldrin	ND	0.017	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan I	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan II	ND	0.020	0.053	0.133	ug/kg wet				50-150		30	U
Endosulfan sulfate	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Endrin	ND	0.019	0.053	0.133	ug/kg wet				50-150		30	U
Endrin aldehyde	ND	0.024	0.053	0.133	ug/kg wet				50-150		30	U
Endrin ketone	ND	0.021	0.053	0.133	ug/kg wet				50-150		30	U
gamma-BHC (Lindane)	ND	0.021	0.053	0.133	ug/kg wet				50-150		30	U
gamma-Chlordane	ND	0.017	0.053	0.133	ug/kg wet				50-150		30	U
Heptachlor	ND	0.047	0.053	0.133	ug/kg wet				50-150		30	U
Heptachlor epoxide	ND	0.019	0.053	0.133	ug/kg wet				50-150		30	U
Methoxychlor	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Oxychlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Toxaphene	31.7	1.50	2.00	6.67	ug/kg wet	40.00		79.3	50-150	21.7	30	
trans-Nonachlor	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.01				ug/kg wet	4.000		50.3	50-150			
Surrogate: PCB 198	3.73				ug/kg wet	4.000		93.3	50-150			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

LCS Dup (B18J145-BSD3)

Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018

4,4'-DDD	ND	0.028	0.068	0.169	ug/kg wet				50-150		30	U
4,4'-DDE	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
4,4'-DDT	ND	0.023	0.068	0.169	ug/kg wet				50-150		30	U
Aldrin	ND	0.023	0.068	0.169	ug/kg wet				50-150		30	U
alpha-BHC	ND	0.034	0.068	0.169	ug/kg wet				50-150		30	U
alpha-Chlordane	ND	0.030	0.068	0.169	ug/kg wet				50-150		30	U
beta-BHC	ND	0.056	0.068	0.169	ug/kg wet				50-150		30	U
cis-Nonachlor	ND	0.025	0.053	0.133	ug/kg wet				50-150		30	U
delta-BHC	ND	0.033	0.068	0.169	ug/kg wet				50-150		30	U
Dieldrin	ND	0.022	0.068	0.169	ug/kg wet				50-150		30	U
Endosulfan I	ND	0.029	0.068	0.169	ug/kg wet				50-150		30	U
Endosulfan II	ND	0.026	0.068	0.169	ug/kg wet				50-150		30	U
Endosulfan sulfate	ND	0.029	0.068	0.169	ug/kg wet				50-150		30	U
Endrin	ND	0.025	0.068	0.169	ug/kg wet				50-150		30	U
Endrin aldehyde	ND	0.030	0.068	0.169	ug/kg wet				50-150		30	U
Endrin ketone	ND	0.027	0.068	0.169	ug/kg wet				50-150		30	U
gamma-BHC (Lindane)	ND	0.026	0.068	0.169	ug/kg wet				50-150		30	U
gamma-Chlordane	ND	0.022	0.068	0.169	ug/kg wet				50-150		30	U
Heptachlor	ND	0.059	0.068	0.169	ug/kg wet				50-150		30	U
Heptachlor epoxide	ND	0.025	0.068	0.169	ug/kg wet				50-150		30	U
Methoxychlor	ND	0.029	0.068	0.169	ug/kg wet				50-150		30	U
Oxychlordane	ND	0.023	0.053	0.133	ug/kg wet				50-150		30	U
Toxaphene	ND	1.90	2.54	8.47	ug/kg wet				50-150		30	U
trans-Nonachlor	ND	0.026	0.053	0.133	ug/kg wet				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/kg wet	4.000			50-150			U
Surrogate: PCB 198	0.00				ug/kg wet	4.000			50-150			U

Duplicate (B18J145-DUP1)

Source: 18J0402-02

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

4,4'-DDD	7.52	0.025	0.060	0.150	ug/kg dry		9.83			26.6	30	
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Duplicate (B18J145-DUP1)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018							
4,4'-DDE	2.10	0.026	0.060	0.150	ug/kg dry		3.39			47.1	30	RPD-06
4,4'-DDT	ND	0.020	0.060	0.150	ug/kg dry		ND				30	U
Aldrin	ND	0.020	0.060	0.150	ug/kg dry		ND				30	U
alpha-BHC	ND	0.030	0.060	0.150	ug/kg dry		ND				30	U
alpha-Chlordane	ND	0.026	0.060	0.150	ug/kg dry		ND				30	U
beta-BHC	ND	0.050	0.060	0.150	ug/kg dry		ND				30	U
cis-Nonachlor	ND	0.029	0.060	0.150	ug/kg dry		ND				30	U
delta-BHC	ND	0.029	0.060	0.150	ug/kg dry		ND				30	U
Dieldrin	ND	0.019	0.060	0.150	ug/kg dry		ND				30	U
Endosulfan I	ND	0.026	0.060	0.150	ug/kg dry		ND				30	U
Endosulfan II	ND	0.023	0.060	0.150	ug/kg dry		ND				30	U
Endosulfan sulfate	ND	0.025	0.060	0.150	ug/kg dry		ND				30	U
Endrin	ND	0.022	0.060	0.150	ug/kg dry		ND				30	U
Endrin aldehyde	ND	0.027	0.060	0.150	ug/kg dry		ND				30	U
Endrin ketone	ND	0.019	0.047	0.118	ug/kg dry		ND				30	U
gamma-BHC (Lindane)	0.637	0.023	0.060	0.150	ug/kg dry		0.857			29.5	30	
gamma-Chlordane	ND	0.019	0.060	0.150	ug/kg dry		2.15				30	U
Heptachlor	ND	0.052	0.060	0.150	ug/kg dry		ND				30	U
Heptachlor epoxide	ND	0.022	0.060	0.150	ug/kg dry		ND				30	U
Methoxychlor	ND	0.026	0.060	0.150	ug/kg dry		ND				30	U
Oxychlordane	ND	0.026	0.060	0.150	ug/kg dry		3.61				30	U
Toxaphene	ND	1.69	2.25	7.49	ug/kg dry		ND				30	U
trans-Nonachlor	ND	0.029	0.060	0.150	ug/kg dry		ND				30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.26				ug/kg dry	3.540		63.9	30-150			
Surrogate: PCB 198	3.99				ug/kg dry	3.540		113	30-150			

Matrix Spike (B18J145-MS1)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018							
4,4'-DDD	14.1	0.031	0.075	0.189	ug/kg dry	4.457	9.83	97.0	50-150		30	
4,4'-DDE	10.3	0.033	0.075	0.189	ug/kg dry	8.913	3.39	77.6	50-150		30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike (B18J145-MS1)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018							
4,4'-DDT	3.17	0.026	0.075	0.189	ug/kg dry	4.457	ND	71.1	50-150		30	
Aldrin	3.15	0.025	0.075	0.189	ug/kg dry	4.457	ND	70.7	50-150		30	
alpha-BHC	2.34	0.037	0.075	0.189	ug/kg dry	4.457	ND	52.5	50-150		30	
alpha-Chlordane	7.47	0.033	0.075	0.189	ug/kg dry	8.913	ND	83.8	50-150		30	
beta-BHC	ND	0.063	0.075	0.189	ug/kg dry	4.457	ND		50-150		30	Z-02, U
cis-Nonachlor	2.58	0.036	0.075	0.189	ug/kg dry	4.457	ND	58.0	50-150		30	
delta-BHC	2.55	0.036	0.075	0.189	ug/kg dry	4.457	ND	57.2	50-150		30	
Dieldrin	3.43	0.024	0.075	0.189	ug/kg dry	4.457	ND	77.0	50-150		30	
Endosulfan I	5.17	0.032	0.075	0.189	ug/kg dry	8.913	ND	58.0	50-150		30	
Endosulfan II	1.01	0.029	0.075	0.189	ug/kg dry	4.457	ND	22.6	50-150		30	QM-07
Endosulfan sulfate	3.08	0.032	0.075	0.189	ug/kg dry	4.457	ND	69.0	50-150		30	
Endrin	3.47	0.028	0.075	0.189	ug/kg dry	4.457	ND	77.9	50-150		30	
Endrin aldehyde	2.33	0.034	0.075	0.189	ug/kg dry	4.457	ND	52.3	50-150		30	
Endrin ketone	ND	0.023	0.059	0.149	ug/kg dry	4.457	ND		50-150		30	U
gamma-BHC (Lindane)	3.41	0.029	0.075	0.189	ug/kg dry	4.457	0.857	57.4	50-150		30	
gamma-Chlordane	5.47	0.024	0.075	0.189	ug/kg dry	4.457	2.15	74.5	50-150		30	
Heptachlor	2.40	0.066	0.075	0.189	ug/kg dry	4.457	ND	53.8	50-150		30	
Heptachlor epoxide	2.66	0.027	0.075	0.189	ug/kg dry	4.457	ND	59.7	50-150		30	
Methoxychlor	6.38	0.032	0.075	0.189	ug/kg dry	4.457	ND	143	50-150		30	
Oxychlordane	7.64	0.032	0.075	0.189	ug/kg dry	4.457	3.61	90.4	50-150		30	
Toxaphene	ND	2.12	2.83	9.43	ug/kg dry		ND		50-150		30	U
trans-Nonachlor	7.47	0.036	0.075	0.189	ug/kg dry	8.913	ND	83.8	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	3.53				ug/kg dry	4.457		79.2	50-150			
Surrogate: PCB 198	5.58				ug/kg dry	4.457		125	50-150			

Matrix Spike (B18J145-MS2)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018							
4,4'-DDD	ND	0.029	0.070	0.176	ug/kg dry		9.83		50-150		30	U
4,4'-DDE	ND	0.030	0.070	0.176	ug/kg dry		3.39		50-150		30	U
4,4'-DDT	ND	0.024	0.070	0.176	ug/kg dry		ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike (B18J145-MS2)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018							
Aldrin	ND	0.024	0.070	0.176	ug/kg dry	ND			50-150		30	U
alpha-BHC	ND	0.035	0.070	0.176	ug/kg dry	ND			50-150		30	U
alpha-Chlordane	ND	0.031	0.070	0.176	ug/kg dry	ND			50-150		30	U
beta-BHC	ND	0.059	0.070	0.176	ug/kg dry	ND			50-150		30	U
cis-Nonachlor	ND	0.034	0.070	0.176	ug/kg dry	ND			50-150		30	U
delta-BHC	ND	0.034	0.070	0.176	ug/kg dry	ND			50-150		30	U
Dieldrin	ND	0.023	0.070	0.176	ug/kg dry	ND			50-150		30	U
Endosulfan I	ND	0.030	0.070	0.176	ug/kg dry	ND			50-150		30	U
Endosulfan II	ND	0.027	0.070	0.176	ug/kg dry	ND			50-150		30	U
Endosulfan sulfate	ND	0.030	0.070	0.176	ug/kg dry	ND			50-150		30	U
Endrin	ND	0.026	0.070	0.176	ug/kg dry	ND			50-150		30	U
Endrin aldehyde	ND	0.032	0.070	0.176	ug/kg dry	ND			50-150		30	U
Endrin ketone	ND	0.022	0.055	0.139	ug/kg dry	ND			50-150		30	U
gamma-BHC (Lindane)	ND	0.027	0.070	0.176	ug/kg dry	0.857			50-150		30	U
gamma-Chlordane	ND	0.023	0.070	0.176	ug/kg dry	2.15			50-150		30	U
Heptachlor	ND	0.062	0.070	0.176	ug/kg dry	ND			50-150		30	U
Heptachlor epoxide	ND	0.026	0.070	0.176	ug/kg dry	ND			50-150		30	U
Methoxychlor	ND	0.030	0.070	0.176	ug/kg dry	ND			50-150		30	U
Oxychlordane	ND	0.030	0.070	0.176	ug/kg dry	3.61			50-150		30	U
Toxaphene	ND	1.98	2.64	8.81	ug/kg dry	41.61	ND		50-150		30	U
trans-Nonachlor	ND	0.034	0.070	0.176	ug/kg dry	ND			50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/kg dry	4.161			50-150			U
Surrogate: PCB 198	0.00				ug/kg dry	4.161			50-150			U

Matrix Spike (B18J145-MS3)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018							
4,4'-DDD	ND	0.032	0.077	0.193	ug/kg dry		9.83		50-150		30	U
4,4'-DDE	ND	0.033	0.077	0.193	ug/kg dry		3.39		50-150		30	U
4,4'-DDT	ND	0.026	0.077	0.193	ug/kg dry		ND		50-150		30	U
Aldrin	ND	0.026	0.077	0.193	ug/kg dry		ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike (B18J145-MS3)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018							
alpha-BHC	ND	0.038	0.077	0.193	ug/kg dry	ND			50-150		30	U
alpha-Chlordane	ND	0.034	0.077	0.193	ug/kg dry	ND			50-150		30	U
beta-BHC	ND	0.064	0.077	0.193	ug/kg dry	ND			50-150		30	U
cis-Nonachlor	ND	0.037	0.077	0.193	ug/kg dry	ND			50-150		30	U
delta-BHC	ND	0.037	0.077	0.193	ug/kg dry	ND			50-150		30	U
Dieldrin	ND	0.025	0.077	0.193	ug/kg dry	ND			50-150		30	U
Endosulfan I	ND	0.033	0.077	0.193	ug/kg dry	ND			50-150		30	U
Endosulfan II	ND	0.029	0.077	0.193	ug/kg dry	ND			50-150		30	U
Endosulfan sulfate	ND	0.033	0.077	0.193	ug/kg dry	ND			50-150		30	U
Endrin	ND	0.028	0.077	0.193	ug/kg dry	ND			50-150		30	U
Endrin aldehyde	ND	0.035	0.077	0.193	ug/kg dry	ND			50-150		30	U
Endrin ketone	ND	0.024	0.061	0.152	ug/kg dry	ND			50-150		30	U
gamma-BHC (Lindane)	ND	0.030	0.077	0.193	ug/kg dry	0.857			50-150		30	U
gamma-Chlordane	ND	0.025	0.077	0.193	ug/kg dry	2.15			50-150		30	U
Heptachlor	ND	0.068	0.077	0.193	ug/kg dry	ND			50-150		30	U
Heptachlor epoxide	ND	0.028	0.077	0.193	ug/kg dry	ND			50-150		30	U
Methoxychlor	ND	0.033	0.077	0.193	ug/kg dry	ND			50-150		30	U
Oxychlordane	ND	0.033	0.077	0.193	ug/kg dry	3.61			50-150		30	U
Toxaphene	ND	2.17	2.90	9.65	ug/kg dry	ND			50-150		30	U
trans-Nonachlor	ND	0.037	0.077	0.193	ug/kg dry	ND			50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/kg dry	4.560			50-150			U
Surrogate: PCB 198	0.00				ug/kg dry	4.560			50-150			U

Matrix Spike Dup (B18J145-MSD1)	Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018							
4,4'-DDD	13.1	0.029	0.070	0.175	ug/kg dry	4.140	9.83	80.1	50-150	7.36	30	
4,4'-DDE	9.57	0.030	0.070	0.175	ug/kg dry	8.281	3.39	74.6	50-150	7.36	30	
4,4'-DDT	3.49	0.024	0.070	0.175	ug/kg dry	4.140	ND	84.2	50-150	9.57	30	
Aldrin	3.19	0.024	0.070	0.175	ug/kg dry	4.140	ND	77.0	50-150	1.24	30	
alpha-BHC	2.63	0.035	0.070	0.175	ug/kg dry	4.140	ND	63.5	50-150	11.7	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike Dup (B18J145-MSD1)

Source: 18J0402-02

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

alpha-Chlordane	7.29	0.031	0.070	0.175	ug/kg dry	8.281	ND	88.1	50-150	2.43	30	
beta-BHC	ND	0.058	0.070	0.175	ug/kg dry	4.140	ND		50-150		30	Z-02, U
cis-Nonachlor	2.42	0.033	0.070	0.175	ug/kg dry	4.140	ND	58.4	50-150	6.63	30	
delta-BHC	2.77	0.034	0.070	0.175	ug/kg dry	4.140	ND	66.9	50-150	8.37	30	
Dieldrin	3.24	0.022	0.070	0.175	ug/kg dry	4.140	ND	78.3	50-150	5.72	30	
Endosulfan I	6.36	0.030	0.070	0.175	ug/kg dry	8.281	ND	76.8	50-150	20.7	30	
Endosulfan II	0.939	0.027	0.070	0.175	ug/kg dry	4.140	ND	22.7	50-150	7.17	30	QM-07
Endosulfan sulfate	2.72	0.030	0.070	0.175	ug/kg dry	4.140	ND	65.6	50-150	12.4	30	
Endrin	3.58	0.026	0.070	0.175	ug/kg dry	4.140	ND	86.4	50-150	2.96	30	
Endrin aldehyde	2.16	0.031	0.070	0.175	ug/kg dry	4.140	ND	52.3	50-150	7.36	30	
Endrin ketone	ND	0.022	0.055	0.138	ug/kg dry	4.140	ND		50-150		30	U
gamma-BHC (Lindane)	3.17	0.027	0.070	0.175	ug/kg dry	4.140	0.857	55.8	50-150	7.52	30	
gamma-Chlordane	4.68	0.022	0.070	0.175	ug/kg dry	4.140	2.15	61.0	50-150	15.6	30	
Heptachlor	2.23	0.061	0.070	0.175	ug/kg dry	4.140	ND	53.8	50-150	7.36	30	
Heptachlor epoxide	2.59	0.025	0.070	0.175	ug/kg dry	4.140	ND	62.7	50-150	2.51	30	
Methoxychlor	5.94	0.030	0.070	0.175	ug/kg dry	4.140	ND	144	50-150	7.06	30	
Oxychlordane	7.94	0.030	0.070	0.175	ug/kg dry	4.140	3.61	105	50-150	3.84	30	
Toxaphene	ND	1.97	2.63	8.76	ug/kg dry		ND		50-150		30	U
trans-Nonachlor	7.27	0.034	0.070	0.175	ug/kg dry	8.281	ND	87.8	50-150	2.67	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	3.07				ug/kg dry	4.140		74.1	50-150			
Surrogate: PCB 198	5.26				ug/kg dry	4.140		127	50-150			

Matrix Spike Dup (B18J145-MSD2)

Source: 18J0402-02

Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018

4,4'-DDD	ND	0.030	0.073	0.182	ug/kg dry		9.83		50-150		30	U
4,4'-DDE	ND	0.032	0.073	0.182	ug/kg dry		3.39		50-150		30	U
4,4'-DDT	ND	0.025	0.073	0.182	ug/kg dry		ND		50-150		30	U
Aldrin	ND	0.025	0.073	0.182	ug/kg dry		ND		50-150		30	U
alpha-BHC	ND	0.036	0.073	0.182	ug/kg dry		ND		50-150		30	U
alpha-Chlordane	ND	0.032	0.073	0.182	ug/kg dry		ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike Dup (B18J145-MSD2)		Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 20-Nov-2018						
beta-BHC	ND	0.061	0.073	0.182	ug/kg dry		ND		50-150		30	U
cis-Nonachlor	ND	0.035	0.073	0.182	ug/kg dry		ND		50-150		30	U
delta-BHC	ND	0.035	0.073	0.182	ug/kg dry		ND		50-150		30	U
Dieldrin	ND	0.023	0.073	0.182	ug/kg dry		ND		50-150		30	U
Endosulfan I	ND	0.031	0.073	0.182	ug/kg dry		ND		50-150		30	U
Endosulfan II	ND	0.028	0.073	0.182	ug/kg dry		ND		50-150		30	U
Endosulfan sulfate	ND	0.031	0.073	0.182	ug/kg dry		ND		50-150		30	U
Endrin	ND	0.027	0.073	0.182	ug/kg dry		ND		50-150		30	U
Endrin aldehyde	ND	0.033	0.073	0.182	ug/kg dry		ND		50-150		30	U
Endrin ketone	ND	0.023	0.057	0.143	ug/kg dry		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.028	0.073	0.182	ug/kg dry		0.857		50-150		30	U
gamma-Chlordane	ND	0.023	0.073	0.182	ug/kg dry		2.15		50-150		30	U
Heptachlor	ND	0.064	0.073	0.182	ug/kg dry		ND		50-150		30	U
Heptachlor epoxide	ND	0.026	0.073	0.182	ug/kg dry		ND		50-150		30	U
Methoxychlor	ND	0.031	0.073	0.182	ug/kg dry		ND		50-150		30	U
Oxychlordane	ND	0.031	0.073	0.182	ug/kg dry		3.61		50-150		30	U
Toxaphene	ND	2.05	2.73	9.11	ug/kg dry	43.05	ND		50-150		30	U
trans-Nonachlor	ND	0.035	0.073	0.182	ug/kg dry		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/kg dry	4.305			50-150			U
Surrogate: PCB 198	0.00				ug/kg dry	4.305			50-150			U

Matrix Spike Dup (B18J145-MSD3)		Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018						
4,4'-DDD	ND	0.032	0.077	0.192	ug/kg dry		9.83		50-150		30	U
4,4'-DDE	ND	0.033	0.077	0.192	ug/kg dry		3.39		50-150		30	U
4,4'-DDT	ND	0.026	0.077	0.192	ug/kg dry		ND		50-150		30	U
Aldrin	ND	0.026	0.077	0.192	ug/kg dry		ND		50-150		30	U
alpha-BHC	ND	0.038	0.077	0.192	ug/kg dry		ND		50-150		30	U
alpha-Chlordane	ND	0.034	0.077	0.192	ug/kg dry		ND		50-150		30	U
beta-BHC	ND	0.064	0.077	0.192	ug/kg dry		ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike Dup (B18J145-MSD3)

Source: 18J0402-02

Prepared: 12-Oct-2018 Analyzed: 13-Nov-2018

cis-Nonachlor	ND	0.029	0.060	0.151	ug/kg dry		ND		50-150		30	U
delta-BHC	ND	0.037	0.077	0.192	ug/kg dry		ND		50-150		30	U
Dieldrin	ND	0.025	0.077	0.192	ug/kg dry		ND		50-150		30	U
Endosulfan I	ND	0.033	0.077	0.192	ug/kg dry		ND		50-150		30	U
Endosulfan II	ND	0.029	0.077	0.192	ug/kg dry		ND		50-150		30	U
Endosulfan sulfate	ND	0.032	0.077	0.192	ug/kg dry		ND		50-150		30	U
Endrin	ND	0.028	0.077	0.192	ug/kg dry		ND		50-150		30	U
Endrin aldehyde	ND	0.034	0.077	0.192	ug/kg dry		ND		50-150		30	U
Endrin ketone	ND	0.030	0.077	0.192	ug/kg dry		ND		50-150		30	U
gamma-BHC (Lindane)	ND	0.030	0.077	0.192	ug/kg dry		0.857		50-150		30	U
gamma-Chlordane	ND	0.025	0.077	0.192	ug/kg dry		2.15		50-150		30	U
Heptachlor	ND	0.067	0.077	0.192	ug/kg dry		ND		50-150		30	U
Heptachlor epoxide	ND	0.028	0.077	0.192	ug/kg dry		ND		50-150		30	U
Methoxychlor	ND	0.033	0.077	0.192	ug/kg dry		ND		50-150		30	U
Oxychlordane	ND	0.026	0.060	0.151	ug/kg dry		3.61		50-150		30	U
Toxaphene	ND	2.16	2.88	9.60	ug/kg dry		ND		50-150		30	U
trans-Nonachlor	ND	0.029	0.060	0.151	ug/kg dry		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	ND				ug/kg dry	4.533			50-150			U
Surrogate: PCB 198	0.00				ug/kg dry	4.533			50-150			U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Nutrients - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J109 - Default Prep Metals

Blank (B18J109-BLK1)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	0.164	0.0386	0.0500	0.100	mg/kg							
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LCS (B18J109-BS1)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	1.10	0.0386	0.0500	0.100	mg/kg	1.000		110	80-120			B
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Calibration Check (B18J109-CCV1)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	0.391	0.00386	0.00500	0.0100	mg/kg	0.4000		97.8	90-110			B
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Calibration Check (B18J109-CCV2)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	0.497	0.00386	0.00500	0.0100	mg/kg	0.5000		99.4	90-110			B
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Calibration Check (B18J109-CCV3)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	0.496	0.00386	0.00500	0.0100	mg/kg	0.5000		99.2	90-110			B
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Calibration Check (B18J109-CCV4)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	0.504	0.00386	0.00500	0.0100	mg/kg	0.5000		101	90-110			B
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Duplicate (B18J109-DUP1)

Source: 18J0402-02

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	114	0.396	0.513	1.03	mg/kg		114			0.0288	20	B
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Matrix Spike (B18J109-MS1)

Source: 18J0402-02

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	113	0.361	0.468	0.935	mg/kg	9.353	114	NR	80-120			QM-11, B
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Matrix Spike Dup (B18J109-MSD1)

Source: 18J0402-02

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	113	0.361	0.468	0.935	mg/kg	9.353	114	NR	80-120	0.00	20	QM-11, B
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Reference (B18J109-SRM1)

Prepared: 15-Oct-2018 Analyzed: 20-Oct-2018

Ammonia as N	1.10	0.00386	0.00500	0.0100	mg/kg	1.000		110	80-120			B
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCVA)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 101	32				ng/mL	30.00		106	80-120			
PCB 105	11				ng/mL	10.00		109	80-120			
PCB 118	10				ng/mL	10.00		103	80-120			
PCB 126	19				ng/mL	20.00		96.4	80-120			
PCB 128	11				ng/mL	10.00		106	80-120			
PCB 138	31				ng/mL	30.00		103	80-120			
PCB 153	20				ng/mL	20.00		101	80-120			
PCB 169	11				ng/mL	10.00		111	80-120			
PCB 170	22				ng/mL	20.00		109	80-120			
PCB 18	9.5				ng/mL	10.00		95.4	80-120			
PCB 180	10				ng/mL	10.00		100	80-120			
PCB 187	10				ng/mL	10.00		105	80-120			
PCB 28	19				ng/mL	20.00		97.1	80-120			
PCB 44	9.9				ng/mL	10.00		98.7	80-120			
PCB 52	21				ng/mL	20.00		107	80-120			
PCB 66	20				ng/mL	20.00		99.7	80-120			
PCB 77	9.7				ng/mL	10.00		96.6	80-120			
PCB 8	20				ng/mL	20.00		99.5	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	9.0				ng/mL	10.00		90.0	80-120			
Surrogate: PCB 198	11				ng/mL	10.00		107	0-200			

Calibration Check (18K0023-CCVB)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 101	30				ng/mL	30.00		98.5	80-120			
PCB 105	10				ng/mL	10.00		104	80-120			
PCB 118	10				ng/mL	10.00		100	80-120			
PCB 126	18				ng/mL	20.00		89.7	80-120			
PCB 128	9.7				ng/mL	10.00		96.7	80-120			
PCB 138	29				ng/mL	30.00		95.3	80-120			
PCB 153	19				ng/mL	20.00		97.5	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCVB)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 169	10				ng/mL	10.00		101	80-120			
PCB 170	19				ng/mL	20.00		92.9	80-120			
PCB 18	10				ng/mL	10.00		99.8	80-120			
PCB 180	8.9				ng/mL	10.00		88.8	80-120			
PCB 187	9.9				ng/mL	10.00		98.6	80-120			
PCB 28	19				ng/mL	20.00		95.7	80-120			
PCB 44	10				ng/mL	10.00		101	80-120			
PCB 52	20				ng/mL	20.00		99.1	80-120			
PCB 66	20				ng/mL	20.00		99.8	80-120			
PCB 77	11				ng/mL	10.00		108	80-120			
PCB 8	20				ng/mL	20.00		98.1	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	9.8				ng/mL	10.00		97.6	80-120			
Surrogate: PCB 198	9.3				ng/mL	10.00		93.3	0-200			

Calibration Check (18K0023-CCVC)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 101	31				ng/mL	30.00		103	80-120			
PCB 105	12				ng/mL	10.00		116	80-120			
PCB 118	12				ng/mL	10.00		115	80-120			
PCB 126	21				ng/mL	20.00		103	80-120			
PCB 128	11				ng/mL	10.00		115	80-120			
PCB 138	31				ng/mL	30.00		102	80-120			
PCB 153	21				ng/mL	20.00		107	80-120			
PCB 169	12				ng/mL	10.00		118	80-120			
PCB 170	21				ng/mL	20.00		103	80-120			
PCB 18	11				ng/mL	10.00		106	80-120			
PCB 180	11				ng/mL	10.00		105	80-120			
PCB 187	10				ng/mL	10.00		103	80-120			
PCB 28	22				ng/mL	20.00		108	80-120			
PCB 44	11				ng/mL	10.00		108	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Calibration Check (18K0023-CCVC)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 52	21				ng/mL	20.00		104	80-120			
PCB 66	22				ng/mL	20.00		108	80-120			
PCB 77	11				ng/mL	10.00		105	80-120			
PCB 8	22				ng/mL	20.00		108	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	11				ng/mL	10.00		107	80-120			
Surrogate: PCB 198	11				ng/mL	10.00		108	0-200			

Initial Cal Blank (18K0023-ICB1)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 101	0.0				ng/mL							U
PCB 105	0.0				ng/mL							U
PCB 118	0.0				ng/mL							U
PCB 126	0.0				ng/mL							U
PCB 128	0.0				ng/mL							U
PCB 138	0.0				ng/mL							U
PCB 153	0.0				ng/mL							U
PCB 169	0.0				ng/mL							U
PCB 170	0.0				ng/mL							U
PCB 18	0.0				ng/mL							U
PCB 180	0.0				ng/mL							U
PCB 187	0.0				ng/mL							U
PCB 28	0.0				ng/mL							U
PCB 44	0.0				ng/mL							U
PCB 52	0.0				ng/mL							U
PCB 66	0.0				ng/mL							U
PCB 77	0.0				ng/mL							U
PCB 8	0.0				ng/mL							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0				ng/mL				30-150			U
Surrogate: PCB 198	0.0				ng/mL				30-150			U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0023 - B18J145

Initial Cal Check (18K0023-ICV3)

Prepared: 18-Nov-2018 Analyzed: 29-Nov-2018

PCB 101	50				ng/mL	60.00		82.9	80-120			
PCB 105	19				ng/mL	20.00		93.4	80-120			
PCB 118	18				ng/mL	20.00		90.6	80-120			
PCB 126	34				ng/mL	40.00		86.0	80-120			
PCB 128	19				ng/mL	20.00		96.5	80-120			
PCB 138	48				ng/mL	60.00		80.6	80-120			
PCB 153	35				ng/mL	40.00		86.9	80-120			
PCB 169	15				ng/mL	20.00		76.3	80-120			Q-CCV
PCB 170	31				ng/mL	40.00		77.4	80-120			Q-CCV
PCB 18	18				ng/mL	20.00		91.6	80-120			
PCB 180	17				ng/mL	20.00		83.6	80-120			
PCB 187	18				ng/mL	20.00		87.8	80-120			
PCB 28	34				ng/mL	40.00		84.6	80-120			
PCB 44	19				ng/mL	20.00		92.8	80-120			
PCB 52	38				ng/mL	40.00		95.4	80-120			
PCB 66	34				ng/mL	40.00		85.5	80-120			
PCB 77	21				ng/mL	20.00		107	80-120			
PCB 8	38				ng/mL	40.00		94.3	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	16				ng/mL	20.00		80.8	80-120			
Surrogate: PCB 198	17				ng/mL	20.00		86.8	0-200			

Batch 18K0025 - B18J145

Calibration Check (18K0025-CCV7)

Prepared & Analyzed: 13-Nov-2018

PCB 101	120				ng/mL	120.0		102	85-115			
PCB 105	37				ng/mL	40.00		93.5	85-115			
PCB 118	38				ng/mL	40.00		95.0	85-115			
PCB 126	86				ng/mL	80.00		108	85-115			
PCB 128	39				ng/mL	40.00		97.1	85-115			
PCB 138	110				ng/mL	120.0		90.6	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCV7)

Prepared & Analyzed: 13-Nov-2018

PCB 153	73				ng/mL	80.00		91.6	85-115			
PCB 169	36				ng/mL	40.00		90.8	85-115			
PCB 170	72				ng/mL	80.00		90.6	85-115			
PCB 18	38				ng/mL	40.00		96.2	85-115			
PCB 180	36				ng/mL	40.00		91.1	85-115			
PCB 187	37				ng/mL	40.00		93.4	85-115			
PCB 28	72				ng/mL	80.00		89.7	85-115			
PCB 44	38				ng/mL	40.00		94.1	85-115			
PCB 52	78				ng/mL	80.00		97.6	85-115			
PCB 66	78				ng/mL	80.00		96.9	85-115			
PCB 77	42				ng/mL	40.00		105	85-115			
PCB 8	75				ng/mL	80.00		94.1	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	43				ng/mL	40.00		108	85-115			
Surrogate: PCB 198	36				ng/mL	40.00		90.9	85-115			

Calibration Check (18K0025-CCV8)

Prepared: 13-Nov-2018 Analyzed: 14-Nov-2018

PCB 101	100				ng/mL	120.0		86.9	85-115			
PCB 105	39				ng/mL	40.00		97.2	85-115			
PCB 118	38				ng/mL	40.00		93.9	85-115			
PCB 126	80				ng/mL	80.00		100	85-115			
PCB 128	39				ng/mL	40.00		97.5	85-115			
PCB 138	110				ng/mL	120.0		92.1	85-115			
PCB 153	73				ng/mL	80.00		91.0	85-115			
PCB 169	40				ng/mL	40.00		99.6	85-115			
PCB 170	80				ng/mL	80.00		99.7	85-115			
PCB 18	38				ng/mL	40.00		96.2	85-115			
PCB 180	39				ng/mL	40.00		98.5	85-115			
PCB 187	38				ng/mL	40.00		95.0	85-115			
PCB 28	76				ng/mL	80.00		94.8	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCV8)

Prepared: 13-Nov-2018 Analyzed: 14-Nov-2018

PCB 44	37				ng/mL	40.00		92.6	85-115			
PCB 52	81				ng/mL	80.00		102	85-115			
PCB 66	77				ng/mL	80.00		96.0	85-115			
PCB 77	38				ng/mL	40.00		95.2	85-115			
PCB 8	79				ng/mL	80.00		99.2	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	49				ng/mL	40.00		122	85-115			Qa
Surrogate: PCB 198	39				ng/mL	40.00		97.1	85-115			

Calibration Check (18K0025-CCV9)

Prepared: 13-Nov-2018 Analyzed: 16-Nov-2018

PCB 101	100				ng/mL	120.0		85.6	85-115			
PCB 105	36				ng/mL	40.00		91.2	85-115			
PCB 118	37				ng/mL	40.00		92.3	85-115			
PCB 126	83				ng/mL	80.00		104	85-115			
PCB 128	39				ng/mL	40.00		98.4	85-115			
PCB 138	110				ng/mL	120.0		92.5	85-115			
PCB 153	74				ng/mL	80.00		93.0	85-115			
PCB 169	37				ng/mL	40.00		93.5	85-115			
PCB 170	75				ng/mL	80.00		93.4	85-115			
PCB 18	39				ng/mL	40.00		98.0	85-115			
PCB 180	40				ng/mL	40.00		98.8	85-115			
PCB 187	37				ng/mL	40.00		92.7	85-115			
PCB 28	82				ng/mL	80.00		102	85-115			
PCB 44	38				ng/mL	40.00		95.1	85-115			
PCB 52	78				ng/mL	80.00		98.0	85-115			
PCB 66	83				ng/mL	80.00		103	85-115			
PCB 77	42				ng/mL	40.00		104	85-115			
PCB 8	84				ng/mL	80.00		106	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	44				ng/mL	40.00		109	85-115			
Surrogate: PCB 198	37				ng/mL	40.00		92.6	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVA)

Prepared: 13-Nov-2018 Analyzed: 16-Nov-2018

PCB 101	110				ng/mL	120.0		90.1	85-115			
PCB 105	37				ng/mL	40.00		91.3	85-115			
PCB 118	37				ng/mL	40.00		92.7	85-115			
PCB 126	80				ng/mL	80.00		100	85-115			
PCB 128	39				ng/mL	40.00		96.5	85-115			
PCB 138	110				ng/mL	120.0		91.4	85-115			
PCB 153	74				ng/mL	80.00		92.5	85-115			
PCB 169	37				ng/mL	40.00		93.1	85-115			
PCB 170	73				ng/mL	80.00		91.7	85-115			
PCB 18	38				ng/mL	40.00		94.5	85-115			
PCB 180	38				ng/mL	40.00		95.0	85-115			
PCB 187	38				ng/mL	40.00		95.4	85-115			
PCB 28	79				ng/mL	80.00		98.3	85-115			
PCB 44	37				ng/mL	40.00		93.2	85-115			
PCB 52	73				ng/mL	80.00		90.7	85-115			
PCB 66	79				ng/mL	80.00		98.5	85-115			
PCB 77	45				ng/mL	40.00		112	85-115			
PCB 8	79				ng/mL	80.00		99.1	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	44				ng/mL	40.00		111	85-115			
Surrogate: PCB 198	36				ng/mL	40.00		90.6	85-115			

Calibration Check (18K0025-CCVB)

Prepared: 13-Nov-2018 Analyzed: 19-Nov-2018

PCB 101	110				ng/mL	120.0		89.3	85-115			
PCB 105	36				ng/mL	40.00		89.3	85-115			
PCB 118	37				ng/mL	40.00		92.8	85-115			
PCB 126	78				ng/mL	80.00		97.0	85-115			
PCB 128	37				ng/mL	40.00		91.8	85-115			
PCB 138	100				ng/mL	120.0		85.8	85-115			
PCB 153	80				ng/mL	80.00		100	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVB)

Prepared: 13-Nov-2018 Analyzed: 19-Nov-2018

PCB 169	35				ng/mL	40.00		88.3	85-115			
PCB 170	70				ng/mL	80.00		87.9	85-115			
PCB 18	38				ng/mL	40.00		93.8	85-115			
PCB 180	35				ng/mL	40.00		87.7	85-115			
PCB 187	35				ng/mL	40.00		87.7	85-115			
PCB 28	74				ng/mL	80.00		92.9	85-115			
PCB 44	38				ng/mL	40.00		96.2	85-115			
PCB 52	75				ng/mL	80.00		94.2	85-115			
PCB 66	78				ng/mL	80.00		97.2	85-115			
PCB 77	44				ng/mL	40.00		109	85-115			
PCB 8	78				ng/mL	80.00		97.6	85-115			
Surrogate: PCB 198	35				ng/mL	40.00		87.5	85-115			

Calibration Check (18K0025-CCVI)

Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018

PCB 101	110				ng/mL	120.0		94.2	85-115			
PCB 105	36				ng/mL	40.00		91.0	85-115			
PCB 118	37				ng/mL	40.00		91.5	85-115			
PCB 126	76				ng/mL	80.00		95.1	85-115			
PCB 128	43				ng/mL	40.00		107	85-115			
PCB 138	120				ng/mL	120.0		98.3	85-115			
PCB 153	72				ng/mL	80.00		90.5	85-115			
PCB 169	40				ng/mL	40.00		99.0	85-115			
PCB 170	82				ng/mL	80.00		103	85-115			
PCB 18	41				ng/mL	40.00		102	85-115			
PCB 180	42				ng/mL	40.00		106	85-115			
PCB 187	39				ng/mL	40.00		96.5	85-115			
PCB 28	82				ng/mL	80.00		103	85-115			
PCB 44	40				ng/mL	40.00		99.0	85-115			
PCB 52	82				ng/mL	80.00		102	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Calibration Check (18K0025-CCVI)						Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018						
PCB 66	84				ng/mL	80.00		105	85-115			
PCB 77	45				ng/mL	40.00		113	85-115			
PCB 8	85				ng/mL	80.00		107	85-115			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	48				ng/mL	40.00		119	85-115			Qa
Surrogate: PCB 198	40				ng/mL	40.00		99.5	85-115			

Calibration Check (18K0025-CCVJ)						Prepared: 13-Nov-2018 Analyzed: 17-Dec-2018						
PCB 101	120				ng/mL	120.0		98.3	85-115			
PCB 105	39				ng/mL	40.00		98.0	85-115			
PCB 118	38				ng/mL	40.00		94.0	85-115			
PCB 126	80				ng/mL	80.00		100	85-115			
PCB 128	45				ng/mL	40.00		112	85-115			
PCB 138	120				ng/mL	120.0		99.2	85-115			
PCB 153	78				ng/mL	80.00		97.4	85-115			
PCB 169	38				ng/mL	40.00		94.0	85-115			
PCB 170	78				ng/mL	80.00		97.8	85-115			
PCB 18	45				ng/mL	40.00		113	85-115			
PCB 180	37				ng/mL	40.00		92.0	85-115			
PCB 187	38				ng/mL	40.00		95.2	85-115			
PCB 28	88				ng/mL	80.00		110	85-115			
PCB 44	38				ng/mL	40.00		93.8	85-115			
PCB 52	85				ng/mL	80.00		106	85-115			
PCB 66	76				ng/mL	80.00		95.4	85-115			
PCB 77	39				ng/mL	40.00		97.0	85-115			
PCB 8	94				ng/mL	80.00		118	85-115			Qa
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	57				ng/mL	40.00		142	85-115			Qa
Surrogate: PCB 198	38				ng/mL	40.00		93.8	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Initial Cal Blank (18K0025-ICB1)

Prepared & Analyzed: 13-Nov-2018

PCB 101	0.0				ng/mL							U
PCB 105	0.0				ng/mL							U
PCB 118	0.0				ng/mL							U
PCB 126	0.0				ng/mL							U
PCB 128	0.0				ng/mL							U
PCB 138	0.0				ng/mL							U
PCB 153	0.0				ng/mL							U
PCB 169	0.0				ng/mL							U
PCB 170	0.0				ng/mL							U
PCB 18	0.0				ng/mL							U
PCB 180	0.0				ng/mL							U
PCB 187	0.0				ng/mL							U
PCB 28	0.0				ng/mL							U
PCB 44	0.0				ng/mL							U
PCB 52	0.0				ng/mL							U
PCB 66	0.0				ng/mL							U
PCB 77	0.0				ng/mL							U
PCB 8	0.0				ng/mL							U

Initial Cal Check (18K0025-ICV3)

Prepared & Analyzed: 13-Nov-2018

PCB 101	59				ng/mL	60.00		98.6	80-120			
PCB 105	21				ng/mL	20.00		103	80-120			
PCB 118	21				ng/mL	20.00		105	80-120			
PCB 126	41				ng/mL	40.00		103	80-120			
PCB 128	22				ng/mL	20.00		112	80-120			
PCB 138	59				ng/mL	60.00		98.1	80-120			
PCB 153	38				ng/mL	40.00		95.5	80-120			
PCB 169	19				ng/mL	20.00		96.9	80-120			
PCB 170	39				ng/mL	40.00		96.7	80-120			

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0025 - B18J145

Initial Cal Check (18K0025-ICV3)

Prepared & Analyzed: 13-Nov-2018

PCB 18	22				ng/mL	20.00		109	80-120			
PCB 180	22				ng/mL	20.00		109	80-120			
PCB 187	22				ng/mL	20.00		111	80-120			
PCB 28	39				ng/mL	40.00		97.9	80-120			
PCB 44	21				ng/mL	20.00		106	80-120			
PCB 52	41				ng/mL	40.00		103	80-120			
PCB 66	33				ng/mL	40.00		82.6	80-120			
PCB 77	24				ng/mL	20.00		120	80-120			
PCB 8	42				ng/mL	40.00		106	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	19				ng/mL	20.00		95.8	80-120			
Surrogate: PCB 198	22				ng/mL	20.00		111	80-120			

Batch B18J145 - EPA 3545

Blank (B18J145-BLK1)

Prepared: 12-Oct-2018 Analyzed: 17-May-2019

2,4,5,6 Tetrachloro-m-xylene [2C]	ND	0.047		0.133	ug/kg wet	4.000						U
PCB 101	ND	0.044	0.110	0.339	ug/kg wet							U
PCB 105	ND	0.021	0.110	0.339	ug/kg wet							U
PCB 118	ND	0.030	0.110	0.339	ug/kg wet							U
PCB 126	ND	0.041	0.110	0.339	ug/kg wet							U
PCB 128	ND	0.030	0.110	0.339	ug/kg wet							U
PCB 138	ND	0.019	0.110	0.339	ug/kg wet							U
PCB 153	ND	0.051	0.110	0.339	ug/kg wet							U
PCB 169	ND	0.024	0.110	0.339	ug/kg wet							U
PCB 170	ND	0.020	0.110	0.339	ug/kg wet							U
PCB 18	ND	0.042	0.110	0.339	ug/kg wet							U
PCB 180	ND	0.037	0.110	0.339	ug/kg wet							U
PCB 187	ND	0.019	0.110	0.339	ug/kg wet							U
PCB 28	ND	0.041	0.110	0.339	ug/kg wet							U
PCB 44	ND	0.049	0.110	0.339	ug/kg wet							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Blank (B18J145-BLK1)						Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018						
PCB 52	ND	0.045	0.110	0.339	ug/kg wet							U
PCB 66	ND	0.051	0.110	0.339	ug/kg wet							U
PCB 77	ND	0.047	0.110	0.339	ug/kg wet							U
PCB 8	ND	0.040	0.110	0.339	ug/kg wet							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.1				ug/kg wet	4.000		52.5	30-150			
Surrogate: PCB 198	2.2				ug/kg wet	4.000		55.0	30-135			

LCS (B18J145-BS3)

						Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018						
PCB 101	4.9	0.044	0.110	0.339	ug/kg wet	5.333		91.4	50-150			
PCB 105	1.7	0.021	0.110	0.339	ug/kg wet	2.667		65.0	50-150			
PCB 118	1.7	0.030	0.110	0.339	ug/kg wet	2.667		64.1	50-150			
PCB 126	3.4	0.041	0.110	0.339	ug/kg wet	5.333		64.5	50-150			
PCB 128	1.8	0.030	0.110	0.339	ug/kg wet	2.667		67.2	50-150			
PCB 138	5.1	0.019	0.110	0.339	ug/kg wet	8.000		63.6	50-150			
PCB 153	2.0	0.051	0.110	0.339	ug/kg wet	2.667		76.2	50-150			
PCB 169	1.9	0.024	0.110	0.339	ug/kg wet	2.667		71.8	50-150			
PCB 170	1.9	0.020	0.110	0.339	ug/kg wet	2.667		69.8	50-150			
PCB 18	1.9	0.042	0.110	0.339	ug/kg wet	2.667		70.2	50-150			
PCB 180	1.8	0.037	0.110	0.339	ug/kg wet	2.667		68.1	50-150			
PCB 187	1.7	0.019	0.110	0.339	ug/kg wet	2.667		65.2	50-150			
PCB 28	3.1	0.041	0.110	0.339	ug/kg wet	5.333		57.4	50-150			
PCB 44	1.8	0.049	0.110	0.339	ug/kg wet	2.667		67.5	50-150			
PCB 52	3.0	0.045	0.110	0.339	ug/kg wet	2.667		114	50-150			
PCB 66	1.6	0.051	0.110	0.339	ug/kg wet	2.667		58.4	50-150			
PCB 77	2.0	0.047	0.110	0.339	ug/kg wet	2.667		73.8	50-150			
PCB 8	2.5	0.040	0.110	0.339	ug/kg wet	5.333		47.6	50-150			Qa
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.56				ug/kg wet	4.000		14.0	30-150			S-GC
Surrogate: PCB 198	2.7				ug/kg wet	4.000		67.9	30-150			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

LCS Dup (B18J145-BSD3)

Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018

PCB 101	4.6	0.044	0.110	0.339	ug/kg wet	5.333		85.7	50-150	6.44	30	
PCB 105	1.7	0.021	0.110	0.339	ug/kg wet	2.667		63.8	50-150	1.97	30	
PCB 118	1.8	0.030	0.110	0.339	ug/kg wet	2.667		65.9	50-150	2.79	30	
PCB 126	3.5	0.041	0.110	0.339	ug/kg wet	5.333		66.0	50-150	2.43	30	
PCB 128	1.8	0.030	0.110	0.339	ug/kg wet	2.667		68.1	50-150	1.41	30	
PCB 138	4.8	0.019	0.110	0.339	ug/kg wet	8.000		60.6	50-150	4.75	30	
PCB 153	1.9	0.051	0.110	0.339	ug/kg wet	2.667		71.8	50-150	6.01	30	
PCB 169	1.8	0.024	0.110	0.339	ug/kg wet	2.667		68.5	50-150	4.68	30	
PCB 170	1.7	0.020	0.110	0.339	ug/kg wet	2.667		64.8	50-150	7.55	30	
PCB 18	1.9	0.042	0.110	0.339	ug/kg wet	2.667		71.3	50-150	1.60	30	
PCB 180	1.6	0.037	0.110	0.339	ug/kg wet	2.667		58.7	50-150	14.8	30	
PCB 187	1.7	0.019	0.110	0.339	ug/kg wet	2.667		64.8	50-150	0.596	30	
PCB 28	2.9	0.041	0.110	0.339	ug/kg wet	5.333		54.1	50-150	5.84	30	
PCB 44	1.7	0.049	0.110	0.339	ug/kg wet	2.667		62.2	50-150	8.12	30	
PCB 52	2.8	0.045	0.110	0.339	ug/kg wet	2.667		103	50-150	9.82	30	
PCB 66	1.5	0.051	0.110	0.339	ug/kg wet	2.667		57.9	50-150	0.765	30	
PCB 77	1.9	0.047	0.110	0.339	ug/kg wet	2.667		70.6	50-150	4.43	30	
PCB 8	3.0	0.040	0.110	0.339	ug/kg wet	5.333		56.5	50-150	17.1	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.40				ug/kg wet	4.000		9.99	30-150			S-GC
Surrogate: PCB 198	2.3				ug/kg wet	4.000		58.1	30-150			

Duplicate (B18J145-DUP1)

Source: 18J0402-02

Prepared: 12-Oct-2018 Analyzed: 17-May-2019

2,4,5,6 Tetrachloro-m-xylene [2C]	ND	0.041		0.118	ug/kg dry	3.540	ND			200		U
PCB 101	6.7	0.039	0.097	0.300	ug/kg dry		5.1			27.4	30	
PCB 105	2.0	0.019	0.097	0.300	ug/kg dry		1.7			16.8	30	
PCB 118	3.4	0.027	0.097	0.300	ug/kg dry		2.8			18.9	30	
PCB 126	ND	0.037	0.097	0.300	ug/kg dry		ND			30		U
PCB 128	ND	0.027	0.097	0.300	ug/kg dry		ND			30		U
PCB 138	3.4	0.017	0.097	0.300	ug/kg dry		4.5			28.3	30	

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Duplicate (B18J145-DUP1)		Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018						
PCB 153	4.4	0.045	0.097	0.300	ug/kg dry	4.8				9.51	30	
PCB 169	ND	0.021	0.097	0.300	ug/kg dry	ND					30	U
PCB 170	1.7	0.018	0.097	0.300	ug/kg dry	1.4				23.2	30	
PCB 18	5.8	0.037	0.097	0.300	ug/kg dry	5.5				5.65	30	
PCB 180	1.3	0.033	0.097	0.300	ug/kg dry	1.5				15.8	30	
PCB 187	1.1	0.016	0.097	0.300	ug/kg dry	0.99				14.3	30	
PCB 28	4.6	0.036	0.097	0.300	ug/kg dry	2.7				52.2	30	RPD-06
PCB 44	6.3	0.043	0.097	0.300	ug/kg dry	5.1				21.2	30	
PCB 52	8.0	0.040	0.097	0.300	ug/kg dry	6.5				21.3	30	
PCB 66	6.2	0.045	0.097	0.300	ug/kg dry	4.8				25.3	30	
PCB 77	1.0	0.042	0.097	0.300	ug/kg dry	0.99				4.01	30	
PCB 8	6.5	0.035	0.097	0.300	ug/kg dry	ND					30	
PCB 8 [2C]	ND	0.041		0.118	ug/kg dry	ND					200	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	2.5				ug/kg dry	3.540		70.5	30-150			
Surrogate: PCB 198	2.8				ug/kg dry	3.540		78.4	30-135			

Matrix Spike (B18J145-MS3)

Matrix Spike (B18J145-MS3)		Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018						
PCB 101	9.3	0.050	0.125	0.386	ug/kg dry	6.080	5.1	69.6	50-150			
PCB 105	3.4	0.024	0.125	0.386	ug/kg dry	3.040	1.7	56.7	50-150			
PCB 118	4.5	0.035	0.125	0.386	ug/kg dry	3.040	2.8	53.7	50-150			
PCB 126	7.2	0.047	0.125	0.386	ug/kg dry	6.080	ND	119	50-150			
PCB 128	3.6	0.035	0.125	0.386	ug/kg dry	3.040	ND	118	50-150			
PCB 138	9.5	0.022	0.125	0.386	ug/kg dry	9.120	4.5	54.4	50-150			
PCB 153	6.9	0.058	0.125	0.386	ug/kg dry	3.040	4.8	70.3	50-150			
PCB 169	4.0	0.027	0.125	0.386	ug/kg dry	3.040	ND	131	50-150			
PCB 170	3.7	0.023	0.125	0.386	ug/kg dry	3.040	1.4	76.1	50-150			
PCB 18	2.8	0.048	0.125	0.386	ug/kg dry	3.040	5.5	NR	50-150			Z-03
PCB 180	3.2	0.042	0.125	0.386	ug/kg dry	3.040	1.5	58.3	50-150			
PCB 187	3.3	0.021	0.125	0.386	ug/kg dry	3.040	0.99	76.4	50-150			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike (B18J145-MS3)		Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018						
PCB 28	5.6	0.046	0.125	0.386	ug/kg dry	6.080	2.7	47.7	50-150			QM-07
PCB 44	3.4	0.056	0.125	0.386	ug/kg dry	3.040	5.1	NR	50-150			Z-03
PCB 52	5.6	0.051	0.125	0.386	ug/kg dry	3.040	6.5	NR	50-150			Z-03
PCB 66	7.0	0.058	0.125	0.386	ug/kg dry	3.040	4.8	71.8	50-150			
PCB 77	3.6	0.054	0.125	0.386	ug/kg dry	3.040	0.99	87.4	50-150			
PCB 8	4.6	0.045	0.125	0.386	ug/kg dry	6.080	ND	76.4	50-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	3.0				ug/kg dry	4.560		66.2	30-150			
Surrogate: PCB 198	4.5				ug/kg dry	4.560		98.1	30-150			

Matrix Spike Dup (B18J145-MSD3)		Source: 18J0402-02				Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018						
PCB 101	11	0.050	0.125	0.384	ug/kg dry	6.044	5.1	100	50-150	18.0	30	
PCB 105	3.8	0.024	0.125	0.384	ug/kg dry	3.022	1.7	67.8	50-150	9.00	30	
PCB 118	4.6	0.035	0.125	0.384	ug/kg dry	3.022	2.8	58.9	50-150	3.23	30	
PCB 126	7.6	0.047	0.125	0.384	ug/kg dry	6.044	ND	125	50-150	4.76	30	
PCB 128	4.0	0.035	0.125	0.384	ug/kg dry	3.022	ND	131	50-150	10.1	30	
PCB 138	12	0.022	0.125	0.384	ug/kg dry	9.067	4.5	83.0	50-150	23.8	30	
PCB 153	7.1	0.058	0.125	0.384	ug/kg dry	3.022	4.8	77.0	50-150	2.72	30	
PCB 169	4.4	0.027	0.125	0.384	ug/kg dry	3.022	ND	146	50-150	10.2	30	
PCB 170	4.1	0.023	0.125	0.384	ug/kg dry	3.022	1.4	90.5	50-150	10.8	30	
PCB 18	2.9	0.048	0.125	0.384	ug/kg dry	3.022	5.5	NR	50-150	5.36	30	Z-03
PCB 180	3.9	0.042	0.125	0.384	ug/kg dry	3.022	1.5	80.5	50-150	18.5	30	
PCB 187	3.9	0.021	0.125	0.384	ug/kg dry	3.022	0.99	95.6	50-150	15.8	30	
PCB 28	7.0	0.046	0.125	0.384	ug/kg dry	6.044	2.7	71.3	50-150	22.2	30	
PCB 44	3.3	0.056	0.125	0.384	ug/kg dry	3.022	5.1	NR	50-150	2.88	30	Z-03
PCB 52	6.3	0.051	0.125	0.384	ug/kg dry	3.022	6.5	NR	50-150	12.4	30	Z-03
PCB 66	7.8	0.058	0.125	0.384	ug/kg dry	3.022	4.8	99.4	50-150	11.1	30	
PCB 77	3.9	0.054	0.125	0.384	ug/kg dry	3.022	0.99	96.8	50-150	7.04	30	
PCB 8	5.1	0.045	0.125	0.384	ug/kg dry	6.044	ND	84.6	50-150	9.58	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	1.8				ug/kg dry	4.533		40.2	30-150			

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3909 Halls Ferry Road
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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J145 - EPA 3545

Matrix Spike Dup (B18J145-MSD3)

Source: 18J0402-02

Prepared: 12-Oct-2018 Analyzed: 19-Nov-2018

<i>Surrogate: PCB 198</i>	<i>4.0</i>				<i>ug/kg dry</i>	<i>4.533</i>		<i>88.9</i>	<i>30-150</i>			
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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

AVS and SEM Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J125 - Default Prep Metals

Blank (B18J125-BLK1)						Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018						
Acid Volatile Sulfide	ND	0.0500	0.0500	0.100	mg/kg							U

LCS (B18J125-BS1)						Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018						
Acid Volatile Sulfide	0.484	0.0500	0.0500	0.100	mg/kg	0.5000		96.8	80-120			

Calibration Check (B18J125-CCV1)						Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018						
Acid Volatile Sulfide	0.547	0.0500	0.0500	0.100	mg/kg	0.5000		109	90-110			

Calibration Check (B18J125-CCV2)						Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018						
Acid Volatile Sulfide	0.495	0.0500	0.0500	0.100	mg/kg	0.5000		99.0	90-110			

Calibration Check (B18J125-CCV3)						Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018						
Acid Volatile Sulfide	0.529	0.0500	0.0500	0.100	mg/kg	0.5000		106	90-110			

Calibration Check (B18J125-CCV4)						Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018						
Acid Volatile Sulfide	0.535	0.0500	0.0500	0.100	mg/kg	0.5000		107	90-110			

Duplicate (B18J125-DUP1)						Source: 18J0402-02		Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018				
Acid Volatile Sulfide	600	5.00	5.00	10.0	mg/kg		567			5.66	30	

Matrix Spike (B18J125-MS1)						Source: 18J0402-02		Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018				
Acid Volatile Sulfide	704	5.00	5.00	10.0	mg/kg	119.7	567	114	70-130			

Matrix Spike Dup (B18J125-MSD1)						Source: 18J0402-02		Prepared: 15-Oct-2018 Analyzed: 14-Nov-2018				
Acid Volatile Sulfide	730	5.00	5.00	10.0	mg/kg	120.1	567	136	70-130	3.72	30	QM-11

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5825722 - NA

Blank (5825722-BLK)

Prepared: 22-Oct-2018 Analyzed: 07-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	ND	0.16		4.99	pg/g				-			Uc
1,2,3,4,6,7,8-Hepta CDF	ND	0.186		4.99	pg/g				-			Uc
1,2,3,4,7,8,9-Hepta CDF	ND	0.185		4.99	pg/g				-			Uc
1,2,3,4,7,8-Hexa CDD	ND	0.182		4.99	pg/g				-			Uc
1,2,3,4,7,8-Hexa CDF	ND	0.165		4.99	pg/g				-			Uc
1,2,3,6,7,8-Hexa CDD	ND	0.186		4.99	pg/g				-			Uc
1,2,3,6,7,8-Hexa CDF	ND	0.177		4.99	pg/g				-			Uc
1,2,3,7,8,9-Hexa CDD	ND	0.187		4.99	pg/g				-			Uc
1,2,3,7,8,9-Hexa CDF	ND	0.171		4.99	pg/g				-			Uc
1,2,3,7,8-Penta CDD	ND	0.12		4.99	pg/g				-			Uc
1,2,3,7,8-Penta CDF	ND	0.146		4.99	pg/g				-			Uc
2,3,4,6,7,8-Hexa CDF	ND	0.159		4.99	pg/g				-			Uc
2,3,4,7,8-Penta CDF	ND	0.133		4.99	pg/g				-			Uc
2,3,7,8-Tetra CDD	ND	0.108		0.999	pg/g				-			Uc
2,3,7,8-Tetra CDF	ND	0.098		0.999	pg/g				-			Uc
Octa CDD	ND	0.222		9.99	pg/g				-			Uc
Octa CDF	ND	0.18		9.99	pg/g				-			Uc
Total Hepta CDD	ND	0.16		4.99	pg/g				-			Uc
Total Hepta CDF	ND	0.185		4.99	pg/g				-			Uc
Total Hexa CDD	ND	0.187		4.99	pg/g				-			Uc
Total Hexa CDF	ND	0.168		4.99	pg/g				-			Uc
Total Penta CDD	ND	0.12		4.99	pg/g				-			Uc
Total Penta CDF	ND	0.139		4.99	pg/g				-			Uc
Total Tetra CDD	ND	0.108		0.999	pg/g				-			Uc
Total Tetra CDF	ND	0.098		0.999	pg/g				-			Uc
Surrogate: 37CL4 2378 Tetra CDD	12.4				pg/g	20		62	35-197			
Surrogate: C13-1234678 HeptaCDD	51				pg/g	100		51	23-140			

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5825722 - NA

Blank (5825722-BLK)

Prepared: 22-Oct-2018 Analyzed: 07-Nov-2018

Surrogate: C13-1234678 HeptaCDF	55				pg/g	100		55	28-143			
Surrogate: C13-123478 HexaCDD	53				pg/g	100		53	32-141			
Surrogate: C13-123478 HexaCDF	58				pg/g	100		58	26-152			
Surrogate: C13-1234789 HeptaCDF	51				pg/g	100		51	26-138			
Surrogate: C13-123678 HexaCDD	71				pg/g	100		71	28-130			
Surrogate: C13-123678 HexaCDF	62				pg/g	100		62	26-123			
Surrogate: C13-12378 PentaCDD	66				pg/g	100		66	25-181			
Surrogate: C13-12378 PentaCDF	61				pg/g	100		61	24-185			
Surrogate: C13-123789 HexaCDF	56				pg/g	100		56	29-147			
Surrogate: C13-234678 HexaCDF	57				pg/g	100		57	28-136			
Surrogate: C13-23478 PentaCDF	67				pg/g	100		67	21-178			
Surrogate: C13-2378 TetraCDD	12.4				pg/g	20		62	25-164			
Surrogate: C13-2378 TetraCDF	11				pg/g	20		55	24-169			
Surrogate: C13-OCDD	110				pg/g	200		55	17-157			

LCS (5825722-LCS)

Prepared: 22-Oct-2018 Analyzed: 09-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	95	0.148		4.99	pg/g	100		95	70-140			
1,2,3,4,6,7,8-Hepta CDF	89	0.129		4.99	pg/g	100		89	82-122			
1,2,3,4,7,8,9-Hepta CDF	93	0.128		4.99	pg/g	100		93	78-138			
1,2,3,4,7,8-Hexa CDD	87	0.145		4.99	pg/g	100		87	70-164			
1,2,3,4,7,8-Hexa CDF	93	0.142		4.99	pg/g	100		93	72-134			
1,2,3,6,7,8-Hexa CDD	93	0.148		4.99	pg/g	100		93	76-134			
1,2,3,6,7,8-Hexa CDF	94	0.153		4.99	pg/g	100		94	84-130			
1,2,3,7,8,9-Hexa CDD	94	0.149		4.99	pg/g	100		94	64-162			
1,2,3,7,8,9-Hexa CDF	96	0.148		4.99	pg/g	100		96	78-130			
1,2,3,7,8-Penta CDD	93	0.109		4.99	pg/g	100		93	25-181			

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5825722 - NA

LCS (5825722-LCS)

Prepared: 22-Oct-2018 Analyzed: 09-Nov-2018

1,2,3,7,8-Penta CDF	95	0.113		4.99	pg/g	100		95	80-134			
2,3,4,6,7,8-Hexa CDF	94	0.138		4.99	pg/g	100		94	70-156			
2,3,4,7,8-Penta CDF	92	0.103		4.99	pg/g	100		92	68-160			
2,3,7,8-Tetra CDD	84	0.134		0.998	pg/g	100		84	67-158			
2,3,7,8-Tetra CDF	95	0.101		0.998	pg/g	100		95	75-158			
Octa CDD	143	0.138		9.98	pg/g	100		143	78-144			
Octa CDF	82	0.112		9.98	pg/g	100		82	63-170			
Surrogate: 37CL4 2378 Tetra CDD	17.8				pg/g	20		89	35-197			
Surrogate: C13-1234678 HeptaCDD	77				pg/g	100		77	23-140			
Surrogate: C13-1234678 HeptaCDF	75				pg/g	100		75	28-143			
Surrogate: C13-123478 HexaCDD	88				pg/g	100		88	32-141			
Surrogate: C13-123478 HexaCDF	82				pg/g	100		82	26-152			
Surrogate: C13-1234789 HeptaCDF	75				pg/g	100		75	26-138			
Surrogate: C13-123678 HexaCDD	110				pg/g	100		110	28-130			
Surrogate: C13-123678 HexaCDF	85				pg/g	100		85	26-123			
Surrogate: C13-12378 PentaCDD	114				pg/g	100		114	25-181			
Surrogate: C13-12378 PentaCDF	97				pg/g	100		97	24-185			
Surrogate: C13-123789 HexaCDF	86				pg/g	100		86	29-147			
Surrogate: C13-234678 HexaCDF	87				pg/g	100		87	28-136			
Surrogate: C13-23478 PentaCDF	109				pg/g	100		109	21-178			
Surrogate: C13-2378 TetraCDD	20.6				pg/g	20		103	25-164			
Surrogate: C13-2378 TetraCDF	17.6				pg/g	20		88	24-169			
Surrogate: C13-OCDD	146				pg/g	200		73	17-157			

Matrix Spike (5825722-MS)

Source: 18J0402-02

Prepared: 22-Oct-2018 Analyzed: 08-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	157	0.129		4.99	pg/g	100	61.1	96	70-140			
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5825722 - NA

Matrix Spike (5825722-MS)

Source: 18J0402-02

Prepared: 22-Oct-2018 Analyzed: 08-Nov-2018

1,2,3,4,6,7,8-Hepta CDF	107	0.122		4.99	pg/g	100	18.4	89	82-122			
1,2,3,4,7,8,9-Hepta CDF	95.3	0.122		4.99	pg/g	100	2.27	93	78-138			
1,2,3,4,7,8-Hexa CDD	89.5	0.11		4.99	pg/g	100	0.497	89	70-164			
1,2,3,4,7,8-Hexa CDF	96.2	0.125		4.99	pg/g	100	6.21	90	72-134			
1,2,3,6,7,8-Hexa CDD	88.4	0.112		4.99	pg/g	100	2.42	86	76-134			
1,2,3,6,7,8-Hexa CDF	92.7	0.134		4.99	pg/g	100	1.66	91	84-130			
1,2,3,7,8,9-Hexa CDD	94.9	0.113		4.99	pg/g	100	1.94	93	64-162			
1,2,3,7,8,9-Hexa CDF	94.1	0.13		4.99	pg/g	100	0.113	94	78-130			
1,2,3,7,8-Penta CDD	91.6	0.127		4.99	pg/g	100	1.6	90	25-181			
1,2,3,7,8-Penta CDF	95.4	0.146		4.99	pg/g	100	4.37	91	80-134			
2,3,4,6,7,8-Hexa CDF	91.6	0.121		4.99	pg/g	100	0.624	91	70-156			
2,3,4,7,8-Penta CDF	93.8	0.133		4.99	pg/g	100	3.82	90	68-160			
2,3,7,8-Tetra CDD	187	0.142		0.999	pg/g	100	130	57	67-158			A0145, A1
2,3,7,8-Tetra CDF	313	0.104		0.999	pg/g	100	306	7.0	75-158			A0145, A1
Octa CDD	1080	0.129		9.99	pg/g	100	1020	59	78-144			A0145, A1
Octa CDF	836	0.105		9.99	pg/g	100	769	67	63-170			
Surrogate: 37CL4 2378 Tetra CDD	19.8				pg/g	20		99	35-197			
Surrogate: C13-1234678 HeptaCDD	72				pg/g	100		72	23-140			
Surrogate: C13-1234678 HeptaCDF	71				pg/g	100		71	28-143			
Surrogate: C13-123478 HexaCDD	82				pg/g	100		82	32-141			
Surrogate: C13-123478 HexaCDF	79				pg/g	100		79	26-152			
Surrogate: C13-1234789 HeptaCDF	67				pg/g	100		67	26-138			
Surrogate: C13-123678 HexaCDD	95				pg/g	100		95	28-130			
Surrogate: C13-123678 HexaCDF	77				pg/g	100		77	26-123			
Surrogate: C13-12378 PentaCDD	89				pg/g	100		89	25-181			
Surrogate: C13-12378 PentaCDF	72				pg/g	100		72	24-185			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5825722 - NA

Matrix Spike (5825722-MS)		Source: 18J0402-02			Prepared: 22-Oct-2018 Analyzed: 08-Nov-2018							
Surrogate: C13-123789 HexaCDF	77				pg/g	100		77	29-147			
Surrogate: C13-234678 HexaCDF	76				pg/g	100		76	28-136			
Surrogate: C13-23478 PentaCDF	78				pg/g	100		78	21-178			
Surrogate: C13-2378 TetraCDD	19.2				pg/g	20		96	25-164			
Surrogate: C13-2378 TetraCDF	15.4				pg/g	20		77	24-169			
Surrogate: C13-OCDD	168				pg/g	200		84	17-157			

Matrix Spike Dup (5825722-MS Dup)		Source: 18J0402-02			Prepared: 22-Oct-2018 Analyzed: 09-Nov-2018							
1,2,3,4,6,7,8-Hepta CDD	161	0.102		5	pg/g	100	61.1	100	70-140	4.1	25	
1,2,3,4,6,7,8-Hepta CDF	112	0.13		5	pg/g	100	18.4	94	82-122	5.5	25	
1,2,3,4,7,8,9-Hepta CDF	99.3	0.13		5	pg/g	100	2.27	97	78-138	4.2	25	
1,2,3,4,7,8-Hexa CDD	88.5	0.136		5	pg/g	100	0.497	88	70-164	1.1	25	
1,2,3,4,7,8-Hexa CDF	100	0.132		5	pg/g	100	6.21	94	72-134	4.3	25	
1,2,3,6,7,8-Hexa CDD	96.4	0.138		5	pg/g	100	2.42	94	76-134	8.9	25	
1,2,3,6,7,8-Hexa CDF	98.7	0.142		5	pg/g	100	1.66	97	84-130	6.4	25	
1,2,3,7,8,9-Hexa CDD	94.9	0.139		5	pg/g	100	1.94	93	64-162	0	25	
1,2,3,7,8,9-Hexa CDF	98.1	0.137		5	pg/g	100	0.113	98	78-130	4.2	25	
1,2,3,7,8-Penta CDD	95.6	0.101		5	pg/g	100	1.6	94	25-181	4.3	25	
1,2,3,7,8-Penta CDF	96.4	0.116		5	pg/g	100	4.37	92	80-134	1.1	25	
2,3,4,6,7,8-Hexa CDF	96.6	0.128		5	pg/g	100	0.624	96	70-156	5.3	25	
2,3,4,7,8-Penta CDF	94.8	0.106		5	pg/g	100	3.82	91	68-160	1.1	25	
2,3,7,8-Tetra CDD	225	0.126		1	pg/g	100	130	95	67-158	50	25	
2,3,7,8-Tetra CDF	493	0.109		1	pg/g	100	306	187	75-158	186	25	A0145, A1
Octa CDD	1170	0.149		10	pg/g	100	1020	153	78-144	89	25	A0145, A1
Octa CDF	884	0.121		10	pg/g	100	769	115	63-170	53	25	
Surrogate: 37CL4 2378 Tetra CDD	20.4				pg/g	20		102	35-197			
Surrogate: C13-1234678 HeptaCDD	74				pg/g	100		74	23-140			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5825722 - NA

Matrix Spike Dup (5825722-MS Dup)

Source: 18J0402-02

Prepared: 22-Oct-2018 Analyzed: 09-Nov-2018

Surrogate: C13-1234678 HeptaCDF	70				pg/g	100		70	28-143			
Surrogate: C13-123478 HexaCDD	88				pg/g	100		88	32-141			
Surrogate: C13-123478 HexaCDF	85				pg/g	100		85	26-152			
Surrogate: C13-1234789 HeptaCDF	73				pg/g	100		73	26-138			
Surrogate: C13-123678 HexaCDD	98				pg/g	100		98	28-130			
Surrogate: C13-123678 HexaCDF	83				pg/g	100		83	26-123			
Surrogate: C13-12378 PentaCDD	94				pg/g	100		94	25-181			
Surrogate: C13-12378 PentaCDF	75				pg/g	100		75	24-185			
Surrogate: C13-123789 HexaCDF	81				pg/g	100		81	29-147			
Surrogate: C13-234678 HexaCDF	80				pg/g	100		80	28-136			
Surrogate: C13-23478 PentaCDF	85				pg/g	100		85	21-178			
Surrogate: C13-2378 TetraCDD	19				pg/g	20		95	25-164			
Surrogate: C13-2378 TetraCDF	16.8				pg/g	20		84	24-169			
Surrogate: C13-OCDD	154				pg/g	200		77	17-157			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

EPA M8290A / M1613 - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5827904 - NA

Blank (5827904-BLK)

Prepared: 22-Oct-2018 Analyzed: 08-Nov-2018

2,3,7,8-Tetra CDF	ND	0.1		1	pg/g				-			Uc
Surrogate: C13-2378 TetraCDF	50				pg/g	100		50	40-135			

Batch 5833197 - NA

Blank (5833197-BLK)

Prepared: 22-Oct-2018 Analyzed: 09-Nov-2018

2,3,7,8-Tetra CDF	ND	0.095		1	pg/g				-			Uc
Surrogate: C13-2378 TetraCDF	72				pg/g	100		72	40-135			

Batch 5837532 - NA

Blank (5837532-BLK)

Prepared: 23-Oct-2018 Analyzed: 13-Nov-2018

2,3,7,8-Tetra CDF	ND	0.12		1	pg/g				-			Uc
Surrogate: C13-2378 TetraCDF	94				pg/g	100		94	40-135			

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Blank (BBJ0449-BLK1)

Prepared & Analyzed: 12-Oct-2018

1,1,1-Trichloroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,1,2,2-Tetrachloroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,1,2-Trichloroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,1-Dichloroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,1-Dichloroethylene	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,2,3-Trichlorobenzene	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,2,4-Trichlorobenzene	ND	0.00040		0.00040	mg/kg dry				-			Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,2-Dibromoethane (EDB)	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,2-Dichlorobenzene	ND	0.00040		0.00040	mg/kg dry				-			Ua
1,2-Dichloroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,2-Dichloropropane	ND	0.00500		0.00500	mg/kg dry				-			Ua
1,3-Dichlorobenzene	ND	0.00040		0.00040	mg/kg dry				-			Ua
1,4-Dichlorobenzene	ND	0.00040		0.00040	mg/kg dry				-			Ua
1,4-Dioxane	ND	0.0400		0.0800	mg/kg dry				-			Ua
2-Butanone (MEK)	ND	0.00500		0.00500	mg/kg dry				-			Ua
2-Hexanone (MBK)	ND	0.00500		0.00500	mg/kg dry				-			Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Blank (BBJ0449-BLK1)

Prepared & Analyzed: 12-Oct-2018

4-Methyl-2-pentanone (MIBK)	ND	0.00500		0.00500	mg/kg dry				-			Ua
Acetone	ND	0.0100		0.0100	mg/kg dry				-			Ua
Benzene	ND	0.00040		0.00040	mg/kg dry				-			Ua
Bromodichloromethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Bromoform	ND	0.00500		0.00500	mg/kg dry				-			Ua
Bromomethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Carbon disulfide	ND	0.00500		0.00500	mg/kg dry				-			Ua
Carbon tetrachloride	ND	0.00500		0.00500	mg/kg dry				-			Ua
Chlorobenzene	ND	0.00500		0.00500	mg/kg dry				-			Ua
Chloroethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Chloroform	ND	0.00040		0.00040	mg/kg dry				-			Ua
Chloromethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
cis-1,2-Dichloroethylene	ND	0.00500		0.00500	mg/kg dry				-			Ua
cis-1,3-Dichloropropene	ND	0.00500		0.00500	mg/kg dry				-			Ua
Cyclohexane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Dibromochloromethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Dichlorodifluoromethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Ethylbenzene	ND	0.00040		0.00040	mg/kg dry				-			Ua

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Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Blank (BBJ0449-BLK1)						Prepared & Analyzed: 12-Oct-2018						
Isopropylbenzene	ND	0.00500		0.00500	mg/kg dry				-			Ua
m+p-Xylenes	ND	0.00500		0.00500	mg/kg dry				-			Ua
Methyl acetate	ND	0.00500		0.00500	mg/kg dry				-			Ua
Methyl cyclohexane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Methylene chloride	ND	0.00500		0.00500	mg/kg dry				-			Ua
Methyl-t-butyl ether (MTBE)	ND	0.00500		0.00500	mg/kg dry				-			Ua
o-Xylene	ND	0.00500		0.00500	mg/kg dry				-			Ua
Styrene	ND	0.00500		0.00500	mg/kg dry				-			Ua
Tetrachloroethylene (PCE)	ND	0.00040		0.00040	mg/kg dry				-			Ua
Toluene	ND	0.00040		0.00040	mg/kg dry				-			Ua
trans-1,2-Dichloroethylene	ND	0.00500		0.00500	mg/kg dry				-			Ua
trans-1,3-Dichloropropene	ND	0.00500		0.00500	mg/kg dry				-			Ua
Trichloroethylene	ND	0.00500		0.00500	mg/kg dry				-			Ua
Trichlorofluoromethane	ND	0.00500		0.00500	mg/kg dry				-			Ua
Vinyl chloride	ND	0.00500		0.00500	mg/kg dry				-			Ua
Surrogate: 1,2-Dichloroethane-d4 (Surr)	0.0532				mg/kg dry	0.0500		106	80-120			
Surrogate: 4-Bromofluorobenzene (Surr)	0.0462				mg/kg dry	0.0500		92.5	85-120			
Surrogate: Dibromofluoromethane (Surr)	0.0534				mg/kg dry	0.0500		107	80-119			
Surrogate: Toluene-d8 (Surr)	0.0504				mg/kg dry	0.0500		101	85-115			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

LCS (BBJ0449-BS1)

Prepared & Analyzed: 12-Oct-2018

1,1,1-Trichloroethane	51.1				mg/kg dry	50.0		102	70-135			
1,1,2,2-Tetrachloroethane	49.1				mg/kg dry	50.0		98.1	55-130			
1,1,2-Trichloroethane	49.6				mg/kg dry	50.0		99.2	60-125			
1,1-Dichloroethane	52.1				mg/kg dry	50.0		104	75-125			
1,1-Dichloroethylene	49.5				mg/kg dry	50.0		98.9	65-135			
1,2,3-Trichlorobenzene	48.2				mg/kg dry	50.0		96.3	60-135			
1,2,4-Trichlorobenzene	47.4				mg/kg dry	50.0		94.8	65-130			
1,2-Dibromo-3-chloropropane (DBCP)	45.8				mg/kg dry	50.0		91.6	40-135			
1,2-Dibromoethane (EDB)	51.5				mg/kg dry	50.0		103	70-125			
1,2-Dichlorobenzene	47.2				mg/kg dry	50.0		94.3	75-120			
1,2-Dichloroethane	51.3				mg/kg dry	50.0		103	70-135			
1,2-Dichloropropane	48.9				mg/kg dry	50.0		97.8	70-120			
1,3-Dichlorobenzene	50.4				mg/kg dry	50.0		101	70-125			
1,4-Dichlorobenzene	48.1				mg/kg dry	50.0		96.2	70-125			
2-Butanone (MEK)	26.0				mg/kg dry	50.0		52.0	30-160			
2-Hexanone (MBK)	48.3				mg/kg dry	50.0		96.7	45-145			
4-Methyl-2-pentanone (MIBK)	45.8				mg/kg dry	50.0		91.7	45-145			
Acetone	52.9				mg/kg dry	50.0		106	20-160			

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Reported:
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Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

LCS (BBJ0449-BS1)

Prepared & Analyzed: 12-Oct-2018

Benzene	49.2				mg/kg dry	50.0		98.4	75-125			
Bromodichloromethane	51.2				mg/kg dry	50.0		102	70-130			
Bromoform	53.3				mg/kg dry	50.0		107	55-135			
Bromomethane	41.6				mg/kg dry	50.0		83.1	30-160			
Carbon disulfide	51.5				mg/kg dry	50.0		103	45-160			
Carbon tetrachloride	50.8				mg/kg dry	50.0		102	65-135			
Chlorobenzene	50.5				mg/kg dry	50.0		101	75-125			
Chloroethane	49.3				mg/kg dry	50.0		98.6	40-155			
Chloroform	49.8				mg/kg dry	50.0		99.6	70-125			
Chloromethane	43.7				mg/kg dry	50.0		87.4	50-130			
cis-1,2-Dichloroethylene	51.5				mg/kg dry	50.0		103	65-125			
cis-1,3-Dichloropropene	47.9				mg/kg dry	50.0		95.7	70-125			
Dibromochloromethane	52.1				mg/kg dry	50.0		104	65-130			
Dichlorodifluoromethane	39.6				mg/kg dry	50.0		79.2	35-135			
Ethylbenzene	52.0				mg/kg dry	50.0		104	75-125			
Isopropylbenzene	55.1				mg/kg dry	50.0		110	75-130			
m+p-Xylenes	107				mg/kg dry	100		107	80-125			
Methylene chloride	44.0				mg/kg dry	50.0		87.9	55-140			

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Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

LCS (BBJ0449-BS1)

Prepared & Analyzed: 12-Oct-2018

Methyl-t-butyl ether (MTBE)	50.8				mg/kg dry	50.0		102	65-125			
o-Xylene	52.7				mg/kg dry	50.0		105	75-125			
Styrene	47.3				mg/kg dry	50.0		94.5	75-125			
Tetrachloroethylene (PCE)	69.0				mg/kg dry	50.0		138	65-140			
Toluene	48.3				mg/kg dry	50.0		96.6	70-125			
trans-1,2-Dichloroethylene	47.8				mg/kg dry	50.0		95.6	65-135			
trans-1,3-Dichloropropene	47.9				mg/kg dry	50.0		95.7	65-125			
Trichloroethylene	46.6				mg/kg dry	50.0		93.2	75-125			
Trichlorofluoromethane	43.4				mg/kg dry	50.0		86.8	25-185			
Vinyl chloride	43.9				mg/kg dry	50.0		87.8	60-130			
Surrogate: 1,2-Dichloroethane-d4 (Surr)	0.0526				mg/kg dry	0.0500		105	80-120			
Surrogate: 4-Bromofluorobenzene (Surr)	0.0540				mg/kg dry	0.0500		108	85-120			
Surrogate: Dibromofluoromethane (Surr)	0.0508				mg/kg dry	0.0500		102	80-119			
Surrogate: Toluene-d8 (Surr)	0.0498				mg/kg dry	0.0500		99.6	85-115			

Matrix Spike (BBJ0449-MS1)

Source: 18J0532-02RE1

Prepared & Analyzed: 12-Oct-2018

1,1,1-Trichloroethane	47.3				mg/kg dry	50.0	0.00	94.6	70-135			
1,1,2,2-Tetrachloroethane	50.3				mg/kg dry	50.0	0.00	101	55-130			
1,1,2-Trichloroethane	51.8				mg/kg dry	50.0	0.00	104	60-125			
1,1-Dichloroethane	51.4				mg/kg dry	50.0	0.00	103	75-125			

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Reported:
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Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Matrix Spike (BBJ0449-MS1)

Source: 18J0532-02RE1

Prepared & Analyzed: 12-Oct-2018

Carbon disulfide	47.3				mg/kg dry	50.0	0.00	94.6	45-160			
Carbon tetrachloride	42.7				mg/kg dry	50.0	0.00	85.3	65-135			
Chlorobenzene	46.9				mg/kg dry	50.0	1.36	91.0	75-125			
Chloroethane	51.4				mg/kg dry	50.0	0.00	103	40-155			
Chloroform	48.2				mg/kg dry	50.0	0.00	96.5	70-125			
Chloromethane	46.8				mg/kg dry	50.0	0.00	93.6	50-130			
cis-1,2-Dichloroethylene	49.8				mg/kg dry	50.0	0.00	99.5	65-125			
cis-1,3-Dichloropropene	43.3				mg/kg dry	50.0	0.00	86.5	70-125			
Dibromochloromethane	46.3				mg/kg dry	50.0	0.00	92.6	65-130			
Dichlorodifluoromethane	38.8				mg/kg dry	50.0	0.00	77.7	35-135			
Ethylbenzene	49.0				mg/kg dry	50.0	2.05	93.9	75-125			
Isopropylbenzene	44.9				mg/kg dry	50.0	0.21	89.4	75-130			
m+p-Xylenes	102				mg/kg dry	100	4.67	97.5	80-125			
Methylene chloride	43.8				mg/kg dry	50.0	0.00	87.6	55-140			
Methyl-t-butyl ether (MTBE)	54.6				mg/kg dry	50.0	0.00	109	65-125			
o-Xylene	50.5				mg/kg dry	50.0	2.41	96.2	75-125			
Styrene	39.7				mg/kg dry	50.0	0.00	79.3	75-125			
Tetrachloroethylene (PCE)	62.7				mg/kg dry	50.0	0.00	125	65-140			

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Project Manager: Cheryl Montgomery

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Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Matrix Spike (BBJ0449-MS1)		Source: 18J0532-02RE1		Prepared & Analyzed: 12-Oct-2018								
Toluene	48.5				mg/kg dry	50.0	0.90	95.3	70-125			
trans-1,2-Dichloroethylene	46.9				mg/kg dry	50.0	0.00	93.8	65-135			
trans-1,3-Dichloropropene	43.3				mg/kg dry	50.0	0.00	86.5	65-125			
Trichloroethylene	45.8				mg/kg dry	50.0	0.00	91.7	75-125			
Trichlorofluoromethane	41.6				mg/kg dry	50.0	0.00	83.2	25-185			
Vinyl chloride	44.6				mg/kg dry	50.0	0.00	89.2	60-130			
Surrogate:	0.363				mg/kg dry	0.357		102	80-120			
1,2-Dichloroethane-d4 (Surr)												
Surrogate:	0.365				mg/kg dry	0.357		102	85-120			
4-Bromofluorobenzene (Surr)												
Surrogate:	0.362				mg/kg dry	0.357		101	80-119			
Dibromofluoromethane (Surr)												
Surrogate: Toluene-d8 (Surr)	0.356				mg/kg dry	0.357		99.8	85-115			

Matrix Spike Dup (BBJ0449-MSD1)		Source: 18J0532-02RE1		Prepared & Analyzed: 12-Oct-2018								
1,1,1-Trichloroethane	46.5				mg/kg dry	50.0	0.00	93.1	70-135	1.62	30	
1,1,2,2-Tetrachloroethane	40.8				mg/kg dry	50.0	0.00	81.7	55-130	20.7	30	
1,1,2-Trichloroethane	47.2				mg/kg dry	50.0	0.00	94.4	60-125	9.39	30	
1,1-Dichloroethane	49.7				mg/kg dry	50.0	0.00	99.3	75-125	3.48	30	
1,1-Dichloroethylene	47.2				mg/kg dry	50.0	0.00	94.4	65-135	3.23	30	
1,2,3-Trichlorobenzene	28.5				mg/kg dry	50.0	0.00	57.0	60-135	14.8	30	M
1,2,4-Trichlorobenzene	27.5				mg/kg dry	50.0	0.00	55.0	65-130	10.8	30	M
1,2-Dibromo-3-chloropropane (DBCP)	37.1				mg/kg dry	50.0	0.00	74.1	40-135	31.5	30	P

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Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Matrix Spike Dup (BBJ0449-MSD1)	Source: 18J0532-02RE1	Prepared & Analyzed: 12-Oct-2018							
1,2-Dibromoethane (EDB)	47.4	mg/kg dry	50.0	0.00	94.8	70-125	7.14	30	
1,2-Dichlorobenzene	35.2	mg/kg dry	50.0	0.00	70.4	75-120	3.08	30	M
1,2-Dichloroethane	45.9	mg/kg dry	50.0	0.00	91.7	70-135	5.62	30	
1,2-Dichloropropane	46.7	mg/kg dry	50.0	0.00	93.5	70-120	5.27	30	
1,3-Dichlorobenzene	39.5	mg/kg dry	50.0	1.14	76.7	70-125	0.857	30	
1,4-Dichlorobenzene	35.7	mg/kg dry	50.0	0.00	71.5	70-125	3.30	30	
2-Butanone (MEK)	46.9	mg/kg dry	50.0	0.00	93.8	30-160	45.6	30	P
2-Hexanone (MBK)	44.6	mg/kg dry	50.0	0.00	89.1	45-145	43.8	30	P
4-Methyl-2-pentanone (MIBK)	42.0	mg/kg dry	50.0	0.00	83.9	45-145	40.0	30	P
Acetone	67.5	mg/kg dry	50.0	11.5	112	20-160	41.3	30	P
Benzene	48.2	mg/kg dry	50.0	1.61	93.1	75-125	5.20	30	
Bromodichloromethane	45.4	mg/kg dry	50.0	0.00	90.7	70-130	2.70	30	
Bromoform	42.0	mg/kg dry	50.0	0.00	84.0	55-135	10.7	30	
Bromomethane	40.5	mg/kg dry	50.0	0.00	81.0	30-160	2.35	30	
Carbon disulfide	45.3	mg/kg dry	50.0	0.00	90.6	45-160	4.38	30	
Carbon tetrachloride	37.2	mg/kg dry	50.0	0.00	74.4	65-135	13.7	30	
Chlorobenzene	45.4	mg/kg dry	50.0	1.40	88.1	75-125	3.08	30	
Chloroethane	50.0	mg/kg dry	50.0	0.00	99.9	40-155	2.76	30	

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Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Matrix Spike Dup (BBJ0449-MSD1)	Source: 18J0532-02RE1	Prepared & Analyzed: 12-Oct-2018										
Chloroform	46.8				mg/kg dry	50.0	0.00	93.6	70-125	2.99	30	
Chloromethane	47.9				mg/kg dry	50.0	0.00	95.8	50-130	2.34	30	
cis-1,2-Dichloroethylene	50.0				mg/kg dry	50.0	0.00	100	65-125	0.581	30	
cis-1,3-Dichloropropene	39.4				mg/kg dry	50.0	0.00	78.9	70-125	9.29	30	
Dibromochloromethane	43.4				mg/kg dry	50.0	0.00	86.7	65-130	6.56	30	
Dichlorodifluoromethane	39.7				mg/kg dry	50.0	0.00	79.4	35-135	2.24	30	
Ethylbenzene	48.9				mg/kg dry	50.0	2.11	93.6	75-125	0.204	30	
Isopropylbenzene	40.8				mg/kg dry	50.0	0.22	81.2	75-130	9.54	30	
m+p-Xylenes	101				mg/kg dry	100	4.81	95.8	80-125	1.52	30	
Methylene chloride	42.9				mg/kg dry	50.0	0.00	85.8	55-140	2.12	30	
Methyl-t-butyl ether (MTBE)	49.2				mg/kg dry	50.0	0.00	98.3	65-125	10.4	30	
o-Xylene	50.1				mg/kg dry	50.0	2.48	95.2	75-125	0.875	30	
Styrene	37.5				mg/kg dry	50.0	0.00	75.0	75-125	5.57	30	
Tetrachloroethylene (PCE)	61.0				mg/kg dry	50.0	0.00	122	65-140	2.76	30	
Toluene	45.8				mg/kg dry	50.0	0.93	89.7	70-125	5.85	30	
trans-1,2-Dichloroethylene	45.1				mg/kg dry	50.0	0.00	90.3	65-135	3.85	30	
trans-1,3-Dichloropropene	39.4				mg/kg dry	50.0	0.00	78.9	65-125	9.29	30	
Trichloroethylene	45.5				mg/kg dry	50.0	0.00	91.1	75-125	0.657	30	

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Project Manager: Cheryl Montgomery

Reported:
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Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0449 - SW5030B

Matrix Spike Dup (BBJ0449-MSD1)

Source: 18J0532-02RE1

Prepared & Analyzed: 12-Oct-2018

Trichlorofluoromethane	40.0				mg/kg dry	50.0	0.00	79.9	25-185	4.00	30	
Vinyl chloride	46.3				mg/kg dry	50.0	0.00	92.5	60-130	3.70	30	
<i>Surrogate:</i>	<i>0.337</i>				<i>mg/kg dry</i>	<i>0.346</i>		<i>97.2</i>	<i>80-120</i>			
<i>1,2-Dichloroethane-d4 (Surr)</i>												
<i>Surrogate:</i>	<i>0.362</i>				<i>mg/kg dry</i>	<i>0.346</i>		<i>105</i>	<i>85-120</i>			
<i>4-Bromofluorobenzene (Surr)</i>												
<i>Surrogate:</i>	<i>0.350</i>				<i>mg/kg dry</i>	<i>0.346</i>		<i>101</i>	<i>80-119</i>			
<i>Dibromofluoromethane (Surr)</i>												
<i>Surrogate: Toluene-d8 (Surr)</i>	<i>0.343</i>				<i>mg/kg dry</i>	<i>0.346</i>		<i>98.9</i>	<i>85-115</i>			

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 22-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0376 - No Prep Wet Chem

Blank (BBJ0376-BLK1)												
						Prepared & Analyzed: 11-Oct-2018						
Volatile Solids	255	200		200	mg/kg				-			Ba

Duplicate (BBJ0376-DUP1)												
						Source: 18J0441-09						
						Prepared & Analyzed: 11-Oct-2018						
Volatile Solids	554000	200		200	mg/kg		553000		-	0.212	20	

Duplicate (BBJ0376-DUP2)												
						Source: 18J0532-02						
						Prepared & Analyzed: 11-Oct-2018						
Volatile Solids	29100	200		200	mg/kg		29600		-	1.51	20	

Batch BBJ0482 - No Prep Wet Chem

Blank (BBJ0482-BLK1)												
						Prepared & Analyzed: 15-Oct-2018						
Cyanide	ND	0.01		0.01	mg/kg dry				-			Ua

LCS (BBJ0482-BS1)												
						Prepared & Analyzed: 15-Oct-2018						
Cyanide	0.26				mg/kg dry	0.250		104	80-120			

LCS Dup (BBJ0482-BSD1)												
						Prepared & Analyzed: 15-Oct-2018						
Cyanide	0.26				mg/kg dry	0.250		102	80-120	1.13	20	

Matrix Spike (BBJ0482-MS1)												
						Source: 18J0532-02						
						Prepared & Analyzed: 15-Oct-2018						
Cyanide	26.0	1.19		1.19	mg/kg dry	29.8	ND	87.4	75-125			

Matrix Spike (BBJ0482-MS2)												
						Source: 18J0532-12						
						Prepared & Analyzed: 15-Oct-2018						
Cyanide	25.0	1.06		1.06	mg/kg dry	26.5	ND	94.3	75-125			

Matrix Spike Dup (BBJ0482-MSD1)												
						Source: 18J0532-02						
						Prepared & Analyzed: 15-Oct-2018						
Cyanide	26.6	1.19		1.19	mg/kg dry	29.8	ND	89.4	75-125	2.26	20	

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0482 - No Prep Wet Chem

Matrix Spike Dup (BBJ0482-MSD2)		Source: 18J0532-12		Prepared & Analyzed: 15-Oct-2018								
Cyanide	26.4	1.06		1.06	mg/kg dry	26.5	ND	99.5	75-125	5.41	20	

Batch BBJ0487 - No Prep Wet Chem

Blank (BBJ0487-BLK1)		Prepared & Analyzed: 16-Oct-2018										
Volatile Solids	ND	200		200	mg/kg				-			Ua

Duplicate (BBJ0487-DUP1)		Source: 18J0532-07		Prepared & Analyzed: 16-Oct-2018								
Volatile Solids	43600	200		200	mg/kg	45200			-	3.63	20	

Duplicate (BBJ0487-DUP2)		Source: 18J0607-06		Prepared & Analyzed: 16-Oct-2018								
Volatile Solids	556000	200		200	mg/kg	560000			-	0.723	20	

Batch BBJ0758 - No Prep Halides

Blank (BBJ0758-BLK1)		Prepared & Analyzed: 23-Oct-2018										
TOC (Max)	0.00725	0.00471		0.00500	% by Weight dry				-			Ba

TOC (Mean)	0.00559	0.00471		0.00500	% by Weight dry				-			Ba
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TOC (Min)	ND	0.00471		0.00500	% by Weight dry				-			Ua
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LCS (BBJ0758-BS1)		Prepared & Analyzed: 23-Oct-2018										
TOC (Max)	0.107	0.00798		0.0100	% by Weight dry	0.0998		107	80-120			

TOC (Mean)	0.0998	0.00798		0.0100	% by Weight dry	0.0998		100	80-120			
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TOC (Min)	0.0918	0.00798		0.0100	% by Weight dry	0.0998		92.0	80-120			
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LCS Dup (BBJ0758-BSD1)		Prepared & Analyzed: 23-Oct-2018									
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
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Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0758 - No Prep Halides

LCS Dup (BBJ0758-BSD1)

Prepared & Analyzed: 23-Oct-2018

TOC (Max)	0.0968	0.00746		0.0100	% by Weight dry	0.0933		104	80-120	10.1	20	
TOC (Mean)	0.0943	0.00746		0.0100	% by Weight dry	0.0933		101	80-120	5.74	20	
TOC (Min)	0.0925	0.00746		0.0100	% by Weight dry	0.0933		99.1	80-120	0.683	20	

Matrix Spike (BBJ0758-MS1)

Source: 18J0532-02

Prepared & Analyzed: 23-Oct-2018

TOC (Max)	0.818	0.430		0.537	% by Weight dry	0.537	ND	152	80-120			M2
TOC (Mean)	0.803	0.430		0.537	% by Weight dry	0.537	ND	149	80-120			M2
TOC (Min)	0.780	0.430		0.537	% by Weight dry	0.537	ND	145	80-120			M2

Matrix Spike Dup (BBJ0758-MSD1)

Source: 18J0532-02

Prepared & Analyzed: 23-Oct-2018

TOC (Max)	0.658	0.314		0.393	% by Weight dry	0.393	ND	168	80-120	21.6	20	M2, P
TOC (Mean)	0.642	0.314		0.393	% by Weight dry	0.393	ND	163	80-120	22.3	20	M2, P
TOC (Min)	0.597	0.314		0.393	% by Weight dry	0.393	ND	152	80-120	26.5	20	M2, P

Batch BBJ0803 - No Prep Halides

Blank (BBJ0803-BLK1)

Prepared & Analyzed: 24-Oct-2018

TOC (Max)	0.0215	0.00498		0.00500	% by Weight dry				-			Ba
TOC (Mean)	0.00969	0.00498		0.00500	% by Weight dry				-			Ba

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Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0803 - No Prep Halides

Blank (BBJ0803-BLK1) Prepared & Analyzed: 24-Oct-2018

TOC (Min)	0.00513	0.00498		0.00500	% by Weight dry				-			Ba
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LCS (BBJ0803-BS1) Prepared & Analyzed: 24-Oct-2018

TOC (Max)	0.0939	0.00860		0.0100	% by Weight dry	0.0860		109	80-120			
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TOC (Mean)	0.0887	0.00860		0.0100	% by Weight dry	0.0860		103	80-120			
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TOC (Min)	0.0864	0.00860		0.0100	% by Weight dry	0.0860		100	80-120			
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LCS Dup (BBJ0803-BSD1) Prepared & Analyzed: 24-Oct-2018

TOC (Max)	0.0928	0.00917		0.0100	% by Weight dry	0.0917		101	80-120	1.21	20	
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TOC (Mean)	0.0918	0.00917		0.0100	% by Weight dry	0.0917		100	80-120	3.42	20	
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TOC (Min)	0.0908	0.00917		0.0100	% by Weight dry	0.0917		99.0	80-120	4.95	20	
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Matrix Spike (BBJ0803-MS1) Source: 18J0701-02 Prepared & Analyzed: 24-Oct-2018

TOC (Max)	0.917	0.259		0.259	% by Weight dry	0.517	0.271	125	80-120			M2
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TOC (Mean)	0.760	0.259		0.259	% by Weight dry	0.517	0.262	96.3	80-120			
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TOC (Min)	0.672	0.259		0.259	% by Weight dry	0.517	ND	130	80-120			M2
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Matrix Spike Dup (BBJ0803-MSD1) Source: 18J0701-02 Prepared & Analyzed: 24-Oct-2018

TOC (Max)	0.853	0.294		0.294	% by Weight dry	0.588	ND	145	80-120	7.20	20	M2
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Wet Chemistry Analysis - Quality Control
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Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBJ0803 - No Prep Halides

Matrix Spike Dup (BBJ0803-MSD1)	Source: 18J0701-02			Prepared & Analyzed: 24-Oct-2018								
TOC (Mean)	0.813	0.294	0.294	% by Weight dry	0.588	ND	138	80-120	6.64	20	M2	
TOC (Min)	0.765	0.294	0.294	% by Weight dry	0.588	ND	130	80-120	13.1	20	M2	

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Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

BLK (WG1167103-1)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

1,2,4-Trichlorobenzene	ND	2.06		33.3	ug/kg				-			Ub
1,2-Dichlorobenzene	ND	7.27		33.3	ug/kg				-			Ub
1,3-Dichlorobenzene	ND	6.8		33.3	ug/kg				-			Ub
1,4-Dichlorobenzene	ND	6.93		33.3	ug/kg				-			Ub
2,4,6-Trichlorophenol	ND	2.98		33.3	ug/kg				-			Ub
2,4-Dichlorophenol	ND	3.58		33.3	ug/kg				-			Ub
2,4-Dimethylphenol	ND	5.49		33.3	ug/kg				-			Ub
2,4-Dinitrophenol	ND	56.8		200	ug/kg				-			Ub
2,4-Dinitrotoluene	ND	2.33		33.3	ug/kg				-			Ub
2,6-Dinitrotoluene	ND	8.6		33.3	ug/kg				-			Ub
2-Chloronaphthalene	ND	2.32		33.3	ug/kg				-			Ub
2-Chlorophenol	ND	2.2		33.3	ug/kg				-			Ub
2-Nitrophenol	ND	3.59		33.3	ug/kg				-			Ub
3,3'-Dichlorobenzidine	ND	5.69		66.7	ug/kg				-			Ub
4,6-Dinitro-2-methylphenol	ND	64		200	ug/kg				-			Ub
4-Bromophenyl-phenylether	ND	3.13		33.3	ug/kg				-			Ub
4-Chloro-3-methylphenol	ND	4.81		33.3	ug/kg				-			Ub
4-Chlorophenyl-phenylether	ND	3.21		33.3	ug/kg				-			Ub
4-Nitrophenol	ND	183		553	ug/kg				-			Ub
Azobenzene	ND	2.46		33.3	ug/kg				-			Ub
Benzidine	ND	216		933	ug/kg				-			Ub
bis(2-Chloroethoxy)methane	ND	3.35		33.3	ug/kg				-			Ub
bis(2-Chloroethyl)ether	ND	6.12		33.3	ug/kg				-			Ub
bis(2-chloroisopropyl)ether	ND	5.56		33.3	ug/kg				-			Ub
bis(2-Ethylhexyl)phthalate	ND	8.73		33.3	ug/kg				-			Ub
Butylbenzylphthalate	ND	6.73		33.3	ug/kg				-			Ub
Diethylphthalate	ND	3.41		33.3	ug/kg				-			Ub
Dimethylphthalate	ND	2.6		33.3	ug/kg				-			Ub

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Semivolatile Organics by GC-MS - Quality Control

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Batch WG1167103 - EPA 3510C

BLK (WG1167103-1)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

Di-n-butylphthalate	ND	3.17		33.3	ug/kg				-			Ub
Di-n-octylphthalate	ND	13.8		66.7	ug/kg				-			Ub
Hexachlorobenzene	ND	3.25		33.3	ug/kg				-			Ub
Hexachlorobutadiene	ND	6.47		33.3	ug/kg				-			Ub
Hexachlorocyclopentadiene	ND	36.5		200	ug/kg				-			Ub
Hexachloroethane	ND	5.57		33.3	ug/kg				-			Ub
Isophorone	ND	3.65		33.3	ug/kg				-			Ub
Nitrobenzene	ND	3.47		33.3	ug/kg				-			Ub
N-Nitrosodimethylamine	ND	8.4		33.3	ug/kg				-			Ub
N-Nitroso-di-n-propylamine	ND	5.67		33.3	ug/kg				-			Ub
n-Nitrosodiphenylamine	ND	2.34		33.3	ug/kg				-			Ub
Pentachlorophenol	ND	59.9		200	ug/kg				-			Ub
Phenol	ND	3.17		33.3	ug/kg				-			Ub
<i>Surrogate:</i>	<i>701</i>				<i>mg/kg</i>			<i>53</i>	<i>15-115</i>			
<i>2,4,6-Tribromophenol</i>												
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>620</i>				<i>mg/kg</i>			<i>47</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>528</i>				<i>mg/kg</i>			<i>40</i>	<i>15-115</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>635</i>				<i>mg/kg</i>			<i>48</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d5</i>	<i>654</i>				<i>mg/kg</i>			<i>49</i>	<i>15-115</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>971</i>				<i>mg/kg</i>			<i>73</i>	<i>30-130</i>			

LCS (WG1167103-2)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

1,2,4-Trichlorobenzene	412	2.06		33.3	ug/kg			62	40-140			
1,2-Dichlorobenzene	393	7.27		33.3	ug/kg			59	40-140			
1,3-Dichlorobenzene	378	6.8		33.3	ug/kg			57	40-140			
1,4-Dichlorobenzene	383	6.93		33.3	ug/kg			57	40-140			
2,4,6-Trichlorophenol	483	2.98		33.3	ug/kg			72	40-140			
2,4-Dichlorophenol	474	3.58		33.3	ug/kg			71	40-140			
2,4-Dimethylphenol	405	5.49		33.3	ug/kg			61	40-140			
2,4-Dinitrophenol	348	56.8		200	ug/kg			52	40-140			
2,4-Dinitrotoluene	603	2.33		33.3	ug/kg			90	40-140			

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Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

LCS (WG1167103-2)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

2,6-Dinitrotoluene	561	8.6		33.3	ug/kg			84	40-140			
2-Chloronaphthalene	485	2.32		33.3	ug/kg			73	40-140			
2-Chlorophenol	416	2.2		33.3	ug/kg			62	40-140			
2-Nitrophenol	461	3.59		33.3	ug/kg			69	40-140			
3,3'-Dichlorobenzidine	557	5.69		66.7	ug/kg			84	40-140			
4,6-Dinitro-2-methylphenol	537	64		200	ug/kg			81	40-140			
4-Bromophenyl-phenylether	552	3.13		33.3	ug/kg			83	40-140			
4-Chloro-3-methylphenol	552	4.81		33.3	ug/kg			83	40-140			
4-Chlorophenyl-phenylether	542	3.21		33.3	ug/kg			81	40-140			
4-Nitrophenol	494	183		553	ug/kg			74	17-65			
Azobenzene	545	2.46		33.3	ug/kg			82	40-140			
Benzidine	482	216		933	ug/kg			29	10-82			
bis(2-Chloroethoxy)methane	496	3.35		33.3	ug/kg			74	40-140			
bis(2-Chloroethyl)ether	464	6.12		33.3	ug/kg			70	40-140			
bis(2-chloroisopropyl)ether	491	5.56		33.3	ug/kg			74	40-140			
bis(2-Ethylhexyl)phthalate	628	8.73		33.3	ug/kg			94	40-140			
Butylbenzylphthalate	614	6.73		33.3	ug/kg			92	40-140			
Diethylphthalate	594	3.41		33.3	ug/kg			89	40-140			
Dimethylphthalate	555	2.6		33.3	ug/kg			83	40-140			
Di-n-butylphthalate	621	3.17		33.3	ug/kg			93	40-140			
Di-n-octylphthalate	633	13.8		66.7	ug/kg			95	40-140			
Hexachlorobenzene	537	3.25		33.3	ug/kg			81	40-140			
Hexachlorobutadiene	416	6.47		33.3	ug/kg			62	40-140			
Hexachlorocyclopentadiene	221	36.5		200	ug/kg			33	10-109			
Hexachloroethane	402	5.57		33.3	ug/kg			60	10-97			
Isophorone	534	3.65		33.3	ug/kg			80	40-140			
Nitrobenzene	476	3.47		33.3	ug/kg			71	40-140			
N-Nitrosodimethylamine	400	8.4		33.3	ug/kg			60	27-70			

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Semivolatile Organics by GC-MS - Quality Control

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Batch WG1167103 - EPA 3510C

LCS (WG1167103-2)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

N-Nitroso-di-n-propylamine	516	5.67		33.3	ug/kg			77	40-140			
n-Nitrosodiphenylamine	559	2.34		33.3	ug/kg			84	40-140			
Pentachlorophenol	421	59.9		200	ug/kg			63	40-140			
Phenol	468	3.17		33.3	ug/kg			70	18-54			
<i>Surrogate:</i>	<i>1000</i>				<i>mg/kg</i>			<i>75</i>	<i>15-115</i>			
<i>2,4,6-Tribromophenol</i>												
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>876</i>				<i>mg/kg</i>			<i>66</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>715</i>				<i>mg/kg</i>			<i>54</i>	<i>15-115</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>877</i>				<i>mg/kg</i>			<i>66</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d5</i>	<i>852</i>				<i>mg/kg</i>			<i>64</i>	<i>15-115</i>			<i>*a</i>
<i>Surrogate: Terphenyl-d14</i>	<i>1060</i>				<i>mg/kg</i>			<i>79</i>	<i>30-130</i>			<i>*a</i>

LCD (WG1167103-3)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

1,2,4-Trichlorobenzene	395	2.06		33.3	ug/kg			59	40-140	5	30	<i>*a</i>
1,2-Dichlorobenzene	377	7.27		33.3	ug/kg			56	40-140	5	30	<i>*a</i>
1,3-Dichlorobenzene	361	6.8		33.3	ug/kg			54	40-140	5	30	
1,4-Dichlorobenzene	363	6.93		33.3	ug/kg			54	40-140	5	30	<i>*a</i>
2,4,6-Trichlorophenol	466	2.98		33.3	ug/kg			70	40-140	3	30	
2,4-Dichlorophenol	454	3.58		33.3	ug/kg			68	40-140	4	30	
2,4-Dimethylphenol	400	5.49		33.3	ug/kg			60	40-140	2	30	
2,4-Dinitrophenol	356	56.8		200	ug/kg			53	40-140	2	30	<i>*a</i>
2,4-Dinitrotoluene	581	2.33		33.3	ug/kg			87	40-140	3	30	<i>*a</i>
2,6-Dinitrotoluene	538	8.6		33.3	ug/kg			81	40-140	4	30	
2-Chloronaphthalene	462	2.32		33.3	ug/kg			69	40-140	6	30	
2-Chlorophenol	389	2.2		33.3	ug/kg			58	40-140	7	30	<i>*a</i>
2-Nitrophenol	441	3.59		33.3	ug/kg			66	40-140	4	30	
3,3'-Dichlorobenzidine	554	5.69		66.7	ug/kg			83	40-140	1	30	<i>*a</i>
4,6-Dinitro-2-methylphenol	511	64		200	ug/kg			77	40-140	5	30	
4-Bromophenyl-phenylether	508	3.13		33.3	ug/kg			76	40-140	9	30	
4-Chloro-3-methylphenol	525	4.81		33.3	ug/kg			79	40-140	5	30	
4-Chlorophenyl-phenylether	513	3.21		33.3	ug/kg			77	40-140	5	30	<i>*a</i>

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

LCD (WG1167103-3)

Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018

4-Nitrophenol	454	183		553	ug/kg			68	17-65	8	30	*a
Azobenzene	515	2.46		33.3	ug/kg			77	40-140	6	30	*a
Benzidine	590	216		933	ug/kg			35	10-82	19	30	*a
bis(2-Chloroethoxy)methane	480	3.35		33.3	ug/kg			72	40-140	3	30	
bis(2-Chloroethyl)ether	436	6.12		33.3	ug/kg			65	40-140	7	30	
bis(2-chloroisopropyl)ether	469	5.56		33.3	ug/kg			70	40-140	6	30	
bis(2-Ethylhexyl)phthalate	593	8.73		33.3	ug/kg			89	40-140	5	30	
Butylbenzylphthalate	579	6.73		33.3	ug/kg			87	40-140	6	30	
Diethylphthalate	562	3.41		33.3	ug/kg			84	40-140	6	30	
Dimethylphthalate	532	2.6		33.3	ug/kg			80	40-140	4	30	
Di-n-butylphthalate	583	3.17		33.3	ug/kg			87	40-140	7	30	*a
Di-n-octylphthalate	600	13.8		66.7	ug/kg			90	40-140	5	30	*a
Hexachlorobenzene	503	3.25		33.3	ug/kg			75	40-140	8	30	*a
Hexachlorobutadiene	394	6.47		33.3	ug/kg			59	40-140	5	30	*a
Hexachlorocyclopentadiene	231	36.5		200	ug/kg			35	10-109	6	30	*a
Hexachloroethane	382	5.57		33.3	ug/kg			57	10-97	5	30	
Isophorone	516	3.65		33.3	ug/kg			77	40-140	4	30	*a
Nitrobenzene	450	3.47		33.3	ug/kg			68	40-140	4	30	*a
N-Nitrosodimethylamine	388	8.4		33.3	ug/kg			58	27-70	3	30	
N-Nitroso-di-n-propylamine	501	5.67		33.3	ug/kg			75	40-140	3	30	*a
n-Nitrosodiphenylamine	529	2.34		33.3	ug/kg			79	40-140	6	30	
Pentachlorophenol	417	59.9		200	ug/kg			63	40-140	0	30	
Phenol	435	3.17		33.3	ug/kg			65	18-54	7	30	
Surrogate:	983				mg/kg			74	15-115			*a
2,4,6-Tribromophenol												
Surrogate: 2-Fluorobiphenyl	842				mg/kg			63	30-130			
Surrogate: 2-Fluorophenol	672				mg/kg			50	15-115			
Surrogate: Nitrobenzene-d5	836				mg/kg			63	30-130			
Surrogate: Phenol-d5	808				mg/kg			61	15-115			
Surrogate: Terphenyl-d14	1000				mg/kg			75	30-130			

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Reported:
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Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

MS (WG1167103-4)	Source: ND		Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018									
1,2,4-Trichlorobenzene	569	2.99	48.4	ug/kg	969	18J0402-02	58.7	40-140	30			
1,2-Dichlorobenzene	448	10.6	48.4	ug/kg	969	18J0402-02	46.2	40-140	30			
1,3-Dichlorobenzene	433	9.88	48.4	ug/kg	969	18J0402-02	44.7	40-140	30			
1,4-Dichlorobenzene	421	10.1	48.4	ug/kg	969	18J0402-02	43.5	40-140	30			
2,4,6-Trichlorophenol	763	4.33	48.4	ug/kg	969	18J0402-02	78.8	40-140	30			
2,4-Dichlorophenol	638	5.2	48.4	ug/kg	969	18J0402-02	65.9	40-140	30			
2,4-Dimethylphenol	345	7.98	48.4	ug/kg	969	18J0402-02	35.6	30-130	30			
2,4-Dinitrophenol	155	82.5	291	ug/kg	969	18J0402-02	16	10-96	30			
2,4-Dinitrotoluene	867	3.39	48.4	ug/kg	969	18J0402-02	89.5	40-140	30			
2,6-Dinitrotoluene	842	12.5	48.4	ug/kg	969	18J0402-02	86.9	40-140	30			
2-Chloronaphthalene	736	3.37	48.4	ug/kg	969	18J0402-02	76	40-140	30			
2-Chlorophenol	459	3.2	48.4	ug/kg	969	18J0402-02	47.4	40-140	30			
2-Nitrophenol	597	5.22	48.4	ug/kg	969	18J0402-02	61.6	40-140	30			
3,3'-Dichlorobenzidine	229	8.26	96.9	ug/kg	969	18J0402-02	23.6	40-140	30			Q
4,6-Dinitro-2-methylphenol	387	93	291	ug/kg	969	18J0402-02	39.9	30-130	30			
4-Bromophenyl-phenylether	815	4.55	48.4	ug/kg	969	18J0402-02	84.1	40-140	30			
4-Chloro-3-methylphenol	769	6.99	48.4	ug/kg	969	18J0402-02	79.4	40-140	30			
4-Chlorophenyl-phenylether	789	4.67	48.4	ug/kg	969	18J0402-02	81.4	40-140	30			
4-Nitrophenol	616	266	804	ug/kg	969	18J0402-02	63.6	17-65	30			
Azobenzene	1000	3.57	48.4	ug/kg	969	18J0402-02	103	40-140	30			
Benzidine	ND	314	1360	ug/kg	2420	18J0402-02	0	10-82	30			Q, U
bis(2-Chloroethoxy)methane	676	4.87	48.4	ug/kg	969	18J0402-02	69.8	40-140	30			
bis(2-Chloroethyl)ether	535	8.89	48.4	ug/kg	969	18J0402-02	55.2	40-140	30			
bis(2-chloroisopropyl)ether	605	8.08	48.4	ug/kg	969	18J0402-02	62.5	40-140	30			
bis(2-Ethylhexyl)phthalate	1160	12.7	48.4	ug/kg	969	18J0402-02	96.1	40-140	30			
Butylbenzylphthalate	888	9.78	48.4	ug/kg	969	18J0402-02	91.7	40-140	30			
Diethylphthalate	828	4.95	48.4	ug/kg	969	18J0402-02	85.5	40-140	30			
Dimethylphthalate	789	3.78	48.4	ug/kg	969	18J0402-02	81.4	40-140	30			

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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

MS (WG1167103-4)	Source: ND		Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018									
Di-n-butylphthalate	815	4.61	48.4	ug/kg	969	18J0402-02	84.1	40-140			30	
Di-n-octylphthalate	868	20	96.9	ug/kg	969	18J0402-02	89.6	40-140			30	
Hexachlorobenzene	797	4.72	48.4	ug/kg	969	18J0402-02	82.3	40-140			30	
Hexachlorobutadiene	604	9.4	48.4	ug/kg	969	18J0402-02	62.3	40-140			30	
Hexachlorocyclopentadiene	75.6	53.1	291	ug/kg	969	18J0402-02	7.8	12-87			30	Q
Hexachloroethane	415	8.1	48.4	ug/kg	969	18J0402-02	42.8	10-97			30	
Isophorone	742	5.31	48.4	ug/kg	969	18J0402-02	76.6	40-140			30	
Nitrobenzene	600	5.05	48.4	ug/kg	969	18J0402-02	61.9	40-140			30	
N-Nitrosodimethylamine	414	12.2	48.4	ug/kg	969	18J0402-02	42.7	27-70			30	
N-Nitroso-di-n-propylamine	725	8.24	48.4	ug/kg	969	18J0402-02	74.8	40-140			30	
n-Nitrosodiphenylamine	829	3.4	48.4	ug/kg	969	18J0402-02	85.6	40-140			30	
Pentachlorophenol	506	87.1	291	ug/kg	969	18J0402-02	52.2	40-140			30	
Phenol	534	4.6	48.4	ug/kg	969	18J0402-02	55.1	18-54			30	
<i>Surrogate: 2,4,6-Tribromophenol</i>	<i>1500</i>			<i>mg/kg</i>			<i>78</i>	<i>15-115</i>				
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>1360</i>			<i>mg/kg</i>			<i>70</i>	<i>30-130</i>				
<i>Surrogate: 2-Fluorophenol</i>	<i>740</i>			<i>mg/kg</i>			<i>38</i>	<i>15-115</i>				
<i>Surrogate: Nitrobenzene-d5</i>	<i>1120</i>			<i>mg/kg</i>			<i>58</i>	<i>30-130</i>				
<i>Surrogate: Phenol-d5</i>	<i>961</i>			<i>mg/kg</i>			<i>50</i>	<i>15-115</i>				
<i>Surrogate: Terphenyl-d14</i>	<i>1530</i>			<i>mg/kg</i>			<i>79</i>	<i>30-130</i>				

MSD (WG1167103-5)	Source: ND		Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018									
1,2,4-Trichlorobenzene	661	3.02	48.8	ug/kg	969	18J0402-02	67.6	40-140	15		30	
1,2-Dichlorobenzene	604	10.6	48.8	ug/kg	969	18J0402-02	61.8	40-140	30		30	
1,3-Dichlorobenzene	609	9.97	48.8	ug/kg	969	18J0402-02	62.3	40-140	34		30	Q
1,4-Dichlorobenzene	586	10.2	48.8	ug/kg	969	18J0402-02	60	40-140	33		30	Q
2,4,6-Trichlorophenol	796	4.37	48.8	ug/kg	969	18J0402-02	81.5	40-140	4		30	
2,4-Dichlorophenol	727	5.25	48.8	ug/kg	969	18J0402-02	74.4	40-140	13		30	
2,4-Dimethylphenol	741	8.05	48.8	ug/kg	969	18J0402-02	75.8	40-140	73		30	Q
2,4-Dinitrophenol	139	83.2	293	ug/kg	969	18J0402-02	14.2	10-96	11		30	
2,4-Dinitrotoluene	900	3.42	48.8	ug/kg	969	18J0402-02	92.1	40-140	4		30	

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USACE ERDC-EP-C
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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

MSD (WG1167103-5)	Source: ND		Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018									
2,6-Dinitrotoluene	876	12.6	48.8	ug/kg	969	18J0402-02	89.7	40-140	4	30		
2-Chloronaphthalene	776	3.4	48.8	ug/kg	969	18J0402-02	79.4	40-140	5	30		
2-Chlorophenol	626	3.22	48.8	ug/kg	969	18J0402-02	64.1	40-140	31	30	Q	
2-Nitrophenol	697	5.27	48.8	ug/kg	969	18J0402-02	71.3	40-140	15	30		
3,3'-Dichlorobenzidine	316	8.33	97.7	ug/kg	969	18J0402-02	32.3	40-140	32	30	Q	
4,6-Dinitro-2-methylphenol	392	93.8	293	ug/kg	969	18J0402-02	40.1	40-140	1	30		
4-Bromophenyl-phenylether	835	4.59	48.8	ug/kg	969	18J0402-02	85.5	40-140	2	30		
4-Chloro-3-methylphenol	843	7.05	48.8	ug/kg	969	18J0402-02	86.3	40-140	9	30		
4-Chlorophenyl-phenylether	838	4.71	48.8	ug/kg	969	18J0402-02	85.8	40-140	6	30		
4-Nitrophenol	699	269	811	ug/kg	969	18J0402-02	71.5	17-65	13	30		
Azobenzene	1040	3.6	48.8	ug/kg	969	18J0402-02	106	40-140	4	30		
Benzidine	ND	316	1370	ug/kg	969	18J0402-02	0	10-82	NR	30	Q, U	
bis(2-Chloroethoxy)methane	750	4.91	48.8	ug/kg	969	18J0402-02	76.8	40-140	10	30		
bis(2-Chloroethyl)ether	706	8.97	48.8	ug/kg	969	18J0402-02	72.3	40-140	28	30		
bis(2-chloroisopropyl)ether	752	8.15	48.8	ug/kg	969	18J0402-02	77	40-140	22	30		
bis(2-Ethylhexyl)phthalate	1200	12.8	48.8	ug/kg	969	18J0402-02	99.4	40-140	3	30		
Butylbenzylphthalate	917	9.87	48.8	ug/kg	969	18J0402-02	93.8	40-140	3	30		
Diethylphthalate	856	4.99	48.8	ug/kg	969	18J0402-02	87.6	40-140	3	30		
Dimethylphthalate	782	3.81	48.8	ug/kg	969	18J0402-02	80	40-140	1	30		
Di-n-butylphthalate	862	4.65	48.8	ug/kg	969	18J0402-02	88.2	40-140	6	30		
Di-n-octylphthalate	901	20.2	97.7	ug/kg	969	18J0402-02	92.2	40-140	4	30		
Hexachlorobenzene	853	4.76	48.8	ug/kg	969	18J0402-02	87.3	40-140	7	30		
Hexachlorobutadiene	699	9.48	48.8	ug/kg	969	18J0402-02	71.5	40-140	15	30		
Hexachlorocyclopentadiene	81.7	53.5	293	ug/kg	969	18J0402-02	8.36	12-87	8	30	Q	
Hexachloroethane	548	8.17	48.8	ug/kg	969	18J0402-02	56.1	10-97	28	30		
Isophorone	808	5.35	48.8	ug/kg	969	18J0402-02	82.7	40-140	9	30		
Nitrobenzene	730	5.09	48.8	ug/kg	969	18J0402-02	74.7	40-140	20	30		
N-Nitrosodimethylamine	580	12.3	48.8	ug/kg	969	18J0402-02	59.4	27-70	33	30	Q	

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Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167103 - EPA 3510C

MSD (WG1167103-5)	Source: ND		Prepared: 11-Oct-2018 Analyzed: 19-Oct-2018									
N-Nitroso-di-n-propylamine	831	8.32	48.8	ug/kg	969	18J0402-02	85	40-140	14	30		
n-Nitrosodiphenylamine	824	3.43	48.8	ug/kg	969	18J0402-02	84.3	40-140	1	30		
Pentachlorophenol	535	87.8	293	ug/kg	969	18J0402-02	54.8	40-140	6	30		
Phenol	690	4.64	48.8	ug/kg	969	18J0402-02	70.6	18-54	25	30		
Surrogate: 2,4,6-Tribromophenol	1660			mg/kg			85	15-115				
Surrogate: 2-Fluorobiphenyl	1440			mg/kg			74	30-130				
Surrogate: 2-Fluorophenol	1060			mg/kg			54	15-115				
Surrogate: Nitrobenzene-d5	1340			mg/kg			69	30-130				
Surrogate: Phenol-d5	1240			mg/kg			64	15-115				
Surrogate: Terphenyl-d14	1560			mg/kg			80	30-130				

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Reported:
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Project Manager: Cheryl Montgomery

TNRCC 1005 - Quality Control

Katahdin

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG238699 - TNRCC 1005

BLK (WG238699-1)

Prepared: 15-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	11	9.6		50.	mg/Kgdr ywt				-			Ja
>C28-C35	10	9.6		50.	mg/Kgdr ywt				-			Ja
C6-C12	15	9.9		50.	mg/Kgdr ywt				-			Ja
C6-C35	31	19.		100	mg/Kgdr ywt				-			Ja
Surrogate: 1-Chlorooctane	86.0				%			86.0	70-130			
Surrogate: O-TERPHENYL	105.				%			105.	70-130			

LCS (WG238699-2)

Prepared: 15-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	12.1	9.6		50.	mg/Kgdr ywt	250		4.84	75-125			*
C6-C12	40.7	9.9		50.	mg/Kgdr ywt	250		16.3	75-125			*
C6-C35	58.6	19.		100	mg/Kgdr ywt	500		11.7	75-125			*
Surrogate: 1-Chlorooctane	3730				%			NR	70-130			*
Surrogate: O-TERPHENYL	102.				%			102.	70-130			*

Batch WG238787 - TNRCC 1005

DUP (SL9921-14RE)

Source: 18J0402-02RE

Prepared: 11-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	23	9.5		50.	mg/Kgdr ywt		250		-	166	30	Ja, *
>C28-C35	20	9.5		50.	mg/Kgdr ywt		46		-	78.8	30	Ja, *
C6-C12	12	9.8		50.	mg/Kgdr ywt		41		-	109	30	Ja, *
C6-C35	50	19.		99.	mg/Kgdr ywt		340		-	149	30	Ja, *
Surrogate: 1-Chlorooctane	62.6				%			62.6	70-130			*
Surrogate: O-TERPHENYL	108.				%			108.	70-130			*

BLK (WG238787-1)

Prepared: 17-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	6.8	4.8		25.	mg/Kgdr ywt				-			Ja
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

TNRCC 1005 - Quality Control

Katahdin

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG238787 - TNRCC 1005

BLK (WG238787-1)

Prepared: 17-Oct-2018 Analyzed: 18-Oct-2018

>C28-C35	8.4	4.8		25.	mg/Kgdr ywt				-			Ja
C6-C12	5.5	5.0		25.	mg/Kgdr ywt				-			Ja
C6-C35	18	9.5		50.	mg/Kgdr ywt				-			Ja
Surrogate: 1-Chlorooctane	45.1				%			45.1	70-130			*
Surrogate: O-TERPHENYL	96.0				%			96.0	70-130			

LCS (WG238787-2)

Prepared: 17-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	217.	4.8		25.	mg/Kgdr ywt	250		86.8	75-125			
C6-C12	208.	5.0		25.	mg/Kgdr ywt	250		83.2	75-125			
C6-C35	426.	9.5		50.	mg/Kgdr ywt	500		85.2	75-125			
Surrogate: 1-Chlorooctane	87.5				%			87.5	70-130			
Surrogate: O-TERPHENYL	98.4				%			98.4	70-130			

MS (WG238787-3)

Source: 18J0402-03

Prepared: 11-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	250	5.1		27.	mg/Kgdr ywt	268	8.3	94.5	75-125			
C6-C12	240	5.3		27.	mg/Kgdr ywt	268	7.8	89	75-125			
C6-C35	500	10.		54.	mg/Kgdr ywt	536	24	88.5	75-125			
Surrogate: 1-Chlorooctane	89.0				%			89.0	70-130			
Surrogate: O-TERPHENYL	106.				%			106.	70-130			

MSD (WG238787-4)

Source: 18J0402-03

Prepared: 11-Oct-2018 Analyzed: 18-Oct-2018

>C12-C28	280	6.0		31.	mg/Kgdr ywt	310	8.3	91	75-125	11	20	
C6-C12	270	6.1		31.	mg/Kgdr ywt	310	7.8	87.5	75-125	13	20	
C6-C35	560	12.		62.	mg/Kgdr ywt	620	24	86.5	75-125	12	20	
Surrogate: 1-Chlorooctane	86.0				%			86.0	70-130			
Surrogate: O-TERPHENYL	101.				%			101.	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167101 - EPA 3510C

BLK (WG1167101-1)

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Acenaphthene	ND	1.56		4	ug/kg				-			Ub
Acenaphthylene	ND	1.57		4	ug/kg				-			Ub
Anthracene	ND	2.74		4	ug/kg				-			Ub
Benz(a)anthracene	ND	1.97		4	ug/kg				-			Ub
Benzo(a)pyrene	2.52	1.16		4	ug/kg				-			Jc
Benzo(b)fluoranthene	ND	1.92		4	ug/kg				-			Ub
Benzo(e)pyrene	ND	2.2		4	ug/kg				-			Ub
Benzo(g,h,i)perylene	ND	2.58		4	ug/kg				-			Ub
Benzo(k)fluoranthene	ND	1.15		4	ug/kg				-			Ub
Chrysene	ND	1.45		4	ug/kg				-			Ub
Dibenz(a,h)anthracene	ND	2.37		4	ug/kg				-			Ub
Fluoranthene	ND	1.84		4	ug/kg				-			Ub
Fluorene	ND	2.36		4	ug/kg				-			Ub
Indeno(1,2,3-cd)pyrene	ND	1.14		4	ug/kg				-			Ub
Naphthalene	ND	1.57		4	ug/kg				-			Ub
Phenanthrene	ND	2.58		4	ug/kg				-			Ub
Pyrene	ND	2.21		4	ug/kg				-			Ub
Surrogate: 2-Methylnaphthalene-d10	280				ug/kg			56	30-130			
Surrogate: Benzo(b)fluoranthene-d12	455				ug/kg			91	30-130			
Surrogate: Pyrene-d10	408				ug/kg			82	30-130			

LCS (WG1167101-2)

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Acenaphthene	276	1.56		4	ug/kg			55	40-140			
Acenaphthylene	291	1.57		4	ug/kg			58	40-140			
Anthracene	387	2.74		4	ug/kg			77	40-140			
Benz(a)anthracene	457	1.97		4	ug/kg			91	40-140			
Benzo(a)pyrene	417	1.16		4	ug/kg			83	40-140			
Benzo(b)fluoranthene	472	1.92		4	ug/kg			94	40-140			
Benzo(e)pyrene	495	2.2		4	ug/kg			99	40-140			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167101 - EPA 3510C

LCS (WG1167101-2)

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Benzo(g,h,i)perylene	495	2.58		4	ug/kg			99	40-140			
Benzo(k)fluoranthene	466	1.15		4	ug/kg			93	40-140			
Chrysene	404	1.45		4	ug/kg			81	40-140			
Dibenz(a,h)anthracene	481	2.37		4	ug/kg			96	40-140			
Fluoranthene	407	1.84		4	ug/kg			81	40-140			
Fluorene	311	2.36		4	ug/kg			62	40-140			
Indeno(1,2,3-cd)pyrene	428	1.14		4	ug/kg			86	40-140			
Naphthalene	247	1.57		4	ug/kg			49	40-140			
Phenanthrene	335	2.58		4	ug/kg			67	40-140			
Pyrene	362	2.21		4	ug/kg			72	40-140			
Surrogate: 2-Methylnaphthalene-d10	253				ug/kg			51	30-130			
Surrogate: Benzo(b)fluoranthene-d12	446				ug/kg			89	30-130			
Surrogate: Pyrene-d10	386				ug/kg			77	30-130			

LCD (WG1167101-3)

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Acenaphthene	273	1.56		4	ug/kg			55	40-140	0	30	
Acenaphthylene	291	1.57		4	ug/kg			58	40-140	0	30	
Anthracene	383	2.74		4	ug/kg			77	40-140	0	30	
Benz(a)anthracene	466	1.97		4	ug/kg			93	40-140	2	30	
Benzo(a)pyrene	426	1.16		4	ug/kg			85	40-140	2	30	
Benzo(b)fluoranthene	481	1.92		4	ug/kg			96	40-140	2	30	
Benzo(e)pyrene	503	2.2		4	ug/kg			100	40-140	1	30	
Benzo(g,h,i)perylene	504	2.58		4	ug/kg			101	40-140	2	30	
Benzo(k)fluoranthene	472	1.15		4	ug/kg			94	40-140	1	30	
Chrysene	412	1.45		4	ug/kg			82	40-140	1	30	
Dibenz(a,h)anthracene	489	2.37		4	ug/kg			98	40-140	2	30	
Fluoranthene	400	1.84		4	ug/kg			80	40-140	1	30	
Fluorene	315	2.36		4	ug/kg			63	40-140	2	30	
Indeno(1,2,3-cd)pyrene	437	1.14		4	ug/kg			87	40-140	1	30	

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3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 22-May-2019

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167101 - EPA 3510C

LCD (WG1167101-3)

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Naphthalene	231	1.57		4	ug/kg			46	40-140	6	30	
Phenanthrene	335	2.58		4	ug/kg			67	40-140	0	30	
Pyrene	360	2.21		4	ug/kg			72	40-140	0	30	
Surrogate: 2-Methylnaphthalene-d10	232				ug/kg			46	30-130			
Surrogate: Benzo(b)fluoranthene-d12	433				ug/kg			87	30-130			
Surrogate: Pyrene-d10	369				ug/kg			74	30-130			

MS (WG1167101-4)

Source: 18J0402-02

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Acenaphthene	517	2.24		5.77	ug/kg	721	66	62.6	40-140			
Acenaphthylene	576	2.26		5.77	ug/kg	721	88.6	67.6	40-140			
Anthracene	529	3.94		5.77	ug/kg	721	56	65.6	40-140			
Benz(a)anthracene	909	2.84		5.77	ug/kg	721	82.3	115	40-140			
Benzo(a)pyrene	763	1.67		5.77	ug/kg	721	159	83.8	40-140			
Benzo(b)fluoranthene	801	2.76		5.77	ug/kg	721	76	101	40-140			
Benzo(e)pyrene	866	3.17		5.77	ug/kg	721	132	102	40-140			
Benzo(g,h,i)perylene	1340	3.71		5.77	ug/kg	721	526	113	40-140			
Benzo(k)fluoranthene	659	1.66		5.77	ug/kg	721	45	85.2	40-140			
Chrysene	594	2.09		5.77	ug/kg	721	76.1	71.8	40-140			
Dibenz(a,h)anthracene	661	3.42		5.77	ug/kg	721	4.62	91.7	40-140			
Fluoranthene	1360	2.66		5.77	ug/kg	721	543	113	40-140			
Fluorene	572	3.41		5.77	ug/kg	721	51.4	72.2	40-140			
Indeno(1,2,3-cd)pyrene	784	1.64		5.77	ug/kg	721	171	85	40-140			
Naphthalene	409	2.26		5.77	ug/kg	721	77.5	46	40-140			
Phenanthrene	916	3.71		5.77	ug/kg	721	239	93.9	40-140			
Pyrene	2210	3.18		5.77	ug/kg	721	1160	146	40-140			N
Surrogate: 2-Methylnaphthalene-d10	381				ug/kg			53	30-130			
Surrogate: Benzo(b)fluoranthene-d12	605				ug/kg			84	30-130			
Surrogate: Pyrene-d10	637				ug/kg			88	30-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 22-May-2019

Project Manager: Cheryl Montgomery

PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1167101 - EPA 3510C

MSD (WG1167101-5)

Source: 18J0402-02

Prepared: 11-Oct-2018 Analyzed: 01-Nov-2018

Acenaphthene	508	2.18		5.6	ug/kg	721	66	63.1	40-140	2	30	
Acenaphthylene	564	2.2		5.6	ug/kg	721	88.6	67.9	40-140	2	30	
Anthracene	583	3.83		5.6	ug/kg	721	56	75.2	40-140	10	30	
Benz(a)anthracene	760	2.76		5.6	ug/kg	721	82.3	96.8	40-140	18	30	
Benzo(a)pyrene	768	1.62		5.6	ug/kg	721	159	87	40-140	1	30	
Benzo(b)fluoranthene	682	2.68		5.6	ug/kg	721	76	86.5	40-140	16	30	
Benzo(e)pyrene	811	3.08		5.6	ug/kg	721	132	97	40-140	7	30	
Benzo(g,h,i)perylene	1240	3.61		5.6	ug/kg	721	526	102	40-140	8	30	
Benzo(k)fluoranthene	683	1.61		5.6	ug/kg	721	45	91.1	40-140	4	30	
Chrysene	620	2.03		5.6	ug/kg	721	76.1	77.7	40-140	4	30	
Dibenz(a,h)anthracene	625	3.32		5.6	ug/kg	721	4.62	89.2	40-140	6	30	
Fluoranthene	1150	2.58		5.6	ug/kg	721	543	86.7	40-140	17	30	
Fluorene	554	3.31		5.6	ug/kg	721	51.4	71.8	40-140	3	30	
Indeno(1,2,3-cd)pyrene	746	1.6		5.6	ug/kg	721	171	82.1	40-140	5	30	
Naphthalene	441	2.2		5.6	ug/kg	721	77.5	51.9	40-140	8	30	
Phenanthrene	776	3.61		5.6	ug/kg	721	239	76.7	40-140	17	30	
Pyrene	1900	3.09		5.6	ug/kg	721	1160	106	40-140	15	30	
Surrogate: 2-Methylnaphthalene-d10	403				ug/kg			58	30-130			
Surrogate: Benzo(b)fluoranthene-d12	562				ug/kg			80	30-130			
Surrogate: Pyrene-d10	596				ug/kg			85	30-130			

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SPECIFIC GRAVITY OF SOILS - ASTM D854-14 Method B

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Lab Sample No.	Boring	Depth	Sample	Replicate No.	Material Used	Passing #4 Sieve	Pycnometer Id.	Pre-test Pycnometer Check Weight	Weight Pycnometer +Soil+Water	Test Temp.	Tare No.	Weight Tare+ Dry Soil	Tare Weight	Weight Dry Soil	Test Water Density	Weight Pycnometer +Water at Test Temp	Average Calibrated Pycnometer Dry Weight	Average Calibrated Volume of Pycnometer	Specific Gravity of Soil at Test Temp	Conversion Factor For Temp	Specific Gravity of Soil at 20°C
								gm	gm	°C	gm	gm	gm	gm/ml	gm	gm	ml	g/cc	Tb-K	g/cc	
				Sieve	%	Mp	Mpws,t	Tt	Mds	ρw,t	Mpw,t	Mp	Vp	Gt	Tb-K	G20°C					
TEST PARAMETERS																	CALIBRATION PARAMETERS		SPECIFIC GRAVITY		
40901001	18J0402-01	NA	HSCNew-NMP-01-SD	1	-#4	100	A	159.91	689.97	22.7	209	226.57	176.21	50.36	0.9976	658.42	159.90	499.72	2.677	0.9994	2.68
40901002	18J0402-02	NA	HSCNew-NMP-02-SD	1	-#4	100	C	161.1	691.23	22.6	208	230.82	179.91	50.91	0.9976	659.37	161.11	499.44	2.672	0.9994	2.67
40901003	18J0402-03	NA	HSCNew-NMP-03-SD	1	-#4	98.7	D	163.45	694.51	22.6	207	226.38	174.04	52.34	0.9976	662.00	163.44	499.74	2.640	0.9994	2.64
40901004	18J0402-04	NA	HSCNew-NMP-04-SD	2	-#4	99.7	R	164.26	693.86	20.9	205	228.99	179.19	49.8	0.9980	662.85	164.29	499.56	2.650	0.9998	2.65
40901005	18J0402-05	NA	HSCNew-NMP-05-SD	1	-#4	99.7	G	163.57	693.82	21.1	813	152.7	101.68	51.02	0.9980	661.88	163.54	499.35	2.674	0.9998	2.67
40901006	18J0402-06	NA	HSCNew-NMP-06-SD	2	-#4	98.5	T	185.16	714.48	21.2	217	229.37	179.68	49.69	0.9980	683.51	185.15	499.38	2.654	0.9997	2.65
40901007	18J0402-07	NA	HSCNew-NMP-07-SD	2	-#4	100	W	193.16	722.31	21	200	233.58	184.21	49.37	0.9980	691.49	193.13	499.36	2.661	0.9998	2.66
40901008	18J0402-08	NA	HSCNew-NMP-08-SD	2	-#4	100	F	162.2	692.24	21.1	201	232.36	181.56	50.8	0.9980	660.65	162.20	499.46	2.645	0.9998	2.64
40901009	18J0402-09	NA	HSCNew-NMP-09-SD	2	-#4	100	J	159.87	690.21	21.3	751	231.52	180.84	50.68	0.9979	658.62	159.84	499.81	2.655	0.9997	2.65
40901010	18J0402-10	NA	HSCNew-NMP-10-SD	1	-#4	100	E	164.7	695.04	20.8	208	230.75	179.71	51.04	0.9980	662.97	164.70	499.24	2.691	0.9998	2.69
40901011	18J0402-11	NA	HSCNew-NMP-11-SD	1	-#4	100	N	183.46	713.15	21.1	807	151.9	101.69	50.21	0.9980	681.78	183.43	499.36	2.665	0.9998	2.66
40901012	18J0402-12	NA	HSCNew-NMP-03-DUP	2	-#4	100	G	163.59	693.28	21	510	152.21	102.21	50	0.9980	661.89	163.54	499.35	2.687	0.9998	2.69

Performed By: AR

Input Validation: AR

Reviewed By: ALO

Date: 10/17/2018

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PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-01
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-01-SD
		Lab Sample	40901001

Sample Color: **VERY DARK GREENISH GRAY**

USCS Group Name: **FAT CLAY WITH SAND**

USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (44)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1086	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1086	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	538	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	538	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	74	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	555.52	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	348.65	No. 10	2	0.86	0.4%	99.6%	
Tare, gm	145.92	No. 20	0.85	0.32	0.2%	99.4%	
Water Content of Split Sample	102.0%	No. 40	0.425	0.63	0.3%	99.1%	
Wt. of DS., gm	202.73	No. 60	0.25	2.41	1.2%	97.9%	
Wt. of +#200 Sample, gm	40.94	No. 140	0.106	24.75	12.2%	85.7%	
		No. 200	0.075	11.97	5.9%	79.8%	

HYDROMETER (-#200)			
Tare No.	503	Wt. Dispers., gm	5
Wt. Tare + DS., gm	142.04	Wt. Dry Soil, gm (-#200)	34.75
Wt. Tare, gm	102.29	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.68
			Tested
		<i>a Factor</i>	0.9933

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	39	21.2	5.7	33.3	0.0134	95.2	0.0296	76.0%
5	37	21.2	5.7	31.3	0.0134	89.5	0.0190	71.4%
15	35.5	21.3	5.7	29.8	0.0133	85.2	0.0111	68.0%
30	34.5	21.4	5.6	28.9	0.0133	82.6	0.0079	65.9%
60	32	21.5	5.6	26.4	0.0133	75.5	0.0057	60.2%
250	29	22.5	5.3	23.7	0.0132	67.7	0.0028	54.1%
1440	26	22	5.5	20.5	0.0132	58.6	0.0012	46.8%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & #4)	0.0	Silt=20.7% Clay=59.1%				100	100		Gravel
Coarse=0; Fine=0		D60, mm	NA						
% Sand (-#4 & #200)	20.2	D30, mm	NA						
Coarse=0.4; Medium=0.5; Fine=19.3		D10, mm	NA						
% Fines (-#200)	79.8	Cc	NA						
% Plus #200 (-3")	20.2	Cu	NA	2	99.6	Sand	21.4	21.5	
USCS Description				0.05	78.1	Silt	27.0	27.1	
FAT CLAY WITH SAND				0.002	51.1	Clay	51.1	51.3	
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification					
CH		CH - FAT CLAY		CLAY					
Auxiliary Information		Wt Ret, gm	% Retained	% Finer					
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

Performed By: TF/MAC

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

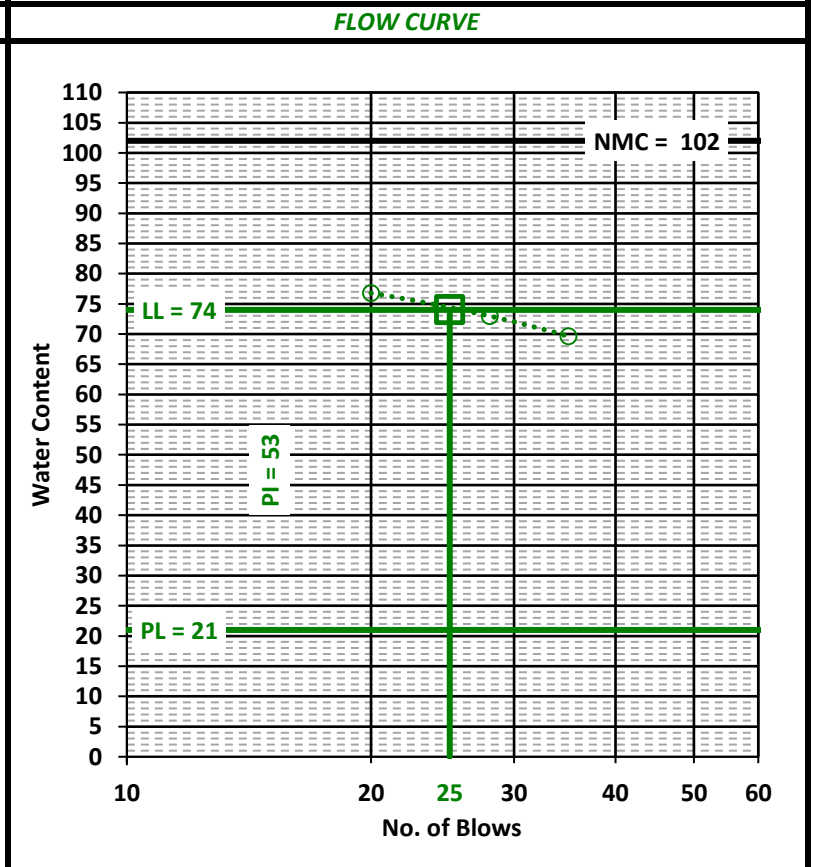
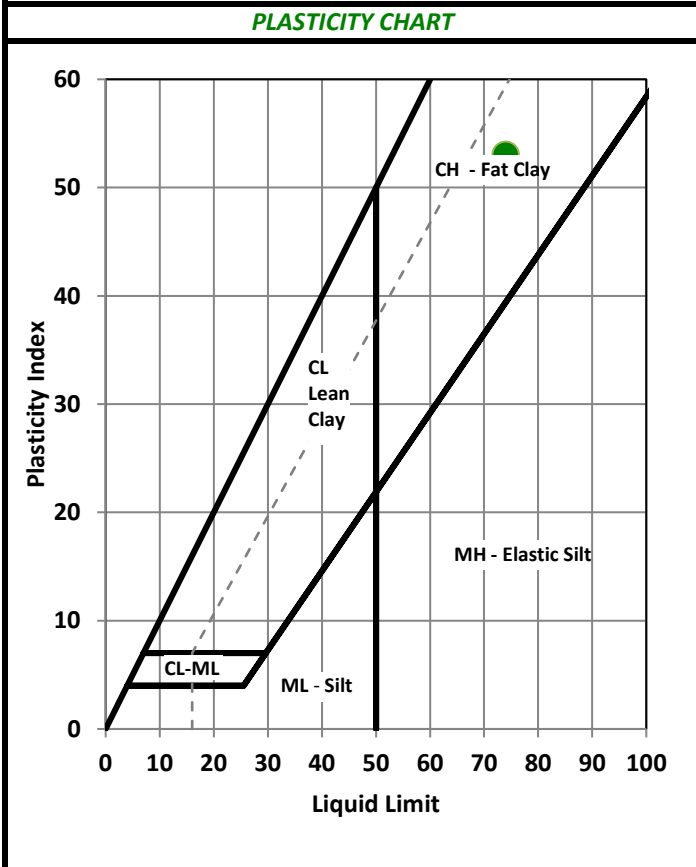
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-01
 Depth NA
 Sample HSCNew-NMP-01-SD
 Lab Sample 40901001

Soil Description: VERY DARK GREENISH GRAY FAT CLAY
 (-#40 Fraction)

AS-RECEIVED W.C.		SAMPLE SUMMARY	
Tare Number	74	Liquid Limit (LL), %	74
Wt. Tare & WS, gm	555.52	Plastic Limit (PL), %	21
Wt. Tare & DS, gm	348.65	Plasticity Index (PI)	53
Wt. Tare, gm	145.92	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	102.0	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	VERY DARK GREENISH GRAY

PLASTIC LIMIT				LIQUID LIMIT			
Points Run				3 Points			
Tare Number	712	474	489	472	471	409	
Wt. Tare & WS, gm	18.15	18.04	17.30	17.49	19.85	19.97	
Wt. Tare & DS, gm	17.15	16.74	16.15	14.58	16.02	16.16	
Wt. Tare, gm	12.50	10.77	10.55	10.79	10.77	10.69	
Water Content, %	21.5	21.8	20.5	76.8	73.0	69.7	
				# of Blows	20	28	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

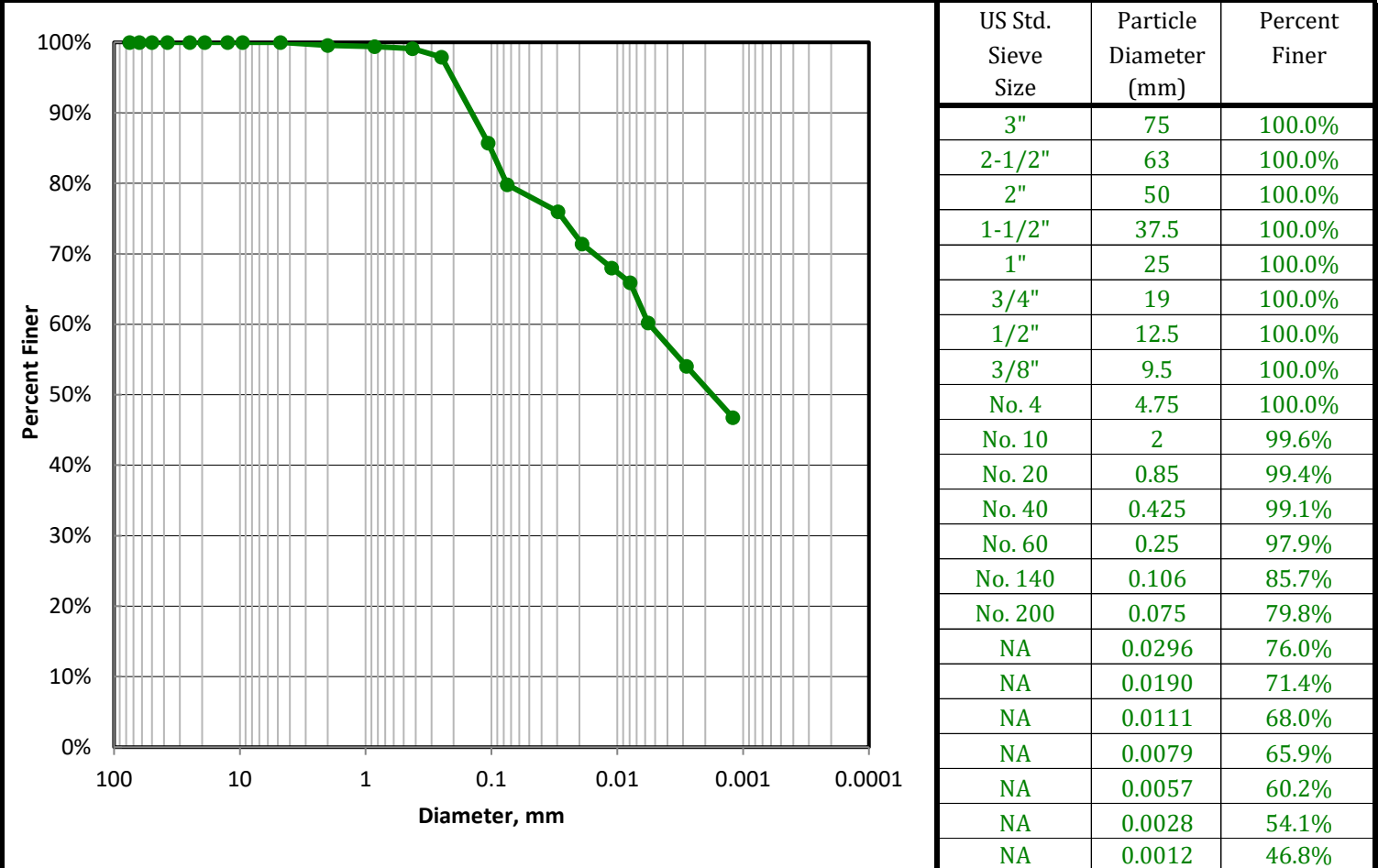
Boring 18J0402-01
 Depth NA
 Sample HSCNew-NMP-01-SD
 Lab Sample 40901001

Sample Color: **VERY DARK GREENISH GRAY**

USCS Group Name: **FAT CLAY WITH SAND**

USCS Group Symbol: **CH** USDA: **CLAY**

AASHTO: **A-7-6 (44)**



USCS SOIL CLASSIFICATION				USDA CLASSIFICATION				
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.0	Silt=20.7% Clay=59.1%				Gravel	0.4	
Coarse=0; Fine=0		D60, mm	NA					
% Sand (-#4 & +#200)	20.2	D30, mm	NA					
Coarse=0.4; Medium=0.5; Fine=19.3		D10, mm	NA					
% Fines (-#200)	79.8	Cc	NA	Sand	27.0	27.1		
% Plus #200 (-3")	20.2	Cu	NA					
USCS Description				0.002	51.1	Clay	51.3	
FAT CLAY WITH SAND								
USCS Group Symbol		Atterberg Limits Group Symbol						
CH		CH - FAT CLAY						
Auxiliary Information		Wt Ret, gm	% Retained					% Finer
12" Sieve - 300 mm		0	0.0	100.0				
6" Sieve - 150 mm		0	0.0	100.0				
3" Sieve - 75 mm		0	0.0	100.0				
				USDA Classification				
				CLAY				

USDA CLASSIFICATION CHART

Client
Client Project
Project No.

Air Water & Soil Laboratories, Inc.
18J0402
40901

Boring 18J0402-01
Depth NA
Sample HSCNew-NMP-01-SD
Lab Sample 40901001

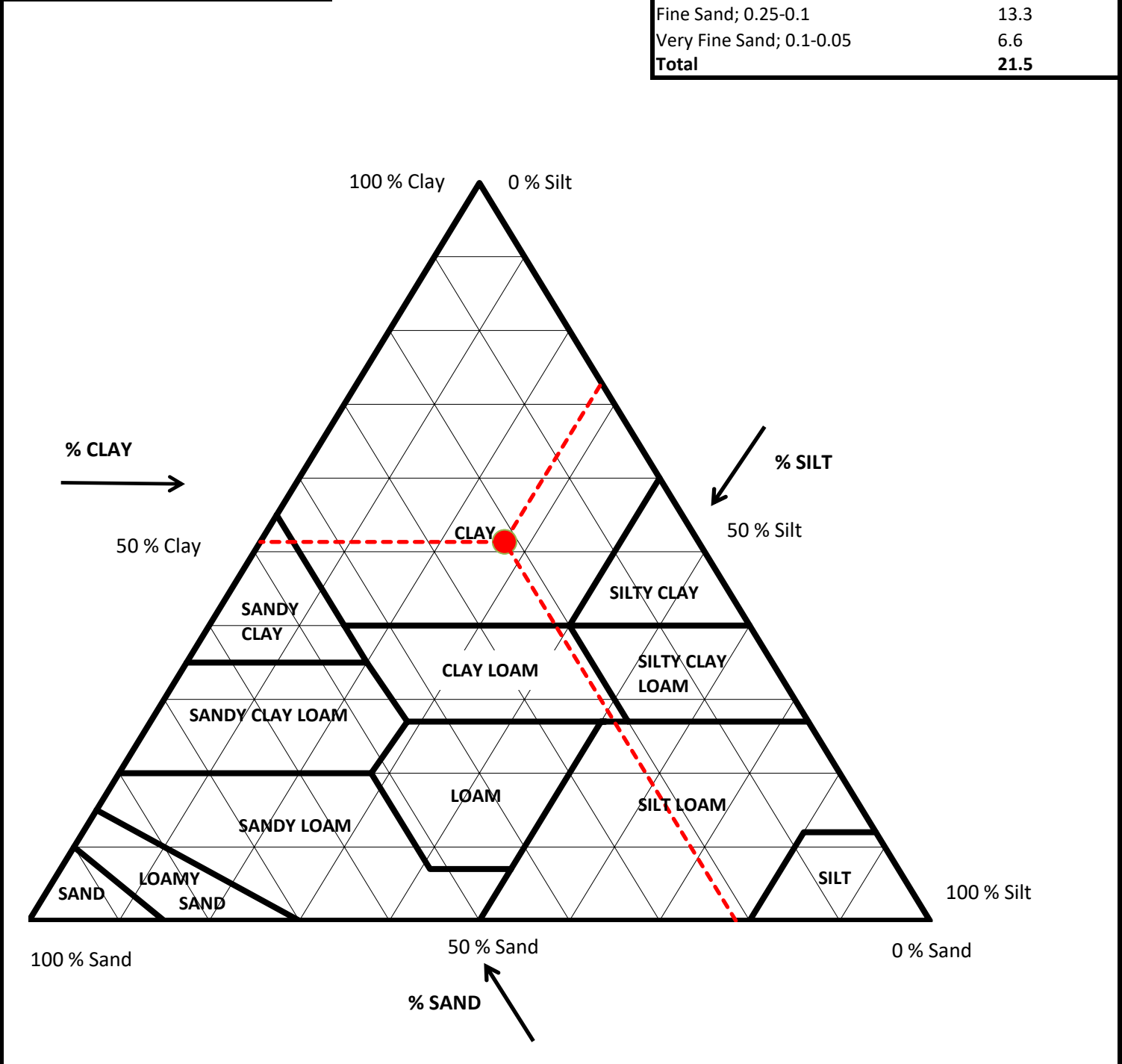
Sample Color: **VERY DARK GREENISH GRAY**
USCS Group Name: **FAT CLAY WITH SAND**
USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (44)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	21.5
Percent Silt, %	27.1
Percent Clay, %	51.3

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.1
Coarse Sand; 1-0.5	0.3
Medium Sand; 0.5-0.25	1.3
Fine Sand; 0.25-0.1	13.3
Very Fine Sand; 0.1-0.05	6.6
Total	21.5



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-02
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-02-SD
		Lab Sample	40901002

Sample Color: **VERY DARK GRAY**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM** AASHTO: **A-7-6 (20)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1012	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1012	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	704	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	704	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	73	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	608.39	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	467.71	No. 10	2	1.25	0.4%	99.6%	
Tare, gm	146.7	No. 20	0.85	2.36	0.7%	98.9%	
Water Content of Split Sample	43.8%	No. 40	0.425	2.17	0.7%	98.2%	
Wt. of DS., gm	321.01	No. 60	0.25	2.16	0.7%	97.5%	
Wt. of +#200 Sample, gm	68.87	No. 140	0.106	30.01	9.3%	88.2%	
		No. 200	0.075	30.92	9.6%	78.5%	

HYDROMETER (-#200)					
Tare No.	513	Wt. Dispers., gm	5	Specific Gravity	2.67
Wt. Tare + DS., gm	155.56	Wt. Dry Soil, gm (-#200)	46.88		Tested
Wt. Tare, gm	103.68	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9955

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	41.5	21.2	5.7	35.8	0.0134	76.0	0.0291	59.7%
5	37	21.3	5.7	31.3	0.0134	66.5	0.0191	52.2%
15	34	21.4	5.6	28.4	0.0134	60.3	0.0113	47.4%
30	32.5	21.4	5.6	26.9	0.0134	57.1	0.0081	44.9%
60	30	21.6	5.6	24.4	0.0133	51.8	0.0058	40.7%
250	27	22.5	5.3	21.7	0.0132	46.1	0.0029	36.2%
1440	23	21.8	5.5	17.5	0.0133	37.2	0.0012	29.2%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION															
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA											
% Gravel (-3" & +#4)	0.0	Silt=38.7% Clay=39.8%				100	100		Gravel	0.4									
Coarse=0; Fine=0		D60, mm	NA					2			99.6	Sand	29.1						
% Sand (-#4 & +#200)	21.5	D30, mm	NA											0.05	70.5	Silt	37.3		
Coarse=0.4; Medium=1.4; Fine=19.7		D10, mm	NA															0.002	33.2
% Fines (-#200)	78.5	Cc	NA	USDA Classification															
% Plus #200 (-3")	21.5	Cu	NA	CLAY LOAM															
USCS Description																			
LEAN CLAY WITH SAND																			
USCS Group Symbol		Atterberg Limits Group Symbol																	
CL		CL - LEAN CLAY																	
Auxiliary Information		Wt Ret, gm	% Retained	% Finer															
12" Sieve - 300 mm		0	0.0	100.0															
6" Sieve - 150 mm		0	0.0	100.0															
3" Sieve - 75 mm		0	0.0	100.0															

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

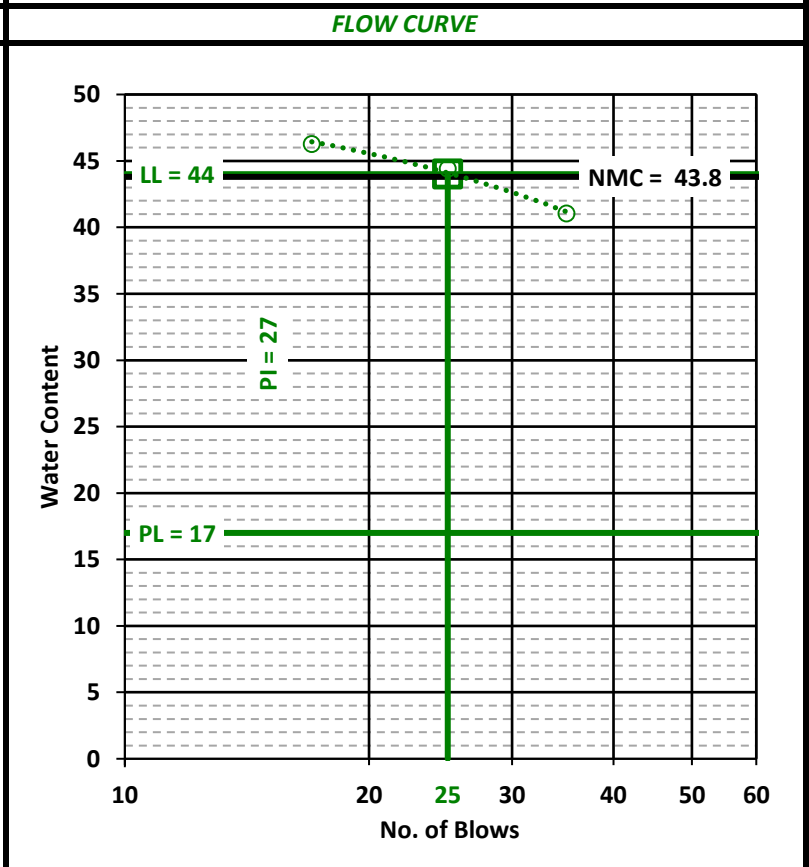
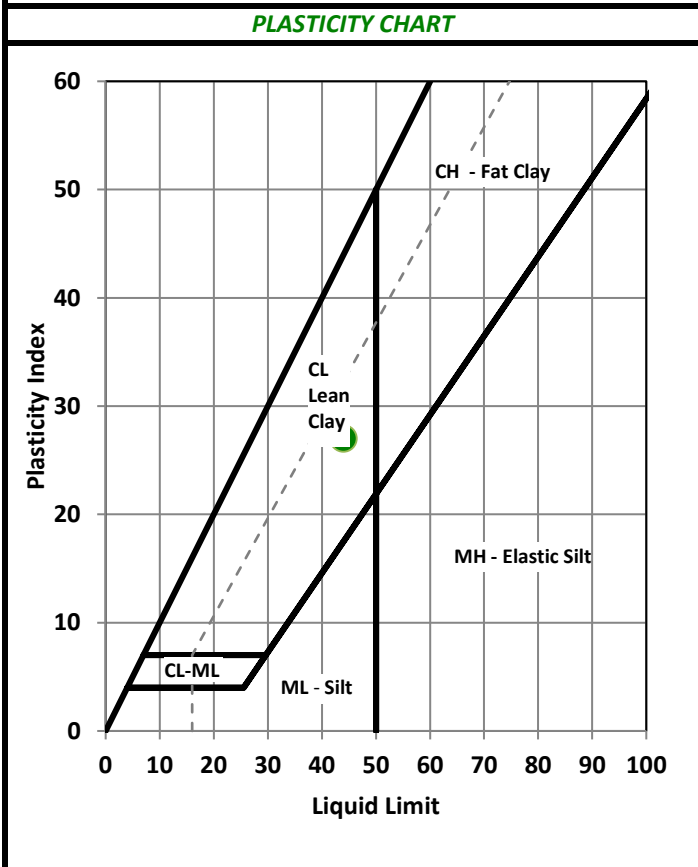
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-02
 Depth NA
 Sample HSCNew-NMP-02-SD
 Lab Sample 40901002

Soil Description: VERY DARK GRAY LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	73	Liquid Limit (LL), %	44
Wt. Tare & WS, gm	608.39	Plastic Limit (PL), %	17
Wt. Tare & DS, gm	467.71	Plasticity Index (PI)	27
Wt. Tare, gm	146.70	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	43.8	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	VERY DARK GRAY

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	216	222	234	215	221	202	
Wt. Tare & WS, gm	23.44	24.21	23.72	24.33	24.70	25.69	
Wt. Tare & DS, gm	22.38	23.07	22.69	21.85	22.12	22.99	
Wt. Tare, gm	16.13	16.24	16.40	16.49	16.31	16.41	
Water Content, %	17.0	16.7	16.4	46.3	44.4	41.0	
				# of Blows	17	25	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

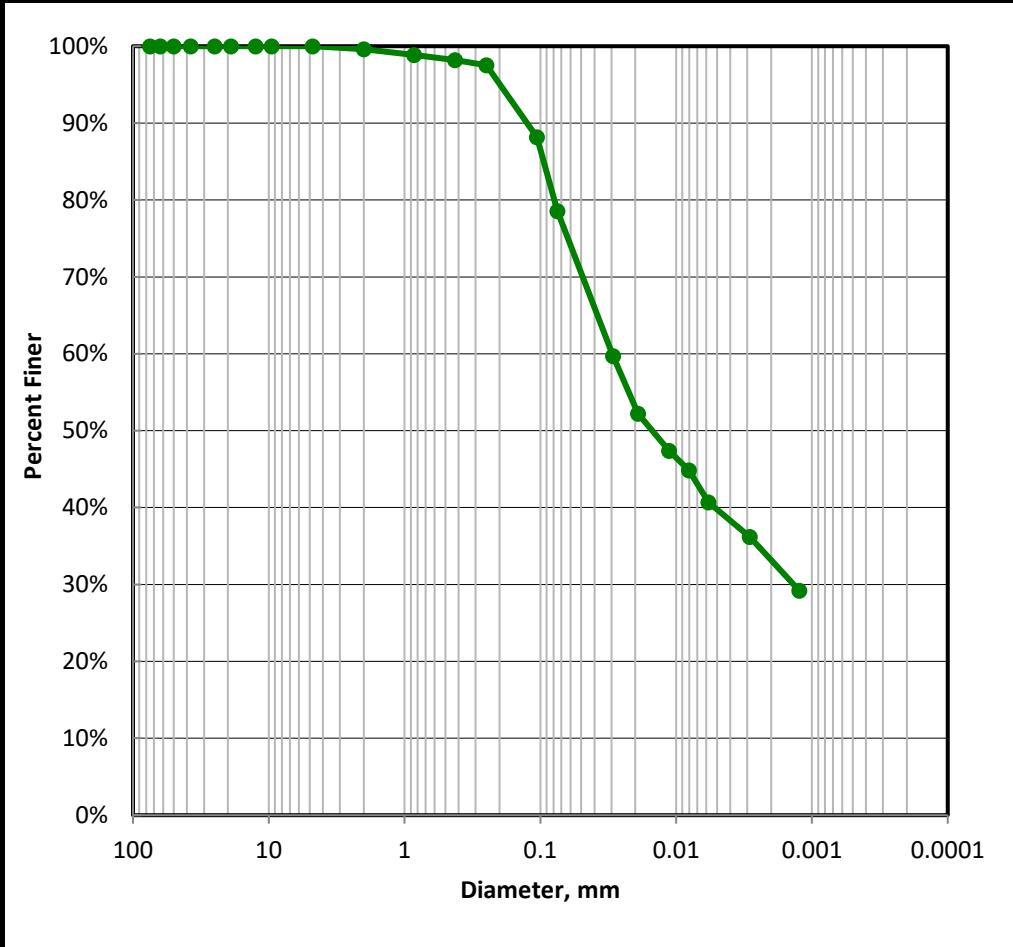
Boring 18J0402-02
 Depth NA
 Sample HSCNew-NMP-02-SD
 Lab Sample 40901002

Sample Color: **VERY DARK GRAY**

USCS Group Name: **LEAN CLAY WITH SAND**

USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (20)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.6%
No. 20	0.85	98.9%
No. 40	0.425	98.2%
No. 60	0.25	97.5%
No. 140	0.106	88.2%
No. 200	0.075	78.5%
NA	0.0291	59.7%
NA	0.0191	52.2%
NA	0.0113	47.4%
NA	0.0081	44.9%
NA	0.0058	40.7%
NA	0.0029	36.2%
NA	0.0012	29.2%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=38.7% Clay=39.8%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	21.5	D30, mm	NA
Coarse=0.4; Medium=1.4; Fine=19.7		D10, mm	NA
% Fines (-#200)	78.5	Cc	NA
% Plus #200 (-3")	21.5	Cu	NA
USCS Description			
LEAN CLAY WITH SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	99.6	Gravel	0.4	0
0.05	70.5	Sand	29.1	29.2
0.002	33.2	Silt	37.3	37.4
		Clay	33.2	33.3
USDA Classification				
CLAY LOAM				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-02
 Depth NA
 Sample HSCNew-NMP-02-SD
 Lab Sample 40901002

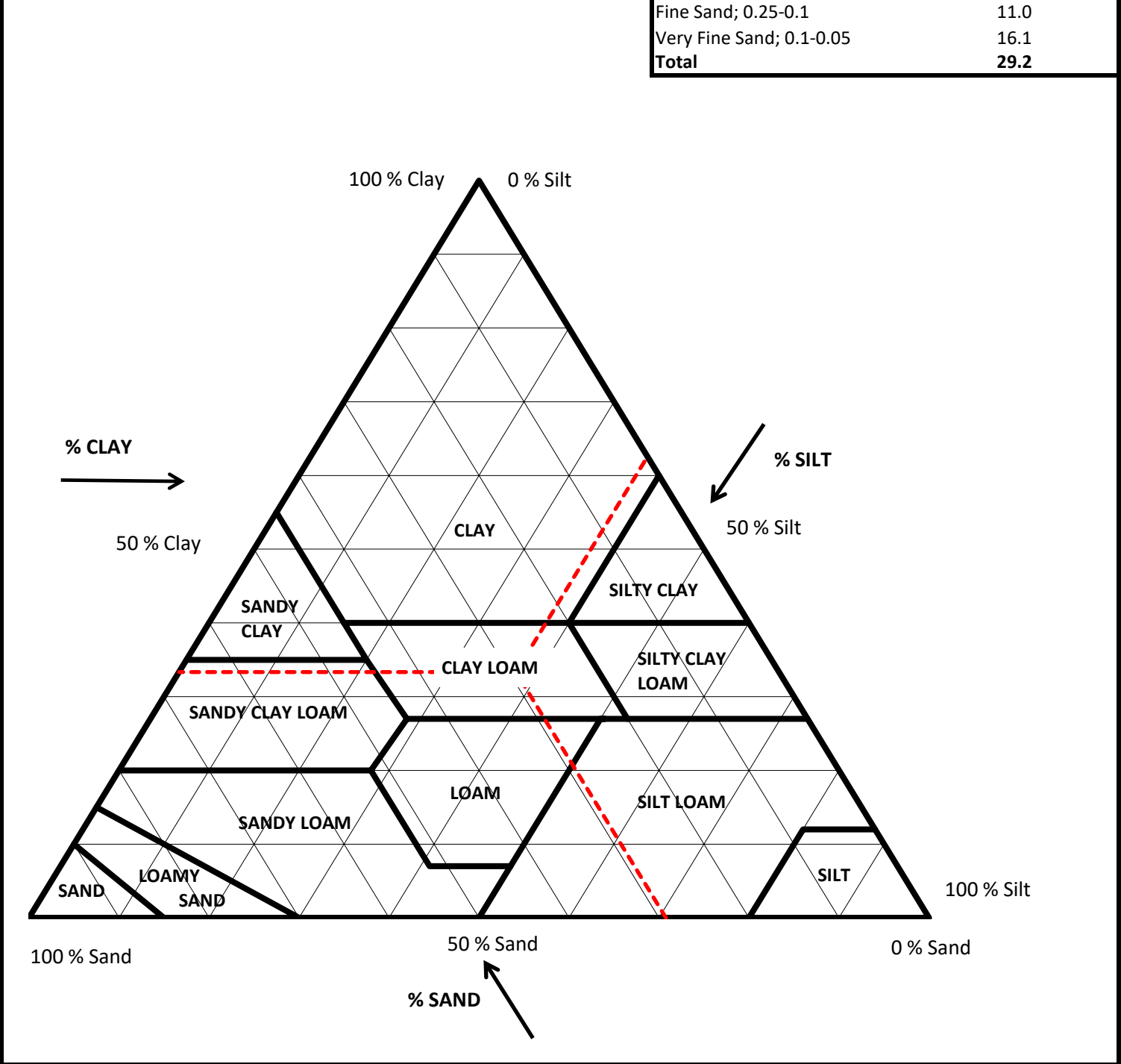
Sample Color: **VERY DARK GRAY**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (20)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	29.2
Percent Silt, %	37.4
Percent Clay, %	33.3

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.6
Coarse Sand; 1-0.5	0.7
Medium Sand; 0.5-0.25	0.8
Fine Sand; 0.25-0.1	11.0
Very Fine Sand; 0.1-0.05	16.1
Total	29.2



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-03
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-03-SD
		Lab Sample	40901003

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1053	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	11	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1041	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	847	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	859	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	6.06	0.7%	99.3%	
Tare No.	72	3/8"	9.5	4.63	0.5%	98.8%	
Tare + WS., gm	552.77	No. 4	4.75	0.78	0.1%	98.7%	
Tare + DS., gm	477.35	No. 10	2	2.4	0.7%	97.9%	
Tare, gm	147.62	No. 20	0.85	1.2	0.4%	97.6%	
Water Content of Split Sample	22.9%	No. 40	0.425	1.53	0.5%	97.1%	
Wt. of DS., gm	329.73	No. 60	0.25	10.14	3.0%	94.1%	
Wt. of +#200 Sample, gm	137.34	No. 140	0.106	90.12	27.0%	67.1%	
		No. 200	0.075	31.95	9.6%	57.6%	

HYDROMETER (-#200)					
Tare No.	550	Wt. Dispers., gm	5	Specific Gravity	2.64
Wt. Tare + DS., gm	240.57	Wt. Dry Soil, gm (-#200)	41.12		Tested
Wt. Tare, gm	194.45	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0023

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	35.5	21.5	5.6	29.9	0.0135	72.9	0.0307	42.0%
5	32	21.5	5.6	26.4	0.0135	64.4	0.0200	37.0%
15	29	21.6	5.6	23.4	0.0135	57.0	0.0118	32.8%
30	28	21.6	5.6	22.4	0.0135	54.6	0.0084	31.4%
60	26	21.7	5.6	20.4	0.0134	49.7	0.0060	28.6%
250	24	22.3	5.4	18.6	0.0133	45.3	0.0030	26.1%
1440	21	22.1	5.4	15.6	0.0134	38.0	0.0013	21.9%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION				
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	1.3	Silt=29.6% Clay=28%						
Coarse=0; Fine=1.3		D60, mm	NA	100	100	Gravel	2.1	0
% Sand (-#4 & +#200)	41.1	D30, mm	NA					
Coarse=0.7; Medium=0.8; Fine=39.6		D10, mm	NA					
% Fines (-#200)	57.6	Cc	NA					
% Plus #200 (-3")	42.4	Cu	NA	2	97.9	Sand	47.5	48.5
USCS Description				0.05	50.5	Silt	26.3	26.9
SANDY LEAN CLAY				0.002	24.2	Clay	24.2	24.7
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification				
CL		CL - LEAN CLAY		SANDY CLAY LOAM				
Auxiliary Information		Wt Ret, gm	% Retained	% Finer				
12" Sieve - 300 mm		0	0.0	100.0				
6" Sieve - 150 mm		0	0.0	100.0				
3" Sieve - 75 mm		0	0.0	100.0				

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

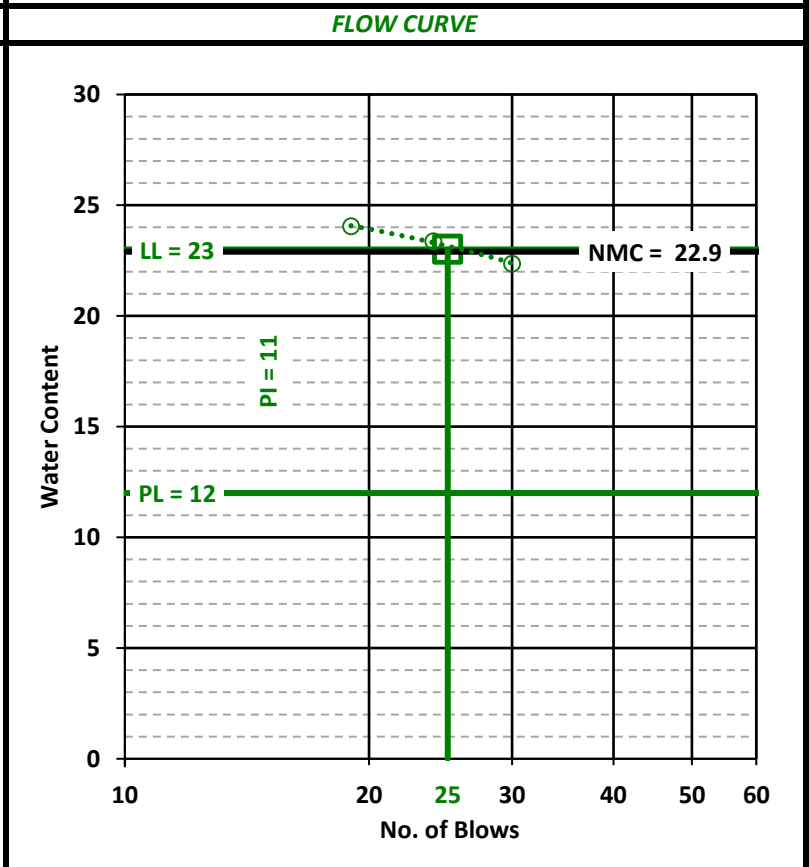
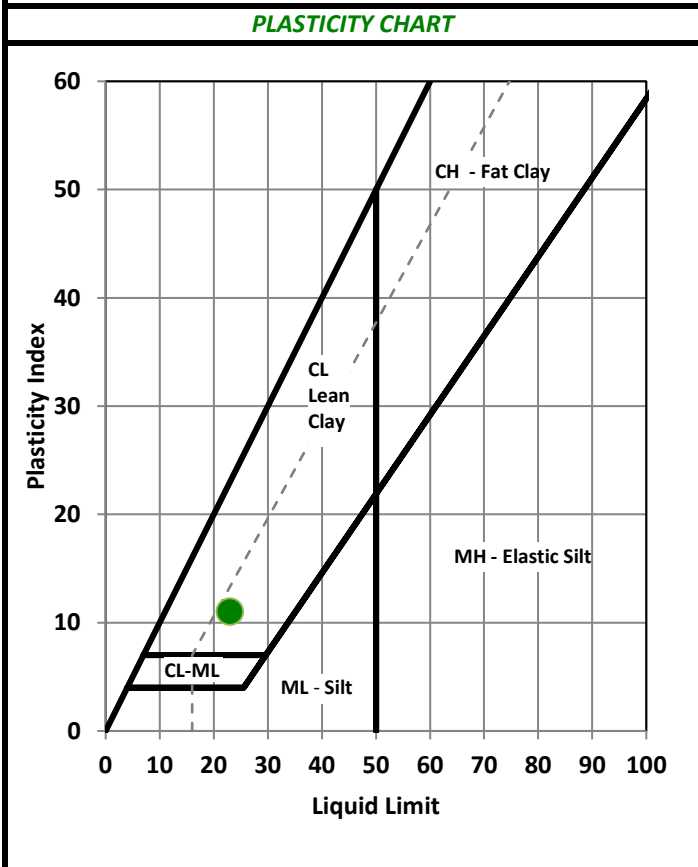
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-03
 Depth NA
 Sample HSCNew-NMP-03-SD
 Lab Sample 40901003

Soil Description: BROWN LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	72	Liquid Limit (LL), %	23
Wt. Tare & WS, gm	552.77	Plastic Limit (PL), %	12
Wt. Tare & DS, gm	477.35	Plasticity Index (PI)	11
Wt. Tare, gm	147.62	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	22.9	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	447	488	403	470	704	410	
Wt. Tare & WS, gm	18.09	17.14	18.69	21.08	19.95	17.62	
Wt. Tare & DS, gm	17.33	16.49	17.87	19.07	18.31	16.37	
Wt. Tare, gm	10.74	10.86	10.75	10.71	11.29	10.78	
Water Content, %	11.5	11.5	11.5	24.0	23.4	22.4	
				# of Blows	19	24	30



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

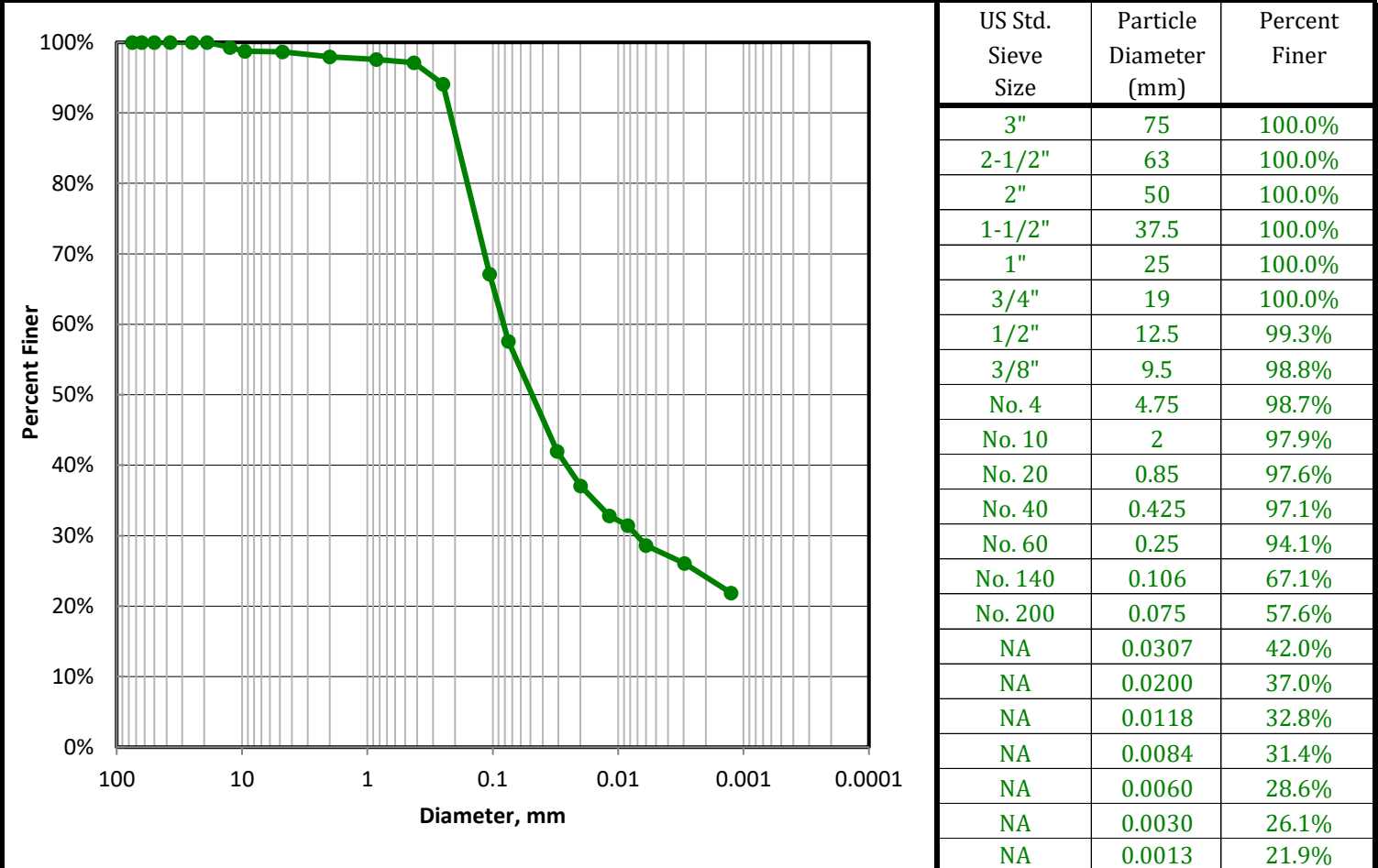
Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-03
 Depth NA
 Sample HSCNew-NMP-03-SD
 Lab Sample 40901003

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**



USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	1.3	Silt=29.6% Clay=28%				Gravel	2.1		48.5
Coarse=0; Fine=1.3		D60, mm	NA						
% Sand (-#4 & +#200)	41.1	D30, mm	NA						
Coarse=0.7; Medium=0.8; Fine=39.6		D10, mm	NA						
% Fines (-#200)	57.6	Cc	NA	Sand	47.5	26.9			
% Plus #200 (-3")	42.4	Cu	NA						
USCS Description				100	100	Clay	24.2		
SANDY LEAN CLAY				2	97.9				
USCS Group Symbol		Atterberg Limits Group Symbol		0.05	50.5				
CL		CL - LEAN CLAY		0.002	24.2				
Auxiliary Information		Wt Ret, gm	% Retained	USDA Classification		SANDY CLAY LOAM			
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

USDA CLASSIFICATION CHART

Client
Client Project
Project No.

Air Water & Soil Laboratories, Inc.
18J0402
40901

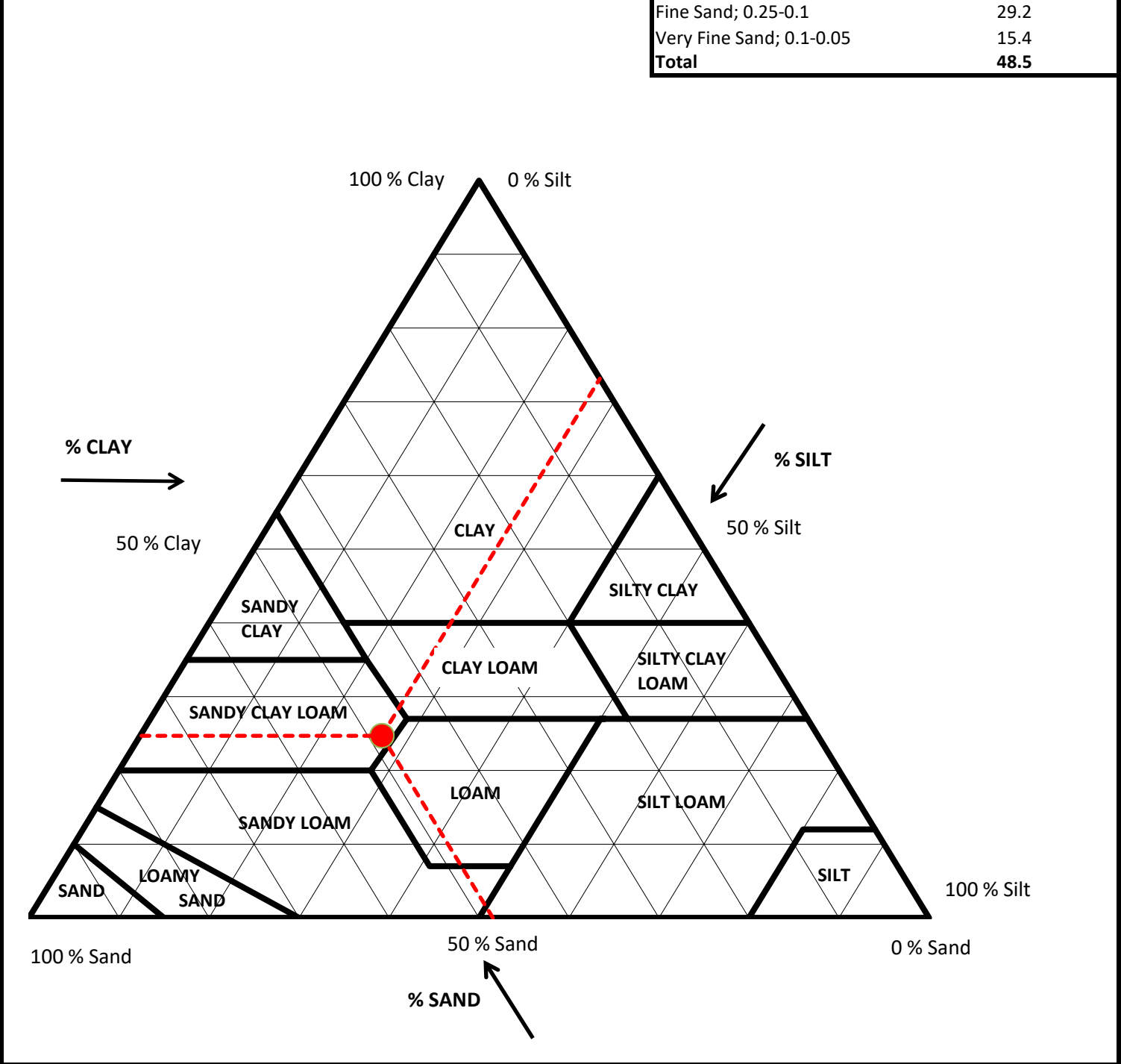
Boring 18J0402-03
Depth NA
Sample HSCNew-NMP-03-SD
Lab Sample 40901003

Sample Color: **BROWN**
USCS Group Name: **SANDY LEAN CLAY**
USCS Group Symbol: **CL**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	48.5
Percent Silt, %	26.9
Percent Clay, %	24.7

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.3
Coarse Sand; 1-0.5	0.4
Medium Sand; 0.5-0.25	3.2
Fine Sand; 0.25-0.1	29.2
Very Fine Sand; 0.1-0.05	15.4
Total	48.5



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-04
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-04-SD
		Lab Sample	40901004

Sample Color: **VERY DARK GRAY**

USCS Group Name: **FAT CLAY**

USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (45)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1092	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	2	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1091	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	623	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	624	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	2066	3/8"	9.5	1.7	0.3%	99.7%	
Tare + WS., gm	575.58	No. 4	4.75	0	0.0%	99.7%	
Tare + DS., gm	394.07	No. 10	2	0.92	0.4%	99.3%	
Tare, gm	152.59	No. 20	0.85	1.21	0.5%	98.8%	
Water Content of Split Sample	75.2%	No. 40	0.425	0.89	0.4%	98.5%	
Wt. of DS., gm	241.48	No. 60	0.25	1.28	0.5%	98.0%	
Wt. of +#200 Sample, gm	31.00	No. 140	0.106	15.66	6.5%	91.5%	
		No. 200	0.075	11.04	4.6%	86.9%	

HYDROMETER (-#200)					
Tare No.	523	Wt. Dispers., gm	5	Specific Gravity	2.65
Wt. Tare + DS., gm	154.08	Wt. Dry Soil, gm (-#200)	46.13		Tested
Wt. Tare, gm	102.95	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0000

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	48	22	5.5	42.5	0.0134	92.1	0.0273	80.1%
5	46	22	5.5	40.5	0.0134	87.8	0.0176	76.3%
15	43	22.1	5.4	37.6	0.0133	81.5	0.0104	70.9%
30	40.5	22.1	5.4	35.1	0.0133	76.1	0.0075	66.1%
60	37	22.2	5.4	31.6	0.0133	68.5	0.0055	59.5%
250	31.5	23.1	5.2	26.3	0.0132	57.0	0.0028	49.6%
1440	26.5	21.6	5.6	20.9	0.0134	45.3	0.0012	39.4%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION							
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA			
% Gravel (-3" & +#4)	0.3	Silt=28.7% Clay=58.2%				100	100		Gravel	0.7	
Coarse=0; Fine=0.3		D60, mm	NA								
% Sand (-#4 & +#200)	12.8	D30, mm	NA					2	99.3	Sand	15.2
Coarse=0.4; Medium=0.9; Fine=11.6		D10, mm	NA								
% Fines (-#200)	86.9	Cc	NA	0.05	84.2					Silt	38.7
% Plus #200 (-3")	13.1	Cu	NA								
USCS Description						0.002	45.5			Clay	45.5
FAT CLAY											
USCS Group Symbol		Atterberg Limits Group Symbol						USDA Classification			
CH		CH - FAT CLAY		CLAY							
Auxiliary Information		Wt Ret, gm	% Retained	% Finer							
12" Sieve - 300 mm		0	0.0	100.0							
6" Sieve - 150 mm		0	0.0	100.0							
3" Sieve - 75 mm		0	0.0	100.0							

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

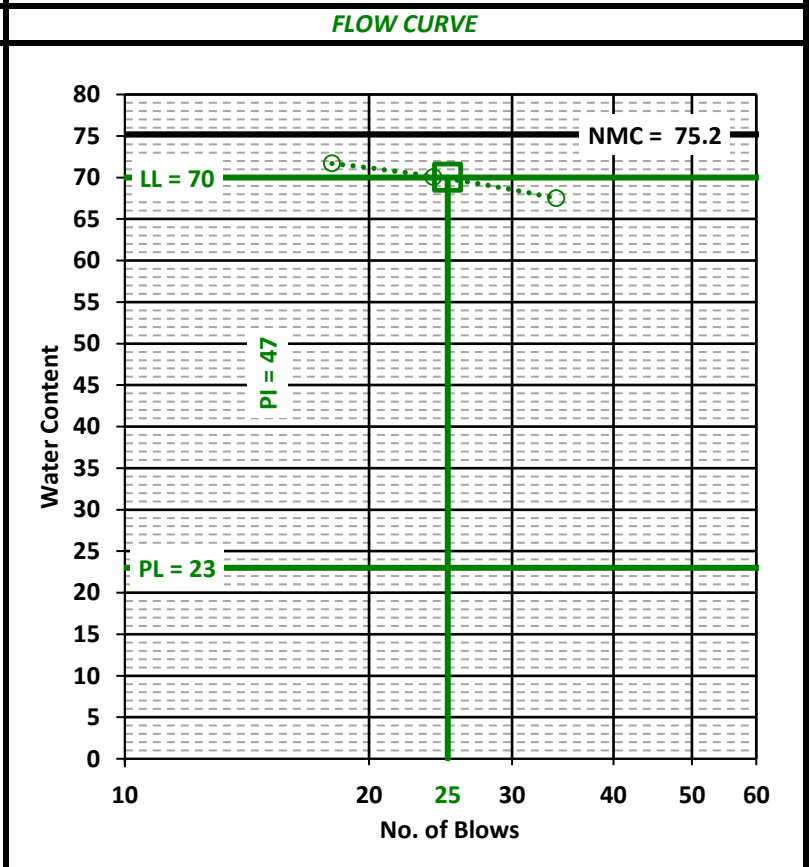
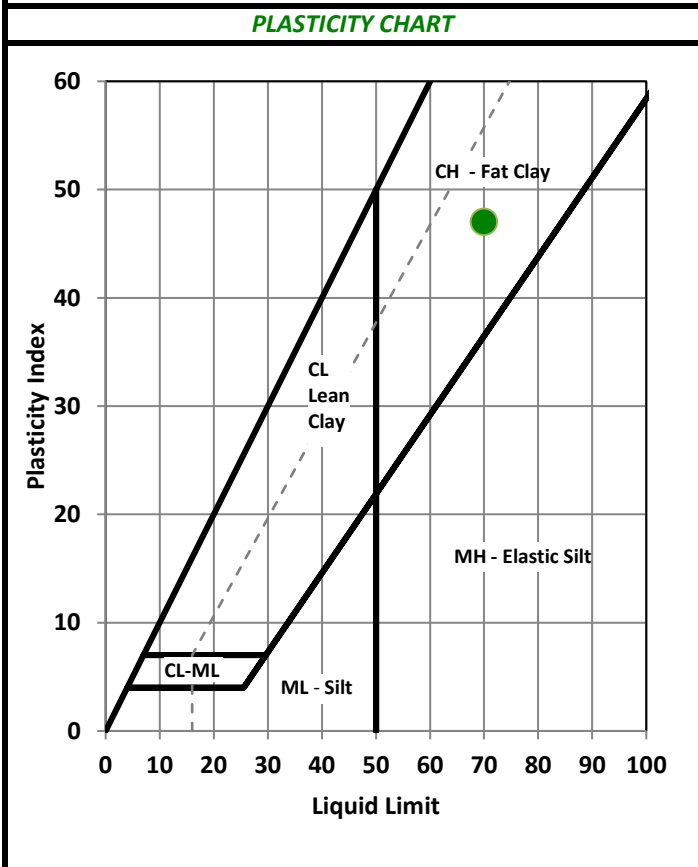
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-04
 Depth NA
 Sample HSCNew-NMP-04-SD
 Lab Sample 40901004

Soil Description: VERY DARK GRAY FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	2066	Liquid Limit (LL), %	70
Wt. Tare & WS, gm	575.58	Plastic Limit (PL), %	23
Wt. Tare & DS, gm	394.07	Plasticity Index (PI)	47
Wt. Tare, gm	152.59	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	75.2	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	VERY DARK GRAY

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	444	486	463	405	459	424	
Wt. Tare & WS, gm	17.42	17.70	16.90	18.14	19.49	19.38	
Wt. Tare & DS, gm	16.16	16.39	15.72	14.97	15.91	15.91	
Wt. Tare, gm	10.71	10.79	10.72	10.55	10.80	10.77	
Water Content, %	23.1	23.4	23.6	71.7	70.1	67.5	
				# of Blows	18	24	34



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

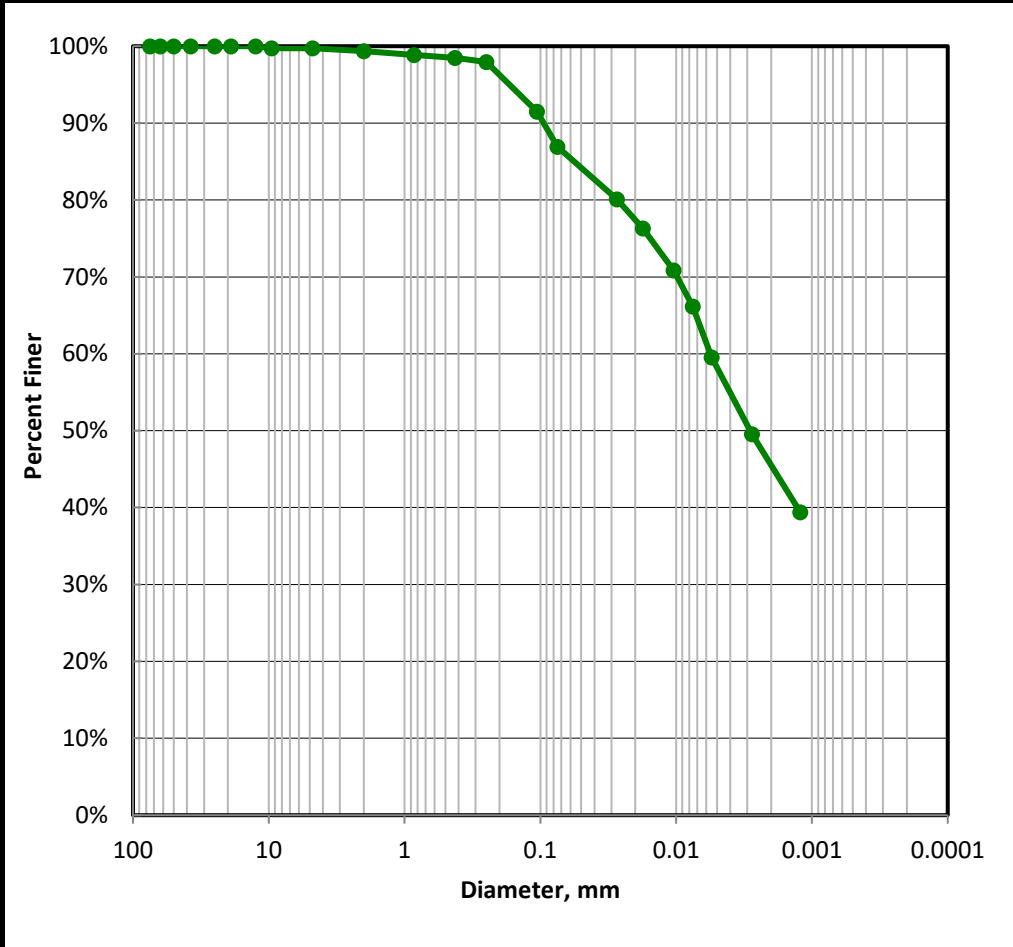
Boring 18J0402-04
 Depth NA
 Sample HSCNew-NMP-04-SD
 Lab Sample 40901004

Sample Color: **VERY DARK GRAY**

USCS Group Name: **FAT CLAY**

USCS Group Symbol: **CH** USDA: **CLAY**

AASHTO: **A-7-6 (45)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	99.7%
No. 4	4.75	99.7%
No. 10	2	99.3%
No. 20	0.85	98.8%
No. 40	0.425	98.5%
No. 60	0.25	98.0%
No. 140	0.106	91.5%
No. 200	0.075	86.9%
NA	0.0273	80.1%
NA	0.0176	76.3%
NA	0.0104	70.9%
NA	0.0075	66.1%
NA	0.0055	59.5%
NA	0.0028	49.6%
NA	0.0012	39.4%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.3	Silt=28.7% Clay=58.2%	
Coarse=0; Fine=0.3		D60, mm	NA
% Sand (-#4 & +#200)	12.8	D30, mm	NA
Coarse=0.4; Medium=0.9; Fine=11.6		D10, mm	NA
% Fines (-#200)	86.9	Cc	NA
% Plus #200 (-3")	13.1	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.3	Gravel 0.7	0
0.05	84.2	Sand 15.2	15.3
0.002	45.5	Silt 38.7	38.9
		Clay 45.5	45.8
USDA Classification			
CLAY			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-04
 Depth NA
 Sample HSCNew-NMP-04-SD
 Lab Sample 40901004

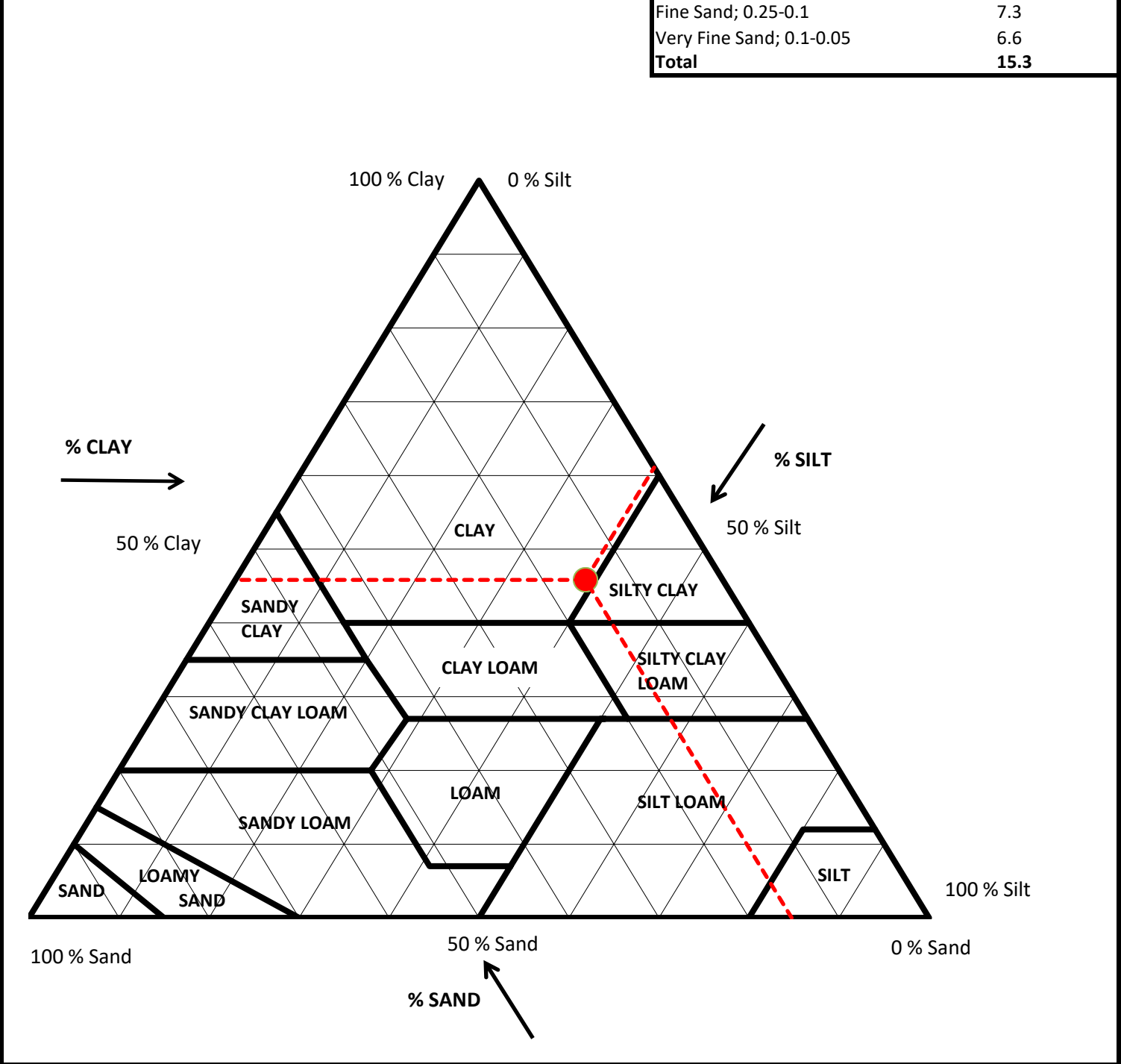
Sample Color: **VERY DARK GRAY**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (45)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	15.3
Percent Silt, %	38.9
Percent Clay, %	45.8

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.4
Coarse Sand; 1-0.5	0.4
Medium Sand; 0.5-0.25	0.6
Fine Sand; 0.25-0.1	7.3
Very Fine Sand; 0.1-0.05	6.6
Total	15.3



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-05
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-05-SD
		Lab Sample	40901005

Sample Color:	DARK GRAY	USDA:	CLAY LOAM	AASHTO:	A-7-6 (18)
USCS Group Name:	SANDY LEAN CLAY				
USCS Group Symbol:	CL				

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1248	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	2	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1246	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	811	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	813	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	2009	3/8"	9.5	1.06	0.1%	99.9%	
Tare + WS., gm	674.68	No. 4	4.75	1.43	0.2%	99.7%	
Tare + DS., gm	491.61	No. 10	2	9.72	2.8%	96.9%	
Tare, gm	150.33	No. 20	0.85	6.84	2.0%	94.9%	
Water Content of Split Sample	53.6%	No. 40	0.425	4.41	1.3%	93.6%	
Wt. of DS., gm	341.28	No. 60	0.25	6.52	1.9%	91.7%	
Wt. of +#200 Sample, gm	117.76	No. 140	0.106	51.98	15.2%	76.5%	
		No. 200	0.075	38.29	11.2%	65.3%	

HYDROMETER (-#200)					
Tare No.	543	Wt. Dispers., gm	5	Specific Gravity	2.67
Wt. Tare + DS., gm	233.81	Wt. Dry Soil, gm (-#200)	32.63		Tested
Wt. Tare, gm	196.18	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9955

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	32.5	21.5	5.6	26.9	0.0134	82.1	0.0311	53.6%
5	30	21.5	5.6	24.4	0.0134	74.4	0.0201	48.6%
15	28.5	21.7	5.6	22.9	0.0133	69.9	0.0117	45.6%
30	27.5	21.8	5.5	22.0	0.0133	67.1	0.0083	43.8%
60	26	21.9	5.5	20.5	0.0133	62.5	0.0059	40.8%
250	23	23	5.2	17.8	0.0131	54.3	0.0029	35.5%
1440	20.5	21.5	5.6	14.9	0.0134	45.5	0.0013	29.7%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION							
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA			
% Gravel (-3" & +#4)	0.3	Silt=25.8% Clay=39.5%				100	100		Gravel	3.1	
Coarse=0; Fine=0.3		D60, mm	NA								
% Sand (-#4 & +#200)	34.4	D30, mm	NA								
Coarse=2.8; Medium=3.3; Fine=28.3		D10, mm	NA								
% Fines (-#200)	65.3	Cc	NA								
% Plus #200 (-3")	34.7	Cu	NA	2	96.9	Sand	37.0				
USCS Description											
SANDY LEAN CLAY											
USCS Group Symbol		Atterberg Limits Group Symbol						0.05	59.9	Silt	27.0
CL		CL - LEAN CLAY									
Auxiliary Information		Wt Ret, gm	% Retained	0.002	32.8	Clay	32.8				
12" Sieve - 300 mm	0	0.0	100.0								
6" Sieve - 150 mm	0	0.0	100.0								
3" Sieve - 75 mm	0	0.0	100.0								
								USDA Classification			
				CLAY LOAM							

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

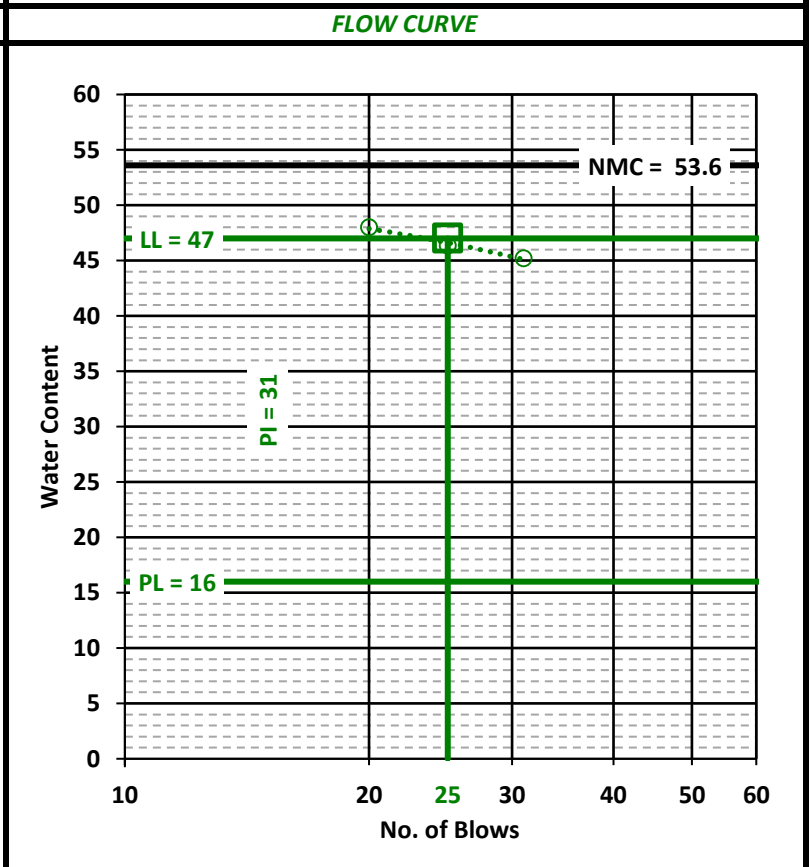
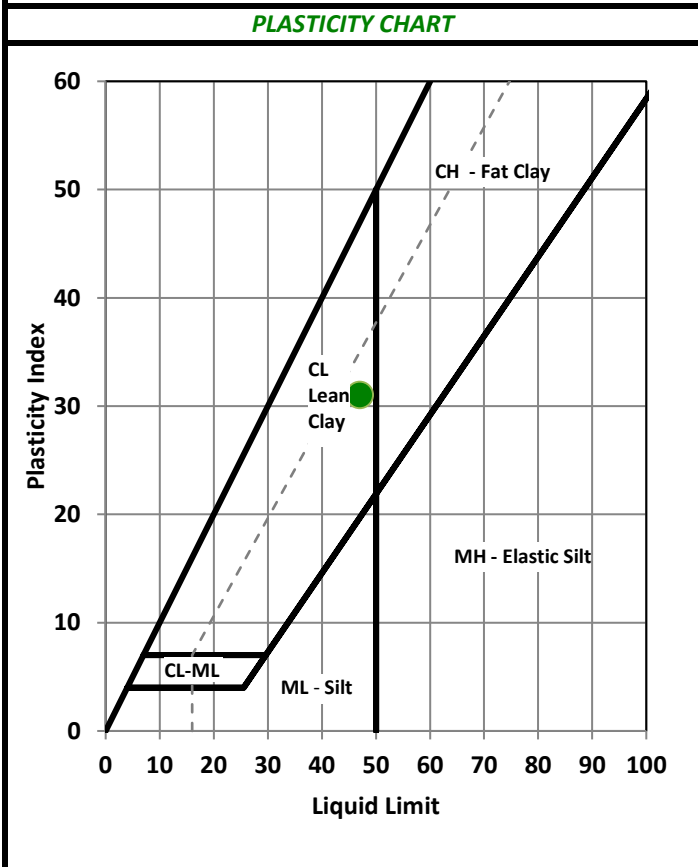
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-05
 Depth NA
 Sample HSCNew-NMP-05-SD
 Lab Sample 40901005

Soil Description: DARK GRAY LEAN CLAY
 (-#40 Fraction)

AS-RECEIVED W.C.		SAMPLE SUMMARY	
Tare Number	2009	Liquid Limit (LL), %	47
Wt. Tare & WS, gm	674.68	Plastic Limit (PL), %	16
Wt. Tare & DS, gm	491.61	Plasticity Index (PI)	31
Wt. Tare, gm	150.33	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	53.6	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	DARK GRAY

PLASTIC LIMIT				LIQUID LIMIT			
Points Run				3 Points			
Tare Number	508	461	433				
Wt. Tare & WS, gm	18.27	16.85	17.70				
Wt. Tare & DS, gm	17.20	16.03	16.76				
Wt. Tare, gm	10.79	10.68	10.72				
Water Content, %	16.7	15.3	15.6				
				# of Blows	20	25	31



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

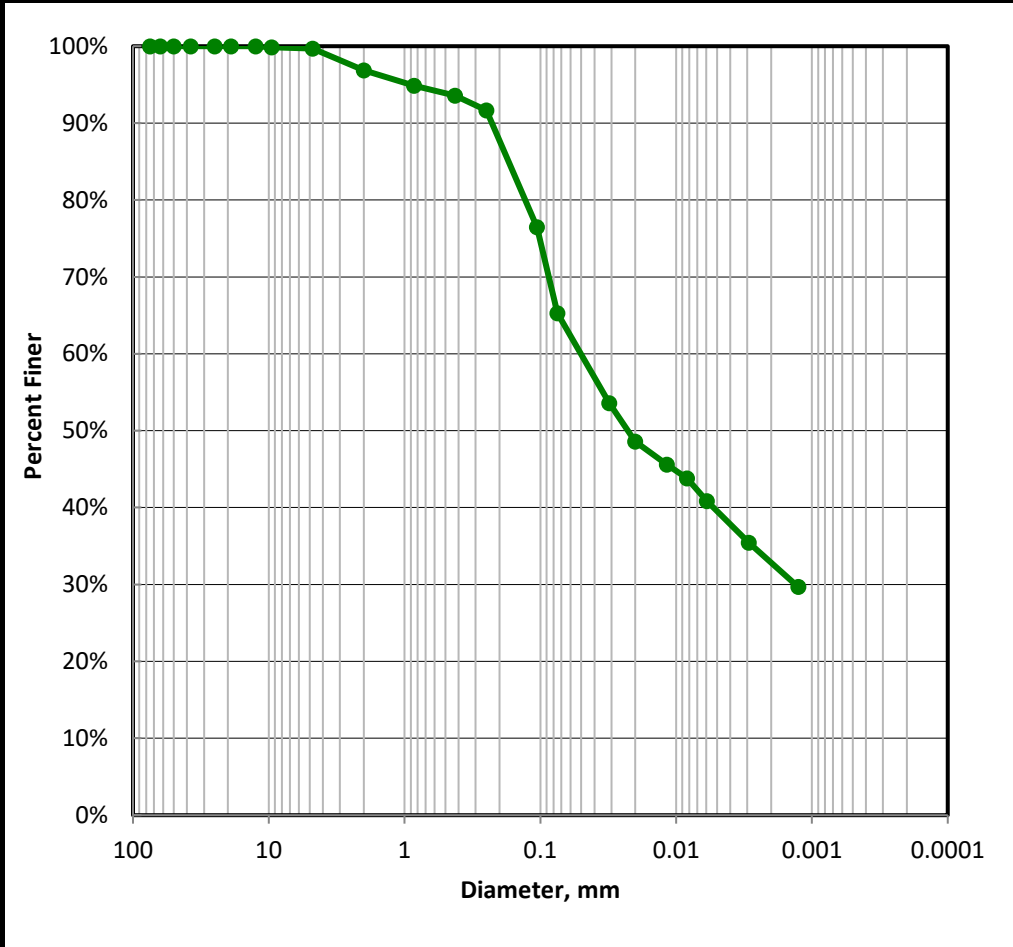
Boring 18J0402-05
 Depth NA
 Sample HSCNew-NMP-05-SD
 Lab Sample 40901005

Sample Color: **DARK GRAY**

USCS Group Name: **SANDY LEAN CLAY**

USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	99.9%
No. 4	4.75	99.7%
No. 10	2	96.9%
No. 20	0.85	94.9%
No. 40	0.425	93.6%
No. 60	0.25	91.7%
No. 140	0.106	76.5%
No. 200	0.075	65.3%
NA	0.0311	53.6%
NA	0.0201	48.6%
NA	0.0117	45.6%
NA	0.0083	43.8%
NA	0.0059	40.8%
NA	0.0029	35.5%
NA	0.0013	29.7%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.3	Silt=25.8% Clay=39.5%	
Coarse=0; Fine=0.3		D60, mm	NA
% Sand (-#4 & +#200)	34.4	D30, mm	NA
Coarse=2.8; Medium=3.3; Fine=28.3		D10, mm	NA
% Fines (-#200)	65.3	Cc	NA
% Plus #200 (-3")	34.7	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	96.9	Gravel 3.1	0
0.05	59.9	Sand 37.0	38.2
0.002	32.8	Silt 27.0	27.9
		Clay 32.8	33.9
USDA Classification			
CLAY LOAM			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-05
 Depth NA
 Sample HSCNew-NMP-05-SD
 Lab Sample 40901005

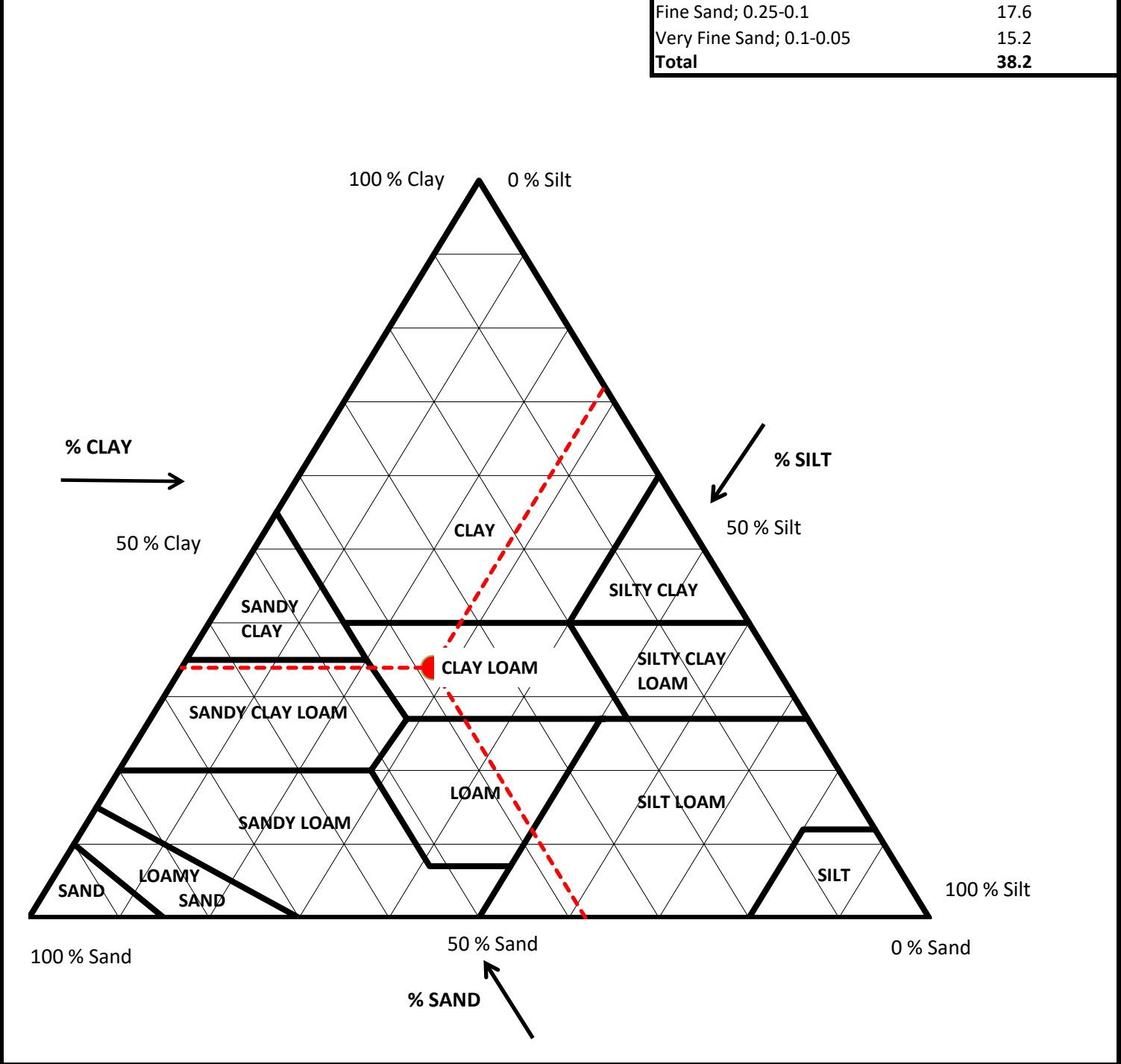
Sample Color: **DARK GRAY**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	38.2
Percent Silt, %	27.9
Percent Clay, %	33.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	1.7
Coarse Sand; 1-0.5	1.4
Medium Sand; 0.5-0.25	2.3
Fine Sand; 0.25-0.1	17.6
Very Fine Sand; 0.1-0.05	15.2
Total	38.2



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-06
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-06-SD
		Lab Sample	40901006

Sample Color: **BROWN**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM** AASHTO: **A-7-6 (19)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1070	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	11	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1059	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	721	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	732	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	2.86	0.4%	99.6%	
Tare No.	2074	3/8"	9.5	7.77	1.1%	98.5%	
Tare + WS., gm	612.61	No. 4	4.75	0.5	0.1%	98.5%	
Tare + DS., gm	465.95	No. 10	2	0.26	0.1%	98.4%	
Tare, gm	153.25	No. 20	0.85	1.71	0.5%	97.9%	
Water Content of Split Sample	46.9%	No. 40	0.425	2.35	0.7%	97.1%	
Wt. of DS., gm	312.70	No. 60	0.25	2.81	0.9%	96.2%	
Wt. of +#200 Sample, gm	57.46	No. 140	0.106	22.29	7.0%	89.2%	
		No. 200	0.075	28.04	8.8%	80.4%	

HYDROMETER (-#200)					
Tare No.	Q53	Wt. Dispers., gm	5	Specific Gravity	2.65
Wt. Tare + DS., gm	242.5	Wt. Dry Soil, gm (-#200)	45.1		Tested
Wt. Tare, gm	192.4	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0000

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	42	21.4	5.6	36.4	0.0135	80.7	0.0290	64.9%
5	38	21.4	5.6	32.4	0.0135	71.8	0.0190	57.7%
15	34.5	21.5	5.6	28.9	0.0134	64.1	0.0113	51.5%
30	32	21.7	5.6	26.4	0.0134	58.5	0.0081	47.1%
60	30	21.8	5.5	24.5	0.0134	54.3	0.0058	43.7%
250	26	22.9	5.2	20.8	0.0132	46.1	0.0029	37.1%
1440	22.5	21.5	5.6	16.9	0.0134	37.5	0.0013	30.1%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION									
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA					
% Gravel (-3" & +#4)	1.5	Silt=38.1% Clay=42.3%				100	100						
Coarse=0; Fine=1.5		D60, mm	NA					2	98.4	Gravel	1.6		
% Sand (-#4 & +#200)	18.1	D30, mm	NA							0.05	73.8	Sand	24.6
Coarse=0.1; Medium=1.3; Fine=16.7		D10, mm	NA									0.002	34.0
% Fines (-#200)	80.4	Cc	NA	USDA Classification	CLAY LOAM								
% Plus #200 (-3")	19.6	Cu	NA										
USCS Description													
LEAN CLAY WITH SAND													
USCS Group Symbol		Atterberg Limits Group Symbol											
CL		CL - LEAN CLAY											
Auxiliary Information		Wt Ret, gm	% Retained	% Finer									
12" Sieve - 300 mm		0	0.0	100.0									
6" Sieve - 150 mm		0	0.0	100.0									
3" Sieve - 75 mm		0	0.0	100.0									

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

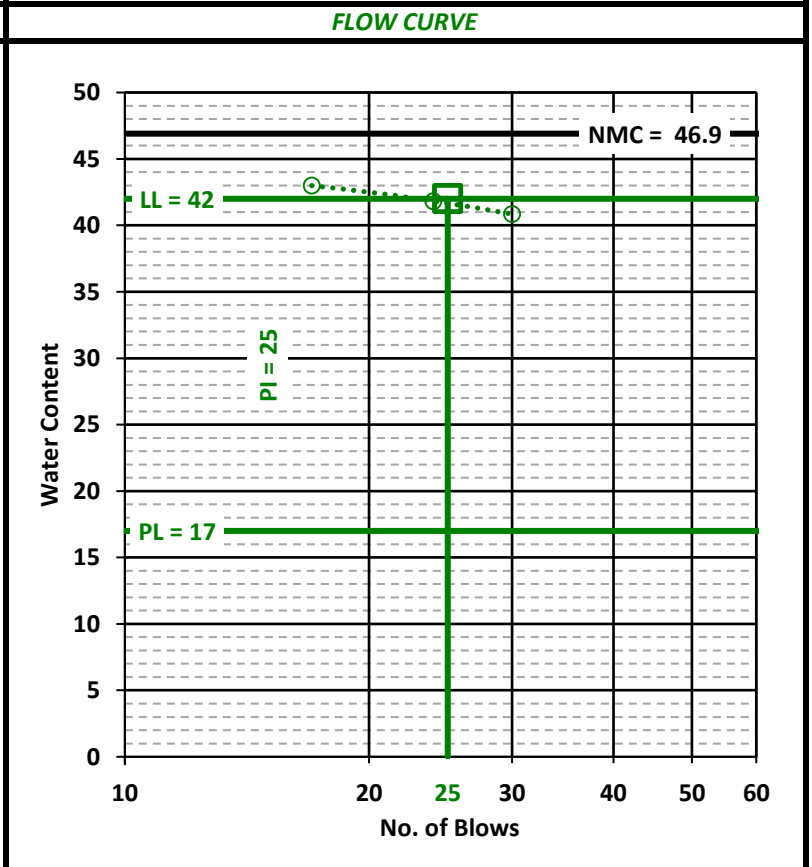
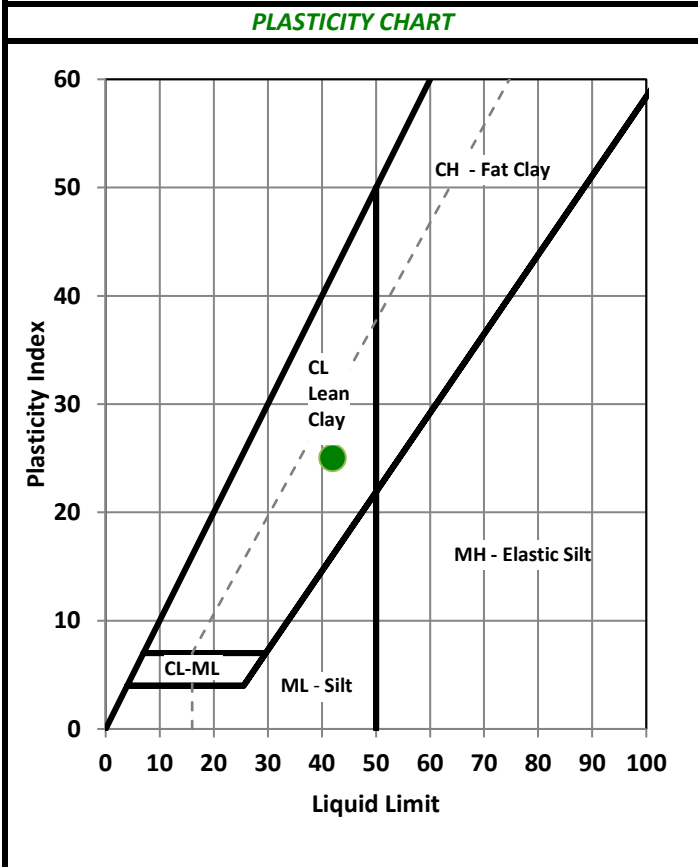
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-06
 Depth NA
 Sample HSCNew-NMP-06-SD
 Lab Sample 40901006

Soil Description: BROWN LEAN CLAY
 (-#40 Fraction)

AS-RECEIVED W.C.		SAMPLE SUMMARY	
Tare Number	2074	Liquid Limit (LL), %	42
Wt. Tare & WS, gm	612.61	Plastic Limit (PL), %	17
Wt. Tare & DS, gm	465.95	Plasticity Index (PI)	25
Wt. Tare, gm	153.25	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	46.9	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BROWN

PLASTIC LIMIT				LIQUID LIMIT			
Points Run 3 Points				3 Points			
Tare Number	434	702	423	422	450	404	
Wt. Tare & WS, gm	17.55	17.54	17.11	19.39	19.90	19.76	
Wt. Tare & DS, gm	16.57	16.81	16.19	16.81	17.22	17.15	
Wt. Tare, gm	10.78	12.47	10.73	10.81	10.81	10.76	
Water Content, %	16.9	16.8	16.8	43.0	41.8	40.8	
				# of Blows	17	24	30



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

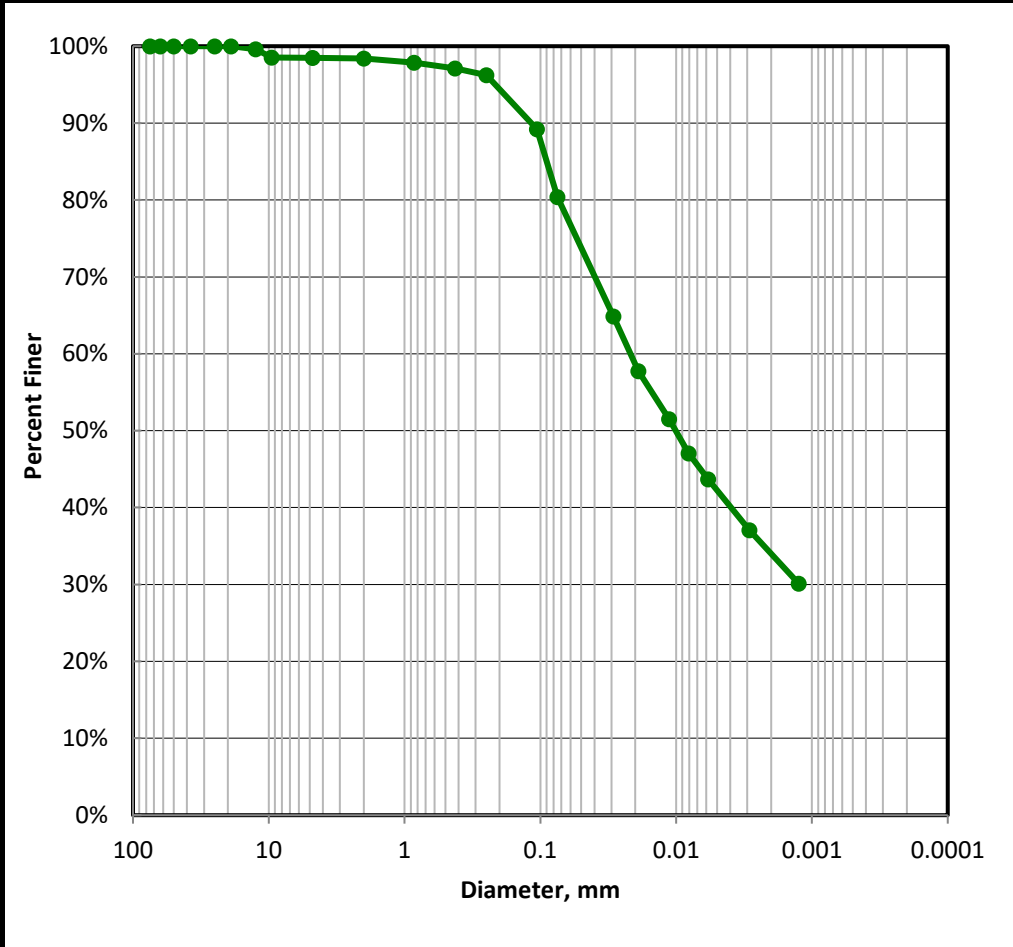
PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-06
 Depth NA
 Sample HSCNew-NMP-06-SD
 Lab Sample 40901006

Sample Color: **BROWN**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (19)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	99.6%
3/8"	9.5	98.5%
No. 4	4.75	98.5%
No. 10	2	98.4%
No. 20	0.85	97.9%
No. 40	0.425	97.1%
No. 60	0.25	96.2%
No. 140	0.106	89.2%
No. 200	0.075	80.4%
NA	0.0290	64.9%
NA	0.0190	57.7%
NA	0.0113	51.5%
NA	0.0081	47.1%
NA	0.0058	43.7%
NA	0.0029	37.1%
NA	0.0013	30.1%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	1.5	Silt=38.1% Clay=42.3%	
Coarse=0; Fine=1.5		D60, mm	NA
% Sand (-#4 & +#200)	18.1	D30, mm	NA
Coarse=0.1; Medium=1.3; Fine=16.7		D10, mm	NA
% Fines (-#200)	80.4	Cc	NA
% Plus #200 (-3")	19.6	Cu	NA
USCS Description			
LEAN CLAY WITH SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	98.4	Gravel	1.6	0
0.05	73.8	Sand	24.6	25.0
0.002	34.0	Silt	39.7	40.4
		Clay	34.0	34.6
USDA Classification				
CLAY LOAM				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-06
 Depth NA
 Sample HSCNew-NMP-06-SD
 Lab Sample 40901006

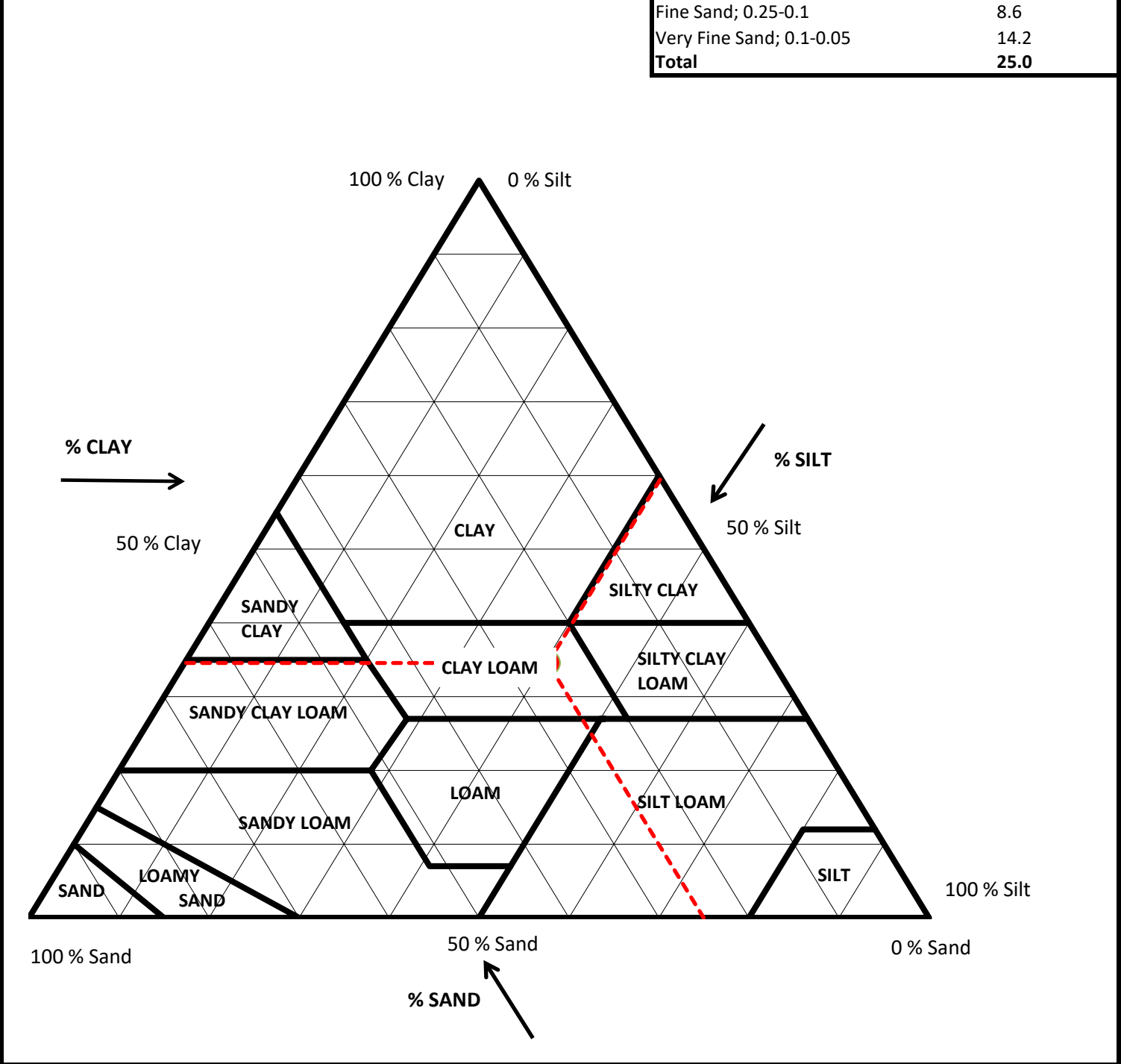
Sample Color: **BROWN**
 USCS Group Name: **LEAN CLAY WITH SAND**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (19)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	25.0
Percent Silt, %	40.4
Percent Clay, %	34.6

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.4
Coarse Sand; 1-0.5	0.7
Medium Sand; 0.5-0.25	1.1
Fine Sand; 0.25-0.1	8.6
Very Fine Sand; 0.1-0.05	14.2
Total	25.0



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-07
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-07-SD
		Lab Sample	40901007

Sample Color: **BLACK**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **CLAY LOAM** AASHTO: **A-7-6 (18)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1066	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1066	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	713	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	713	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	88	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	584.02	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	438.95	No. 10	2	0.48	0.2%	99.8%	
Tare, gm	145.87	No. 20	0.85	1.93	0.7%	99.2%	
Water Content of Split Sample	49.5%	No. 40	0.425	3.06	1.0%	98.1%	
Wt. of DS., gm	293.08	No. 60	0.25	7.22	2.5%	95.7%	
Wt. of +#200 Sample, gm	88.83	No. 140	0.106	46.31	15.8%	79.9%	
		No. 200	0.075	29.83	10.2%	69.7%	

HYDROMETER (-#200)					
Tare No.	520	Wt. Dispers., gm	5	Specific Gravity	2.66
Wt. Tare + DS., gm	144.19	Wt. Dry Soil, gm (-#200)	37.06		Tested
Wt. Tare, gm	102.13	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9977

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	35.5	21.4	5.6	29.9	0.0134	80.5	0.0306	56.1%
5	32.5	21.4	5.6	26.9	0.0134	72.4	0.0198	50.5%
15	30	21.5	5.6	24.4	0.0134	65.7	0.0116	45.8%
30	29	21.7	5.6	23.4	0.0134	63.0	0.0083	43.9%
60	27	21.8	5.5	21.5	0.0133	57.9	0.0059	40.3%
250	24	22.9	5.2	18.8	0.0132	50.6	0.0029	35.3%
1440	22	21.4	5.6	16.4	0.0134	44.2	0.0013	30.8%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	0.0	Silt=30.6% Clay=39.1%				100	100		Gravel
Coarse=0; Fine=0		D60, mm	NA						
% Sand (-#4 & +#200)	30.3	D30, mm	NA						
Coarse=0.2; Medium=1.7; Fine=28.4		D10, mm	NA						
% Fines (-#200)	69.7	Cc	NA						
% Plus #200 (-3")	30.3	Cu	NA	2	99.8	Sand	36.3	36.3	
USCS Description				0.05	63.6	Silt	30.3	30.3	
SANDY LEAN CLAY				0.002	33.3	Clay	33.3	33.3	
USCS Group Symbol		Atterberg Limits Group Symbol		USDA Classification					
CL		CL - LEAN CLAY		CLAY LOAM					
Auxiliary Information		Wt Ret, gm	% Retained	% Finer					
12" Sieve - 300 mm		0	0.0	100.0					
6" Sieve - 150 mm		0	0.0	100.0					
3" Sieve - 75 mm		0	0.0	100.0					

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

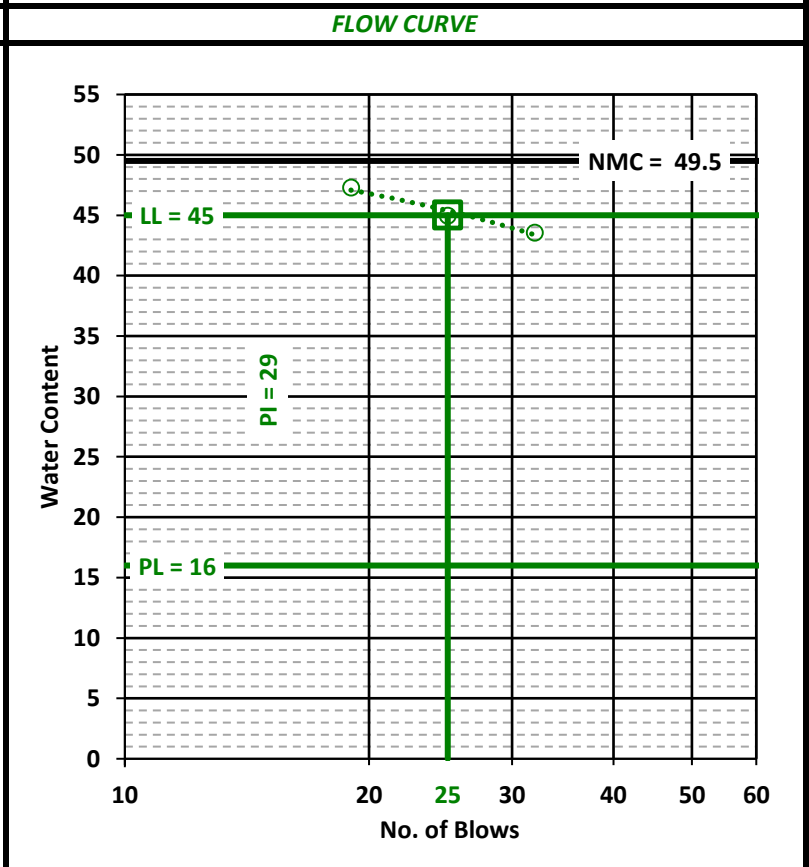
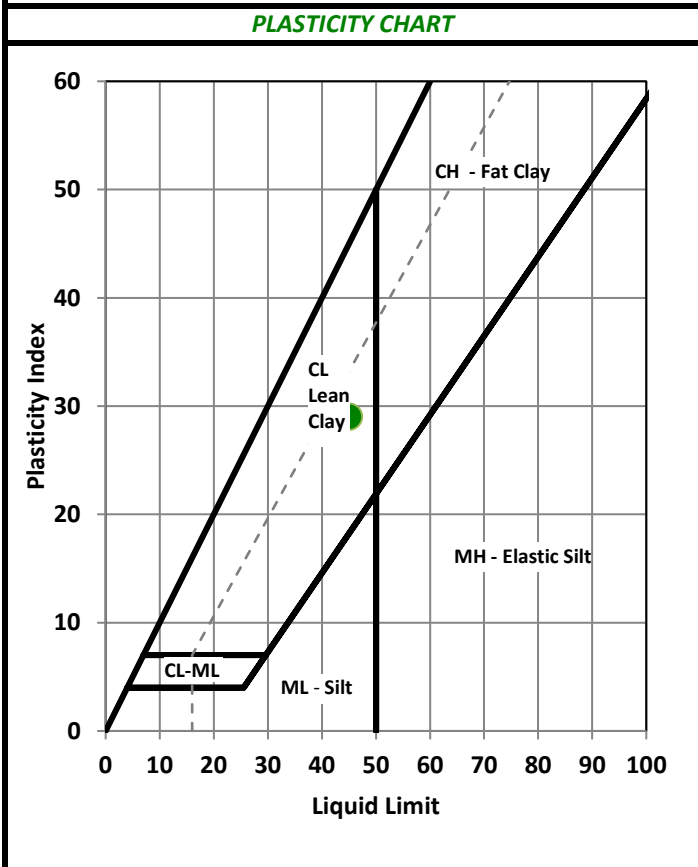
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-07
 Depth NA
 Sample HSCNew-NMP-07-SD
 Lab Sample 40901007

Soil Description: BLACK LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	88	Liquid Limit (LL), %	45
Wt. Tare & WS, gm	584.02	Plastic Limit (PL), %	16
Wt. Tare & DS, gm	438.95	Plasticity Index (PI)	29
Wt. Tare, gm	145.87	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	49.5	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BLACK

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	449	503	419	467	499	460	
Wt. Tare & WS, gm	17.09	18.21	18.66	19.22	18.67	17.67	
Wt. Tare & DS, gm	16.20	17.18	17.60	16.50	16.22	15.57	
Wt. Tare, gm	10.71	10.63	10.72	10.75	10.77	10.75	
Water Content, %	16.2	15.7	15.4	47.3	45.0	43.6	
				# of Blows	19	25	32



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

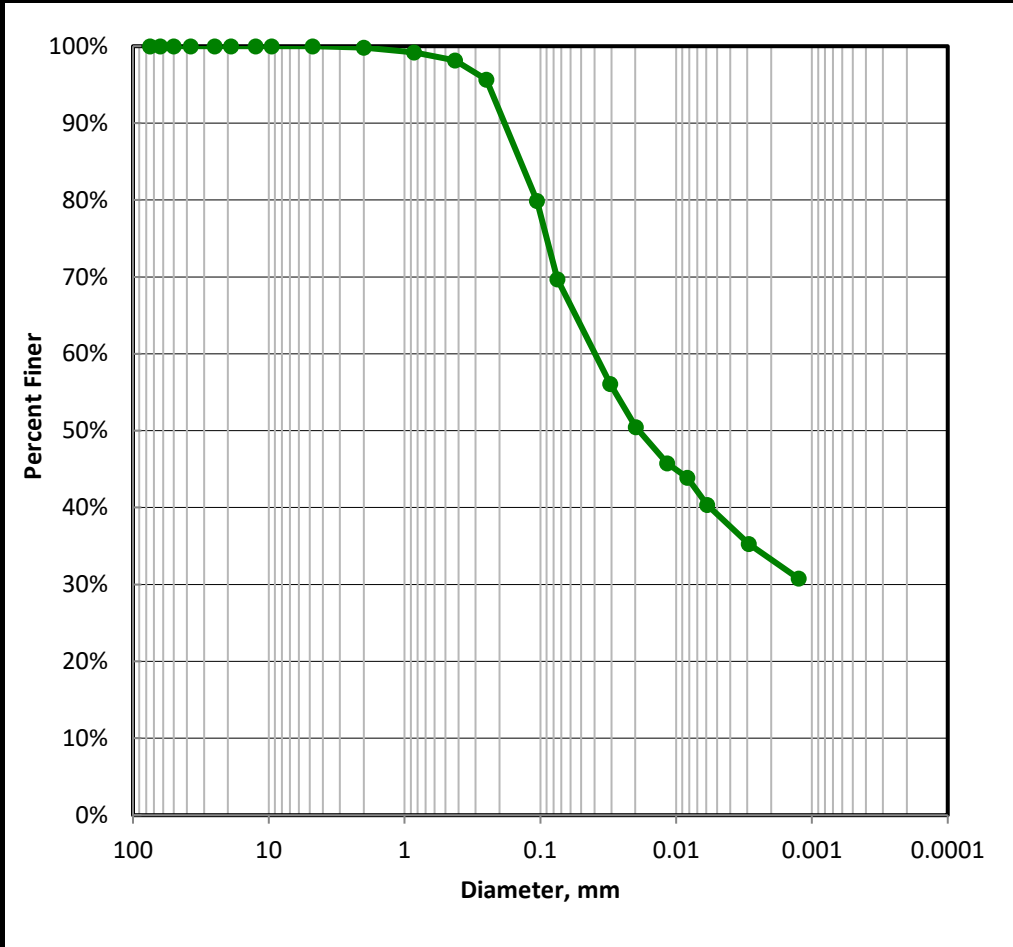
Boring 18J0402-07
 Depth NA
 Sample HSCNew-NMP-07-SD
 Lab Sample 40901007

Sample Color: **BLACK**

USCS Group Name: **SANDY LEAN CLAY**

USCS Group Symbol: **CL** USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.8%
No. 20	0.85	99.2%
No. 40	0.425	98.1%
No. 60	0.25	95.7%
No. 140	0.106	79.9%
No. 200	0.075	69.7%
NA	0.0306	56.1%
NA	0.0198	50.5%
NA	0.0116	45.8%
NA	0.0083	43.9%
NA	0.0059	40.3%
NA	0.0029	35.3%
NA	0.0013	30.8%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=30.6% Clay=39.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	30.3	D30, mm	NA
Coarse=0.2; Medium=1.7; Fine=28.4		D10, mm	NA
% Fines (-#200)	69.7	Cc	NA
% Plus #200 (-3")	30.3	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.8	Gravel 0.2	0
0.05	63.6	Sand 36.3	36.3
0.002	33.3	Silt 30.3	30.3
		Clay 33.3	33.3
USDA Classification			
CLAY LOAM			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-07
 Depth NA
 Sample HSCNew-NMP-07-SD
 Lab Sample 40901007

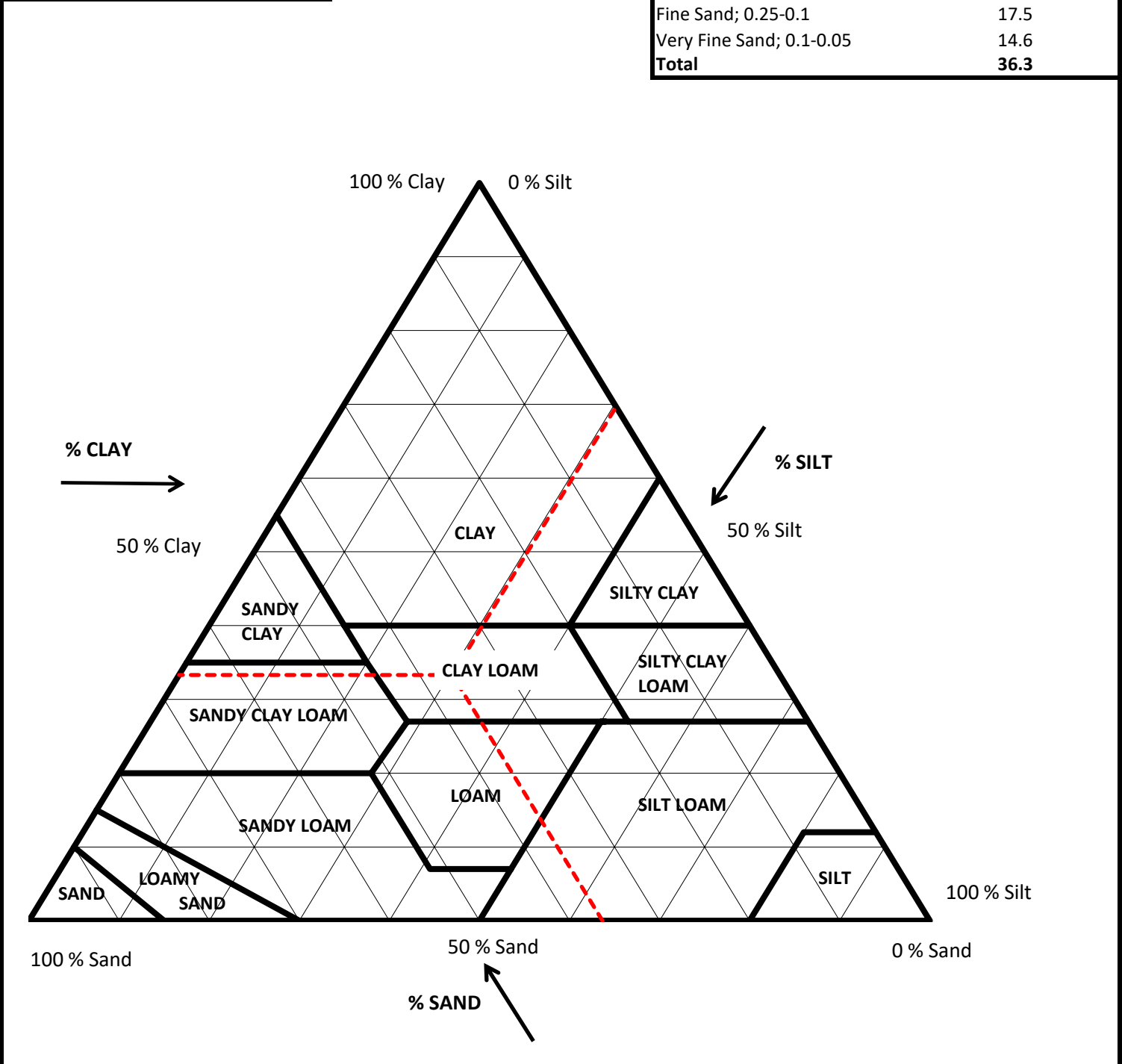
Sample Color: **BLACK**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL**

USDA: **CLAY LOAM**

AASHTO: **A-7-6 (18)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	36.3
Percent Silt, %	30.3
Percent Clay, %	33.3

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.5
Coarse Sand; 1-0.5	0.9
Medium Sand; 0.5-0.25	2.7
Fine Sand; 0.25-0.1	17.5
Very Fine Sand; 0.1-0.05	14.6
Total	36.3



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-08
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-08-SD
		Lab Sample	40901008

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH** USDA: **CLAY** AASHTO: **A-7-6 (34)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1054	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1054	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	712	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	712	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	87	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	642.39	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	482.08	No. 10	2	0.5	0.1%	99.9%	
Tare, gm	148.48	No. 20	0.85	0.94	0.3%	99.6%	
Water Content of Split Sample	48.1%	No. 40	0.425	1	0.3%	99.3%	
Wt. of DS., gm	333.60	No. 60	0.25	2.03	0.6%	98.7%	
Wt. of +#200 Sample, gm	47.61	No. 140	0.106	32.02	9.6%	89.1%	
		No. 200	0.075	11.12	3.3%	85.7%	

HYDROMETER (-#200)			
Tare No.	240	Wt. Dispers., gm	5
Wt. Tare + DS., gm	235.9	Wt. Dry Soil, gm (-#200)	53.72
Wt. Tare, gm	177.18	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.64
			Tested
		<i>a Factor</i>	1.0023

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	58	21.5	5.6	52.4	0.0135	97.8	0.0247	83.8%
5	56.5	21.6	5.6	50.9	0.0135	95.0	0.0159	81.4%
15	53.5	21.7	5.6	47.9	0.0134	89.4	0.0095	76.6%
30	51	21.7	5.6	45.4	0.0134	84.7	0.0069	72.6%
60	48	21.9	5.5	42.5	0.0134	79.3	0.0050	68.0%
250	40.5	22.8	5.3	35.2	0.0133	65.7	0.0026	56.3%
1440	34	21.4	5.6	28.4	0.0135	53.0	0.0012	45.4%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION					
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA	
% Gravel (-3" & +#4)	0.0	Silt=17.7% Clay=68%				100	100		Gravel
Coarse=0; Fine=0		D60, mm	NA						
% Sand (-#4 & +#200)	14.3	D30, mm	NA						
Coarse=0.1; Medium=0.6; Fine=13.5		D10, mm	NA						
% Fines (-#200)	85.7	Cc	NA						
% Plus #200 (-3")	14.3	Cu	NA	2	99.9	Sand	14.8		
USCS Description									
FAT CLAY									
USCS Group Symbol	Atterberg Limits Group Symbol								
CH	CH - FAT CLAY								
Auxiliary Information	Wt Ret, gm	% Retained	% Finer	0.002	52.8	Clay	52.8		
12" Sieve - 300 mm	0	0.0	100.0						
6" Sieve - 150 mm	0	0.0	100.0						
3" Sieve - 75 mm	0	0.0	100.0						
USDA Classification									
CLAY									

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

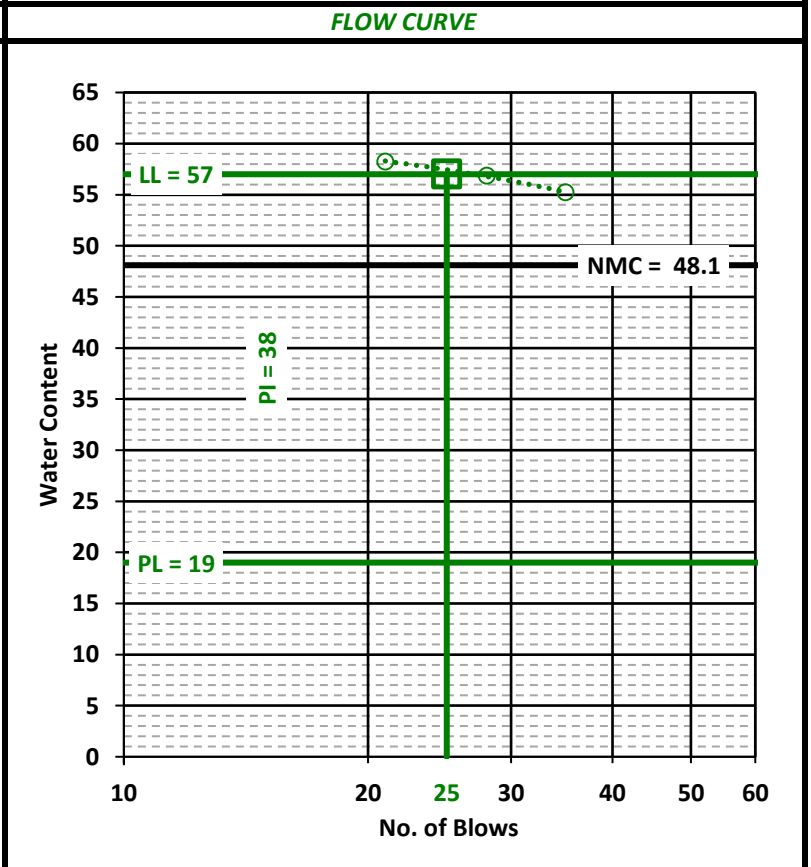
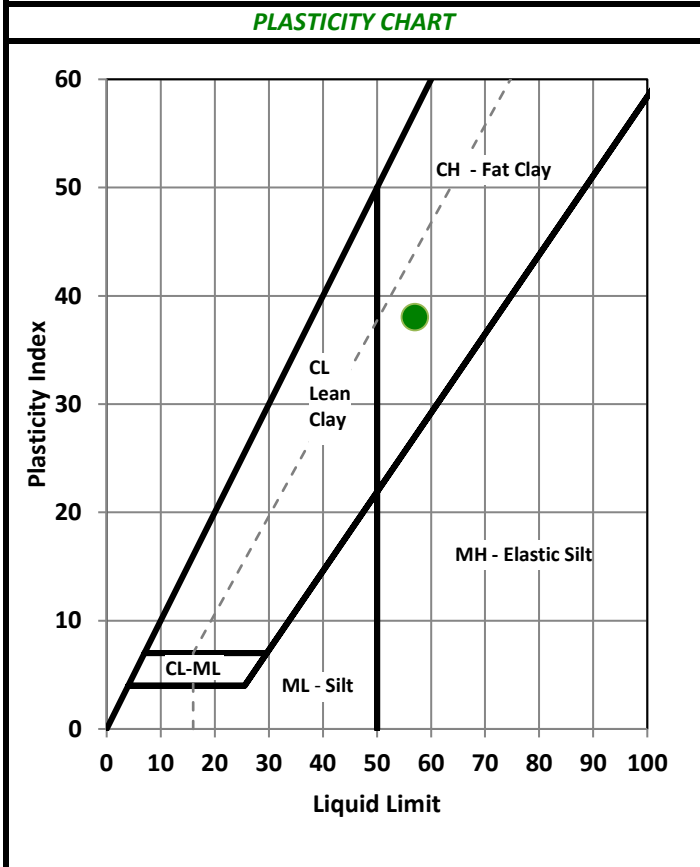
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-08
 Depth NA
 Sample HSCNew-NMP-08-SD
 Lab Sample 40901008

Soil Description: BROWN FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>	<i>SAMPLE SUMMARY</i>
Tare Number 87	Liquid Limit (LL), % 57
Wt. Tare & WS, gm 642.39	Plastic Limit (PL), % 19
Wt. Tare & DS, gm 482.08	Plasticity Index (PI) 38
Wt. Tare, gm 148.48	USCS Group Symbol (-#40 Fraction) CH
Water Content, % 48.1	USCS Group Name (-#40 Fraction) FAT CLAY
	Sample Color: BROWN

<i>PLASTIC LIMIT</i>	<i>LIQUID LIMIT</i>
Points Run 3 Points	3 Points
Tare Number 406 426 464	510 414 480
Wt. Tare & WS, gm 17.83 17.02 17.50	19.14 19.68 19.09
Wt. Tare & DS, gm 16.62 16.02 16.42	16.07 16.45 16.08
Wt. Tare, gm 10.72 10.71 10.76	10.80 10.77 10.63
Water Content, % 20.5 18.8 19.1	58.3 56.9 55.2
	# of Blows 21 28 35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

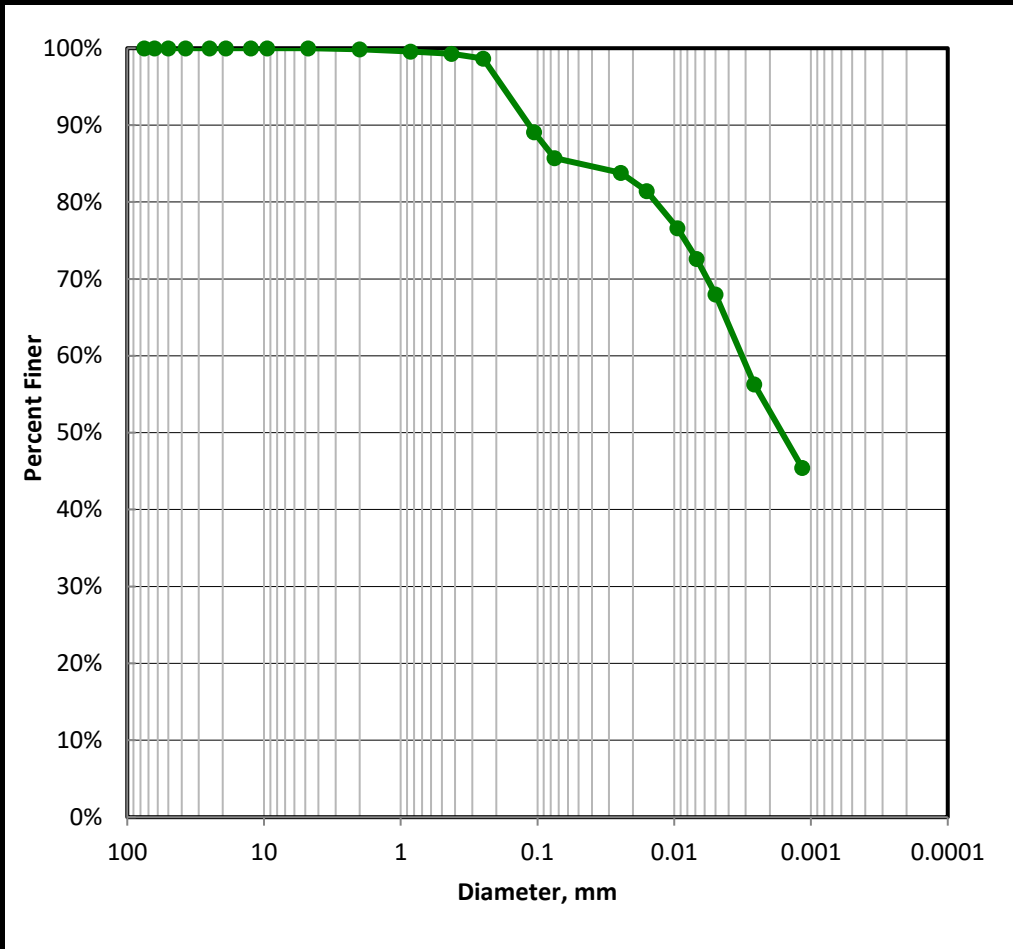
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-08
 Depth NA
 Sample HSCNew-NMP-08-SD
 Lab Sample 40901008

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (34)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.9%
No. 20	0.85	99.6%
No. 40	0.425	99.3%
No. 60	0.25	98.7%
No. 140	0.106	89.1%
No. 200	0.075	85.7%
NA	0.0247	83.8%
NA	0.0159	81.4%
NA	0.0095	76.6%
NA	0.0069	72.6%
NA	0.0050	68.0%
NA	0.0026	56.3%
NA	0.0012	45.4%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=17.7% Clay=68%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	14.3	D30, mm	NA
Coarse=0.1; Medium=0.6; Fine=13.5		D10, mm	NA
% Fines (-#200)	85.7	Cc	NA
% Plus #200 (-3")	14.3	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.9	Gravel 0.1	0
0.05	85.0	Sand 14.8	14.8
0.002	52.8	Silt 32.2	32.3
		Clay 52.8	52.9
USDA Classification			
CLAY			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-08
 Depth NA
 Sample HSCNew-NMP-08-SD
 Lab Sample 40901008

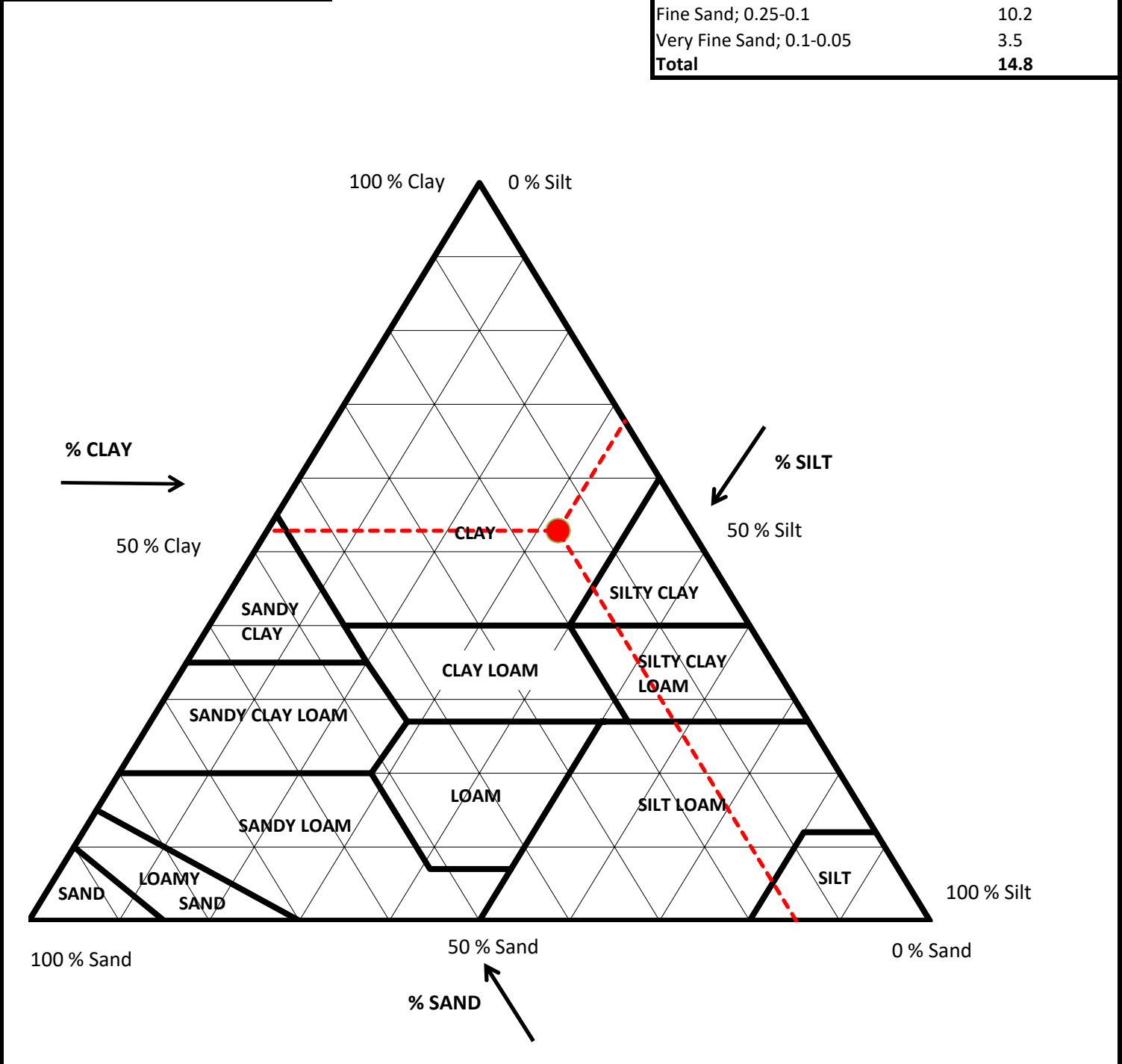
Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (34)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	14.8
Percent Silt, %	32.3
Percent Clay, %	52.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.3
Medium Sand; 0.5-0.25	0.7
Fine Sand; 0.25-0.1	10.2
Very Fine Sand; 0.1-0.05	3.5
Total	14.8



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-09
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-09-SD
		Lab Sample	40901009

Sample Color: **YELLOWISH RED**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY** AASHTO: **A-7-6 (34)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1087	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1087	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	722	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	722	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	86	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	650.73	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	481.78	No. 10	2	1.25	0.4%	99.6%	
Tare, gm	147.98	No. 20	0.85	0.84	0.3%	99.4%	
Water Content of Split Sample	50.6%	No. 40	0.425	0.81	0.2%	99.1%	
Wt. of DS., gm	333.80	No. 60	0.25	0.79	0.2%	98.9%	
Wt. of +#200 Sample, gm	28.71	No. 140	0.106	11.3	3.4%	95.5%	
		No. 200	0.075	13.72	4.1%	91.4%	

HYDROMETER (-#200)					
Tare No.	239	Wt. Dispers., gm	5	Specific Gravity	2.65
Wt. Tare + DS., gm	236.53	Wt. Dry Soil, gm (-#200)	51.83		Tested
Wt. Tare, gm	179.7	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	1.0000

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	54	21.5	5.6	48.4	0.0134	93.4	0.0258	85.4%
5	53	21.5	5.6	47.4	0.0134	91.5	0.0165	83.6%
15	51	21.6	5.6	45.4	0.0134	87.6	0.0097	80.1%
30	50	21.7	5.6	44.4	0.0134	85.7	0.0069	78.3%
60	47	21.9	5.5	41.5	0.0134	80.1	0.0050	73.2%
250	40	22.7	5.3	34.7	0.0132	66.9	0.0026	61.2%
1440	31	21.4	5.6	25.4	0.0135	49.0	0.0012	44.8%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION										
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA						
% Gravel (-3" & +#4)	0.0	Silt=18.3% Clay=73.1%				100	100		Gravel	0.4	0			
Coarse=0; Fine=0		D60, mm	NA					2	99.6	Sand		10.5		
% Sand (-#4 & +#200)	8.6	D30, mm	NA							0.05		89.1	Silt	33.4
Coarse=0.4; Medium=0.5; Fine=7.7		D10, mm	NA										0.002	55.7
% Fines (-#200)	91.4	Cc	NA	USDA Classification		CLAY								
% Plus #200 (-3")	8.6	Cu	NA											
USCS Description														
FAT CLAY														
USCS Group Symbol		Atterberg Limits Group Symbol												
CH		CH - FAT CLAY												
Auxiliary Information		Wt Ret, gm	% Retained	% Finer										
12" Sieve - 300 mm		0	0.0	100.0										
6" Sieve - 150 mm		0	0.0	100.0										
3" Sieve - 75 mm		0	0.0	100.0										

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

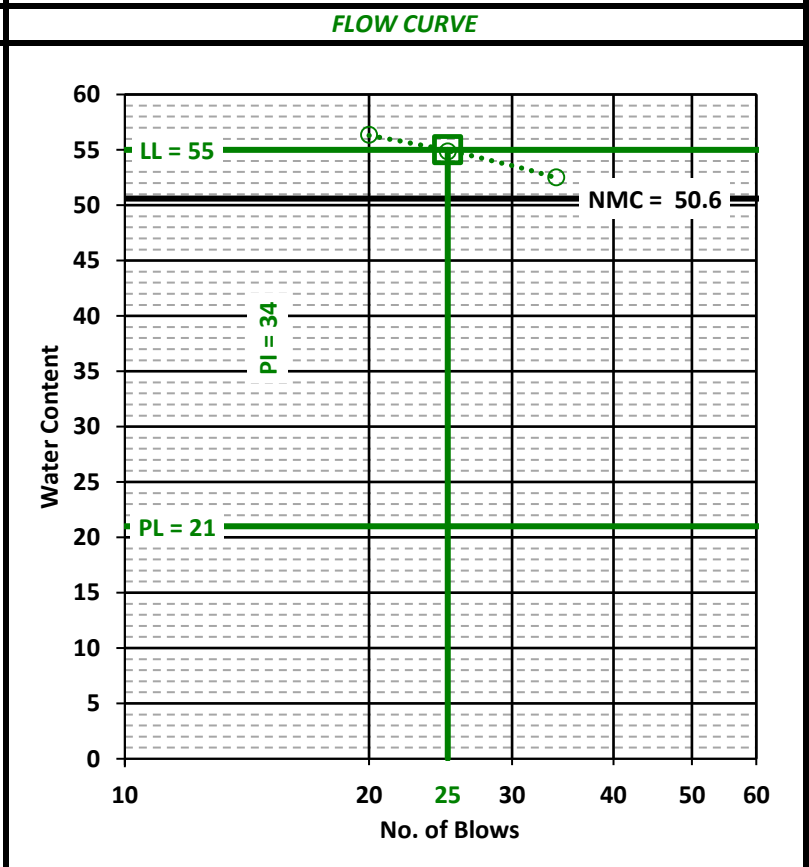
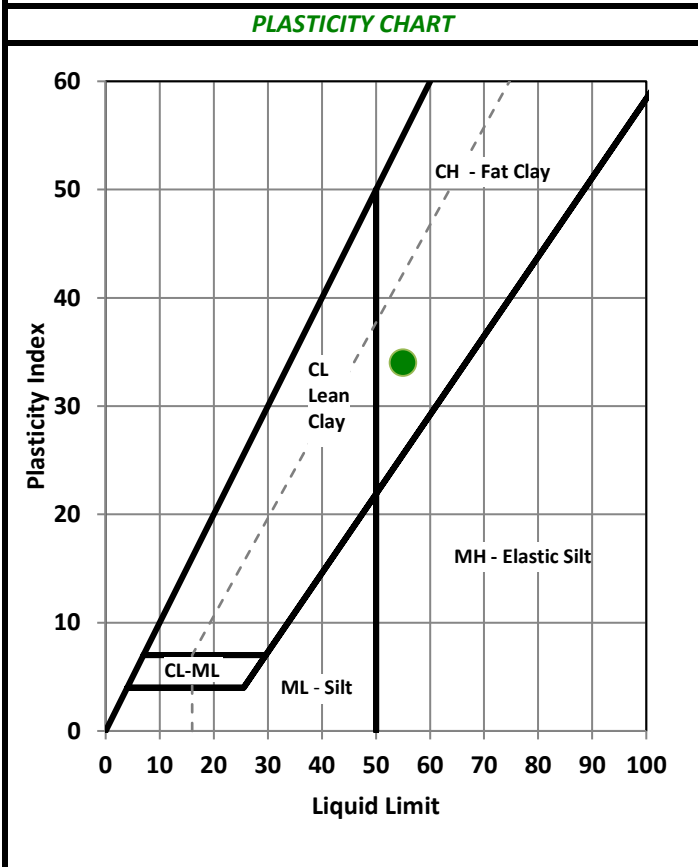
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-09
 Depth NA
 Sample HSCNew-NMP-09-SD
 Lab Sample 40901009

Soil Description: YELLOWISH RED FAT CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	86	Liquid Limit (LL), %	55
Wt. Tare & WS, gm	650.73	Plastic Limit (PL), %	21
Wt. Tare & DS, gm	481.78	Plasticity Index (PI)	34
Wt. Tare, gm	147.98	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	50.6	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	YELLOWISH RED

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	506	707	425	411	402	496	
Wt. Tare & WS, gm	17.40	18.87	17.43	18.32	20.03	20.49	
Wt. Tare & DS, gm	16.27	17.74	16.28	15.57	16.75	17.15	
Wt. Tare, gm	10.76	12.43	10.78	10.69	10.77	10.79	
Water Content, %	20.5	21.3	20.9	56.4	54.8	52.5	
				# of Blows	20	25	34



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

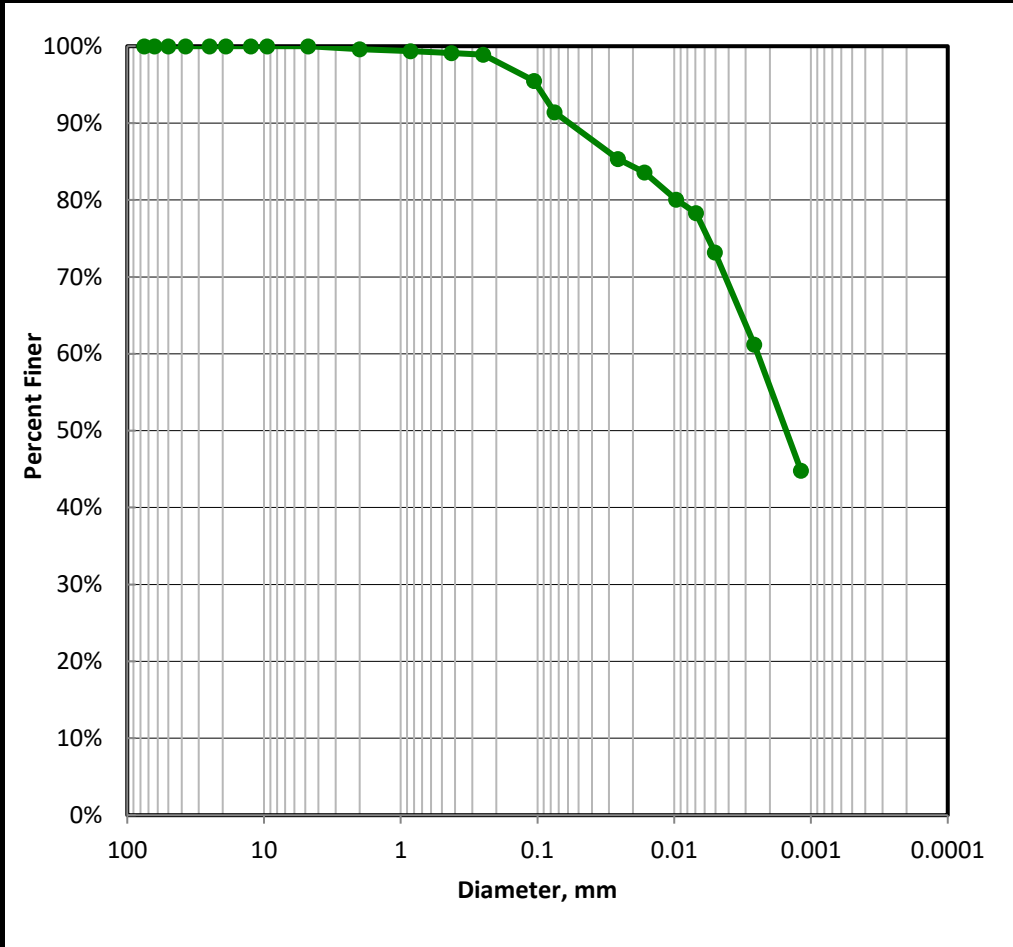
Boring 18J0402-09
 Depth NA
 Sample HSCNew-NMP-09-SD
 Lab Sample 40901009

Sample Color: **YELLOWISH RED**

USCS Group Name: **FAT CLAY**

USCS Group Symbol: **CH** USDA: **CLAY**

AASHTO: **A-7-6 (34)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.6%
No. 20	0.85	99.4%
No. 40	0.425	99.1%
No. 60	0.25	98.9%
No. 140	0.106	95.5%
No. 200	0.075	91.4%
NA	0.0258	85.4%
NA	0.0165	83.6%
NA	0.0097	80.1%
NA	0.0069	78.3%
NA	0.0050	73.2%
NA	0.0026	61.2%
NA	0.0012	44.8%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=18.3% Clay=73.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	8.6	D30, mm	NA
Coarse=0.4; Medium=0.5; Fine=7.7		D10, mm	NA
% Fines (-#200)	91.4	Cc	NA
% Plus #200 (-3")	8.6	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION				
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
100	100			
2	99.6	Gravel	0.4	0
0.05	89.1	Sand	10.5	10.6
0.002	55.7	Silt	33.4	33.5
		Clay	55.7	55.9
USDA Classification				
CLAY				

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-09
 Depth NA
 Sample HSCNew-NMP-09-SD
 Lab Sample 40901009

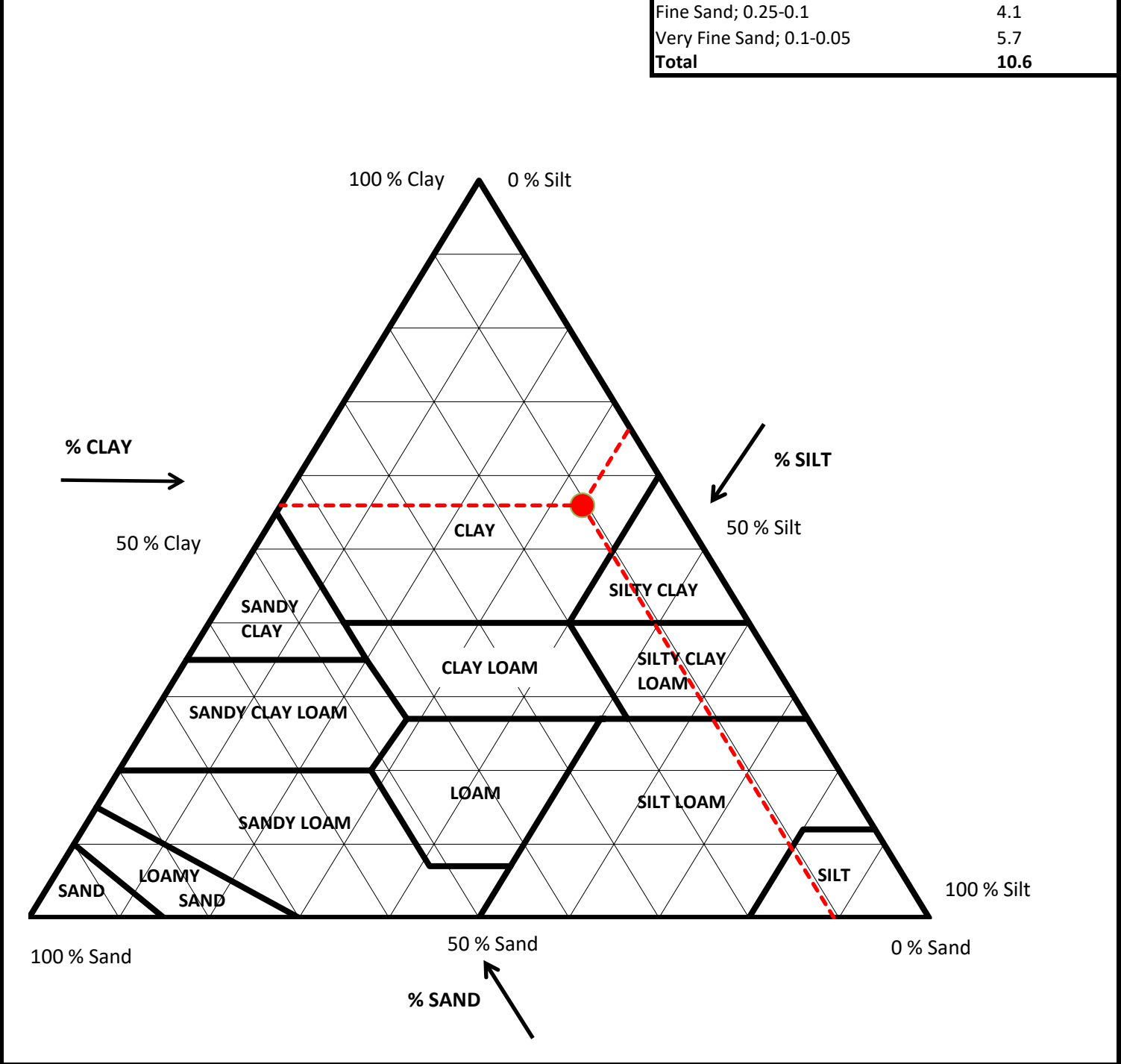
Sample Color: **YELLOWISH RED**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (34)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	10.6
Percent Silt, %	33.5
Percent Clay, %	55.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.2
Medium Sand; 0.5-0.25	0.3
Fine Sand; 0.25-0.1	4.1
Very Fine Sand; 0.1-0.05	5.7
Total	10.6



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-10
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-10-SD
		Lab Sample	40901010

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY** AASHTO: **A-7-6 (33)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1012	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1012	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	672	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	672	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	85	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	602.22	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	449.07	No. 10	2	0.66	0.2%	99.8%	
Tare, gm	146.04	No. 20	0.85	0.76	0.3%	99.5%	
Water Content of Split Sample	50.5%	No. 40	0.425	0.59	0.2%	99.3%	
Wt. of DS., gm	303.03	No. 60	0.25	0.87	0.3%	99.0%	
Wt. of +#200 Sample, gm	39.67	No. 140	0.106	23.6	7.8%	91.3%	
		No. 200	0.075	13.19	4.4%	86.9%	

HYDROMETER (-#200)			
Tare No.	238	Wt. Dispers., gm	5
Wt. Tare + DS., gm	237.26	Wt. Dry Soil, gm (-#200)	52.38
Wt. Tare, gm	179.88	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>	
		Specific Gravity	2.69
			Tested
		<i>a Factor</i>	0.9911

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	55	21.5	5.6	49.4	0.0133	93.5	0.0252	81.2%
5	52.5	21.5	5.6	46.9	0.0133	88.7	0.0164	77.1%
15	50	21.6	5.6	44.4	0.0133	84.0	0.0097	73.0%
30	48	21.7	5.6	42.4	0.0132	80.2	0.0070	69.7%
60	44.5	21.8	5.5	39.0	0.0132	73.8	0.0051	64.1%
250	38.5	22.7	5.3	33.2	0.0131	62.8	0.0026	54.6%
1440	32	21.3	5.7	26.3	0.0133	49.8	0.0012	43.2%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION							
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA			
% Gravel (-3" & +#4)	0.0	Silt=23% Clay=63.9%				100	100		Gravel	0.2	
Coarse=0; Fine=0		D60, mm	NA								
% Sand (-#4 & +#200)	13.1	D30, mm	NA								
Coarse=0.2; Medium=0.4; Fine=12.4		D10, mm	NA								
% Fines (-#200)	86.9	Cc	NA								
% Plus #200 (-3")	13.1	Cu	NA	2	99.8	Sand	15.0				
USCS Description											
FAT CLAY											
USCS Group Symbol	Atterberg Limits Group Symbol							0.05	84.8	Silt	33.9
CH	CH - FAT CLAY										
Auxiliary Information	Wt Ret, gm	% Retained	% Finer	0.002	50.9	Clay	50.9				
12" Sieve - 300 mm	0	0.0	100.0								
6" Sieve - 150 mm	0	0.0	100.0								
3" Sieve - 75 mm	0	0.0	100.0								
								USDA Classification			
				CLAY							

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

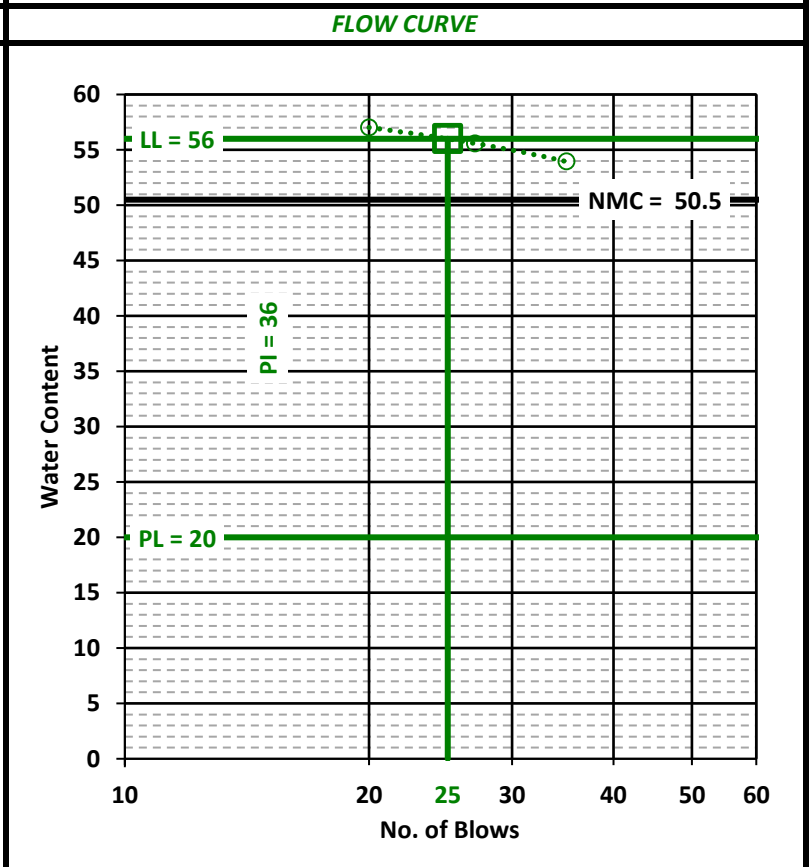
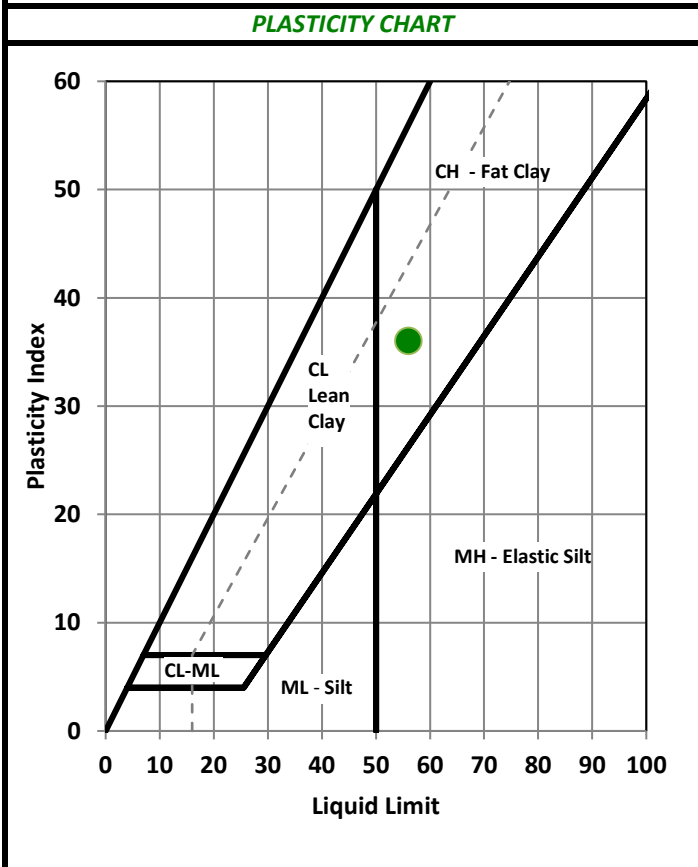
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-10
 Depth NA
 Sample HSCNew-NMP-10-SD
 Lab Sample 40901010

Soil Description: BROWN FAT CLAY
 (-#40 Fraction)

AS-RECEIVED W.C.		SAMPLE SUMMARY	
Tare Number	85	Liquid Limit (LL), %	56
Wt. Tare & WS, gm	602.22	Plastic Limit (PL), %	20
Wt. Tare & DS, gm	449.07	Plasticity Index (PI)	36
Wt. Tare, gm	146.04	USCS Group Symbol (-#40 Fraction)	CH
Water Content, %	50.5	USCS Group Name (-#40 Fraction)	FAT CLAY
		Sample Color:	BROWN

PLASTIC LIMIT				LIQUID LIMIT			
Points Run 3 Points				3 Points			
Tare Number	477	446	492	711	703	512	
Wt. Tare & WS, gm	16.76	17.14	17.93	18.67	19.74	19.90	
Wt. Tare & DS, gm	15.74	16.01	16.76	15.99	16.70	16.69	
Wt. Tare, gm	10.73	10.68	10.76	11.29	11.23	10.74	
Water Content, %	20.4	21.2	19.5	57.0	55.6	53.9	
				# of Blows	20	27	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

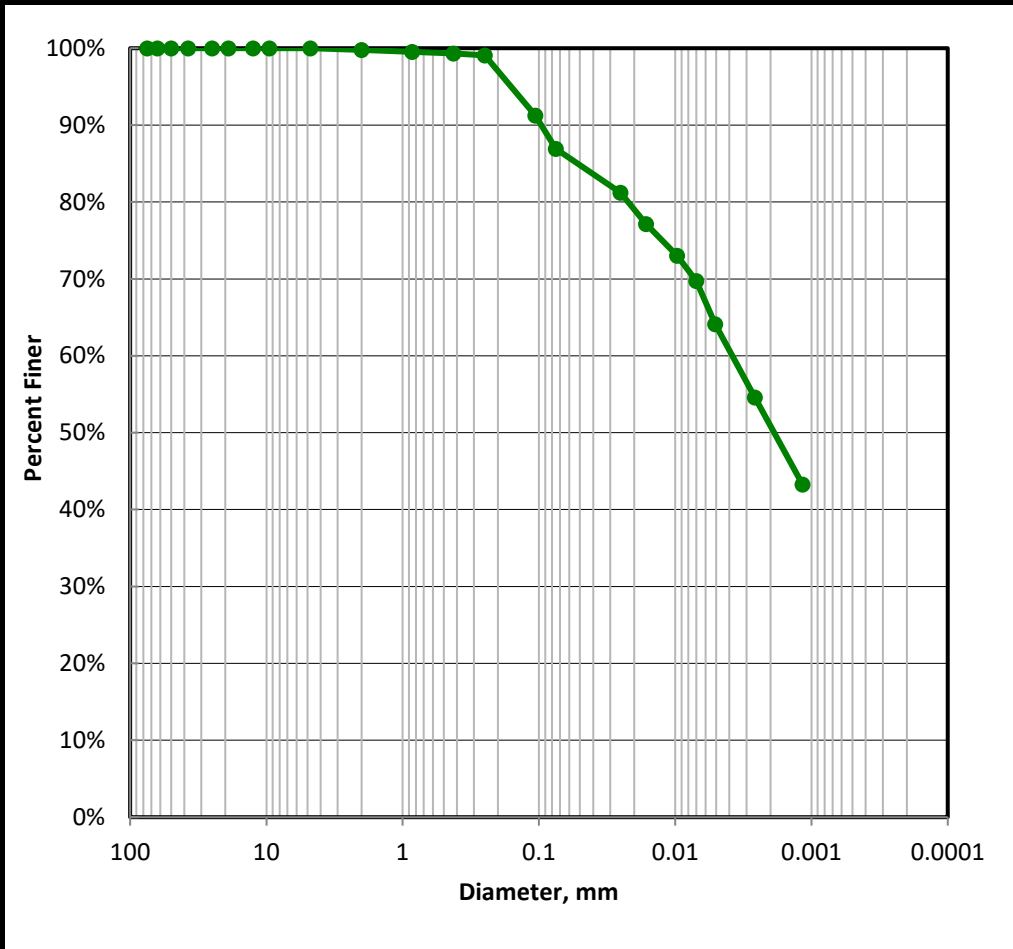
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-10
 Depth NA
 Sample HSCNew-NMP-10-SD
 Lab Sample 40901010

Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (33)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.8%
No. 20	0.85	99.5%
No. 40	0.425	99.3%
No. 60	0.25	99.0%
No. 140	0.106	91.3%
No. 200	0.075	86.9%
NA	0.0252	81.2%
NA	0.0164	77.1%
NA	0.0097	73.0%
NA	0.0070	69.7%
NA	0.0051	64.1%
NA	0.0026	54.6%
NA	0.0012	43.2%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=23% Clay=63.9%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	13.1	D30, mm	NA
Coarse=0.2; Medium=0.4; Fine=12.4		D10, mm	NA
% Fines (-#200)	86.9	Cc	NA
% Plus #200 (-3")	13.1	Cu	NA
USCS Description			
FAT CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CH		CH - FAT CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.8	Gravel 0.2	0
0.05	84.8	Sand 15.0	15.0
0.002	50.9	Silt 33.9	34.0
		Clay 50.9	51.0
USDA Classification			
CLAY			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-10
 Depth NA
 Sample HSCNew-NMP-10-SD
 Lab Sample 40901010

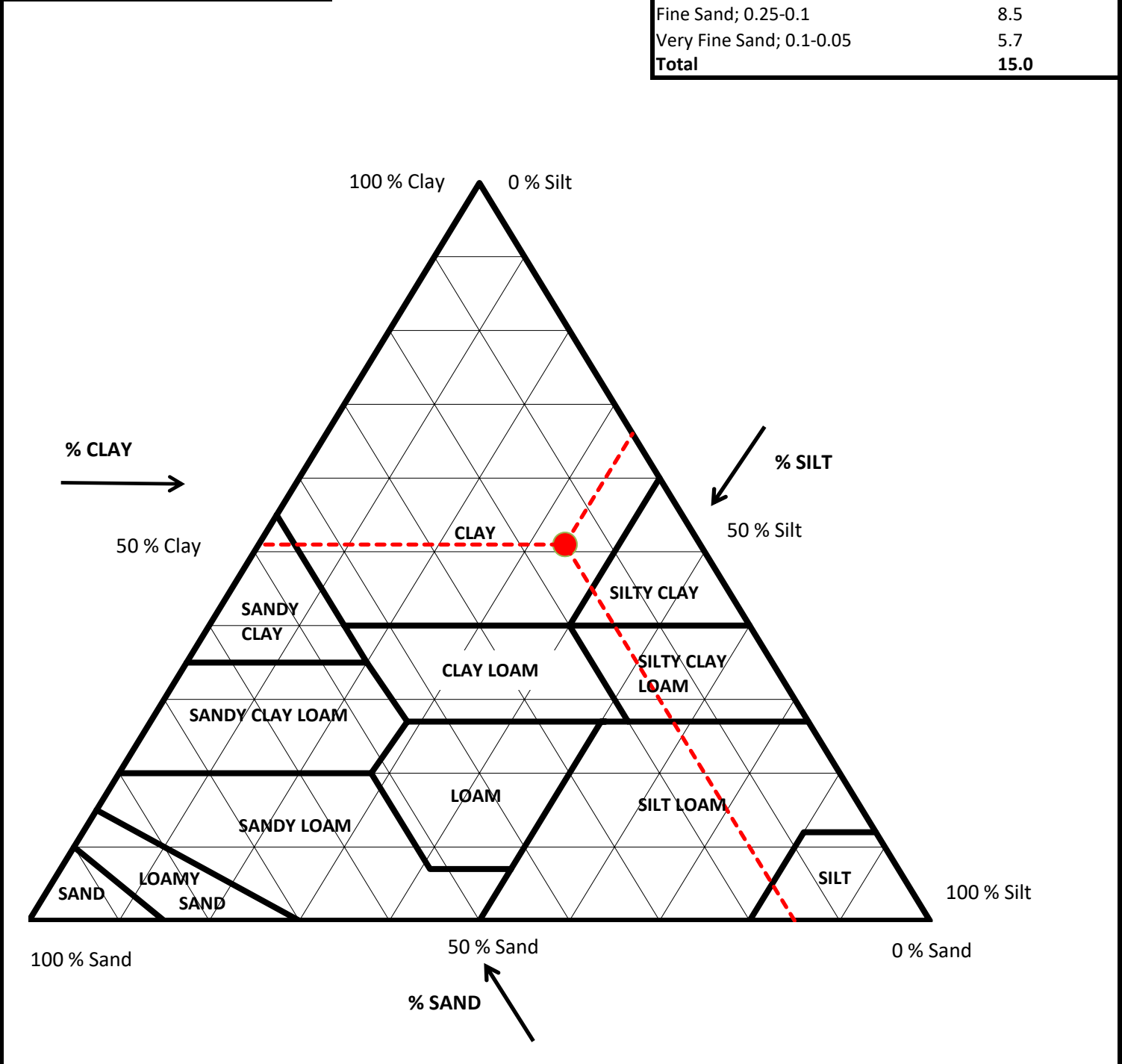
Sample Color: **BROWN**
 USCS Group Name: **FAT CLAY**
 USCS Group Symbol: **CH**

USDA: **CLAY**

AASHTO: **A-7-6 (33)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	15.0
Percent Silt, %	34.0
Percent Clay, %	51.0

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.2
Medium Sand; 0.5-0.25	0.3
Fine Sand; 0.25-0.1	8.5
Very Fine Sand; 0.1-0.05	5.7
Total	15.0



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-11
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-11-SD
		Lab Sample	40901011

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (7)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1064	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1064	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	775	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	775	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	B04	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	508.55	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	393.4	No. 10	2	1.16	0.4%	99.6%	
Tare, gm	84.25	No. 20	0.85	0.69	0.2%	99.4%	
Water Content of Split Sample	37.2%	No. 40	0.425	1.03	0.3%	99.1%	
Wt. of DS., gm	309.15	No. 60	0.25	10.52	3.4%	95.7%	
Wt. of +#200 Sample, gm	130.78	No. 140	0.106	94.18	30.5%	65.2%	
		No. 200	0.075	23.2	7.5%	57.7%	

HYDROMETER (-#200)					
Tare No.	237	Wt. Dispers., gm	5	Specific Gravity	2.66
Wt. Tare + DS., gm	219.53	Wt. Dry Soil, gm (-#200)	41.1		Tested
Wt. Tare, gm	173.43	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9977

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	41.5	21.4	5.6	35.9	0.0134	87.1	0.0291	50.3%
5	39	21.4	5.6	33.4	0.0134	81.1	0.0188	46.8%
15	36	21.4	5.6	30.4	0.0134	73.8	0.0111	42.6%
30	34	21.5	5.6	28.4	0.0134	68.9	0.0080	39.8%
60	31	21.6	5.6	25.4	0.0134	61.7	0.0058	35.6%
250	27.5	22.8	5.3	22.2	0.0132	53.9	0.0029	31.1%
1440	24	21.3	5.7	18.3	0.0134	44.4	0.0012	25.6%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION				
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA
% Gravel (-3" & +#4)	0.0	Silt=23.0% Clay=34.7%	100			100	Gravel	
<i>Coarse=0; Fine=0</i>		D60, mm		2	99.6			Sand
% Sand (-#4 & +#200)	42.3		0.05	54.5	Silt	25.8	45.3	
<i>Coarse=0.4; Medium=0.6; Fine=41.4</i>		D30, mm	0.002	28.8	Clay	28.8	28.9	
% Fines (-#200)	57.7	D10, mm						
% Plus #200 (-3")	42.3	Cc						
		Cu						
USCS Description								
SANDY LEAN CLAY								
USCS Group Symbol		Atterberg Limits Group Symbol						
CL		CL - LEAN CLAY						
Auxiliary Information		Wt Ret, gm	% Retained	% Finer				
12" Sieve - 300 mm		0	0.0	100.0				
6" Sieve - 150 mm		0	0.0	100.0				
3" Sieve - 75 mm		0	0.0	100.0				
				USDA Classification				
				SANDY CLAY LOAM				

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

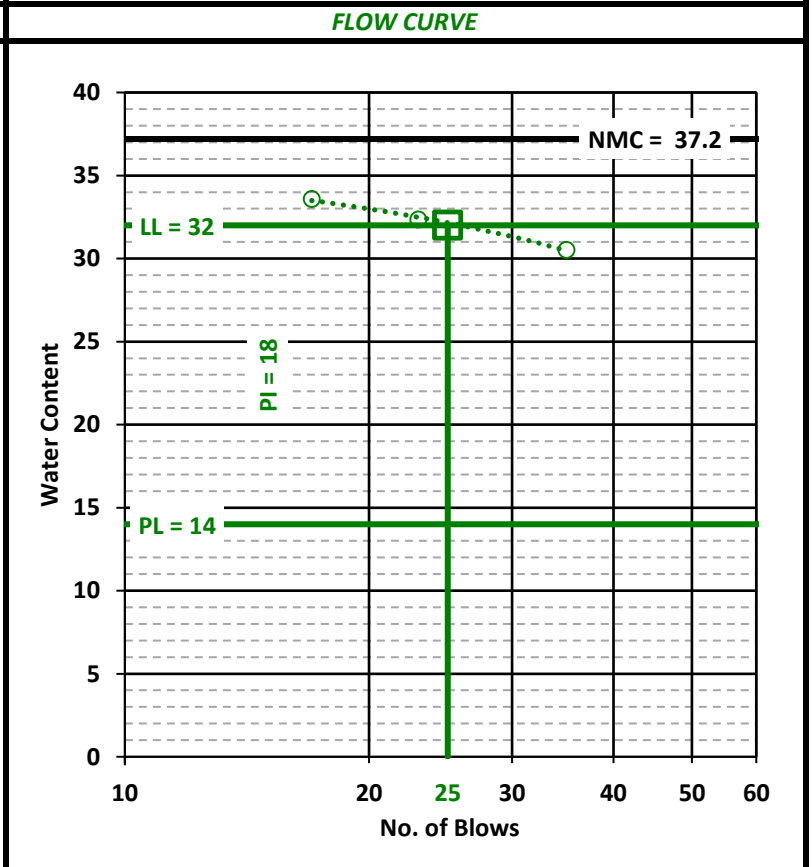
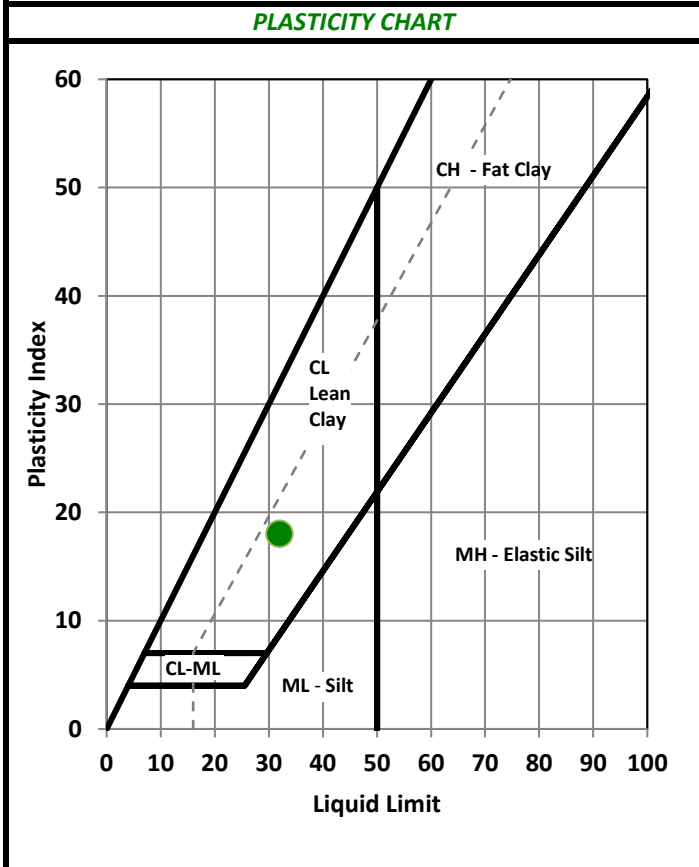
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-11
 Depth NA
 Sample HSCNew-NMP-11-SD
 Lab Sample 40901011

Soil Description: BROWN LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	B04	Liquid Limit (LL), %	32
Wt. Tare & WS, gm	508.55	Plastic Limit (PL), %	14
Wt. Tare & DS, gm	393.40	Plasticity Index (PI)	18
Wt. Tare, gm	84.25	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	37.2	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	476	429	493	462	412	490	
Wt. Tare & WS, gm	17.98	17.45	18.51	19.81	20.64	19.93	
Wt. Tare & DS, gm	17.12	16.62	17.59	17.54	18.22	17.79	
Wt. Tare, gm	10.81	10.63	10.72	10.78	10.74	10.78	
Water Content, %	13.6	13.9	13.4	33.6	32.4	30.5	
				# of Blows	17	23	35



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

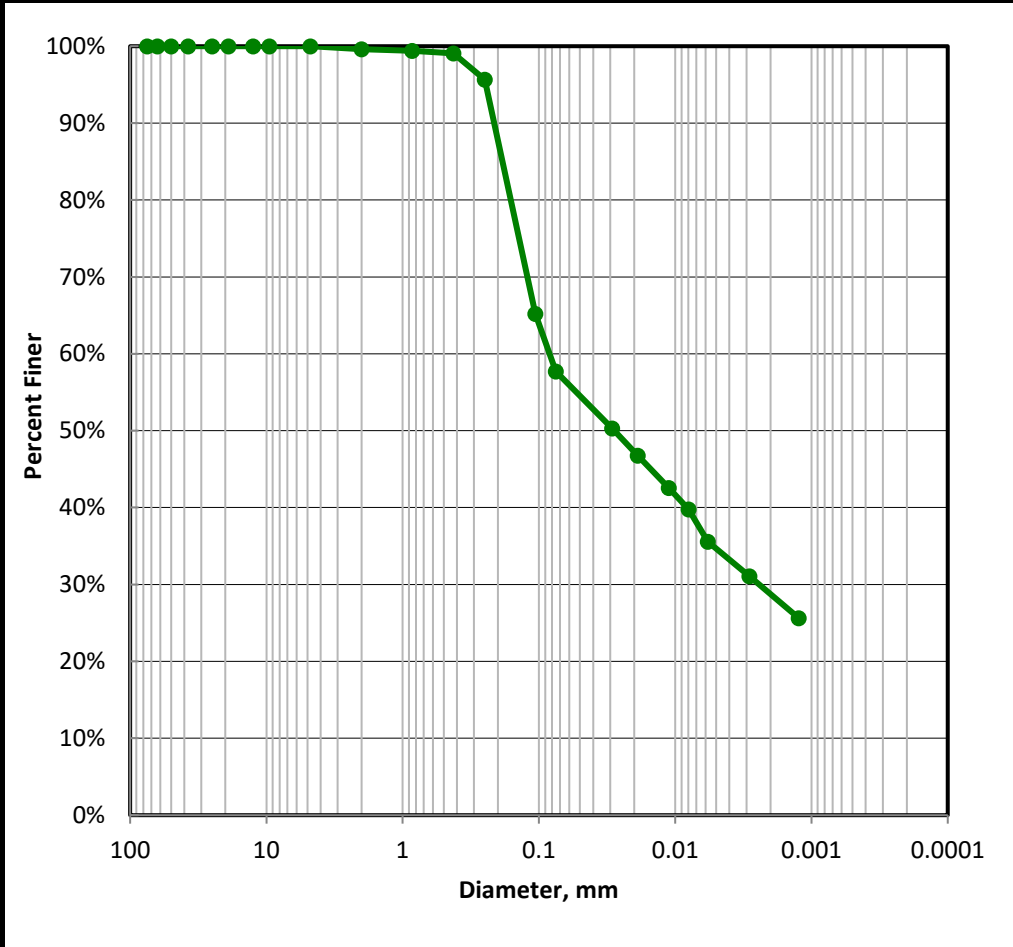
Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-11
 Depth NA
 Sample HSCNew-NMP-11-SD
 Lab Sample 40901011

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL** USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (7)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.6%
No. 20	0.85	99.4%
No. 40	0.425	99.1%
No. 60	0.25	95.7%
No. 140	0.106	65.2%
No. 200	0.075	57.7%
NA	0.0291	50.3%
NA	0.0188	46.8%
NA	0.0111	42.6%
NA	0.0080	39.8%
NA	0.0058	35.6%
NA	0.0029	31.1%
NA	0.0012	25.6%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=23.0% Clay=34.7%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	42.3	D30, mm	NA
Coarse=0.4; Medium=0.6; Fine=41.4		D10, mm	NA
% Fines (-#200)	57.7	Cc	NA
% Plus #200 (-3")	42.3	Cu	NA
USCS Description			
SANDY LEAN CLAY			
USCS Group Symbol		Atterberg Limits Group Symbol	
CL		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.6	Gravel 0.4	0
0.05	54.5	Sand 45.1	45.3
0.002	28.8	Silt 25.8	25.9
		Clay 28.8	28.9
USDA Classification			
SANDY CLAY LOAM			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

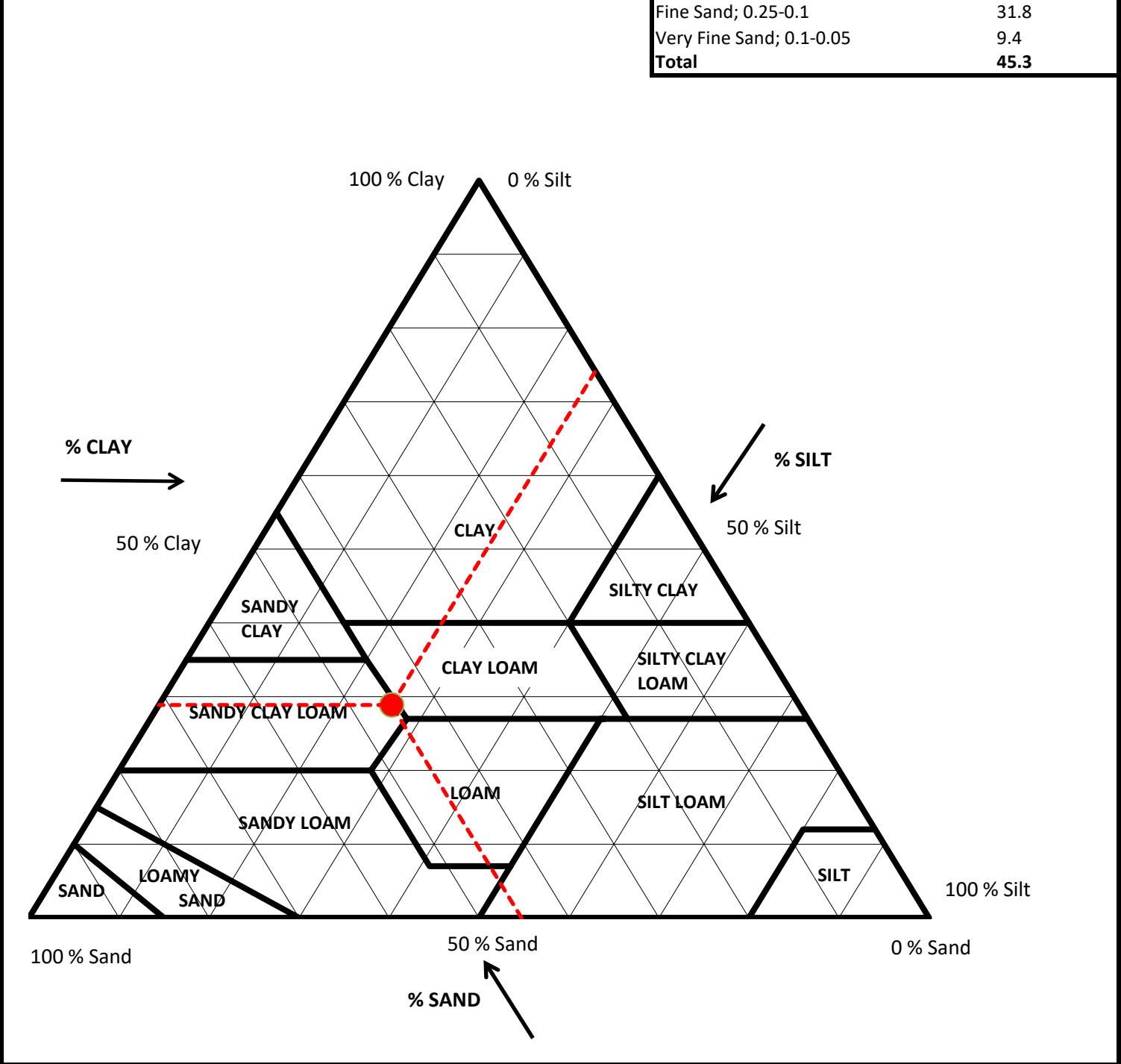
Boring 18J0402-11
 Depth NA
 Sample HSCNew-NMP-11-SD
 Lab Sample 40901011

Sample Color: **BROWN**
 USCS Group Name: **SANDY LEAN CLAY**
 USCS Group Symbol: **CL**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (7)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	45.3
Percent Silt, %	25.9
Percent Clay, %	28.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.2
Coarse Sand; 1-0.5	0.3
Medium Sand; 0.5-0.25	3.5
Fine Sand; 0.25-0.1	31.8
Very Fine Sand; 0.1-0.05	9.4
Total	45.3



PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client	Air Water & Soil Laboratories, Inc.	Boring	18J0402-12
Client Project	18J0402	Depth	NA
Project No.	40901	Sample	HSCNew-NMP-03-DUP
		Lab Sample	40901012

Sample Color: **GRAYISH BROWN**
 USCS Group Name: **CLAYEY SAND**
 USCS Group Symbol: **SC**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

MECHANICAL SIEVE							
Total Sample		Sieve Size	Nominal Opening, mm	Dry Wt, gm	Split % Retained	Normalized % Finer	Project Specifications
Total Sample Wet Wt, gm (-3")	1041	3"	75	0	0.0%	100.0%	
Sample Split on Sieve	No. 4	2-1/2"	63	0	0.0%	100.0%	
Coarse Washed Dry Sample, gm	0	2"	50	0	0.0%	100.0%	
Wet Wt Passing Split, gm	1041	1-1/2"	37.5	0	0.0%	100.0%	
Dry Wt. Passing Split, gm	821	1"	25	0	0.0%	100.0%	
Total Sample Dry Wt, gm	821	3/4"	19	0	0.0%	100.0%	
Split Sample - Passing No. 4		1/2"	12.5	0	0.0%	100.0%	
Tare No.	B11	3/8"	9.5	0	0.0%	100.0%	
Tare + WS., gm	479.73	No. 4	4.75	0	0.0%	100.0%	
Tare + DS., gm	396.27	No. 10	2	1.76	0.6%	99.4%	
Tare, gm	84.26	No. 20	0.85	1.46	0.5%	99.0%	
Water Content of Split Sample	26.7%	No. 40	0.425	2.06	0.7%	98.3%	
Wt. of DS., gm	312.01	No. 60	0.25	15.69	5.0%	93.3%	
Wt. of +#200 Sample, gm	157.67	No. 140	0.106	112.8	36.2%	57.1%	
		No. 200	0.075	23.9	7.7%	49.5%	

HYDROMETER (-#200)					
Tare No.	236	Wt. Dispers., gm	5	Specific Gravity	2.69
Wt. Tare + DS., gm	209.1	Wt. Dry Soil, gm (-#200)	29.94		Tested
Wt. Tare, gm	174.16	<i>-#10 Dispersed 1min in Hamilton Beach Mixer</i>		<i>a Factor</i>	0.9911

Elapsed Time (min.)	R Measured	Temp °C	Composite Correction	R Corrected	K Factor	Percent Finer (%)	Particle Diameter (mm)	Adjusted % Finer (%)
2	29	21.2	5.7	23.3	0.0133	77.1	0.0319	38.2%
5	26	21.2	5.7	20.3	0.0133	67.2	0.0206	33.2%
15	24	21.2	5.7	18.3	0.0133	60.6	0.0121	30.0%
30	23	21.4	5.6	17.4	0.0133	57.6	0.0086	28.5%
60	22	21.6	5.6	16.4	0.0133	54.3	0.0061	26.9%
250	20	22.8	5.3	14.7	0.0131	48.7	0.0030	24.1%
1440	17.5	20.9	5.8	11.7	0.0134	38.7	0.0013	19.2%

USCS SOIL CLASSIFICATION				USDA CLASSIFICATION															
<i>Corrected For 100% Passing a 3" Sieve</i>				Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)		Corrected Percent of -2.0 mm Material for USDA											
% Gravel (-3" & +#4)	0.0	Silt=23.4% Clay=26.1%				100	100		Gravel	0.6									
Coarse=0; Fine=0		D60, mm	NA					2			99.4	Sand	55.3						
% Sand (-#4 & +#200)	50.5	D30, mm	NA											0.05	44.1	Silt	22.4		
Coarse=0.6; Medium=1.1; Fine=48.8		D10, mm	NA															0.002	21.7
% Fines (-#200)	49.5	Cc	NA	USDA Classification															
% Plus #200 (-3")	50.5	Cu	NA	SANDY CLAY LOAM															
USCS Description																			
CLAYEY SAND																			
USCS Group Symbol		Atterberg Limits Group Symbol																	
SC		CL - LEAN CLAY																	
Auxiliary Information		Wt Ret, gm	% Retained	% Finer															
12" Sieve - 300 mm		0	0.0	100.0															
6" Sieve - 150 mm		0	0.0	100.0															
3" Sieve - 75 mm		0	0.0	100.0															

Performed By: TF/MAC Input Validation: AR Reviewed By: ALO Date Tested: 10/19/2018

LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY INDEX OF SOILS
ASTM D4318-17e1

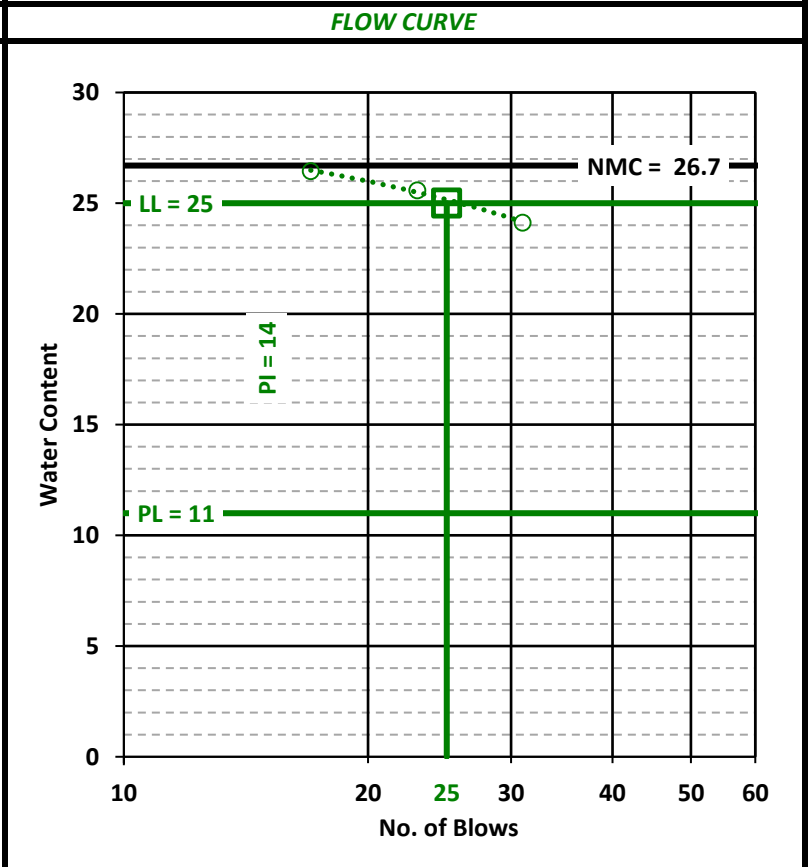
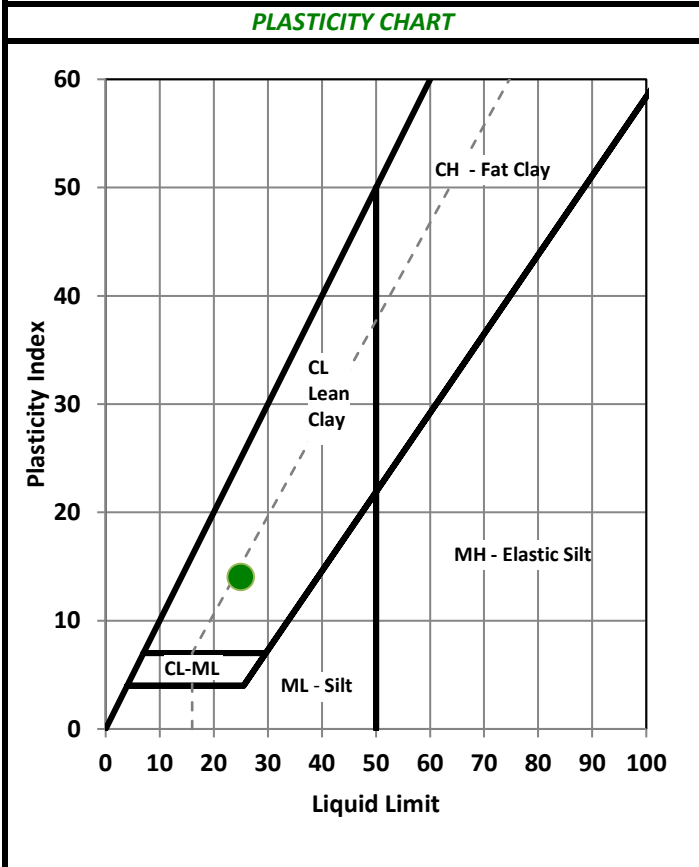
Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-12
 Depth NA
 Sample HSCNew-NMP-03-DUP
 Lab Sample 40901012

Soil Description: GRAYISH BROWN LEAN CLAY
 (-#40 Fraction)

<i>AS-RECEIVED W.C.</i>		<i>SAMPLE SUMMARY</i>	
Tare Number	B11	Liquid Limit (LL), %	25
Wt. Tare & WS, gm	479.73	Plastic Limit (PL), %	11
Wt. Tare & DS, gm	396.27	Plasticity Index (PI)	14
Wt. Tare, gm	84.26	USCS Group Symbol (-#40 Fraction)	CL
Water Content, %	26.7	USCS Group Name (-#40 Fraction)	LEAN CLAY
		Sample Color:	GRAYISH BROWN

<i>PLASTIC LIMIT</i>				<i>LIQUID LIMIT</i>			
Points Run	3 Points			3 Points			
Tare Number	420	417	466	709	453	701	
Wt. Tare & WS, gm	17.11	18.43	19.01	22.54	20.06	20.14	
Wt. Tare & DS, gm	16.48	17.64	18.19	20.43	18.17	18.42	
Wt. Tare, gm	10.72	10.72	10.74	12.45	10.78	11.29	
Water Content, %	10.9	11.4	11.0	26.4	25.6	24.1	
				# of Blows	17	23	31



Performed By: ZH

Input Validation: AR

Reviewed By: ALO

Date Tested: 10/19/2018

PARTICLE-SIZE ANALYSIS OF SOILS - ASTM D422-63(2007)

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

Boring 18J0402-12
 Depth NA
 Sample HSCNew-NMP-03-DUP
 Lab Sample 40901012

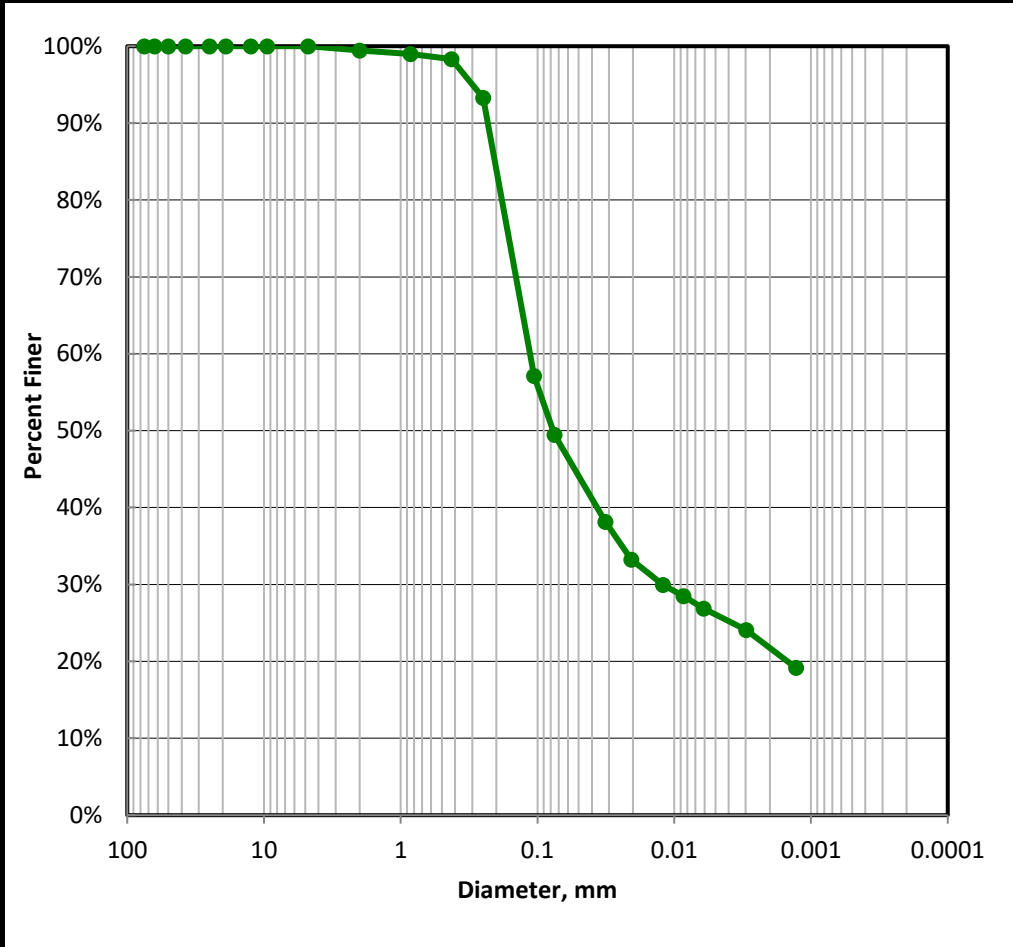
Sample Color: **GRAYISH BROWN**

USCS Group Name: **CLAYEY SAND**

USCS Group Symbol: **SC**

USDA: **SANDY CLAY LOAM**

AASHTO: **A-6 (3)**



US Std. Sieve Size	Particle Diameter (mm)	Percent Finer
3"	75	100.0%
2-1/2"	63	100.0%
2"	50	100.0%
1-1/2"	37.5	100.0%
1"	25	100.0%
3/4"	19	100.0%
1/2"	12.5	100.0%
3/8"	9.5	100.0%
No. 4	4.75	100.0%
No. 10	2	99.4%
No. 20	0.85	99.0%
No. 40	0.425	98.3%
No. 60	0.25	93.3%
No. 140	0.106	57.1%
No. 200	0.075	49.5%
NA	0.0319	38.2%
NA	0.0206	33.2%
NA	0.0121	30.0%
NA	0.0086	28.5%
NA	0.0061	26.9%
NA	0.0030	24.1%
NA	0.0013	19.2%

USCS SOIL CLASSIFICATION			
<i>Corrected For 100% Passing a 3" Sieve</i>			
% Gravel (-3" & +#4)	0.0	Silt=23.4% Clay=26.1%	
Coarse=0; Fine=0		D60, mm	NA
% Sand (-#4 & +#200)	50.5	D30, mm	NA
Coarse=0.6; Medium=1.1; Fine=48.8		D10, mm	NA
% Fines (-#200)	49.5	Cc	NA
% Plus #200 (-3")	50.5	Cu	NA
USCS Description			
CLAYEY SAND			
USCS Group Symbol		Atterberg Limits Group Symbol	
SC		CL - LEAN CLAY	
Auxiliary Information	Wt Ret, gm	% Retained	% Finer
12" Sieve - 300 mm	0	0.0	100.0
6" Sieve - 150 mm	0	0.0	100.0
3" Sieve - 75 mm	0	0.0	100.0

USDA CLASSIFICATION			
Particle Size (mm)	Percent Finer (%)	Percent of Each Component (Material) (%)	Corrected Percent of -2.0 mm Material for USDA
100	100		
2	99.4	Gravel 0.6	0
0.05	44.1	Sand 55.3	55.6
0.002	21.7	Silt 22.4	22.5
		Clay 21.7	21.9
USDA Classification			
SANDY CLAY LOAM			

USDA CLASSIFICATION CHART

Client Air Water & Soil Laboratories, Inc.
 Client Project 18J0402
 Project No. 40901

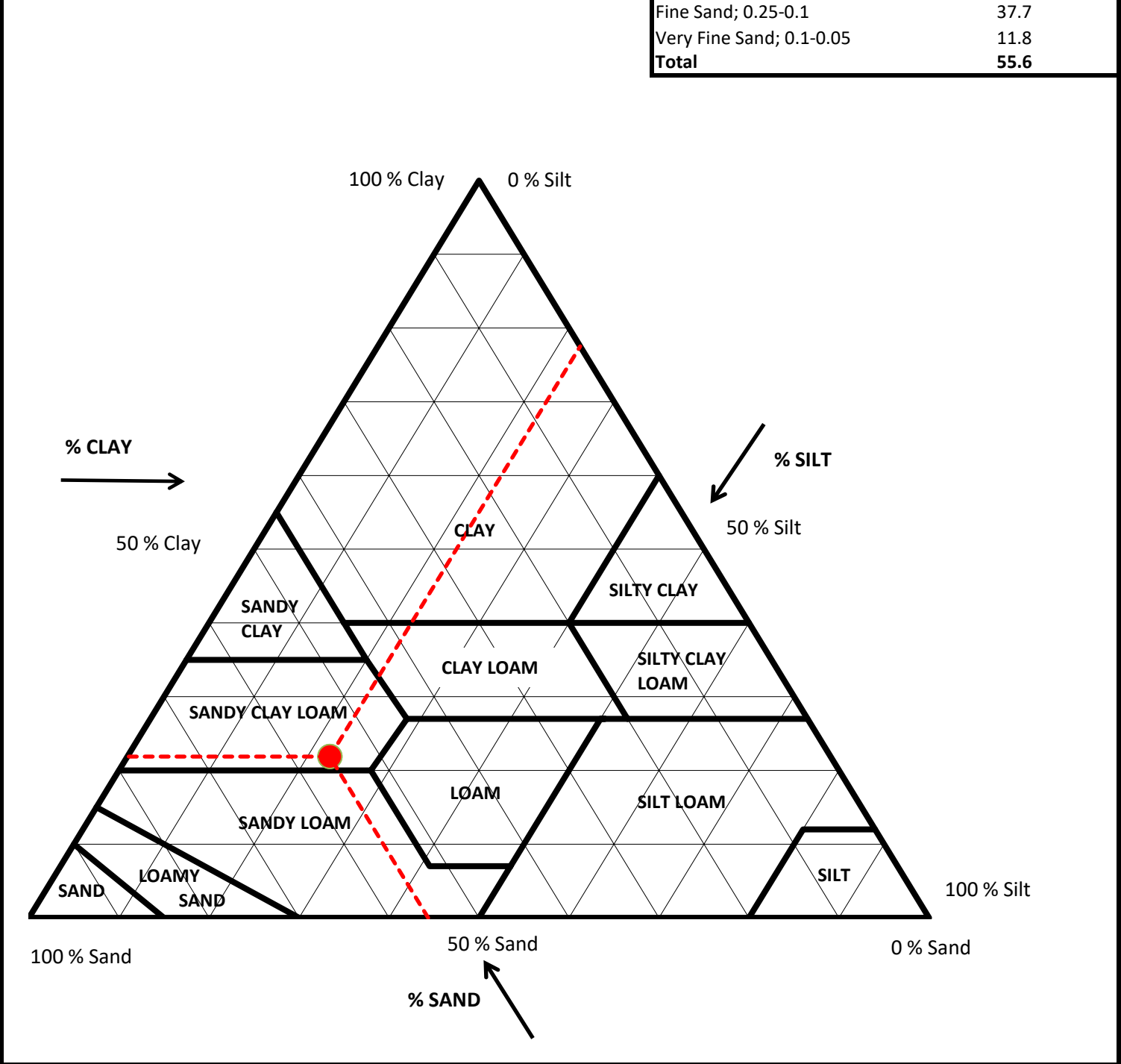
Boring 18J0402-12
 Depth NA
 Sample HSCNew-NMP-03-DUP
 Lab Sample 40901012

Sample Color: **GRAYISH BROWN**
 USCS Group Name: **CLAYEY SAND**
 USCS Group Symbol: **SC**

USDA: **SANDY CLAY LOAM** AASHTO: **A-6 (3)**

Corrected for 0% gravel	
Percent Gravel, %	0.0
Percent Sand, %	55.6
Percent Silt, %	22.5
Percent Clay, %	21.9

Sand Subsizes Corrected Percentages	
Very Coarse Sand; 2-1	0.4
Coarse Sand; 1-0.5	0.6
Medium Sand; 0.5-0.25	5.2
Fine Sand; 0.25-0.1	37.7
Very Fine Sand; 0.1-0.05	11.8
Total	55.6



ERDC SAMPLE RECEIPT CHECKLIST

Client: ERDC-Vicksburg (ED)				Work Order: 18J0402
Project: Houston Ship Channel ECIP North				Date/Time Received: 10/9/18
Shipping Company: N/A of Morgan's Point				
Suspected Hazard Information	Yes	No	N/A	Comments:
Shipped as DOT Hazardous?		<input checked="" type="checkbox"/>		
Samples identified as foreign material?		<input checked="" type="checkbox"/>		
Sample Receipt Criteria	Yes	No	N/A	Comments:
Shipping containers received intact and sealed?	<input checked="" type="checkbox"/>			
Chain of Custody documents included with shipment?	<input checked="" type="checkbox"/>			
COC form is properly signed in relinquished/received sections?	<input checked="" type="checkbox"/>			
Samples requiring chemical preservation at proper pH?			<input checked="" type="checkbox"/>	
Samples requiring cold preservation within 0-5°C?	<input checked="" type="checkbox"/>			3°C
Sample IDs on COC match IDs on containers?	<input checked="" type="checkbox"/>			
Date and time of COC match date and time on containers?	<input checked="" type="checkbox"/>			
Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			
Samples received within holding time?	<input checked="" type="checkbox"/>			
Aqueous samples found to have visible solids?			<input checked="" type="checkbox"/>	
Additional Comments:				
Checklist performed by: Kelli Hartman				
Date/Time Completed: 10/9/18				

1850402

CHAIN OF CUSTODY RECORD

USACE ERDC Laboratories, 3903 Halls Ferry Road, Vicksburg, MS 39180

Sampling Company: POC: Address: Email: Phone:	ERDC: Project Manager: Address: Email: Phone:	EL, CEERD-EP-R Cheryl Montgomery 696 Virginia Road Concord, MA 01742 cheryl.montgomery@usace.army.mil W: 978-318-5654 C: 781-530-5317	EL, CEERD-EP-R Dan Farrar 3909 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180 danf.farrar@ercd.dren.mil W: 601-534-2118 M: 601-528-8042	Page: _____ Additional Notes:
---	---	---	---	----------------------------------

Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/ Furans, OC Pests, PAH/PCP, PCBs, SVOC	TPH high-level	TOC	Total Hg and Se	TSS	VOC	Cr III and VI	VOC (3.40 ml Clear VOA w/ NaHSO4)	VOC (1.40 ml Clear VOA w/ MeOH)	TPH
1 HSC New-MMP-06	10-4-18	0750	NA	Seal	8																
2 NS-New-MMP-05	10-4-18	1215			8																
3 HSLNew-MMP-04	10-5-18	0940			8																
4 HSC-New-MMP-03	10-5-18	1430			8																
5 HSC-New-MMP-02	10-6-18	0920			8																
6 HSC-New-MMP-01	10-6-18	1220			8																
7 HSC New-MMP-03-BAP	10-5-18	1710			8																
8 HSC New-MMP-03-EPB	10-6-18	1414		H ₂ O	9		X	X	X	X	X		X	X	X	X		X	X	X	
9 HSC New-MMP-02-SEP	10-6-18	0920		Seal	5																
10																					
11																					
12																					
13																					
14																					
15																					
Total																					

* Bulk sediment includes (3) two-gallon buckets

1. I hereby transfer the sample containers to ERDC. Samples have been properly labeled and kept at ice or refrigerated.

Signature: *[Signature]* Date: 10/9/18

2. I accept these samples for transfer to ERDC.

Signature: *[Signature]* Date: 10/9/18

Temperature of Cooler: _____

18J0402

CHAIN OF CUSTODY RECORD

USACE ERDC Laboratories, 3009 Halls Ferry Road, Vicksburg, MS 39180

Page 1

Sampling Company: Benchmark	ERDC:	EL CEERD-EP-R	Additional Notes:
Address: P.O. Box 158, Katy, TX 77492	Project Manager:	Cheryl Montgomery	
Phone: 281-703-0257	Address:	696 Virginia Road Concord, MA 01742	
	Email:	cheryl.montgomery@usace.army.mil	
	Phone:	W: 978-318-8844 C: 781-530-8317	
		W: 601-634-2118 M: 601-529-8042	
		3009 Halls Ferry Road Bldg 6009 Vicksburg, MS 39180	
		daniel.farrar@erdc.dren.mil	

Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/ Furans, OC Pests, PAH/PCP, PCBs, SVOC	TPH high-level	TOC	Total Hg and Se	TSS	VOC	Cr III and VI	Sediment								
																			VOC (340 ml Clear VOA w/ NaHSO4)	VOC (140 ml Clear VOA w/ MeOH)	TPH						
1 HSCNew-NMP-11	10-2-18	0831	N/A	Sed	8	11														X	X	X					
2 HSCNew-NMP-08	10-2-18	1300				10															X	X	X				
3 HSCNew-NMP-09	10-2-18	0715				9															X	X	X				
4 HSCNew-NMP-08	10-3-18	0931				8															X	X	X				
5 HSCNew-NMP-07	10-3-18	1313				9															X	X	X				
6																											
7																											
8																											
9																											
10																											
11																											
12																											
13																											
14																											
15																											
Total																											

1. Verify proper the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Signature: *[Signature]* Date: **10-4-18**

Signature of ERDC Representative: *[Signature]* Date: **10-6-18**

Additional Notes: **3 Bulk Sediment
two gallon
Buckets**

Temperature of Cooler: **New House 10-6-18**

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Data included from: W:\TransferIn\18J0402 TRANSFER 21 Dec 2018 1111.mdb
			Data included from: W:\TransferIn\18J0402 TRANSFER 21 Dec 2018 1942.mdb
			Data included from: W:\TransferIn\18J0402 TRANSFER 21 Dec 2018 1943.mdb
			Data included from: W:\TransferIn\18J0402 TRANSFER 21 Dec 2018 1949.mdb
			Data included from: W:\TransferIn\18J0402 TRANSFER 21 Dec 2018 2008.mdb

Analytical Reports: Elutriate



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

23 May 2019

Cheryl Montgomery
ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg, MS 39180

RE: Houston Ship Channel-North of Morgan's Point

Enclosed are the results of analyses for samples received by the laboratory on 29-Oct-2018. The samples associated with this report will be held for 90 days from the date of this report. The raw data associated with this report will be held for 5 years from the date of this report. If you need us to hold onto the samples or the data longer than these specified times, you will need to notify us in writing at least 30 days before the expiration dates. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jenifer Milam
Database Manager



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
23-May-2019

WORK ORDER SUMMARY

Sample ID	Laboratory ID	Matrix	Date Sampled	Date of Work Order
HSCNew-NMP-01-EL	18J0403-01	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-02-EL	18J0403-02	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-03-EL	18J0403-03	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-04-EL	18J0403-04	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-05-EL	18J0403-05	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-06-EL	18J0403-06	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-07-EL	18J0403-07	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-08-EL	18J0403-08	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-09-EL	18J0403-09	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-10-EL	18J0403-10	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-11-EL	18J0403-11	Water	29-Oct-2018	29-Oct-2018
HSCNew-NMP-03-DUP-EL	18J0403-12	Water	29-Oct-2018	29-Oct-2018

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
23-May-2019

Case Narrative

No issues were experienced during the analysis of Work Order 18J0403 unless specified below.

SVOC/PAH/PCP- The RL of 20 ug/L exceeded the TDL of 1 ug/L for benzidine for all the samples. Benzidine was not detected in any of the samples. Azobenzene was reported instead of 1,2-phenylhydrazine due to the degradation of 1,2-phenylhydrazine in the injection port of the GC/MS. The WG 1175786-4 MS recoveries, performed on HSCNew-NMP-03-DUP-EL (L1844499-12), were outside the acceptance criteria of 40-140% for acenaphthene (36%); however, the associated MSD and LCS/LCSD recoveries are within overall method allowances. No significant bias was observed for the results of acenaphthene.

Pests- One of the continuing calibration verification (CCV) standards had low recoveries of 83.3 and 82.9% for 4,4'- DDT and oxychlordane, respectively (Project Limits 85- 115%). These analytes were within DOD QSM 5.1 limits of 80-120%. The ICV had a slightly elevated recovery of 127% (Project limits 80-120%) for delta-BHC; however, delta-BHC was not detected in any of the samples. The results of toxaphene in the ICV was not reportable. The ICV is a second source standard that did not match the pattern of the standard used for the calibration. SW846 states that some toxaphene components, particularly the more heavily chlorinated components, are subject to dechlorination reactions. As a result, standards from different vendors may exhibit differences, which could lead to possible false negative results or large differences in quantitative results. No bias was observed for the pesticide results based on the quality control samples.

PCBs- We originally analyzed PCBs congeners on December 9, 2018 but due to failing CCVs the data was not reportable. Originally, the PCBs were not detected in any of the samples. After multiple re-analyses of the extracts, acceptable CCVs recoveries were achieved based on the project limits of 85- 115%; however, it was 7 days outside of the analytical holding time. PCBs were still not detected in the final analysis of the samples. The surrogate, PCB 198, had a low recovery in one of the LCS at 28.9% (Project Limit 30-150%). However, the other surrogate, TMX, had an acceptable recovery of 87%. No bias was observed for the PCB congener results based on the quality control samples.

TPH- The RL of 5,000-10,000 ug/L exceeded the TDL of 100 ug/L for TPH by TCEQ (TNRRRC) 1005. The hydrocarbon ranges were not detected above the RL for all of the samples.

CN- Residual Chlorine or other oxidizing agent was detected in the container of all the elutriates. Chlorine is an interference that can decompose cyanides; therefore, the results may have a negative bias.

Dioxins/Furans- The peak detected does not meet ratio criteria and has resulted in an elevated detection limit of 29.6 pg/ L for octa CDD for sample HSCNew-NMP-03-EL. The peak detected does not meet ratio criteria and has resulted in an elevated detection limit of 1.33 pg/L for 2,3,7,8-tetra CDF for sample HSCNew-NMP-03-EL. The peak detected does not meet ratio criteria and has resulted in an elevated detection limit of 1.33 pg/L for total tetra CDF for sample HSCNew-NMP-03-EL. The peak detected does not meet ratio criteria and has resulted in an elevated detection limit of 2.57 pg/L for total hepta CDD for sample HSCNew-NMP-10-EL.

Metals- One of the two matrix spike duplicates had a low recovery of 57.8% (Project Limits=70-130%) for zinc. The recoveries for the LCSs and MS and MS/MSD were within the acceptable project limits for zinc. No bias was observed for the metal results based on the quality control samples.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
23-May-2019

Notes and Definitions

- Jc The reported result is an estimated value.
- * Duplicate analysis not within control limits
- A3470 RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
- A4910 EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
- A4997 EMPC / NDR - Peak detected does not meet ratio criteria and has resulted in an elevated detection limit.
RT>2 seconds - PCDD/DF analysis-Peak maxima of monitored ions exceeds 2 seconds
- CCV-L The CCV was below acceptable limits leading to negative bias in the results for this analyte.
- Cl Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
- E Reported concentration exceeds the calibration range of the instrument for that specific analysis for organics. Reported value is estimated due to the presence of an interference for inorganics
- H This sample was extracted and/or analyzed outside of the EPA recommended holding time.
- J Detected but below the Reporting Limit (Limit of Quantitation); therefore, result is an estimated concentration.
- Jb Estimated value less than RL
- Z-03 See case narrative.
- N Spiked sample recovery not within control limits
- Q Value is outside of acceptance limits.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate/s.
- U Analyte included in the analysis, but not detected
- Ua Analyte included in the analysis, but not detected at or above the Reporting Limit
- Ub Compound was analyzed for but was not detected (non-detect)
- Uc Indicates the compound was analyzed for but not detected above the specified level.
- Ud Undetected at the limit of quantitation.
- Ja Estimated concentration between the EDL and RDL
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road

Reported:

Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

23-May-2019

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL
18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0057	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Arsenic-75 [3]	0.0051	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Barium-135 [1]	0.265	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0019	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0088	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0455	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.022	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	0.00354	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	0.00364	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	0.00363	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	0.00577	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00446	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00430	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0639			63.9 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0820			68.4 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	21.4	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.096		95.8 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.055		45.5 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.212	0.0234		0.168	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	22.5	0.833	1.67	4.17	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	20.8		<i>104 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.7		<i>74 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	8.72		<i>44 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.104		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.115		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.113		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.172	0.081		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.18		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.675	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	
Di-n-octylphthalate	ND	0.079		1	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	14.8		<i>74 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	6.11		<i>31 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	18.3		<i>91 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3700		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3700		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	80.0		<i>80.0 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1900		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6600		9500	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	102.		<i>102. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	32.8	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	4.59	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	55.5			<i>111 %</i>	<i>70-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	52.0			<i>104 %</i>	<i>75-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	56.3			<i>113 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.9			<i>104 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.32			<i>65 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.0614	0.00159		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.00333	0.00175		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Anthracene	0.0114	0.00192		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.00216	0.00171		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(a)pyrene	0.00124	0.000832		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	ND	0.00146		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.363			<i>73 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00184	0.00126		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00174	0.0013		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	ND	0.00116		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Chrysene	0.00289	0.000927		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000678		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.0208	0.00148		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.0348	0.00171		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00594	0.000528		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.00646	0.00175		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Phenanthrene	0.0356	0.00187		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.0227	0.0015		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.405		82 %		30-130	04-Nov-2018	21-Nov-2018	8270D	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	6.18	2.02		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja
1,2,3,4,6,7,8-Hepta CDF	ND	1.76		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.75		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.17		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.48		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.19		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.59		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.2		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.53		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.42		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.59		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.43		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.45		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.15		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.35		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	197		101	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	A3470, U

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-01-EL

18J0403-01 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	10.7	1.96		101	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja
Total Hepta CDD	22.8	2.02		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja
Total Hepta CDF	ND	1.76		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	2.91		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.5		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.42		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.52		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.15		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.35		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	1320		<i>66 %</i>	<i>35-197</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	1520		<i>76 %</i>	<i>23-140</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	1540		<i>77 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	1700		<i>85 %</i>	<i>32-141</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	1680		<i>84 %</i>	<i>26-152</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	1420		<i>71 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	1920		<i>96 %</i>	<i>28-130</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	1740		<i>87 %</i>	<i>26-123</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	1560		<i>78 %</i>	<i>25-181</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	1240		<i>62 %</i>	<i>24-185</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	1520		<i>76 %</i>	<i>28-136</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	1600		<i>80 %</i>	<i>29-147</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	1500		<i>75 %</i>	<i>21-178</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	1420		<i>71 %</i>	<i>24-164</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	1620		<i>81 %</i>	<i>24-169</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	3200		<i>80 %</i>	<i>17-157</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-EL

18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0034	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0017	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.167	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0024	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0014	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0502	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.016	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00358	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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HSCNew-NMP-02-EL

18J0403-02 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0763			76.3 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0896			74.7 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	8.59	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.10		<i>104 %</i>		<i>30-150</i>	<i>03-Nov-2018</i>	<i>20-Dec-2018</i>	<i>EPA 8082</i>	<i>H, Z-03</i>
<i>Surrogate: PCB 198</i>	0.054		<i>45.4 %</i>		<i>30-150</i>	<i>03-Nov-2018</i>	<i>20-Dec-2018</i>	<i>EPA 8082</i>	<i>H, Z-03</i>
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-EL

18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	2.66	0.0237		0.170	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	8.00	0.286	0.571	1.43	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	0.1	0.079		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	19		<i>94 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.5		<i>72 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	8.3		<i>41 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.105		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.116		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.114		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.102	0.082		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.086		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-EL

18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.182		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.219	0.101		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1.01	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	14.5		72 %		15-115	03-Nov-2018	15-Nov-2018	8270D	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	5.63		28 %		15-115	03-Nov-2018	15-Nov-2018	8270D	
<i>Surrogate: Terphenyl-d14</i>	17.2		85 %		30-130	03-Nov-2018	15-Nov-2018	8270D	

TNRCC 1005

>C12-C28	ND	3800		4900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3800		4900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	82.6		82.6 %		70-130	01-Nov-2018	11-Nov-2018	TNRCC 1005	
C6-C12	ND	2000		4900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6800		9800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	100.		100. %		70-130	01-Nov-2018	11-Nov-2018	TNRCC 1005	

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18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	18.7	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	3.95	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	56.1			<i>112 %</i>	<i>70-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	59.2			<i>118 %</i>	<i>75-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.7			<i>109 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	47.8			<i>95.7 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.318			<i>64 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.594	0.00161		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.0865	0.00177		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.0787	0.00194		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.0062	0.00173		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(a)pyrene	0.00186	0.00084		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.456			<i>91 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.002	0.00127		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00237	0.00131		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Chrysene	0.00749	0.000936		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb

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Project Manager: Cheryl Montgomery

HSCNew-NMP-02-EL

18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.263	0.00149		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.298	0.00173		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00598	0.000533		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.522	0.00177		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Phenanthrene	0.459	0.00189		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.331	0.00152		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.447		<i>89 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.54		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.16		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.16		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.56		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.13		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.59		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.22		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.61		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.18		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.5		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.78		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.1		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.62		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.02		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	5.24	1.46		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja
Octa CDD	ND	2.09		100	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-02-EL

18J0403-02 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	1.69		100	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.54		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.16		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.61		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.16		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.5		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.7		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.02		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	7.7	1.46		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja

Surrogate: 37CL4 2378 Tetra CDD	1400		70 %	35-197		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1660		83 %	23-140		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1700		85 %	28-143		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1880		94 %	32-141		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1860		93 %	26-152		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1540		77 %	28-143		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2040		102 %	28-130		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	2020		101 %	26-123		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1580		79 %	25-181		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1320		66 %	24-185		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1620		81 %	28-136		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1700		85 %	29-147		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1600		80 %	21-178		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1480		74 %	24-164		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1700		85 %	24-169		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3360		84 %	17-157		14-Nov-2018	17-Nov-2018	EPA 1613B m	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0011	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0027	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.215	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	0.0015	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0025	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0443	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.005	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	0.00401	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	0.00438	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	J
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	0.00364	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00381	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	0.006	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0607			60.7 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.111			92.3 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	1.53	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.097		97.0 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.058		48.7 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.0729	0.0223		0.160	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	J
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Wet Chemistry

Total Suspended Solids	10.6	0.303	0.606	1.52	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	19.8		<i>99 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	12.7		<i>64 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	6.07		<i>30 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.104		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.115		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.113		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.1	0.081		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub

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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.18		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.359	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	11.4		<i>57 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	4.44		<i>22 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	19.6		<i>98 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3700		4700	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3700		4700	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	80.4		<i>80.4 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1900		4700	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6500		9400	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	104.		<i>104. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	ND	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	3.98	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	57.3			115 %	70-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	50.9			102 %	75-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	55.7			111 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	52.0			104 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.294			62 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthene	0.00993	0.00152		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	ND	0.00167		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Anthracene	0.00448	0.00183		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benz(a)anthracene	ND	0.00163		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(a)pyrene	ND	0.000792		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(b)fluoranthene	ND	0.0014		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.41			87 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Benzo(e)pyrene	ND	0.0012		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(g,h,i)perylene	ND	0.00124		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	ND	0.0011		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Chrysene	0.00138	0.000883		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000646		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.0167	0.0014		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.00596	0.00163		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Indeno(1,2,3-cd)pyrene	0.00518	0.000503		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.00579	0.00167		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Phenanthrene	0.00669	0.00178		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Pyrene	0.0168	0.00143		0.00943	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.389		82 %		30-130	04-Nov-2018	21-Nov-2018	8270D	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.72		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.39		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.38		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.39		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.16		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.41		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.25		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.43		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.21		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.05		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.76		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.12		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.6		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.77		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.06		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	4.09		100	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-EL

18J0403-03 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	3.08		100	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.72		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.38		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.43		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.18		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.05		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.68		50	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.77		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.06		10	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	1420		<i>71 %</i>	<i>35-197</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	1560		<i>78 %</i>	<i>23-140</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	1540		<i>77 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	1660		<i>83 %</i>	<i>32-141</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	1720		<i>86 %</i>	<i>26-152</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	1380		<i>69 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	1960		<i>98 %</i>	<i>28-130</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	1880		<i>94 %</i>	<i>26-123</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	1580		<i>79 %</i>	<i>25-181</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	1300		<i>65 %</i>	<i>24-185</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	1560		<i>78 %</i>	<i>28-136</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	1600		<i>80 %</i>	<i>29-147</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	1540		<i>77 %</i>	<i>21-178</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	1500		<i>75 %</i>	<i>24-164</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	1660		<i>83 %</i>	<i>24-169</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	3040		<i>76 %</i>	<i>17-157</i>		<i>14-Nov-2018</i>	<i>17-Nov-2018</i>	<i>EPA 1613B m</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0037	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0041	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.189	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0023	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0437	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.051	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	0.00442	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	J
TOC rep1	0.00417	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep2	0.00383	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	0.00451	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00468	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00430	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.111			111 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
Surrogate: PCB 198	0.0787			65.6 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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HSCNew-NMP-04-EL

18J0403-04 (Water)

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	17.2	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.079		78.5 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.058		48.2 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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HSCNew-NMP-04-EL

18J0403-04 (Water)

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	2.84	0.0242		0.173	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	43.0	1.00	2.00	5.00	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	0.149	0.079		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	18.6		92 %	15-115		03-Nov-2018	15-Nov-2018	8270D	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	15.2		75 %	30-130		03-Nov-2018	15-Nov-2018	8270D	
<i>Surrogate: 2-Fluorophenol</i>	8.54		42 %	15-115		03-Nov-2018	15-Nov-2018	8270D	
2-Methylphenol	ND	0.105		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.116		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.114		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.152	0.082		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.086		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub

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HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.182		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.154	0.101		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1.01	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	15.6		<i>77 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	6.04		<i>30 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	16		<i>79 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3800		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3800		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	80.8		<i>80.8 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1900		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6600		9600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	100.		<i>100. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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HSCNew-NMP-04-EL

18J0403-04 (Water)

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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	0.47	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	5.11	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	49.0	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Benzene	0.47	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	0.98	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	4.04	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	0.92	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	57.2			<i>114 %</i>	<i>70-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	50.5			<i>101 %</i>	<i>75-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	56.9			<i>114 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	52.4			<i>105 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.262			<i>51 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.682	0.00164		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.024	0.00181		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.145	0.00198		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.021	0.00176		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.0044	0.000857		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00408	0.00151		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.379			<i>74 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00514	0.0013		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.0026	0.00134		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00206	0.00119		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysene	0.022	0.000955		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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 Vicksburg MS, 39180

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000699		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.264	0.00152		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.532	0.00176		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00643	0.000544		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.0095	0.00181		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Phenanthrene	0.91	0.00193		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.202	0.00155		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.427		<i>84 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.82		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	2.1		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	2.09		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.32		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.47		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.34		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.58		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.35		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.53		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.06		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.63		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.42		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.49		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	7.9	1.13		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja
2,3,7,8-Tetra CDF	22.1	1.38		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	
Octa CDD	ND	4.1		101	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	2.15		101	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.82		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	2.09		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.35		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.5		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.06		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.56		50.5	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	7.9	1.13		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	Ja
Total Tetra CDF	34.1	1.38		10.1	pg/L	14-Nov-2018	17-Nov-2018	EPA 1613B m	

Surrogate: 37CL4 2378 Tetra CDD	1420		71 %	35-197		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1520		76 %	23-140		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1580		79 %	28-143		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1620		81 %	32-141		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1700		85 %	26-152		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1400		70 %	28-143		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2080		104 %	28-130		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1880		94 %	26-123		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1500		75 %	25-181		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1280		64 %	24-185		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1600		80 %	28-136		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1640		82 %	29-147		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1540		77 %	21-178		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1480		74 %	24-164		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1580		79 %	24-169		14-Nov-2018	17-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3080		77 %	17-157		14-Nov-2018	17-Nov-2018	EPA 1613B m	

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ERDC -- Vicksburg (EL)
ERDC, 3909 Halls Ferry Road
Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

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Project Manager: Cheryl Montgomery

HSCNew-NMP-04-EL

18J0403-04 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA M8290A / M1613

2,3,7,8-Tetra CDF	25.6	1		10	pg/L	14-Nov-2018	20-Nov-2018	EPA M8290A / M1613	
<i>Surrogate: C13-2378 TetraCDF</i>	72		72 %	40-135		14-Nov-2018	20-Nov-2018	EPA M8290A / M1613	



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Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0026	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0022	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.189	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0015	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0693	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.005	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00420	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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HSCNew-NMP-05-EL

18J0403-05 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	0.006	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0725			72.5 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0858			71.5 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	13.3	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.092		92.5 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.052		43.4 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.774	0.0234		0.168	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	23.0	1.00	2.00	5.00	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	21.9		<i>110 %</i>		<i>15-115</i>	<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	16.4		<i>82 %</i>		<i>30-130</i>	<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	8.34		<i>42 %</i>		<i>15-115</i>	<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.104		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.115		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.113		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.194	0.081		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.18		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.206	0.1		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	15.8		<i>79 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	5.9		<i>30 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	19		<i>95 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3700		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3700		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	91.1		<i>91.1 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1900		4800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6600		9600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	107.		<i>107. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	3.53	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	73.8	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	8.80	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	56.7			<i>113 %</i>	<i>70-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	53.4			<i>107 %</i>	<i>75-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	57.0			<i>114 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.8			<i>104 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.28			<i>57 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.176	0.00159		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.012	0.00175		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.037	0.00192		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.00907	0.00171		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(a)pyrene	0.00284	0.000832		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00296	0.00146		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.372			<i>75 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00352	0.00126		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00213	0.0013		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00223	0.00116		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysene	0.0118	0.000927		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000678		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.0852	0.00148		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.151	0.00171		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00682	0.000528		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.00936	0.00175		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Phenanthrene	0.195	0.00187		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.0667	0.0015		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.378		<i>76 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.36		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.18		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.17		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	0.991		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.19		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.01		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.28		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.02		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.24		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.38		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.04		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.15		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.945		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.8		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A4910, U
2,3,7,8-Tetra CDF	4.14	1.16		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Octa CDD	11.2	1.69		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-05-EL

18J0403-05 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	2.17		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.36		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.18		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.02		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.21		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.38		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	0.989		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.8		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A4910, Ud
Total Tetra CDF	5.86	1.16		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja

Surrogate: 37CL4 2378 Tetra CDD	1460		73 %	35-197		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1540		77 %	23-140		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1620		81 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1540		77 %	32-141		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1720		86 %	26-152		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1560		78 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	2040		102 %	28-130		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1920		96 %	26-123		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1580		79 %	25-181		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1300		65 %	24-185		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1640		82 %	28-136		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1640		82 %	29-147		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1620		81 %	21-178		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1460		73 %	24-164		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1760		88 %	24-169		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3240		81 %	17-157		14-Nov-2018	18-Nov-2018	EPA 1613B m	

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USACE ERDC-EP-C
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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0027	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0028	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.186	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0015	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0707	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.031	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0682			68.2 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0878			73.2 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	14.1	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.051			51.2 %	30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.10			83.8 %	30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.382	0.0244		0.175	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	12.8	0.400	0.800	2.00	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.099		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.07		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.081		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.085		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	22.3		<i>108 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.157		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.103		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.248		2.06	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.75		5.15	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.168		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.173		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.093		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.094		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	15.8		<i>77 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	8.3		<i>40 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.107		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.118		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.199		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.526		2.06	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.103		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.106		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.082		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.116		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.608		2.58	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Azobenzene	ND	0.132		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Benzidine	ND	0.478		20.6	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.088		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.096		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.111		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.142	0.083		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.087		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.186		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.121		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.215	0.103		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.081		1.03	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.126		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.088		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.158		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.105		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Isophorone	ND	0.13		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.105		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	15.2		<i>74 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.074		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.127		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.074		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.443		2.06	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
Phenol	ND	0.053		0.515	ug/l	03-Nov-2018	15-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	6.02		<i>29 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	19.5		<i>95 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>15-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	93.4		<i>93.4 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1800		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6300		9200	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	110.		<i>110. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	3.29	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	41.9	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	3.35	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	13.9	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	55.9			<i>112 %</i>	<i>70-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	50.5			<i>101 %</i>	<i>75-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	57.4			<i>115 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.2			<i>102 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.281			<i>55 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.0601	0.00166		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.0066	0.00182		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Anthracene	0.0125	0.002		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.0133	0.00178		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.00361	0.000866		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00451	0.00152		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.387			<i>75 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00456	0.00131		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00235	0.00135		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00237	0.00121		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysene	0.0168	0.000965		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-06-EL

18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000706		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.122	0.00154		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.0228	0.00178		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00695	0.000549		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.00587	0.00182		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Phenanthrene	0.005	0.00195		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Pyrene	0.0923	0.00157		0.0103	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.418		<i>81 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	2.49		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A4910, U
1,2,3,4,6,7,8-Hepta CDF	ND	1.25		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.25		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.17		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.18		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.19		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.26		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.2		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.22		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.34		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.08		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.14		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.981		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.26		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.33		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U
Octa CDD	ND	29.6		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U

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18J0403-06 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	2.49		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	3.57	1.77		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Total Hepta CDF	ND	1.25		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.2		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.2		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.34		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.03		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.26		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.33		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	1460		<i>73 %</i>	<i>35-197</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	1540		<i>77 %</i>	<i>23-140</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	1580		<i>79 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	1660		<i>83 %</i>	<i>32-141</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	1760		<i>88 %</i>	<i>26-152</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	1520		<i>76 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	1980		<i>99 %</i>	<i>28-130</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	1840		<i>92 %</i>	<i>26-123</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	1620		<i>81 %</i>	<i>25-181</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	1380		<i>69 %</i>	<i>24-185</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	1620		<i>81 %</i>	<i>28-136</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	1680		<i>84 %</i>	<i>29-147</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	1680		<i>84 %</i>	<i>21-178</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	1560		<i>78 %</i>	<i>24-164</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	1780		<i>89 %</i>	<i>24-169</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	3120		<i>78 %</i>	<i>17-157</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-EL

18J0403-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0040	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0036	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.161	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0015	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0655	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.039	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	0.00364	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep4	0.00384	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	J
Sulfide	0.00303	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	J
TOC rep1	0.00382	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep2	0.00361	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	0.00439	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00383	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00391	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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Project Manager: Cheryl Montgomery

HSCNew-NMP-07-EL

18J0403-07 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0702			70.2 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0731			60.9 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	27.8	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.10		99.5 %	30-150		03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.047		39.0 %	30-150		03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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HSCNew-NMP-07-EL

18J0403-07 (Water)

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	1.88	0.0242		0.173	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	13.3	0.476	0.952	2.38	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	21.4		<i>107 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.6		<i>73 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	7.13		<i>36 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.104		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.115		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.113		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	1.7	0.081		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	
Butylbenzylphthalate	ND	0.085		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub

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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.18		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.152	0.1		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	13.5		<i>67 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	5.15		<i>26 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	18.9		<i>95 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	96.8		<i>96.8 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1800		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6400		9200	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	114.		<i>114. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-EL

18J0403-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	5.62	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	45.4	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	2.70	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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ERDC -- Vicksburg (EL)
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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-EL

18J0403-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	14.1	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	0.43	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	54.3			109 %	70-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	50.6			101 %	75-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.0			108 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.3			103 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.335			66 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthene	0.466	0.00164		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.0174	0.00181		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.0957	0.00198		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.0218	0.00176		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.00559	0.000857		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00723	0.00151		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.392			77 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Benzo(e)pyrene	0.0068	0.0013		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00309	0.00134		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00397	0.00119		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysenes	0.0256	0.000955		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-EL

18J0403-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	0.000758	0.000699		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Fluoranthene	0.25	0.00152		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.36	0.00176		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00769	0.000544		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.0484	0.00181		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Phenanthrene	0.429	0.00193		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.133	0.00155		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.461			90 %	30-130	04-Nov-2018	21-Nov-2018	8270D	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	5.58	1.49		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
1,2,3,4,6,7,8-Hepta CDF	ND	1.39		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.38		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.15		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.12		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.17		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.2		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.18		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.16		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.14		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	0.98		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.08		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.892		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	2.47	1.23		9.43	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
2,3,7,8-Tetra CDF	6.13	0.924		9.43	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Octa CDD	ND	85.9		94.3	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-07-EL

18J0403-07 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	1.27		94.3	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	12.2	1.49		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Total Hepta CDF	2.71	1.39		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Total Hexa CDD	ND	1.18		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.14		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.14		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	0.934		47.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	2.47	1.23		9.43	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Total Tetra CDF	9.19	0.924		9.43	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	1480		<i>74 %</i>	<i>35-197</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	1440		<i>72 %</i>	<i>23-140</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	1480		<i>74 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	1660		<i>83 %</i>	<i>32-141</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	1580		<i>79 %</i>	<i>26-152</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	1420		<i>71 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	1820		<i>91 %</i>	<i>28-130</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	1700		<i>85 %</i>	<i>26-123</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	1580		<i>79 %</i>	<i>25-181</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	1300		<i>65 %</i>	<i>24-185</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	1520		<i>76 %</i>	<i>28-136</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	1500		<i>75 %</i>	<i>29-147</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	1540		<i>77 %</i>	<i>21-178</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	1540		<i>77 %</i>	<i>24-164</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	1740		<i>87 %</i>	<i>24-169</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	3080		<i>77 %</i>	<i>17-157</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-08-EL

18J0403-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0021	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0017	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.288	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0015	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.162	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.052	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	
Selenium	0.0015	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	J

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00379	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00354	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-EL

18J0403-08 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0666			66.6 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0752			62.6 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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ERDC -- Vicksburg (EL)

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HSCNew-NMP-08-EL

18J0403-08 (Water)

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	14.0	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.094		93.7 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.045		37.4 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	5.76	0.0234		0.168	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	10.0	0.400	0.800	2.00	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.079		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	19.7		<i>98 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.2		<i>70 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	7.27		<i>36 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.105		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.116		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.114		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.122	0.082		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.086		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub

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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.182		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.192	0.101		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1.01	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	13.2		<i>66 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	5.02		<i>25 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	18.5		<i>92 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3600		4700	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4700	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	86.1		<i>86.1 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1900		4700	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6400		9300	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	101.		<i>101. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	4.02	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	46.1	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-EL

18J0403-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	0.90	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	1.18	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methylene chloride	14.8	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	1.99	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	55.1		<i>110 %</i>	<i>70-120</i>		<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	52.7		<i>105 %</i>	<i>75-120</i>		<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.2		<i>108 %</i>	<i>70-130</i>		<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.1		<i>102 %</i>	<i>70-130</i>		<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.374		<i>76 %</i>	<i>30-130</i>		<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	1.31	0.00159		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.0288	0.00175		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.622	0.00192		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.0261	0.00171		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.0033	0.000832		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00327	0.00146		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.399		<i>81 %</i>	<i>30-130</i>		<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00346	0.00126		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	ND	0.0013		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	0.00258	0.00116		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysenes	0.0251	0.000927		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-EL

18J0403-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000678		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.483	0.00148		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	1.35	0.00171		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00612	0.000528		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.0528	0.00175		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Phenanthrene	1.6	0.00187		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.247	0.0015		0.0099	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.443		<i>89 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.13		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.03		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.02		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.24		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	0.893		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.26		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	0.958		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.27		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	0.927		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.2		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	0.94		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	0.862		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.856		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.08		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.24		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Octa CDD	11.8	3.93		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-08-EL

18J0403-08 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	1.67		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.13		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.02		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.27		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	0.909		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.2		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	0.896		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.08		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.24		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CL4 2378 Tetra CDD	1480		74 %	35-197		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1600		80 %	23-140		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1660		83 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1680		84 %	32-141		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1720		86 %	26-152		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1580		79 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1980		99 %	28-130		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1760		88 %	26-123		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1680		84 %	25-181		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1320		66 %	24-185		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1640		82 %	28-136		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1600		80 %	29-147		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1680		84 %	21-178		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1520		76 %	24-164		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1720		86 %	24-169		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3400		85 %	17-157		14-Nov-2018	18-Nov-2018	EPA 1613B m	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0034	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0018	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.951	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	0.0002	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0014	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0032	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0469	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.006	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	J
Selenium	0.0018	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	J

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	0.00352	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	0.00355	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	0.00405	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	J
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	0.00372	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00400	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00359	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0652			65.2 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0887			73.9 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	10.6	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.097		96.7 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.055		45.7 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	15.5	0.0450		0.293	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	19.5	0.500	1.00	2.50	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.097		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.069		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.079		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.084		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	20.6		<i>102 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.154		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.101		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.243		2.02	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.735		5.05	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.165		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.17		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.091		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.092		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.2		<i>70 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	6.78		<i>34 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.105		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.116		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.195		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.515		2.02	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.101		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.104		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.08		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.114		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.596		2.52	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Azobenzene	ND	0.129		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Benzidine	ND	0.469		20.2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.086		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.094		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.109		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.161	0.082		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.086		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.182		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.118		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.396	0.101		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1.01	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.123		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.154		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.103		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Isophorone	ND	0.127		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.103		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	13.2		<i>66 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.073		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.124		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.073		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.434		2.02	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Phenol	ND	0.052		0.505	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	4.76		<i>24 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	19		<i>94 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3800		4900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3800		4900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	88.8		<i>88.8 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	2000		4900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6800		9800	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	102.		<i>102. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	46.1	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	2.13	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	16.1	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	54.7			109 %	70-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	52.0			104 %	75-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.0			108 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.1			102 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.317			63 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthene	4.42	0.00163		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	E
Acenaphthylene	0.0293	0.00179		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.853	0.00196		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.0293	0.00175		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.00319	0.000848		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00337	0.00149		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.429			85 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Benzo(e)pyrene	0.00335	0.00128		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	ND	0.00132		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	0.00238	0.00118		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysene	0.0262	0.000945		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000692		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.613	0.0015		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	3.24	0.00175		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	E
Indeno(1,2,3-cd)pyrene	0.00597	0.000538		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.0983	0.00179		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Phenanthrene	3.14	0.00191		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	E
Pyrene	0.28	0.00154		0.0101	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.421		<i>83 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.5		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.2		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.19		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.27		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.44		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.29		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.55		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.3		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.5		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.42		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.48		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.39		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.35		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.35		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	1.15		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	4.89		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-09-EL

18J0403-09 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	2.33		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.5		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.19		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.3		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.47		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.42		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.41		50.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.35		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	1.15		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	1360		<i>68 %</i>	<i>35-197</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	1600		<i>80 %</i>	<i>23-140</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	1640		<i>82 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	1640		<i>82 %</i>	<i>32-141</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	1740		<i>87 %</i>	<i>26-152</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	1560		<i>78 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	2060		<i>103 %</i>	<i>28-130</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	1700		<i>85 %</i>	<i>26-123</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	1560		<i>78 %</i>	<i>25-181</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	1280		<i>64 %</i>	<i>24-185</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	1660		<i>83 %</i>	<i>28-136</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	1660		<i>83 %</i>	<i>29-147</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	1680		<i>84 %</i>	<i>21-178</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	1460		<i>73 %</i>	<i>24-164</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	1600		<i>80 %</i>	<i>24-169</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	3320		<i>83 %</i>	<i>17-157</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	

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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

HSCNew-NMP-09-EL

18J0403-09RE1 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.341		67 %		30-130	04-Nov-2018	26-Nov-2018	8270D	
Acenaphthene	5.88	0.00813		0.0505	ug/l	04-Nov-2018	26-Nov-2018	8270D	
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.447		88 %		30-130	04-Nov-2018	26-Nov-2018	8270D	
Fluorene	3.84	0.00874		0.0505	ug/l	04-Nov-2018	26-Nov-2018	8270D	
Phenanthrene	3.83	0.00954		0.0505	ug/l	04-Nov-2018	26-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.464		92 %		30-130	04-Nov-2018	26-Nov-2018	8270D	



USACE ERDC-EP-C
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0034	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0023	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.532	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	0.0002	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	0.0007	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	0.0161	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Nickel-60 [1]	0.0017	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0012	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.0730	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.009	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	0.00530	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	0.00369	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00406	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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ERDC -- Vicksburg (EL)
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0662			66.2 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0894			74.5 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	15.9	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.094		<i>94.4 %</i>		<i>30-150</i>	<i>03-Nov-2018</i>	<i>20-Dec-2018</i>	<i>EPA 8082</i>	<i>H, Z-03</i>
<i>Surrogate: PCB 198</i>	0.053		<i>44.5 %</i>		<i>30-150</i>	<i>03-Nov-2018</i>	<i>20-Dec-2018</i>	<i>EPA 8082</i>	<i>Z-03, H</i>
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	1.95	0.0242		0.173	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	19.0	1.00	2.00	5.00	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.099		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.07		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.081		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.085		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	21.1		<i>102 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.157		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.103		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.248		2.06	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.75		5.15	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.168		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.173		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.093		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.094		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.9		<i>72 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	7.78		<i>38 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.107		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.118		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.199		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.526		2.06	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.103		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.106		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.082		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.116		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.608		2.58	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Azobenzene	ND	0.132		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Benzidine	ND	0.478		20.6	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.088		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.096		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.111		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.129	0.083		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.087		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.186		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.121		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.215	0.103		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.081		1.03	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.126		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.088		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.158		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.105		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Isophorone	ND	0.13		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.105		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	14.4		<i>70 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.074		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.127		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.074		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.443		2.06	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Phenol	ND	0.053		0.515	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	5.35		<i>26 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	18.9		<i>92 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3500		4400	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3500		4400	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	96.6		<i>96.6 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1800		4400	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6100		8900	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	106.		<i>106. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	60.2	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	4.71	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	53.6			107 %	70-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	52.1			104 %	75-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.5			109 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.0			102 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	06-Nov-2018	06-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.302			59 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthene	0.582	0.00164		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.0113	0.00181		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.103	0.00198		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.012	0.00176		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.00222	0.000857		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00269	0.00151		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.415			81 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Benzo(e)pyrene	0.00262	0.0013		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	ND	0.00134		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	0.00182	0.00119		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysene	0.0126	0.000955		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000699		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.2	0.00152		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.438	0.00176		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00627	0.000544		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.0965	0.00181		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Phenanthrene	0.376	0.00193		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.099	0.00155		0.0102	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.413			<i>81 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.58		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.2		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.2		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.17		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	0.848		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.19		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	0.91		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.2		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	0.881		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.1		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.33		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	0.819		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.22		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.04		10.1	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	0.94		10.1	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	12.8		101	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A4997, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-10-EL

18J0403-10 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	1.5		101	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.58		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.2		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.2		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	0.863		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.1		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.27		50.5	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.04		10.1	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	0.94		10.1	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CL4 2378 Tetra CDD	1560		78 %	35-197		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1620		81 %	23-140		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1540		77 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1740		87 %	32-141		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1800		90 %	26-152		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1500		75 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1940		97 %	28-130		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1860		93 %	26-123		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1660		83 %	25-181		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1380		69 %	24-185		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1640		82 %	28-136		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1620		81 %	29-147		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1700		85 %	21-178		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1640		82 %	24-164		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1760		88 %	24-169		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3360		84 %	17-157		14-Nov-2018	18-Nov-2018	EPA 1613B m	

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USACE ERDC-EP-C
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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0027	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0025	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.340	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	0.00069	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	0.0006	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0015	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.149	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	0.002	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	J
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	0.00426	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep2	0.00369	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep3	0.00409	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
TOC rep4	0.00415	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	0.00405	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0603			60.3 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.0892			74.4 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	15.8	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, S-GC, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	0.002	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, J
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 52	0.004	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, J
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.091		90.7 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
<i>Surrogate: PCB 198</i>	0.054		44.9 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.524	0.0237		0.170	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	5.71	0.286	0.571	1.43	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.091		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.064		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.074		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.078		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	18.6		<i>99 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.143		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.094		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.227		1.89	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.687		4.72	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.154		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.158		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.085		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.086		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	12.9		<i>68 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	6.24		<i>33 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.098		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.108		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.182		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.481		1.89	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.094		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.097		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.075		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.107		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.557		2.36	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Azobenzene	ND	0.121		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Benzidine	ND	0.438		18.9	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.081		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.088		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.102		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.115	0.076		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.08		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub

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 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.17		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.11		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.287	0.094		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.074		0.943	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.115		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.081		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.144		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.096		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Isophorone	ND	0.119		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.096		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	12.6		<i>67 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.068		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.116		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.068		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.406		1.89	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Phenol	ND	0.048		0.472	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	4.25		<i>23 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	16		<i>85 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3600		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3600		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	89.7		<i>89.7 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1800		4600	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6400		9200	ug/L	01-Nov-2018	11-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	104.		<i>104. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>11-Nov-2018</i>	<i>TNRCC 1005</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	3.21	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Jc
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	54.1	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	55.4			<i>111 %</i>	<i>70-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	52.0			<i>104 %</i>	<i>75-120</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	54.3			<i>109 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.2			<i>102 %</i>	<i>70-130</i>	<i>02-Nov-2018</i>	<i>02-Nov-2018</i>	<i>SW8260B</i>	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	08-Nov-2018	08-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.292			<i>58 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Acenaphthene	0.168	0.00161		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.0152	0.00177		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Anthracene	0.0131	0.00194		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.0135	0.00173		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benzo(a)pyrene	0.00347	0.00084		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(b)fluoranthene	0.00385	0.00148		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.437			<i>87 %</i>	<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	
Benzo(e)pyrene	0.00376	0.00127		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(g,h,i)perylene	0.00218	0.00131		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(k)fluoranthene	0.00296	0.00117		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Chrysene	0.0145	0.000936		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.135	0.00149		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.0405	0.00173		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.00683	0.000533		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.00287	0.00177		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Phenanthrene	0.00683	0.00189		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Pyrene	0.0917	0.00152		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.436			87 %	30-130	04-Nov-2018	21-Nov-2018	8270D	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.55		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.25		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.25		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.06		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	1.19		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.08		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	1.28		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.09		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	1.23		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.04		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.02		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	1.15		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	0.931		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	ND	1.25		9.52	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDF	ND	0.923		9.52	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Octa CDD	ND	18.9		95.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-11-EL

18J0403-11 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	1.36		95.2	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	2.57		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A4997, U
Total Hepta CDF	ND	1.25		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.09		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	1.21		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.04		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	0.974		47.6	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	ND	1.25		9.52	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDF	ND	0.923		9.52	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud

Surrogate: 37CL4 2378 Tetra CDD	1480		74 %	35-197		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDD	1420		71 %	23-140		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234678 HeptaCDF	1380		69 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDD	1600		80 %	32-141		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123478 HexaCDF	1520		76 %	26-152		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-1234789 HeptaCDF	1400		70 %	28-143		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDD	1780		89 %	28-130		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123678 HexaCDF	1620		81 %	26-123		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDD	1600		80 %	25-181		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-12378 PentaCDF	1200		60 %	24-185		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-123789 HexaCDF	1520		76 %	28-136		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-234678 HexaCDF	1480		74 %	29-147		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-23478 PentaCDF	1560		78 %	21-178		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDD	1520		76 %	24-164		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-2378 TetraCDF	1680		84 %	24-169		14-Nov-2018	18-Nov-2018	EPA 1613B m	
Surrogate: C13-OCDD	3080		77 %	17-157		14-Nov-2018	18-Nov-2018	EPA 1613B m	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Metals (Dissolved) by EPA 6000/7000 Series Methods

Antimony-121 [1]	0.0011	0.0007	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Arsenic-75 [3]	0.0021	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Barium-135 [1]	0.386	0.0020	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Nickel-60 [1]	0.0015	0.0005	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Silver-107 [1]	0.0011	0.0008	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	J
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	U
Zinc-66 [1]	0.184	0.0010	0.0025	0.0050	mg/L	15-Nov-2018	15-Nov-2018	SW 846/6020	

Metals by EPA 6000/7000 Series Methods

Chromium (3+)	ND	0.001	0.004	0.008	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Chromium (VI)	ND	0.0007	0.001	0.003	mg/L	29-Oct-2018	29-Oct-2018	EPA 7199M	U
Mercury	ND	0.002	0.010	0.020	ug/L	14-Nov-2018	16-Nov-2018	EPA 7474	U
Selenium	ND	0.0015	0.0050	0.0100	mg/L	30-Oct-2018	30-Oct-2018	GF-AAS 7000 Series	U

Miscellaneous Physical/Conventional Chemistry Parameters

Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
DOC rep4	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	19-Nov-2018	EPA 9060	U
Sulfide	ND	0.00150	0.00500	0.0100	mg/L	30-Oct-2018	30-Oct-2018	EPA 376	U
TOC rep1	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep2	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep3	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U
TOC rep4	0.00359	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%	05-Nov-2018	08-Nov-2018	EPA 9060	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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ERDC-EL-EP-C

Organochlorine Pesticides by EPA Method 8081A

4,4'-DDD	ND	0.00090	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDE	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
4,4'-DDT	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Aldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
alpha-Chlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
beta-BHC	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
cis-Nonachlor	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
delta-BHC	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Dieldrin	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan I	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan II	ND	0.0005	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endosulfan sulfate	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Endrin aldehyde	ND	0.00060	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
gamma-Chlordane	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Heptachlor epoxide	ND	0.0007	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Oxychlordane	ND	0.001	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
Toxaphene	ND	0.073	0.100	0.300	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
trans-Nonachlor	ND	0.0008	0.002	0.006	ug/L	03-Nov-2018	17-Nov-2018	EPA 8081A	U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.0639			63.9 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	
<i>Surrogate: PCB 198</i>	0.104			86.5 %	30-150	03-Nov-2018	17-Nov-2018	EPA 8081A	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

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ERDC-EL-EP-C

Nutrients

Ammonia as N, filtered	2.97	0.0880	0.100	0.200	mg/L	01-Nov-2018	01-Nov-2018	EPA 350.2	
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Polychlorinated Biphenyls (as Congeners) by EPA Method 8082

PCB 101	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 105	ND	0.00030	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 118	ND	0.0008	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 126	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H, U
PCB 128	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 138	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 153	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 169	ND	0.0002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 170	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 18	ND	0.004	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 180	ND	0.001	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 187	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 28	ND	0.005	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 44	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 52	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 66	ND	0.0007	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 77	ND	0.002	0.003	0.006	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
PCB 8	ND	0.006	0.006	0.012	ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	0.089		89.4 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	Z-03, H
<i>Surrogate: PCB 198</i>	0.059		49.0 %		30-150	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03
Total PCB Congeners-CALC	0.00				ug/L	03-Nov-2018	20-Dec-2018	EPA 8082	H, Z-03, U

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ERDC-EL-EP-C

Polynuclear Aromatic Compounds by GC/MS with Selected Ion Monitoring

Total PAH-CALC	0.703	0.0237		0.170	ug/L	03-Nov-2018	21-Nov-2018	EPA 8270C	
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Wet Chemistry

Total Suspended Solids	14.0	0.400	0.800	2.00	mg/L	31-Oct-2018	31-Oct-2018	EPA 160.2	
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Semivolatile Organics by GC-MS

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2,4,6-Tribromophenol</i>	21		<i>105 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2,4,6-Trichlorophenol	ND	0.152		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Chlorophenol	ND	0.091		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: 2-Fluorobiphenyl</i>	14.2		<i>71 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: 2-Fluorophenol</i>	7.87		<i>39 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
2-Methylphenol	ND	0.104		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
2-Nitrophenol	ND	0.115		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Methylphenol	ND	0.113		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
4-Nitrophenol	ND	0.59		2.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Azobenzene	ND	0.128		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Benzidine	ND	0.464		20	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
bis(2-Ethylhexyl)phthalate	0.198	0.081		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Butylbenzylphthalate	ND	0.085		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub

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Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL
18J0403-12 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

Semivolatiles Organics by GC-MS

Diethylphthalate	ND	0.18		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Dimethylphthalate	ND	0.117		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Di-n-butylphthalate	0.323	0.1		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Jb
Di-n-octylphthalate	ND	0.079		1	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Hexachloroethane	ND	0.102		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Isophorone	ND	0.126		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Nitrobenzene	ND	0.102		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Nitrobenzene-d5</i>	14.3		<i>71 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Pentachlorophenol	ND	0.43		2	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
Phenol	ND	0.051		0.5	ug/l	03-Nov-2018	16-Nov-2018	8270D	Ub
<i>Surrogate: Phenol-d5</i>	5.25		<i>26 %</i>	<i>15-115</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	
<i>Surrogate: Terphenyl-d14</i>	20		<i>100 %</i>	<i>30-130</i>		<i>03-Nov-2018</i>	<i>16-Nov-2018</i>	<i>8270D</i>	

TNRCC 1005

>C12-C28	ND	3400		4400	ug/L	01-Nov-2018	12-Nov-2018	TNRCC 1005	Uc
>C28-C35	ND	3400		4400	ug/L	01-Nov-2018	12-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: 1-Chlorooctane</i>	92.0		<i>92.0 %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>12-Nov-2018</i>	<i>TNRCC 1005</i>	
C6-C12	ND	1800		4400	ug/L	01-Nov-2018	12-Nov-2018	TNRCC 1005	Uc
C6-C35	ND	6000		8800	ug/L	01-Nov-2018	12-Nov-2018	TNRCC 1005	Uc
<i>Surrogate: O-TERPHENYL</i>	103.		<i>103. %</i>	<i>70-130</i>		<i>01-Nov-2018</i>	<i>12-Nov-2018</i>	<i>TNRCC 1005</i>	

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Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
1,4-Dioxane	ND	40.0		80.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Acetone	27.4	7.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Benzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromodichloromethane	ND	0.40		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromoform	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Bromomethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon disulfide	ND	1.00		10.0	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chlorobenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroethane	ND	0.70		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloroform	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Chloromethane	3.07	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dibromochloromethane	ND	0.35		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Air Water & Soil Laboratories, Inc.

Volatile Organic Compounds by GCMS

Ethylbenzene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Isopropylbenzene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
m+p-Xylenes	ND	0.60		2.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl acetate	ND	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Methylene chloride	6.15	1.00		4.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
o-Xylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Styrene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Toluene	ND	0.50		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichloroethylene	ND	0.40		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
Vinyl chloride	ND	0.50		0.50	ug/L	02-Nov-2018	02-Nov-2018	SW8260B	Ua
<i>Surrogate: 1,2-Dichloroethane-d4 (Surr)</i>	55.6			111 %	70-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: 4-Bromofluorobenzene (Surr)</i>	52.9			106 %	75-120	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Dibromofluoromethane (Surr)</i>	55.0			110 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	
<i>Surrogate: Toluene-d8 (Surr)</i>	51.4			103 %	70-130	02-Nov-2018	02-Nov-2018	SW8260B	

Wet Chemistry Analysis

Cyanide	ND	10		10	ug/L	08-Nov-2018	08-Nov-2018	SW9012B	Cl, U
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PAHs by GC/MS SIM

<i>Surrogate: 2-Methylnaphthalene-d10</i>	0.359			72 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthene	0.173	0.00161		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Acenaphthylene	0.00564	0.00177		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Anthracene	0.057	0.00194		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Benz(a)anthracene	0.00655	0.00173		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Benzo(a)pyrene	ND	0.00084		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
<i>Surrogate: Benzo(b)fluoranthene-d12</i>	0.438			88 %	30-130	04-Nov-2018	21-Nov-2018	8270D	
Benzo(e)pyrene	ND	0.00127		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(g,h,i)perylene	ND	0.00131		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Chrysene	0.00666	0.000936		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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Alpha

PAHs by GC/MS SIM

Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Ub
Fluoranthene	0.103	0.00149		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Fluorene	0.117	0.00173		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Indeno(1,2,3-cd)pyrene	0.0055	0.000533		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	Jb
Naphthalene	0.0106	0.00177		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Phenanthrene	0.144	0.00189		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
Pyrene	0.0743	0.00152		0.01	ug/l	04-Nov-2018	21-Nov-2018	8270D	
<i>Surrogate: Pyrene-d10</i>	0.431		<i>86 %</i>		<i>30-130</i>	<i>04-Nov-2018</i>	<i>21-Nov-2018</i>	<i>8270D</i>	

EPA 1613B m

1,2,3,4,6,7,8-Hepta CDD	ND	1.14		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.36		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.35		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDD	ND	1.11		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,4,7,8-Hexa CDF	ND	0.732		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDD	ND	1.13		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,6,7,8-Hexa CDF	ND	0.786		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDD	ND	1.14		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8,9-Hexa CDF	ND	0.76		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDD	ND	1.04		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
1,2,3,7,8-Penta CDF	ND	1.19		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,6,7,8-Hexa CDF	ND	0.707		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,4,7,8-Penta CDF	ND	1.08		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
2,3,7,8-Tetra CDD	2.54	1.08		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
2,3,7,8-Tetra CDF	5.74	1.09		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Octa CDD	ND	4.16		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	A3470, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

HSCNew-NMP-03-DUP-EL

18J0403-12 (Water)

Analyte	Result	MDL	DL	RL	Units	Prepared	Analyzed	Method	Notes
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MAXXAM ANALYTICS, Mississauga

EPA 1613B m

Octa CDF	ND	1.35		100	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDD	ND	1.14		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hepta CDF	ND	1.36		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDD	ND	1.14		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Hexa CDF	ND	0.745		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDD	ND	1.04		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Penta CDF	ND	1.14		50	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ud
Total Tetra CDD	2.54	1.08		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
Total Tetra CDF	8.8	1.09		10	pg/L	14-Nov-2018	18-Nov-2018	EPA 1613B m	Ja
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	1480		<i>74 %</i>	<i>35-197</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDD</i>	1540		<i>77 %</i>	<i>23-140</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234678 HeptaCDF</i>	1600		<i>80 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDD</i>	1640		<i>82 %</i>	<i>32-141</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123478 HexaCDF</i>	1780		<i>89 %</i>	<i>26-152</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-1234789 HeptaCDF</i>	1440		<i>72 %</i>	<i>28-143</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDD</i>	2080		<i>104 %</i>	<i>28-130</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123678 HexaCDF</i>	1980		<i>99 %</i>	<i>26-123</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDD</i>	1640		<i>82 %</i>	<i>25-181</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-12378 PentaCDF</i>	1420		<i>71 %</i>	<i>24-185</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-123789 HexaCDF</i>	1660		<i>83 %</i>	<i>28-136</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-234678 HexaCDF</i>	1680		<i>84 %</i>	<i>29-147</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-23478 PentaCDF</i>	1640		<i>82 %</i>	<i>21-178</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDD</i>	1580		<i>79 %</i>	<i>24-164</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-2378 TetraCDF</i>	1720		<i>86 %</i>	<i>24-169</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	
<i>Surrogate: C13-OCDD</i>	3320		<i>83 %</i>	<i>17-157</i>		<i>14-Nov-2018</i>	<i>18-Nov-2018</i>	<i>EPA 1613B m</i>	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Blank (B18K085-BLK1)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.00012	0.00007	0.00025	0.0005	mg/L							J
Arsenic-75 [3]	ND	0.00006	0.00025	0.0005	mg/L							U
Barium-135 [1]	ND	0.0002	0.00025	0.0005	mg/L							U
Beryllium-9 [1]	ND	0.00002	0.00025	0.0005	mg/L							U
Cadmium-111 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Chromium-52 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Copper-63 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Lead-206 [1]	ND	0.00008	0.00025	0.0005	mg/L							U
Nickel-60 [1]	ND	0.00005	0.00025	0.0005	mg/L							U
Silver-107 [1]	0.0001	0.00008	0.00025	0.0005	mg/L							J
Thallium-203 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Zinc-66 [1]	ND	0.0001	0.00025	0.0005	mg/L							U

Blank (B18K085-BLK2)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0001	0.00007	0.00025	0.0005	mg/L							J
Arsenic-75 [3]	ND	0.00006	0.00025	0.0005	mg/L							U
Barium-135 [1]	ND	0.0002	0.00025	0.0005	mg/L							U
Beryllium-9 [1]	0.00002	0.00002	0.00025	0.0005	mg/L							J
Cadmium-111 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Chromium-52 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Copper-63 [1]	ND	0.00006	0.00025	0.0005	mg/L							U
Lead-206 [1]	ND	0.00008	0.00025	0.0005	mg/L							U
Nickel-60 [1]	ND	0.00005	0.00025	0.0005	mg/L							U
Silver-107 [1]	0.0001	0.00008	0.00025	0.0005	mg/L							J
Thallium-203 [1]	ND	0.00003	0.00025	0.0005	mg/L							U
Zinc-66 [1]	ND	0.0001	0.00025	0.0005	mg/L							U

LCS (B18K085-BS1)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0397	0.00007	0.00025	0.0005	mg/L	0.04000		99.2	70-130			
Arsenic-75 [3]	0.0368	0.00006	0.00025	0.0005	mg/L	0.04000		92.0	70-130			

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Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

LCS (B18K085-BS1)						Prepared & Analyzed: 15-Nov-2018						
Barium-135 [1]	0.0399	0.0002	0.00025	0.0005	mg/L	0.04000		99.7	70-130			
Beryllium-9 [1]	0.0385	0.00002	0.00025	0.0005	mg/L	0.04000		96.2	70-130			
Cadmium-111 [1]	0.0400	0.00003	0.00025	0.0005	mg/L	0.04000		100	70-130			
Chromium-52 [1]	0.0398	0.00006	0.00025	0.0005	mg/L	0.04000		99.5	70-130			
Copper-63 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	70-130			
Lead-206 [1]	0.0383	0.00008	0.00025	0.0005	mg/L	0.04000		95.6	70-130			
Nickel-60 [1]	0.0400	0.00005	0.00025	0.0005	mg/L	0.04000		99.9	70-130			
Silver-107 [1]	0.0384	0.00008	0.00025	0.0005	mg/L	0.04000		96.0	70-130			
Thallium-203 [1]	0.0395	0.00003	0.00025	0.0005	mg/L	0.04000		98.7	70-130			
Zinc-66 [1]	0.0450	0.0001	0.00025	0.0005	mg/L	0.04000		113	70-130			

LCS (B18K085-BS2)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0390	0.00007	0.00025	0.0005	mg/L	0.04000		97.6	70-130			
Arsenic-75 [3]	0.0392	0.00006	0.00025	0.0005	mg/L	0.04000		98.1	70-130			
Barium-135 [1]	0.0405	0.0002	0.00025	0.0005	mg/L	0.04000		101	70-130			
Beryllium-9 [1]	0.0416	0.00002	0.00025	0.0005	mg/L	0.04000		104	70-130			
Cadmium-111 [1]	0.0405	0.00003	0.00025	0.0005	mg/L	0.04000		101	70-130			
Chromium-52 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	70-130			
Copper-63 [1]	0.0408	0.00006	0.00025	0.0005	mg/L	0.04000		102	70-130			
Lead-206 [1]	0.0393	0.00008	0.00025	0.0005	mg/L	0.04000		98.2	70-130			
Nickel-60 [1]	0.0403	0.00005	0.00025	0.0005	mg/L	0.04000		101	70-130			
Silver-107 [1]	0.0379	0.00008	0.00025	0.0005	mg/L	0.04000		94.8	70-130			
Thallium-203 [1]	0.0397	0.00003	0.00025	0.0005	mg/L	0.04000		99.2	70-130			
Zinc-66 [1]	0.0474	0.0001	0.00025	0.0005	mg/L	0.04000		119	70-130			

Calibration Check (B18K085-CCV1)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0428	0.00007	0.00025	0.0005	mg/L	0.04000		107	90-110			
Arsenic-75 [3]	0.0386	0.00006	0.00025	0.0005	mg/L	0.04000		96.4	90-110			
Barium-135 [1]	0.0382	0.0002	0.00025	0.0005	mg/L	0.04000		95.6	90-110			
Beryllium-9 [1]	0.0373	0.00002	0.00025	0.0005	mg/L	0.04000		93.3	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Calibration Check (B18K085-CCV1)						Prepared & Analyzed: 15-Nov-2018						
Cadmium-111 [1]	0.0409	0.00003	0.00025	0.0005	mg/L	0.04000		102	90-110			
Chromium-52 [1]	0.0385	0.00006	0.00025	0.0005	mg/L	0.04000		96.2	90-110			
Copper-63 [1]	0.0383	0.00006	0.00025	0.0005	mg/L	0.04000		95.8	90-110			
Lead-206 [1]	0.0376	0.00008	0.00025	0.0005	mg/L	0.04000		93.9	90-110			
Nickel-60 [1]	0.0398	0.00005	0.00025	0.0005	mg/L	0.04000		99.6	90-110			
Silver-107 [1]	0.0422	0.00008	0.00025	0.0005	mg/L	0.04000		105	90-110			
Thallium-203 [1]	0.0387	0.00003	0.00025	0.0005	mg/L	0.04000		96.6	90-110			
Zinc-66 [1]	0.0389	0.0001	0.00025	0.0005	mg/L	0.04000		97.1	90-110			

Calibration Check (B18K085-CCV2)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0508	0.00007	0.00025	0.0005	mg/L	0.05000		102	90-110			
Arsenic-75 [3]	0.0464	0.00006	0.00025	0.0005	mg/L	0.05000		92.9	90-110			
Barium-135 [1]	0.0492	0.0002	0.00025	0.0005	mg/L	0.05000		98.4	90-110			
Beryllium-9 [1]	0.0462	0.00002	0.00025	0.0005	mg/L	0.05000		92.3	90-110			
Cadmium-111 [1]	0.0496	0.00003	0.00025	0.0005	mg/L	0.05000		99.1	90-110			
Chromium-52 [1]	0.0491	0.00006	0.00025	0.0005	mg/L	0.05000		98.2	90-110			
Copper-63 [1]	0.0492	0.00006	0.00025	0.0005	mg/L	0.05000		98.5	90-110			
Lead-206 [1]	0.0485	0.00008	0.00025	0.0005	mg/L	0.05000		97.0	90-110			
Nickel-60 [1]	0.0466	0.00005	0.00025	0.0005	mg/L	0.05000		93.1	90-110			
Silver-107 [1]	0.0481	0.00008	0.00025	0.0005	mg/L	0.05000		96.1	90-110			
Thallium-203 [1]	0.0497	0.00003	0.00025	0.0005	mg/L	0.05000		99.4	90-110			
Zinc-66 [1]	0.0477	0.0001	0.00025	0.0005	mg/L	0.05000		95.3	90-110			

Calibration Check (B18K085-CCV3)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0487	0.00007	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Arsenic-75 [3]	0.0479	0.00006	0.00025	0.0005	mg/L	0.05000		95.9	90-110			
Barium-135 [1]	0.0509	0.0002	0.00025	0.0005	mg/L	0.05000		102	90-110			
Beryllium-9 [1]	0.0478	0.00002	0.00025	0.0005	mg/L	0.05000		95.6	90-110			
Cadmium-111 [1]	0.0523	0.00003	0.00025	0.0005	mg/L	0.05000		105	90-110			
Chromium-52 [1]	0.0484	0.00006	0.00025	0.0005	mg/L	0.05000		96.9	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Calibration Check (B18K085-CCV3)					Prepared & Analyzed: 15-Nov-2018							
Copper-63 [1]	0.0501	0.00006	0.00025	0.0005	mg/L	0.05000		100	90-110			
Lead-206 [1]	0.0477	0.00008	0.00025	0.0005	mg/L	0.05000		95.4	90-110			
Nickel-60 [1]	0.0469	0.00005	0.00025	0.0005	mg/L	0.05000		93.8	90-110			
Silver-107 [1]	0.0483	0.00008	0.00025	0.0005	mg/L	0.05000		96.5	90-110			
Thallium-203 [1]	0.0486	0.00003	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Zinc-66 [1]	0.0490	0.0001	0.00025	0.0005	mg/L	0.05000		98.0	90-110			

Calibration Check (B18K085-CCV4)					Prepared & Analyzed: 15-Nov-2018							
Antimony-121 [1]	0.0517	0.00007	0.00025	0.0005	mg/L	0.05000		103	90-110			
Arsenic-75 [3]	0.0490	0.00006	0.00025	0.0005	mg/L	0.05000		97.9	90-110			
Barium-135 [1]	0.0497	0.0002	0.00025	0.0005	mg/L	0.05000		99.5	90-110			
Beryllium-9 [1]	0.0497	0.00002	0.00025	0.0005	mg/L	0.05000		99.4	90-110			
Cadmium-111 [1]	0.0519	0.00003	0.00025	0.0005	mg/L	0.05000		104	90-110			
Chromium-52 [1]	0.0509	0.00006	0.00025	0.0005	mg/L	0.05000		102	90-110			
Copper-63 [1]	0.0521	0.00006	0.00025	0.0005	mg/L	0.05000		104	90-110			
Lead-206 [1]	0.0510	0.00008	0.00025	0.0005	mg/L	0.05000		102	90-110			
Nickel-60 [1]	0.0526	0.00005	0.00025	0.0005	mg/L	0.05000		105	90-110			
Silver-107 [1]	0.0498	0.00008	0.00025	0.0005	mg/L	0.05000		99.6	90-110			
Thallium-203 [1]	0.0510	0.00003	0.00025	0.0005	mg/L	0.05000		102	90-110			
Zinc-66 [1]	0.0516	0.0001	0.00025	0.0005	mg/L	0.05000		103	90-110			

Calibration Check (B18K085-CCV5)					Prepared & Analyzed: 15-Nov-2018							
Antimony-121 [1]	0.0490	0.00007	0.00025	0.0005	mg/L	0.05000		98.0	90-110			
Arsenic-75 [3]	0.0473	0.00006	0.00025	0.0005	mg/L	0.05000		94.5	90-110			
Barium-135 [1]	0.0487	0.0002	0.00025	0.0005	mg/L	0.05000		97.5	90-110			
Beryllium-9 [1]	0.0476	0.00002	0.00025	0.0005	mg/L	0.05000		95.1	90-110			
Cadmium-111 [1]	0.0503	0.00003	0.00025	0.0005	mg/L	0.05000		101	90-110			
Chromium-52 [1]	0.0486	0.00006	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Copper-63 [1]	0.0492	0.00006	0.00025	0.0005	mg/L	0.05000		98.4	90-110			
Lead-206 [1]	0.0490	0.00008	0.00025	0.0005	mg/L	0.05000		98.0	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Calibration Check (B18K085-CCV5)						Prepared & Analyzed: 15-Nov-2018						
Nickel-60 [1]	0.0484	0.00005	0.00025	0.0005	mg/L	0.05000		96.9	90-110			
Silver-107 [1]	0.0480	0.00008	0.00025	0.0005	mg/L	0.05000		95.9	90-110			
Thallium-203 [1]	0.0493	0.00003	0.00025	0.0005	mg/L	0.05000		98.5	90-110			
Zinc-66 [1]	0.0504	0.0001	0.00025	0.0005	mg/L	0.05000		101	90-110			

Calibration Check (B18K085-CCV6)						Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.0531	0.00007	0.00025	0.0005	mg/L	0.05000		106	90-110			
Arsenic-75 [3]	0.0471	0.00006	0.00025	0.0005	mg/L	0.05000		94.1	90-110			
Barium-135 [1]	0.0482	0.0002	0.00025	0.0005	mg/L	0.05000		96.3	90-110			
Beryllium-9 [1]	0.0482	0.00002	0.00025	0.0005	mg/L	0.05000		96.4	90-110			
Cadmium-111 [1]	0.0524	0.00003	0.00025	0.0005	mg/L	0.05000		105	90-110			
Chromium-52 [1]	0.0486	0.00006	0.00025	0.0005	mg/L	0.05000		97.3	90-110			
Copper-63 [1]	0.0491	0.00006	0.00025	0.0005	mg/L	0.05000		98.2	90-110			
Lead-206 [1]	0.0479	0.00008	0.00025	0.0005	mg/L	0.05000		95.9	90-110			
Nickel-60 [1]	0.0480	0.00005	0.00025	0.0005	mg/L	0.05000		96.0	90-110			
Silver-107 [1]	0.0503	0.00008	0.00025	0.0005	mg/L	0.05000		101	90-110			
Thallium-203 [1]	0.0496	0.00003	0.00025	0.0005	mg/L	0.05000		99.3	90-110			
Zinc-66 [1]	0.0491	0.0001	0.00025	0.0005	mg/L	0.05000		98.3	90-110			

Duplicate (B18K085-DUP1)						Source: 18J0401-13		Prepared & Analyzed: 15-Nov-2018				
Antimony-121 [1]	ND	0.0007	0.0025	0.0050	mg/L	ND				30		U
Arsenic-75 [3]	0.0029	0.0006	0.0025	0.0050	mg/L	0.0031		5.99		30		J
Barium-135 [1]	0.0745	0.0020	0.0025	0.0050	mg/L	0.0823		9.97		30		J
Beryllium-9 [1]	0.0002	0.00015	0.0025	0.0050	mg/L	ND				30		J
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L	ND				30		U
Chromium-52 [1]	0.0012	0.0006	0.0025	0.0050	mg/L	0.0014		13.5		30		J
Copper-63 [1]	0.0034	0.0006	0.0025	0.0050	mg/L	0.0032		6.39		30		J
Lead-206 [1]	0.00089	0.0008	0.0025	0.0050	mg/L	0.0008		6.15		30		J
Nickel-60 [1]	0.0021	0.0005	0.0025	0.0050	mg/L	0.0021		4.29		30		J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L	0.0013				30		U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Duplicate (B18K085-DUP1) **Source: 18J0401-13** Prepared & Analyzed: 15-Nov-2018

Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L		ND				30	U
Zinc-66 [1]	0.0653	0.0010	0.0025	0.0050	mg/L		0.0680			3.97	30	

Duplicate (B18K085-DUP2) **Source: 18J0403-12** Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.0009	0.0007	0.0025	0.0050	mg/L		0.0011			17.6	30	J
Arsenic-75 [3]	0.0017	0.0006	0.0025	0.0050	mg/L		0.0021			16.5	30	J
Barium-135 [1]	0.367	0.0020	0.0025	0.0050	mg/L		0.386			4.95	30	
Beryllium-9 [1]	ND	0.00015	0.0025	0.0050	mg/L		ND				30	U
Cadmium-111 [1]	ND	0.0003	0.0025	0.0050	mg/L		ND				30	U
Chromium-52 [1]	ND	0.0006	0.0025	0.0050	mg/L		ND				30	U
Copper-63 [1]	ND	0.0006	0.0025	0.0050	mg/L		ND				30	U
Lead-206 [1]	ND	0.0008	0.0025	0.0050	mg/L		ND				30	U
Nickel-60 [1]	0.0017	0.0005	0.0025	0.0050	mg/L		0.0015			13.3	30	J
Silver-107 [1]	ND	0.0008	0.0025	0.0050	mg/L		0.0011				30	U
Thallium-203 [1]	ND	0.0003	0.0025	0.0050	mg/L		ND				30	U
Zinc-66 [1]	0.182	0.0010	0.0025	0.0050	mg/L		0.184			1.09	30	

Matrix Spike (B18K085-MS1) **Source: 18J0401-13** Prepared & Analyzed: 15-Nov-2018

Antimony-121 [1]	0.436	0.0007	0.0025	0.0050	mg/L	0.4000	ND	109	70-130			
Arsenic-75 [3]	0.431	0.0006	0.0025	0.0050	mg/L	0.4000	0.0031	107	70-130			
Barium-135 [1]	0.455	0.0020	0.0025	0.0050	mg/L	0.4000	0.0823	93.3	70-130			
Beryllium-9 [1]	0.403	0.00015	0.0025	0.0050	mg/L	0.4000	ND	101	70-130			
Cadmium-111 [1]	0.407	0.0003	0.0025	0.0050	mg/L	0.4000	ND	102	70-130			
Chromium-52 [1]	0.382	0.0006	0.0025	0.0050	mg/L	0.4000	0.0014	95.3	70-130			
Copper-63 [1]	0.347	0.0006	0.0025	0.0050	mg/L	0.4000	0.0032	85.9	70-130			
Lead-206 [1]	0.404	0.0008	0.0025	0.0050	mg/L	0.4000	0.0008	101	70-130			
Nickel-60 [1]	0.375	0.0005	0.0025	0.0050	mg/L	0.4000	0.0021	93.2	70-130			
Silver-107 [1]	0.360	0.0008	0.0025	0.0050	mg/L	0.4000	0.0013	89.7	70-130			
Thallium-203 [1]	0.414	0.0003	0.0025	0.0050	mg/L	0.4000	ND	103	70-130			
Zinc-66 [1]	0.460	0.0010	0.0025	0.0050	mg/L	0.4000	0.0680	98.0	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Matrix Spike (B18K085-MS2)		Source: 18J0403-12				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.436	0.0007	0.0025	0.0050	mg/L	0.4000	0.0011	109	70-130			
Arsenic-75 [3]	0.442	0.0006	0.0025	0.0050	mg/L	0.4000	0.0021	110	70-130			
Barium-135 [1]	0.792	0.0020	0.0025	0.0050	mg/L	0.4000	0.386	101	70-130			
Beryllium-9 [1]	0.403	0.00015	0.0025	0.0050	mg/L	0.4000	ND	101	70-130			
Cadmium-111 [1]	0.407	0.0003	0.0025	0.0050	mg/L	0.4000	ND	102	70-130			
Chromium-52 [1]	0.382	0.0006	0.0025	0.0050	mg/L	0.4000	ND	95.6	70-130			
Copper-63 [1]	0.359	0.0006	0.0025	0.0050	mg/L	0.4000	ND	89.6	70-130			
Lead-206 [1]	0.404	0.0008	0.0025	0.0050	mg/L	0.4000	ND	101	70-130			
Nickel-60 [1]	0.375	0.0005	0.0025	0.0050	mg/L	0.4000	0.0015	93.3	70-130			
Silver-107 [1]	0.362	0.0008	0.0025	0.0050	mg/L	0.4000	0.0011	90.2	70-130			
Thallium-203 [1]	0.426	0.0003	0.0025	0.0050	mg/L	0.4000	ND	106	70-130			
Zinc-66 [1]	0.469	0.0010	0.0025	0.0050	mg/L	0.4000	0.184	71.3	70-130			

Matrix Spike Dup (B18K085-MSD1)		Source: 18J0401-13				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.445	0.0007	0.0025	0.0050	mg/L	0.4000	ND	111	70-130	1.99	30	
Arsenic-75 [3]	0.428	0.0006	0.0025	0.0050	mg/L	0.4000	0.0031	106	70-130	0.746	30	
Barium-135 [1]	0.471	0.0020	0.0025	0.0050	mg/L	0.4000	0.0823	97.3	70-130	4.23	30	
Beryllium-9 [1]	0.404	0.00015	0.0025	0.0050	mg/L	0.4000	ND	101	70-130	0.218	30	
Cadmium-111 [1]	0.412	0.0003	0.0025	0.0050	mg/L	0.4000	ND	103	70-130	1.28	30	
Chromium-52 [1]	0.386	0.0006	0.0025	0.0050	mg/L	0.4000	0.0014	96.1	70-130	0.862	30	
Copper-63 [1]	0.363	0.0006	0.0025	0.0050	mg/L	0.4000	0.0032	89.9	70-130	4.62	30	
Lead-206 [1]	0.402	0.0008	0.0025	0.0050	mg/L	0.4000	0.0008	100	70-130	0.452	30	
Nickel-60 [1]	0.365	0.0005	0.0025	0.0050	mg/L	0.4000	0.0021	90.8	70-130	2.55	30	
Silver-107 [1]	0.368	0.0008	0.0025	0.0050	mg/L	0.4000	0.0013	91.6	70-130	2.19	30	
Thallium-203 [1]	0.417	0.0003	0.0025	0.0050	mg/L	0.4000	ND	104	70-130	0.842	30	
Zinc-66 [1]	0.442	0.0010	0.0025	0.0050	mg/L	0.4000	0.0680	93.6	70-130	4.65	30	

Matrix Spike Dup (B18K085-MSD2)		Source: 18J0403-12				Prepared & Analyzed: 15-Nov-2018						
Antimony-121 [1]	0.446	0.0007	0.0025	0.0050	mg/L	0.4000	0.0011	111	70-130	2.18	30	
Arsenic-75 [3]	0.464	0.0006	0.0025	0.0050	mg/L	0.4000	0.0021	115	70-130	4.76	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Metals (Dissolved) by EPA 6000/7000 Series Methods - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K085 - Default Prep Metals

Matrix Spike Dup (B18K085-MSD2)	Source: 18J0403-12				Prepared & Analyzed: 15-Nov-2018							
Barium-135 [1]	0.818	0.0020	0.0025	0.0050	mg/L	0.4000	0.386	108	70-130	6.36	30	
Beryllium-9 [1]	0.409	0.00015	0.0025	0.0050	mg/L	0.4000	ND	102	70-130	1.36	30	
Cadmium-111 [1]	0.427	0.0003	0.0025	0.0050	mg/L	0.4000	ND	107	70-130	4.91	30	
Chromium-52 [1]	0.386	0.0006	0.0025	0.0050	mg/L	0.4000	ND	96.5	70-130	0.867	30	
Copper-63 [1]	0.363	0.0006	0.0025	0.0050	mg/L	0.4000	ND	90.6	70-130	1.11	30	
Lead-206 [1]	0.405	0.0008	0.0025	0.0050	mg/L	0.4000	ND	101	70-130	0.248	30	
Nickel-60 [1]	0.371	0.0005	0.0025	0.0050	mg/L	0.4000	0.0015	92.4	70-130	0.949	30	
Silver-107 [1]	0.373	0.0008	0.0025	0.0050	mg/L	0.4000	0.0011	93.0	70-130	3.15	30	
Thallium-203 [1]	0.424	0.0003	0.0025	0.0050	mg/L	0.4000	ND	106	70-130	0.517	30	
Zinc-66 [1]	0.415	0.0010	0.0025	0.0050	mg/L	0.4000	0.184	57.9	70-130	20.8	30	QM-07

Reference (B18K085-SRM1)

Reference (B18K085-SRM1)	Prepared & Analyzed: 15-Nov-2018											
Antimony-121 [1]	0.599	0.0014	0.0050	0.0100	mg/L	0.6160		97.3	70-130			
Arsenic-75 [3]	0.644	0.0011	0.0050	0.0100	mg/L	0.6880		93.6	70-130			
Barium-135 [1]	0.465	0.0040	0.0050	0.0100	mg/L	0.5000		93.0	70-130			
Beryllium-9 [1]	0.236	0.0003	0.0050	0.0100	mg/L	0.2530		93.5	70-130			
Cadmium-111 [1]	0.133	0.00069	0.0050	0.0100	mg/L	0.1320		101	70-130			
Chromium-52 [1]	0.897	0.0013	0.0050	0.0100	mg/L	0.8910		101	70-130			
Copper-63 [1]	0.902	0.0011	0.0050	0.0100	mg/L	0.8790		103	70-130			
Lead-206 [1]	0.528	0.0016	0.0050	0.0100	mg/L	0.5460		96.7	70-130			
Nickel-60 [1]	0.816	0.0010	0.0050	0.0100	mg/L	0.8010		102	70-130			
Silver-107 [1]	0.865	0.0016	0.0050	0.0100	mg/L	0.9170		94.3	70-130			
Thallium-203 [1]	0.765	0.0006	0.0050	0.0100	mg/L	0.7750		98.7	70-130			
Zinc-66 [1]	1.16	0.0020	0.0050	0.0100	mg/L	1.250		93.0	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18K016 - *												
Blank (B18K016-BLK1)						Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018						
Mercury	ND	0.002	0.005	0.010	ug/L							U
LCS (B18K016-BS1)						Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018						
Mercury	0.200	0.002	0.005	0.010	ug/L	0.2000		99.8	75-125			
Calibration Check (B18K016-CCV1)						Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018						
Mercury	0.196	0.004	0.010	0.020	ug/L	0.2000		98.0	90-110			
Calibration Check (B18K016-CCV2)						Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018						
Mercury	0.202	0.004	0.010	0.020	ug/L	0.2000		101	90-110			
Calibration Check (B18K016-CCV3)						Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018						
Mercury	0.188	0.004	0.010	0.020	ug/L	0.2000		94.2	90-110			
Calibration Check (B18K016-CCV4)						Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018						
Mercury	0.189	0.004	0.010	0.020	ug/L	0.2000		94.5	90-110			
Duplicate (B18K016-DUP1)						Source: 18J0403-12			Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018			
Mercury	ND	0.004	0.010	0.020	ug/L		ND				25	U
Matrix Spike (B18K016-MS1)						Source: 18J0403-12			Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018			
Mercury	0.394	0.004	0.010	0.020	ug/L	0.4000	ND	98.6	75-125			
Matrix Spike Dup (B18K016-MSD1)						Source: 18J0403-12			Prepared: 14-Nov-2018 Analyzed: 16-Nov-2018			
Mercury	0.376	0.004	0.010	0.020	ug/L	0.4000	ND	94.1	75-125	4.67	25	
Reference (B18K016-SRM1)						Prepared: 14-Nov-2018 Analyzed: 29-Nov-2018						
Mercury	23.1	0.004	0.010	0.020	ug/L	22.60		102	80-120			

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18K101 - Default Prep Metals												
Blank (B18K101-BLK1)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.0003	0.00015	0.0005	0.0010	mg/L							J
LCS (B18K101-BS1)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.235	0.0015	0.0050	0.0100	mg/L	0.2000		117	80-120			
Calibration Check (B18K101-CCV1)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.0409	0.00015	0.0005	0.0010	mg/L	0.04000		102	90-110			
Calibration Check (B18K101-CCV2)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.0514	0.00015	0.0005	0.0010	mg/L	0.05000		103	90-110			
Calibration Check (B18K101-CCV3)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.0480	0.00015	0.0005	0.0010	mg/L	0.05000		96.0	90-110			
Calibration Check (B18K101-CCV4)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.0457	0.00015	0.0005	0.0010	mg/L	0.05000		91.4	90-110			
Duplicate (B18K101-DUP1)						Source: 18J0403-12			Prepared & Analyzed: 30-Oct-2018			
Selenium	ND	0.0015	0.0050	0.0100	mg/L		ND				20	U
Matrix Spike (B18K101-MS1)						Source: 18J0403-12			Prepared & Analyzed: 30-Oct-2018			
Selenium	0.215	0.0015	0.0050	0.0100	mg/L	0.2000	ND	107	80-120			
Matrix Spike Dup (B18K101-MSD1)						Source: 18J0403-12			Prepared & Analyzed: 30-Oct-2018			
Selenium	0.220	0.0015	0.0050	0.0100	mg/L	0.2000	ND	110	80-120	2.16	20	
Reference (B18K101-SRM1)						Prepared & Analyzed: 30-Oct-2018						
Selenium	0.956	0.0015	0.0050	0.0100	mg/L	0.9170		104	70-130			

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ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Metals by EPA 6000/7000 Series Methods - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18L043 - Default Prep Metals

Blank (B18L043-BLK1)

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	ND	0.00030	0.00050	0.001	mg/L							U
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LCS (B18L043-BS1)

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	0.051	0.00030	0.00050	0.001	mg/L	0.05000		102	80-120			
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Calibration Check (B18L043-CCV1)

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	0.053	0.00030	0.00050	0.001	mg/L	0.05000		107	85-115			
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Calibration Check (B18L043-CCV2)

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	0.051	0.00030	0.00050	0.001	mg/L	0.05000		102	85-115			
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Calibration Check (B18L043-CCV3)

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	0.051	0.00030	0.00050	0.001	mg/L	0.05000		102	85-115			
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Duplicate (B18L043-DUP1)

Source: 18J0403-12

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	ND	0.00060	0.001	0.002	mg/L		ND				20	U
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Matrix Spike (B18L043-MS1)

Source: 18J0403-12

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	0.050	0.00060	0.001	0.002	mg/L	0.05000	ND	101	80-120			
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Matrix Spike Dup (B18L043-MSD1)

Source: 18J0403-12

Prepared & Analyzed: 29-Oct-2018

Chromium (VI)	0.050	0.00060	0.001	0.002	mg/L	0.05000	ND	101	80-120	0.00	20	
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0024 - B18K009

Initial Cal Check (18K0024-ICV1)

Prepared & Analyzed: 19-Nov-2018

Dissolved Organic Carbon	9.89				mg/L	10.00		98.9	90-110			
DOC rep1	9.81				mg/L	10.00		98.1	90-110			
DOC rep2	9.86				mg/L	10.00		98.6	90-110			
DOC rep3	9.95				mg/L	10.00		99.5	90-110			
DOC rep4	9.96				mg/L	10.00		99.6	90-110			
TOC rep1	9.81				mg/L	10.00		98.1	80-120			
TOC rep2	9.86				mg/L	10.00		98.6	80-120			
TOC rep3	9.95				mg/L	10.00		99.5	80-120			
TOC rep4	9.96				mg/L	10.00		99.6	80-120			
Total Organic Carbon	9.89				mg/L	10.00		98.9	80-120			

Batch B18J235 - *

Blank (B18J235-BLK1)

Prepared & Analyzed: 30-Oct-2018

Sulfide	ND	0.00150	0.00500	0.0100	mg/L							U
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LCS (B18J235-BS1)

Prepared & Analyzed: 30-Oct-2018

Sulfide	0.202	0.00150	0.00500	0.0100	mg/L	0.2000		101	80-120			
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Calibration Check (B18J235-CCV1)

Prepared & Analyzed: 30-Oct-2018

Sulfide	0.524	0.00150	0.00500	0.0100	mg/L	0.5000		105	85-115			
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Calibration Check (B18J235-CCV2)

Prepared & Analyzed: 30-Oct-2018

Sulfide	0.518	0.00150	0.00500	0.0100	mg/L	0.5000		104	85-115			
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Calibration Check (B18J235-CCV3)

Prepared & Analyzed: 30-Oct-2018

Sulfide	0.494	0.00150	0.00500	0.0100	mg/L	0.5000		98.8	85-115			
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 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18J235 - *

Calibration Check (B18J235-CCV4)						Prepared & Analyzed: 30-Oct-2018						
Sulfide	0.495	0.00150	0.00500	0.0100	mg/L	0.5000		99.0	85-115			

Duplicate (B18J235-DUP1)						Source: 18J0403-12 Prepared & Analyzed: 30-Oct-2018						
Sulfide	ND	0.00150	0.00500	0.0100	mg/L		ND				20	U

Matrix Spike (B18J235-MS1)						Source: 18J0403-12 Prepared & Analyzed: 30-Oct-2018						
Sulfide	0.179	0.00150	0.00500	0.0100	mg/L	0.2000	ND	89.5	80-120			

Matrix Spike Dup (B18J235-MSD1)						Source: 18J0403-12 Prepared & Analyzed: 30-Oct-2018						
Sulfide	0.193	0.00150	0.00500	0.0100	mg/L	0.2000	ND	96.5	80-120	7.53	20	

Batch B18K009 - * DEFAULT PREP *****

Blank (B18K009-BLK1)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK2)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Blank (B18K009-BLK3)						Prepared: 05-Nov-2018 Analyzed: 19-Nov-2018						
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK4)						Prepared: 05-Nov-2018 Analyzed: 19-Nov-2018						
Dissolved Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
DOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK5)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U
Total Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK6)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U
Total Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK7)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep4	ND	3.50E-5	5.00E-5	1.00E-4	%							U

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Blank (B18K009-BLK7)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Total Organic Carbon	ND	3.50E-5	5.00E-5	1.00E-4	%							U

Blank (B18K009-BLK8)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	4.96E-5	3.50E-5	5.00E-5	1.00E-4	%							J
TOC rep2	ND	3.50E-5	5.00E-5	1.00E-4	%							U
TOC rep3	3.90E-5	3.50E-5	5.00E-5	1.00E-4	%							J
TOC rep4	3.87E-5	3.50E-5	5.00E-5	1.00E-4	%							J
Total Organic Carbon	4.04E-5	3.50E-5	5.00E-5	1.00E-4	%							J

LCS (B18K009-BS1)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	9.65E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.5	80-120			
DOC rep1	9.55E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		95.5	80-120			
DOC rep2	9.64E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.4	80-120			
DOC rep3	9.67E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.7	80-120			
DOC rep4	9.75E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.5	80-120			

LCS (B18K009-BS2)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	9.13E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		91.3	80-120			
DOC rep1	9.15E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		91.5	80-120			
DOC rep2	9.21E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		92.1	80-120			
DOC rep3	9.27E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		92.7	80-120			
DOC rep4	8.90E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		89.0	80-120			

LCS (B18K009-BS3)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	9.94E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		99.4	80-120			
TOC rep2	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
TOC rep3	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
TOC rep4	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			
Total Organic Carbon	0.00101	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		101	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

LCS (B18K009-BS4)

Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

TOC rep1	9.67E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		96.7	80-120			
TOC rep2	9.73E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.3	80-120			
TOC rep3	9.76E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.6	80-120			
TOC rep4	9.74E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.4	80-120			
Total Organic Carbon	9.73E-4	3.50E-5	5.00E-5	1.00E-4	%	1.000E-3		97.3	80-120			

Calibration Check (B18K009-CCV1)

Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

Dissolved Organic Carbon	4.97E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		99.4	90-110			
DOC rep1	4.84E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		96.8	90-110			
DOC rep2	4.94E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		98.8	90-110			
DOC rep3	5.05E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		101	90-110			
DOC rep4	5.01E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		100	90-110			

Calibration Check (B18K009-CCV2)

Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

Dissolved Organic Carbon	5.03E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		101	90-110			
DOC rep1	4.87E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		97.4	90-110			
DOC rep2	4.89E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		97.8	90-110			
DOC rep3	4.95E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		99.0	90-110			
DOC rep4	5.42E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		108	90-110			

Calibration Check (B18K009-CCV3)

Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

Dissolved Organic Carbon	5.08E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
DOC rep1	5.03E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		101	90-110			
DOC rep2	5.08E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
DOC rep3	5.11E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
DOC rep4	5.11E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			

Calibration Check (B18K009-CCV4)

Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018

Dissolved Organic Carbon	5.16E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep1	5.14E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep2	5.14E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
DOC rep3	5.17E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18K009 - *** DEFAULT PREP ***												
Calibration Check (B18K009-CCV4)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
DOC rep4	5.20E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
Calibration Check (B18K009-CCV5)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	5.11E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
TOC rep2	5.16E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
TOC rep3	5.18E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
TOC rep4	5.27E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			
Total Organic Carbon	5.18E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
Calibration Check (B18K009-CCV6)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	5.08E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		102	90-110			
TOC rep2	5.16E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
TOC rep3	5.20E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
TOC rep4	5.24E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			
Total Organic Carbon	5.17E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
Calibration Check (B18K009-CCV7)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	5.15E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		103	90-110			
TOC rep2	5.21E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		104	90-110			
TOC rep3	5.27E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			
TOC rep4	5.42E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		108	90-110			
Total Organic Carbon	5.26E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		105	90-110			
Calibration Check (B18K009-CCV8)						Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	5.39E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		108	90-110			
TOC rep2	5.34E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			
TOC rep3	5.34E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			
TOC rep4	5.36E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			
Total Organic Carbon	5.36E-4	3.50E-5	5.00E-5	1.00E-4	%	5.000E-4		107	90-110			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Duplicate (B18K009-DUP1)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep1	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep2	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep3	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep4	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep1	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep2	ND	0.00350	0.00500	0.0100	%		0.00436				20	U
TOC rep3	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep4	ND	0.00350	0.00500	0.0100	%		ND				20	U
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U

Duplicate (B18K009-DUP2)		Source: 18J0403-12				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep1	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep2	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep3	ND	0.00350	0.00500	0.0100	%		ND				20	U
DOC rep4	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep1	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep2	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep3	ND	0.00350	0.00500	0.0100	%		ND				20	U
TOC rep4	0.00372	0.00350	0.00500	0.0100	%		0.00359			3.64	20	J
Total Organic Carbon	ND	0.00350	0.00500	0.0100	%		ND				20	U

Matrix Spike (B18K009-MS1)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	0.0951	0.00350	0.00500	0.0100	%	0.1000	ND	95.1	70-130			
DOC rep1	0.0942	0.00350	0.00500	0.0100	%	0.1000	ND	94.2	70-130			
DOC rep2	0.0948	0.00350	0.00500	0.0100	%	0.1000	ND	94.8	70-130			
DOC rep3	0.0953	0.00350	0.00500	0.0100	%	0.1000	ND	95.3	70-130			
DOC rep4	0.0960	0.00350	0.00500	0.0100	%	0.1000	ND	96.0	70-130			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Miscellaneous Physical/Conventional Chemistry Parameters - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K009 - * DEFAULT PREP *****

Matrix Spike (B18K009-MS2)		Source: 18J0403-12				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	0.0958	0.00350	0.00500	0.0100	%	0.1000	ND	95.8	70-130			
DOC rep1	0.0947	0.00350	0.00500	0.0100	%	0.1000	ND	94.7	70-130			
DOC rep2	0.0958	0.00350	0.00500	0.0100	%	0.1000	ND	95.8	70-130			
DOC rep3	0.0966	0.00350	0.00500	0.0100	%	0.1000	ND	96.6	70-130			
DOC rep4	0.0962	0.00350	0.00500	0.0100	%	0.1000	ND	96.2	70-130			

Matrix Spike (B18K009-MS3)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	0.0956	0.00350	0.00500	0.0100	%	0.1000	ND	95.6	70-130			
TOC rep2	0.0966	0.00350	0.00500	0.0100	%	0.1000	0.00436	92.2	70-130			
TOC rep3	0.0970	0.00350	0.00500	0.0100	%	0.1000	ND	97.0	70-130			
TOC rep4	0.0972	0.00350	0.00500	0.0100	%	0.1000	ND	97.2	70-130			
Total Organic Carbon	0.0966	0.00350	0.00500	0.0100	%	0.1000	ND	96.6	70-130			

Matrix Spike (B18K009-MS4)		Source: 18J0403-12				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
TOC rep1	0.0970	0.00350	0.00500	0.0100	%	0.1000	ND	97.0	70-130			
TOC rep2	0.0978	0.00350	0.00500	0.0100	%	0.1000	ND	97.8	70-130			
TOC rep3	0.0985	0.00350	0.00500	0.0100	%	0.1000	ND	98.5	70-130			
Total Organic Carbon	0.0978	0.00350	0.00500	0.0100	%	0.1000	ND	97.8	70-130			

Matrix Spike Dup (B18K009-MSD1)		Source: 18J0401-13				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	0.0974	0.00350	0.00500	0.0100	%	0.1000	ND	97.4	70-130	2.39	20	
DOC rep1	0.0968	0.00350	0.00500	0.0100	%	0.1000	ND	96.8	70-130	2.72	20	
DOC rep2	0.0972	0.00350	0.00500	0.0100	%	0.1000	ND	97.2	70-130	2.50	20	
DOC rep3	0.0974	0.00350	0.00500	0.0100	%	0.1000	ND	97.4	70-130	2.18	20	
DOC rep4	0.0980	0.00350	0.00500	0.0100	%	0.1000	ND	98.0	70-130	2.06	20	

Matrix Spike Dup (B18K009-MSD2)		Source: 18J0403-12				Prepared: 05-Nov-2018 Analyzed: 08-Nov-2018						
Dissolved Organic Carbon	0.0931	0.00350	0.00500	0.0100	%	0.1000	ND	93.1	70-130	2.86	20	
DOC rep1	0.0925	0.00350	0.00500	0.0100	%	0.1000	ND	92.5	70-130	2.35	20	
DOC rep2	0.0934	0.00350	0.00500	0.0100	%	0.1000	ND	93.4	70-130	2.54	20	
DOC rep3	0.0932	0.00350	0.00500	0.0100	%	0.1000	ND	93.2	70-130	3.58	20	
DOC rep4	0.0933	0.00350	0.00500	0.0100	%	0.1000	ND	93.3	70-130	3.06	20	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV1)

Prepared & Analyzed: 14-Nov-2018

4,4'-DDT	21.2				ug/L	20.00		106	85-150			
Aldrin	22.0				ug/L	20.00		110	85-150			
alpha-BHC	22.3				ug/L	20.00		112	85-150			
alpha-Chlordane	42.8				ug/L	40.00		107	85-150			
beta-BHC	20.5				ug/L	20.00		102	85-150			
cis-Nonachlor	21.1				ug/L	20.00		106	85-150			
delta-BHC	21.1				ug/L	20.00		106	85-150			
Dieldrin	21.7				ug/L	20.00		108	85-150			
Endosulfan I	44.4				ug/L	40.00		111	85-150			
Endosulfan II	21.2				ug/L	20.00		106	85-150			
Endosulfan sulfate	20.4				ug/L	20.00		102	85-150			
Endrin	21.5				ug/L	20.00		108	85-150			
Endrin aldehyde	21.1				ug/L	20.00		106	85-150			
Endrin ketone	19.7				ug/L	20.00		98.5	80-120			
gamma-BHC (Lindane)	20.1				ug/L	20.00		100	85-150			
gamma-Chlordane	21.1				ug/L	20.00		105	85-150			
Heptachlor	21.6				ug/L	20.00		108	85-150			
Heptachlor epoxide	20.8				ug/L	20.00		104	85-150			
Methoxychlor	20.6				ug/L	20.00		103	85-150			
Oxychlordane	20.4				ug/L	20.00		102	85-150			
trans-Nonachlor	42.8				ug/L	40.00		107	85-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	20.4				ug/L	20.00		102	85-115			
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	21.1				ug/L	20.00		106	85-115			

Calibration Check (18K0002-CCV2)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	305				ug/L	300.0		102	85-150			
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3909 Halls Ferry Road
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ERDC -- Vicksburg (EL)
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV3)

Prepared & Analyzed: 15-Nov-2018

4,4'-DDT	35.3				ug/L	20.00		176	80-120			
Aldrin	36.8				ug/L	20.00		184	80-120			
alpha-BHC	38.1				ug/L	20.00		190	80-120			
alpha-Chlordane	71.4				ug/L	40.00		179	80-120			
beta-BHC	34.7				ug/L	20.00		173	80-120			
cis-Nonachlor	35.1				ug/L	20.00		176	0-200			
delta-BHC	37.7				ug/L	20.00		189	80-120			
Dieldrin	36.8				ug/L	20.00		184	80-120			
Endosulfan I	35.0				ug/L	40.00		87.5	80-120			
Endosulfan II	74.2				ug/L	20.00		371	80-120			
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	37.6				ug/L	20.00		188	80-120			
Endrin aldehyde	35.0				ug/L	20.00		175	80-120			
Endrin ketone	68.8				ug/L	20.00		344	80-120			
gamma-BHC (Lindane)	35.2				ug/L	20.00		176	80-120			
gamma-Chlordane	36.0				ug/L	20.00		180	80-120			
Heptachlor	37.9				ug/L	20.00		189	80-120			
Heptachlor epoxide	36.2				ug/L	20.00		181	80-120			
Methoxychlor	34.6				ug/L	20.00		173	80-120			
Oxychlordane	35.1				ug/L	20.00		175	0-200			
trans-Nonachlor	71.7				ug/L	40.00		179	0-200			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCV4)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	309				ug/L	300.0		103	85-150			
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV5)

Prepared: 14-Nov-2018 Analyzed: 15-Nov-2018

4,4'-DDT	20.0				ug/L	20.00		100	85-150			
Aldrin	21.3				ug/L	20.00		107	85-150			
alpha-BHC	22.0				ug/L	20.00		110	85-150			
alpha-Chlordane	41.4				ug/L	40.00		104	85-150			
beta-BHC	19.7				ug/L	20.00		98.7	85-150			
cis-Nonachlor	20.5				ug/L	20.00		102	85-150			
delta-BHC	21.9				ug/L	20.00		109	85-150			
Dieldrin	20.9				ug/L	20.00		104	85-150			
Endosulfan I	42.9				ug/L	40.00		107	85-150			
Endosulfan II	20.4				ug/L	20.00		102	85-150			
Endosulfan sulfate	20.5				ug/L	20.00		102	85-150			
Endrin	21.3				ug/L	20.00		106	85-150			
Endrin aldehyde	20.2				ug/L	20.00		101	85-150			
Endrin ketone	19.0				ug/L	20.00		95.0	80-120			
gamma-BHC (Lindane)	21.3				ug/L	20.00		106	85-150			
gamma-Chlordane	20.7				ug/L	20.00		103	85-150			
Heptachlor	20.9				ug/L	20.00		105	85-150			
Heptachlor epoxide	21.1				ug/L	20.00		105	85-150			
Methoxychlor	20.2				ug/L	20.00		101	85-150			
Oxychlordane	20.0				ug/L	20.00		100	85-150			
trans-Nonachlor	41.4				ug/L	40.00		104	85-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	19.8				ug/L	20.00		99.0	85-115			
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	20.4				ug/L	20.00		102	85-115			

Calibration Check (18K0002-CCV6)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	300				ug/L	300.0		100	85-150			
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV7)

Prepared: 14-Nov-2018 Analyzed: 15-Nov-2018

4,4'-DDT	16.7				ug/L	20.00		83.3	85-150			CCV-L
Aldrin	17.4				ug/L	20.00		87.1	85-150			
alpha-BHC	17.9				ug/L	20.00		89.3	85-150			
alpha-Chlordane	34.2				ug/L	40.00		85.5	85-150			
beta-BHC	17.1				ug/L	20.00		85.5	85-150			
cis-Nonachlor	17.1				ug/L	20.00		85.5	85-150			
delta-BHC	17.3				ug/L	20.00		86.5	85-150			
Dieldrin	17.1				ug/L	20.00		85.7	85-150			
Endosulfan I	35.3				ug/L	40.00		88.2	85-150			
Endosulfan II	17.2				ug/L	20.00		86.0	85-150			
Endosulfan sulfate	17.9				ug/L	20.00		89.5	85-150			
Endrin	17.5				ug/L	20.00		87.4	85-150			
Endrin aldehyde	17.6				ug/L	20.00		87.9	85-150			
Endrin ketone	17.2				ug/L	20.00		86.0	80-120			
gamma-BHC (Lindane)	17.8				ug/L	20.00		88.9	85-150			
gamma-Chlordane	17.0				ug/L	20.00		85.2	85-150			
Heptachlor	17.2				ug/L	20.00		86.1	85-150			
Heptachlor epoxide	17.1				ug/L	20.00		85.6	85-150			
Methoxychlor	17.2				ug/L	20.00		86.0	85-150			
Oxychlordane	16.6				ug/L	20.00		82.9	85-150			CCV-L
trans-Nonachlor	34.2				ug/L	40.00		85.4	85-150			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	17.4				ug/L	20.00		87.0	85-115			
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	17.1				ug/L	20.00		85.5	85-115			

Calibration Check (18K0002-CCV8)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	262				ug/L	300.0		87.3	85-150			
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCV9)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.00				ug/L	20.00			80-120			U
Aldrin	0.00				ug/L	20.00			80-120			U
alpha-BHC	0.00				ug/L	20.00			80-120			U
alpha-Chlordane	0.00				ug/L	40.00			80-120			U
beta-BHC	0.00				ug/L	20.00			80-120			U
cis-Nonachlor	0.00				ug/L	20.00			0-200			U
delta-BHC	0.00				ug/L	20.00			80-120			U
Dieldrin	0.00				ug/L	20.00			80-120			U
Endosulfan I	0.00				ug/L	40.00			80-120			U
Endosulfan II	0.00				ug/L	20.00			80-120			U
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	0.00				ug/L	20.00			80-120			U
Endrin aldehyde	0.00				ug/L	20.00			80-120			U
Endrin ketone	0.00				ug/L	20.00			80-120			U
gamma-BHC (Lindane)	0.00				ug/L	20.00			80-120			U
gamma-Chlordane	0.00				ug/L	20.00			80-120			U
Heptachlor	0.00				ug/L	20.00			80-120			U
Heptachlor epoxide	0.00				ug/L	20.00			80-120			U
Methoxychlor	0.00				ug/L	20.00			80-120			U
Oxychlorane	0.00				ug/L	20.00			0-200			U
trans-Nonachlor	0.00				ug/L	40.00			0-200			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCVA)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCVB)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.00				ug/L	20.00			80-120			U
Aldrin	0.00				ug/L	20.00			80-120			U
alpha-BHC	0.00				ug/L	20.00			80-120			U
alpha-Chlordane	0.00				ug/L	40.00			80-120			U
beta-BHC	0.00				ug/L	20.00			80-120			U
cis-Nonachlor	0.00				ug/L	20.00			0-200			U
delta-BHC	0.00				ug/L	20.00			80-120			U
Dieldrin	0.00				ug/L	20.00			80-120			U
Endosulfan I	0.00				ug/L	40.00			80-120			U
Endosulfan II	0.00				ug/L	20.00			80-120			U
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	0.00				ug/L	20.00			80-120			U
Endrin aldehyde	0.00				ug/L	20.00			80-120			U
Endrin ketone	0.00				ug/L	20.00			80-120			U
gamma-BHC (Lindane)	0.00				ug/L	20.00			80-120			U
gamma-Chlordane	0.00				ug/L	20.00			80-120			U
Heptachlor	0.00				ug/L	20.00			80-120			U
Heptachlor epoxide	0.00				ug/L	20.00			80-120			U
Methoxychlor	0.00				ug/L	20.00			80-120			U
Oxychlordane	0.00				ug/L	20.00			0-200			U
trans-Nonachlor	0.00				ug/L	40.00			0-200			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCVC)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Calibration Check (18K0002-CCVD)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.00				ug/L	20.00			80-120			U
Aldrin	0.00				ug/L	20.00			80-120			U
alpha-BHC	0.00				ug/L	20.00			80-120			U
alpha-Chlordane	0.00				ug/L	40.00			80-120			U
beta-BHC	0.00				ug/L	20.00			80-120			U
cis-Nonachlor	0.00				ug/L	20.00			0-200			U
delta-BHC	0.00				ug/L	20.00			80-120			U
Dieldrin	0.00				ug/L	20.00			80-120			U
Endosulfan I	0.00				ug/L	40.00			80-120			U
Endosulfan II	0.00				ug/L	20.00			80-120			U
Endosulfan sulfate	0.00				ug/L	20.00			80-120			U
Endrin	0.00				ug/L	20.00			80-120			U
Endrin aldehyde	0.00				ug/L	20.00			80-120			U
Endrin ketone	0.00				ug/L	20.00			80-120			U
gamma-BHC (Lindane)	0.00				ug/L	20.00			80-120			U
gamma-Chlordane	0.00				ug/L	20.00			80-120			U
Heptachlor	0.00				ug/L	20.00			80-120			U
Heptachlor epoxide	0.00				ug/L	20.00			80-120			U
Methoxychlor	0.00				ug/L	20.00			80-120			U
Oxychlordane	0.00				ug/L	20.00			0-200			U
trans-Nonachlor	0.00				ug/L	40.00			0-200			U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L	20.00			85-115			U
Surrogate: Decachlorobiphenyl	0.00				ug/L	20.00			85-115			U
Surrogate: PCB 198	0.00				ug/L	20.00			85-115			U

Calibration Check (18K0002-CCVE)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Initial Cal Blank (18K0002-ICB1)

Prepared & Analyzed: 14-Nov-2018

4,4'-DDT	0.00				ug/L							U
Aldrin	0.00				ug/L							U
alpha-BHC	0.00				ug/L							U
alpha-Chlordane	0.00				ug/L							U
beta-BHC	0.00				ug/L							U
cis-Nonachlor	0.00				ug/L							U
delta-BHC	0.00				ug/L							U
Dibutyl Chlorendate	0.00				ug/L				45-135			U
Dibutyl Chlorendate [2]	0.00				ug/L				45-135			U
Dieldrin	0.00				ug/L							U
Endosulfan I	0.00				ug/L							U
Endosulfan II	0.00				ug/L							U
Endosulfan sulfate	0.00				ug/L							U
Endrin	0.00				ug/L							U
Endrin aldehyde	0.00				ug/L							U
Endrin ketone	0.00				ug/L							U
gamma-BHC (Lindane)	0.00				ug/L							U
gamma-Chlordane	0.00				ug/L							U
Heptachlor	0.00				ug/L							U
Heptachlor epoxide	0.00				ug/L							U
Hexachlorobenzene [2]	0.00				ug/L							U
Hexachlorocyclopentadiene (2C)	0.00				ug/L							U
Methoxychlor	0.00				ug/L							U
Oxychlordane	0.00				ug/L							U
Toxaphene	0.00				ug/L							U
trans-Nonachlor	0.00				ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.00				ug/L				30-125			Z-03, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Initial Cal Blank (18K0002-ICB1) Prepared & Analyzed: 14-Nov-2018

Surrogate:	0.00				ug/L				40-135			U
Decachlorobiphenyl												
Surrogate: PCB 198	0.00				ug/L				30-125			Z-03, U

Initial Cal Check (18K0002-ICV1) Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	20.2				ug/L	20.00		101	80-120			
Aldrin	21.5				ug/L	20.00		108	80-120			
alpha-BHC	21.7				ug/L	20.00		108	80-120			
alpha-Chlordane	40.2				ug/L	40.00		100	80-120			
beta-BHC	19.0				ug/L	20.00		95.0	80-120			
cis-Nonachlor	19.7				ug/L	20.00		98.5	80-120			
delta-BHC	25.4				ug/L	20.00		127	80-120			Q
Dieldrin	21.5				ug/L	20.00		108	80-120			
Endosulfan I	42.7				ug/L	40.00		107	80-120			
Endosulfan II	19.5				ug/L	20.00		97.5	80-120			
Endosulfan sulfate	20.1				ug/L	20.00		100	80-120			
Endrin	21.8				ug/L	20.00		109	80-120			
Endrin aldehyde	19.8				ug/L	20.00		99.0	80-120			
Endrin ketone	19.1				ug/L	20.00		95.5	80-120			Q
gamma-BHC (Lindane)	21.0				ug/L	20.00		105	80-120			
gamma-Chlordane	19.6				ug/L	20.00		98.0	80-120			
Heptachlor	19.9				ug/L	20.00		99.5	80-120			
Heptachlor epoxide	21.0				ug/L	20.00		105	80-120			
Methoxychlor	19.6				ug/L	20.00		98.0	80-120			
Oxychlordane	19.1				ug/L	20.00		95.5	80-120			
trans-Nonachlor	40.2				ug/L	40.00		100	80-120			

Initial Cal Check (18K0002-ICV2) Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			U
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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18K0002 - B18K002

Initial Cal Check (18K0002-ICV3)

Prepared: 15-Nov-2018 Analyzed: 17-Nov-2018

Toxaphene	0.00				ug/L	300.0			80-120			Z-03, U
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Batch B18K002 - EPA 3510C

Blank (B18K002-BLK1)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L							U
Aldrin	ND	0.0007	0.002	0.007	ug/L							U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L							U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L							U
beta-BHC	ND	0.001	0.002	0.007	ug/L							U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L							U
delta-BHC	ND	0.0007	0.002	0.007	ug/L							U
Dieldrin	ND	0.0007	0.002	0.007	ug/L							U
Endosulfan I	ND	0.001	0.002	0.007	ug/L							U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L							U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L							U
Endrin	ND	0.001	0.002	0.007	ug/L							U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L							U
Endrin ketone	ND	0.001	0.002	0.007	ug/L							U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L							U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L							U
Heptachlor	ND	0.0008	0.002	0.007	ug/L							U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L							U
Methoxychlor	ND	0.001	0.002	0.007	ug/L							U
Oxychlordane	ND	0.001	0.002	0.007	ug/L							U
Toxaphene	ND	0.073	0.100	0.300	ug/L							U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0774				ug/L	0.1000		77.4	30-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	0.111				ug/L	0.1200		92.4	30-125			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Blank (B18K002-BLK1)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

LCS (B18K002-BS1)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.107	0.0008	0.002	0.007	ug/L	0.1200		89.0	50-150		30	
Aldrin	0.089	0.0007	0.002	0.007	ug/L	0.1200		74.2	50-150		30	
alpha-BHC	0.104	0.0007	0.002	0.007	ug/L	0.1200		86.5	50-150		30	
alpha-Chlordane	0.212	0.001	0.002	0.007	ug/L	0.2400		88.3	50-150		30	
beta-BHC	0.094	0.001	0.002	0.007	ug/L	0.1200		78.1	50-150		30	
cis-Nonachlor	0.108	0.0007	0.002	0.007	ug/L	0.1200		90.0	50-150		30	
delta-BHC	0.095	0.0007	0.002	0.007	ug/L	0.1200		79.3	50-150		30	
Dieldrin	0.111	0.0007	0.002	0.007	ug/L	0.1200		92.3	50-150		30	
Endosulfan I	0.200	0.001	0.002	0.007	ug/L	0.2400		83.5	50-150		30	
Endosulfan II	0.110	0.0005	0.002	0.007	ug/L	0.1200		91.8	50-150		30	
Endosulfan sulfate	0.109	0.0007	0.002	0.007	ug/L	0.1200		90.8	50-150		30	
Endrin	0.108	0.001	0.002	0.007	ug/L	0.1200		89.7	50-150		30	
Endrin aldehyde	0.104	0.00060	0.002	0.007	ug/L	0.1200		86.3	50-150		30	
Endrin ketone	0.060	0.001	0.002	0.007	ug/L	0.1200		50.0	50-150		30	
gamma-BHC (Lindane)	0.093	0.0008	0.002	0.007	ug/L	0.1200		77.6	50-150		30	
gamma-Chlordane	0.104	0.0007	0.002	0.007	ug/L	0.1200		87.0	50-150		30	
Heptachlor	0.100	0.0008	0.002	0.007	ug/L	0.1200		83.1	50-150		30	
Heptachlor epoxide	0.109	0.0007	0.002	0.007	ug/L	0.1200		90.6	50-150		30	
Methoxychlor	0.105	0.001	0.002	0.007	ug/L	0.1200		87.8	50-150		30	
Oxychlorane	0.100	0.001	0.002	0.007	ug/L	0.1200		83.1	50-150		30	
Toxaphene	ND	0.073	0.100	0.300	ug/L				50-150		30	U
trans-Nonachlor	0.212	0.0008	0.002	0.007	ug/L	0.2400		88.3	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0753				ug/L	0.1000		75.3	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.104				ug/L	0.1200		87.0	30-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

LCS (B18K002-BS2)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
delta-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endrin	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L				50-150		30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Oxychlorane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Toxaphene	1.37	0.073	0.100	0.300	ug/L	1.200		114	50-150		30	
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0730				ug/L	0.1000		73.0	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.0964				ug/L	0.1200		80.3	30-120			

LCS Dup (B18K002-BSD1)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	0.096	0.0008	0.002	0.007	ug/L	0.1200		79.9	50-150	10.8	30	
Aldrin	0.082	0.0007	0.002	0.007	ug/L	0.1200		68.0	50-150	8.79	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

LCS Dup (B18K002-BSD1)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

alpha-BHC	0.093	0.0007	0.002	0.007	ug/L	0.1200		77.6	50-150	10.8	30	
alpha-Chlordane	0.197	0.001	0.002	0.007	ug/L	0.2400		82.2	50-150	7.15	30	
beta-BHC	0.085	0.001	0.002	0.007	ug/L	0.1200		70.9	50-150	9.65	30	
cis-Nonachlor	0.102	0.0007	0.002	0.007	ug/L	0.1200		84.8	50-150	5.88	30	
delta-BHC	0.088	0.0007	0.002	0.007	ug/L	0.1200		73.2	50-150	8.01	30	
Dieldrin	0.104	0.0007	0.002	0.007	ug/L	0.1200		86.3	50-150	6.76	30	
Endosulfan I	0.185	0.001	0.002	0.007	ug/L	0.2400		76.9	50-150	8.15	30	
Endosulfan II	0.104	0.0005	0.002	0.007	ug/L	0.1200		86.9	50-150	5.50	30	
Endosulfan sulfate	0.102	0.0007	0.002	0.007	ug/L	0.1200		85.3	50-150	6.23	30	
Endrin	0.098	0.001	0.002	0.007	ug/L	0.1200		81.9	50-150	9.14	30	
Endrin aldehyde	0.097	0.00060	0.002	0.007	ug/L	0.1200		80.7	50-150	6.67	30	
Endrin ketone	0.055	0.001	0.002	0.007	ug/L	0.1200		46.0	50-150	8.36	30	
gamma-BHC (Lindane)	0.082	0.0008	0.002	0.007	ug/L	0.1200		67.9	50-150	13.3	30	
gamma-Chlordane	0.097	0.0007	0.002	0.007	ug/L	0.1200		81.0	50-150	7.06	30	
Heptachlor	0.088	0.0008	0.002	0.007	ug/L	0.1200		73.4	50-150	12.4	30	
Heptachlor epoxide	0.099	0.0007	0.002	0.007	ug/L	0.1200		82.8	50-150	8.92	30	
Methoxychlor	0.087	0.001	0.002	0.007	ug/L	0.1200		72.6	50-150	18.9	30	
Oxychlordane	0.090	0.001	0.002	0.007	ug/L	0.1200		75.0	50-150	10.2	30	
Toxaphene	ND	0.073	0.100	0.300	ug/L				50-150		30	U
trans-Nonachlor	0.197	0.0008	0.002	0.007	ug/L	0.2400		82.2	50-150	7.15	30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0682				ug/L	0.1000		68.2	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.101				ug/L	0.1200		84.0	30-120			

LCS Dup (B18K002-BSD2)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

LCS Dup (B18K002-BSD2)

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

beta-BHC	ND	0.001	0.002	0.007	ug/L				50-150		30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
delta-BHC	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L				50-150		30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Endrin	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L				50-150		30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L				50-150		30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L				50-150		30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Oxychlordane	ND	0.001	0.002	0.007	ug/L				50-150		30	U
Toxaphene	1.39	0.073	0.100	0.300	ug/L	1.200		116	50-150	1.88	30	
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L				50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0950				ug/L	0.1000		95.0	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.114				ug/L	0.1200		95.1	30-120			

Duplicate (B18K002-DUP1)

Source: 18J0403-12

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

4,4'-DDT	ND	0.0008	0.002	0.007	ug/L		ND				30	U
Aldrin	ND	0.0007	0.002	0.007	ug/L		ND				30	U
alpha-BHC	ND	0.0007	0.002	0.007	ug/L		ND				30	U
alpha-Chlordane	ND	0.001	0.002	0.007	ug/L		ND				30	U
beta-BHC	ND	0.001	0.002	0.007	ug/L		ND				30	U
cis-Nonachlor	ND	0.0007	0.002	0.007	ug/L		ND				30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Duplicate (B18K002-DUP1)		Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018						
delta-BHC	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Dieldrin	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Endosulfan I	ND	0.001	0.002	0.007	ug/L		ND				30	U
Endosulfan II	ND	0.0005	0.002	0.007	ug/L		ND				30	U
Endosulfan sulfate	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Endrin	ND	0.001	0.002	0.007	ug/L		ND				30	U
Endrin aldehyde	ND	0.00060	0.002	0.007	ug/L		ND				30	U
Endrin ketone	ND	0.001	0.002	0.007	ug/L		ND				30	U
gamma-BHC (Lindane)	ND	0.0008	0.002	0.007	ug/L		ND				30	U
gamma-Chlordane	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Heptachlor	ND	0.0008	0.002	0.007	ug/L		ND				30	U
Heptachlor epoxide	ND	0.0007	0.002	0.007	ug/L		ND				30	U
Methoxychlor	ND	0.001	0.002	0.007	ug/L		ND				30	U
Oxychlordane	ND	0.001	0.002	0.007	ug/L		ND				30	U
Toxaphene	ND	0.073	0.100	0.300	ug/L		ND				30	U
trans-Nonachlor	ND	0.0008	0.002	0.007	ug/L		ND				30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0666				ug/L	0.1000		66.6	30-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-150			U
Surrogate: PCB 198	0.101				ug/L	0.1200		84.0	30-125			

Matrix Spike (B18K002-MS1)		Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018						
4,4'-DDT	0.193	0.002	0.004	0.015	ug/L	0.2400	ND	80.4	50-150		30	
Aldrin	0.172	0.001	0.004	0.015	ug/L	0.2400	ND	71.7	50-150		30	
alpha-BHC	0.194	0.001	0.004	0.015	ug/L	0.2400	ND	80.8	50-150		30	
alpha-Chlordane	0.378	0.002	0.004	0.015	ug/L	0.4800	ND	78.7	50-150		30	
beta-BHC	0.172	0.002	0.004	0.015	ug/L	0.2400	ND	71.5	50-150		30	
cis-Nonachlor	0.193	0.001	0.004	0.015	ug/L	0.2400	ND	80.4	50-150		30	
delta-BHC	0.275	0.001	0.004	0.015	ug/L	0.2400	ND	114	50-150		30	
Dieldrin	0.190	0.001	0.004	0.015	ug/L	0.2400	ND	79.0	50-150		30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Matrix Spike (B18K002-MS1)	Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018							
Endosulfan I	0.365	0.003	0.004	0.015	ug/L	0.4800	ND	76.0	50-150		30	
Endosulfan II	0.199	0.001	0.004	0.015	ug/L	0.2400	ND	83.0	50-150		30	
Endosulfan sulfate	0.198	0.001	0.004	0.015	ug/L	0.2400	ND	82.5	50-150		30	
Endrin	0.190	0.002	0.004	0.015	ug/L	0.2400	ND	79.3	50-150		30	
Endrin aldehyde	0.189	0.001	0.004	0.015	ug/L	0.2400	ND	78.6	50-150		30	
Endrin ketone	0.105	0.002	0.004	0.015	ug/L	0.2400	ND	43.7	50-150		30	
gamma-BHC (Lindane)	0.184	0.002	0.004	0.015	ug/L	0.2400	ND	76.7	50-150		30	
gamma-Chlordane	0.194	0.001	0.004	0.015	ug/L	0.2400	ND	80.9	50-150		30	
Heptachlor	0.180	0.002	0.004	0.015	ug/L	0.2400	ND	74.9	50-150		30	
Heptachlor epoxide	0.197	0.001	0.004	0.015	ug/L	0.2400	ND	82.2	50-150		30	
Methoxychlor	0.194	0.003	0.004	0.015	ug/L	0.2400	ND	81.0	50-150		30	
Oxychlordane	0.213	0.002	0.004	0.015	ug/L	0.2400	ND	88.6	50-150		30	
Toxaphene	ND	0.146	0.199	0.600	ug/L		ND		50-150		30	U
trans-Nonachlor	0.378	0.002	0.004	0.015	ug/L	0.4800	ND	78.7	50-150		30	
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.141				ug/L	0.2000		70.6	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.208				ug/L	0.2400		86.6	30-120			

Matrix Spike (B18K002-MS2)	Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018							
4,4'-DDT	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Aldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
alpha-Chlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
beta-BHC	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
cis-Nonachlor	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
delta-BHC	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Dieldrin	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan I	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Endosulfan II	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Matrix Spike (B18K002-MS2)	Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018							
Endosulfan sulfate	ND	0.001	0.004	0.015	ug/L	ND	ND	115	50-150	30	30	U
Endrin	ND	0.002	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Endrin aldehyde	ND	0.001	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Endrin ketone	ND	0.002	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
gamma-BHC (Lindane)	ND	0.002	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
gamma-Chlordane	ND	0.001	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Heptachlor	ND	0.002	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Heptachlor epoxide	ND	0.001	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Methoxychlor	ND	0.003	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Oxychlordane	ND	0.002	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Toxaphene	2.75	0.146	0.199	0.600	ug/L	2.400	ND	115	50-150	30	30	U
trans-Nonachlor	ND	0.002	0.004	0.015	ug/L	ND	ND	94.6	50-150	30	30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.189				ug/L	0.2000		94.6	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.222				ug/L	0.2400		92.6	30-120			

Matrix Spike Dup (B18K002-MSD1)	Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018							
4,4'-DDT	0.220	0.002	0.004	0.015	ug/L	0.2400	ND	91.5	50-150	12.9	30	
Aldrin	0.189	0.001	0.004	0.015	ug/L	0.2400	ND	78.8	50-150	9.45	30	
alpha-BHC	0.217	0.001	0.004	0.015	ug/L	0.2400	ND	90.6	50-150	11.4	30	
alpha-Chlordane	0.410	0.002	0.004	0.015	ug/L	0.4800	ND	85.4	50-150	8.10	30	
beta-BHC	0.188	0.002	0.004	0.015	ug/L	0.2400	ND	78.2	50-150	9.05	30	
cis-Nonachlor	0.212	0.001	0.004	0.015	ug/L	0.2400	ND	88.1	50-150	9.19	30	
delta-BHC	0.287	0.001	0.004	0.015	ug/L	0.2400	ND	119	50-150	4.29	30	
Dieldrin	0.210	0.001	0.004	0.015	ug/L	0.2400	ND	87.4	50-150	10.1	30	
Endosulfan I	0.402	0.003	0.004	0.015	ug/L	0.4800	ND	83.8	50-150	9.70	30	
Endosulfan II	0.216	0.001	0.004	0.015	ug/L	0.2400	ND	90.0	50-150	8.09	30	
Endosulfan sulfate	0.217	0.001	0.004	0.015	ug/L	0.2400	ND	90.5	50-150	9.25	30	
Endrin	0.213	0.002	0.004	0.015	ug/L	0.2400	ND	88.9	50-150	11.5	30	

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Organochlorine Pesticides by EPA Method 8081A - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Matrix Spike Dup (B18K002-MSD2)

Source: 18J0403-12

Prepared: 03-Nov-2018 Analyzed: 17-Nov-2018

gamma-BHC (Lindane)	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
gamma-Chlordane	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Heptachlor epoxide	ND	0.001	0.004	0.015	ug/L		ND		50-150		30	U
Methoxychlor	ND	0.003	0.004	0.015	ug/L		ND		50-150		30	U
Oxychlordane	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Toxaphene	2.58	0.146	0.199	0.600	ug/L	2.400	ND	107	50-150	6.66	30	
trans-Nonachlor	ND	0.002	0.004	0.015	ug/L		ND		50-150		30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.182				ug/L	0.2000		91.1	25-150			
Surrogate: Decachlorobiphenyl	ND				ug/L				30-120			U
Surrogate: PCB 198	0.205				ug/L	0.2400		85.3	30-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Nutrients - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch B18K001 - *												
Blank (B18K001-BLK1)						Prepared & Analyzed: 01-Nov-2018						
Ammonia as N, filtered	ND	0.00440	0.00500	0.0100	mg/L							U
LCS (B18K001-BS1)						Prepared & Analyzed: 01-Nov-2018						
Ammonia as N, filtered	0.112	0.00440	0.00500	0.0100	mg/L	0.1000		112	80-120			
Calibration Check (B18K001-CCV1)						Prepared & Analyzed: 01-Nov-2018						
Ammonia as N, filtered	0.396	0.00440	0.00500	0.0100	mg/L	0.4000		99.0	90-110			
Calibration Check (B18K001-CCV2)						Prepared & Analyzed: 01-Nov-2018						
Ammonia as N, filtered	0.502	0.00440	0.00500	0.0100	mg/L	0.5000		100	90-110			
Calibration Check (B18K001-CCV3)						Prepared & Analyzed: 01-Nov-2018						
Ammonia as N, filtered	0.508	0.00440	0.00500	0.0100	mg/L	0.5000		102	90-110			
Calibration Check (B18K001-CCV4)						Prepared & Analyzed: 01-Nov-2018						
Ammonia as N, filtered	0.511	0.00440	0.00500	0.0100	mg/L	0.5000		102	90-110			
Duplicate (B18K001-DUP1)						Source: 18J0403-12			Prepared & Analyzed: 01-Nov-2018			
Ammonia as N, filtered	2.80	0.0880	0.100	0.200	mg/L		2.97			5.89	30	
Matrix Spike (B18K001-MS1)						Source: 18J0403-12			Prepared & Analyzed: 01-Nov-2018			
Ammonia as N, filtered	5.05	0.0880	0.100	0.200	mg/L	2.000	2.97	104	80-120			
Matrix Spike Dup (B18K001-MSD1)						Source: 18J0403-12			Prepared & Analyzed: 01-Nov-2018			
Ammonia as N, filtered	5.12	0.0880	0.100	0.200	mg/L	2.000	2.97	108	80-120	1.38	30	
Reference (B18K001-SRM1)						Prepared: 01-Nov-2018 Analyzed: 26-Dec-2018						
Ammonia as N, filtered	0.999	0.00440	0.00500	0.0100	mg/L	1.000		99.9	70-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18L0023 - B18K002

Calibration Check (18L0023-CCV1)

Prepared & Analyzed: 28-Dec-2018

PCB 101	32				ng/mL	30.00		105	80-120			
PCB 105	9.9				ng/mL	10.00		99.1	80-120			
PCB 118	10				ng/mL	10.00		101	80-120			
PCB 126	21				ng/mL	20.00		103	80-120			
PCB 128	9.9				ng/mL	10.00		98.7	80-120			
PCB 138	30				ng/mL	30.00		101	80-120			
PCB 153	19				ng/mL	20.00		96.7	80-120			
PCB 169	10				ng/mL	10.00		103	80-120			
PCB 170	19				ng/mL	20.00		97.5	80-120			
PCB 18	10				ng/mL	10.00		102	80-120			
PCB 180	9.6				ng/mL	10.00		95.6	80-120			
PCB 187	10				ng/mL	10.00		101	80-120			
PCB 28	20				ng/mL	20.00		102	80-120			
PCB 44	10				ng/mL	10.00		102	80-120			
PCB 52	21				ng/mL	20.00		104	80-120			
PCB 66	20				ng/mL	20.00		102	80-120			
PCB 77	11				ng/mL	10.00		108	80-120			
PCB 8	21				ng/mL	20.00		105	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	9.9				ng/mL	10.00		99.3	80-120			
Surrogate: PCB 198	9.4				ng/mL	10.00		94.4	90-110			

Calibration Check (18L0023-CCV2)

Prepared & Analyzed: 28-Dec-2018

PCB 101	29				ng/mL	30.00		96.3	80-120			
PCB 105	10				ng/mL	10.00		101	80-120			
PCB 118	10				ng/mL	10.00		100	80-120			
PCB 126	22				ng/mL	20.00		108	80-120			
PCB 128	11				ng/mL	10.00		106	80-120			
PCB 138	29				ng/mL	30.00		98.3	80-120			
PCB 153	20				ng/mL	20.00		102	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18L0023 - B18K002

Calibration Check (18L0023-CCV2)

Prepared & Analyzed: 28-Dec-2018

PCB 169	11				ng/mL	10.00		106	80-120			
PCB 170	19				ng/mL	20.00		97.0	80-120			
PCB 18	11				ng/mL	10.00		106	80-120			
PCB 180	9.5				ng/mL	10.00		95.4	80-120			
PCB 187	10				ng/mL	10.00		99.6	80-120			
PCB 28	22				ng/mL	20.00		108	80-120			
PCB 44	11				ng/mL	10.00		106	80-120			
PCB 52	19				ng/mL	20.00		96.1	80-120			
PCB 66	20				ng/mL	20.00		99.8	80-120			
PCB 77	9.9				ng/mL	10.00		99.4	80-120			
PCB 8	22				ng/mL	20.00		108	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	9.9				ng/mL	10.00		98.9	80-120			
Surrogate: PCB 198	10				ng/mL	10.00		99.6	90-110			

Calibration Check (18L0023-CCV3)

Prepared & Analyzed: 28-Dec-2018

PCB 101	29				ng/mL	30.00		96.0	80-120			
PCB 105	10				ng/mL	10.00		104	80-120			
PCB 118	11				ng/mL	10.00		110	80-120			
PCB 126	21				ng/mL	20.00		105	80-120			
PCB 128	11				ng/mL	10.00		109	80-120			
PCB 138	29				ng/mL	30.00		98.0	80-120			
PCB 153	20				ng/mL	20.00		102	80-120			
PCB 169	10				ng/mL	10.00		104	80-120			
PCB 170	19				ng/mL	20.00		95.2	80-120			
PCB 18	11				ng/mL	10.00		108	80-120			
PCB 180	9.9				ng/mL	10.00		98.8	80-120			
PCB 187	9.9				ng/mL	10.00		99.5	80-120			
PCB 28	21				ng/mL	20.00		104	80-120			
PCB 44	10				ng/mL	10.00		104	80-120			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18L0023 - B18K002

Calibration Check (18L0023-CCV3)

Prepared & Analyzed: 28-Dec-2018

PCB 52	21				ng/mL	20.00		106	80-120			
PCB 66	21				ng/mL	20.00		103	80-120			
PCB 77	10				ng/mL	10.00		101	80-120			
PCB 8	22				ng/mL	20.00		108	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	9.8				ng/mL	10.00		98.2	80-120			
Surrogate: PCB 198	9.8				ng/mL	10.00		98.2	90-110			

Initial Cal Blank (18L0023-ICB1)

Prepared & Analyzed: 28-Dec-2018

PCB 101	0.0				ng/mL							U
PCB 105	0.0				ng/mL							U
PCB 118	0.0				ng/mL							U
PCB 126	0.0				ng/mL							U
PCB 128	0.0				ng/mL							U
PCB 138	0.0				ng/mL							U
PCB 153	0.0				ng/mL							U
PCB 169	0.0				ng/mL							U
PCB 170	0.0				ng/mL							U
PCB 18	0.0				ng/mL							U
PCB 180	0.0				ng/mL							U
PCB 187	0.0				ng/mL							U
PCB 28	0.0				ng/mL							U
PCB 44	0.0				ng/mL							U
PCB 52	0.0				ng/mL							U
PCB 66	0.0				ng/mL							U
PCB 77	0.0				ng/mL							U
PCB 8	0.0				ng/mL							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.0				ng/mL				30-150			Z-03, U
Surrogate: PCB 198	0.0				ng/mL				30-150			Z-03, U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 18L0023 - B18K002

Initial Cal Check (18L0023-ICV1)

Prepared & Analyzed: 28-Dec-2018

PCB 101	60				ng/mL	60.00		101	80-120			
PCB 105	20				ng/mL	20.00		102	80-120			
PCB 118	20				ng/mL	20.00		99.3	80-120			
PCB 126	39				ng/mL	40.00		97.7	80-120			
PCB 128	21				ng/mL	20.00		105	80-120			
PCB 138	54				ng/mL	60.00		89.6	80-120			
PCB 153	40				ng/mL	40.00		98.8	80-120			
PCB 169	18				ng/mL	20.00		89.8	80-120			
PCB 170	36				ng/mL	40.00		90.5	80-120			
PCB 18	21				ng/mL	20.00		105	80-120			
PCB 180	21				ng/mL	20.00		104	80-120			
PCB 187	21				ng/mL	20.00		104	80-120			
PCB 28	39				ng/mL	40.00		97.1	80-120			
PCB 44	20				ng/mL	20.00		101	80-120			
PCB 52	41				ng/mL	40.00		102	80-120			
PCB 66	39				ng/mL	40.00		98.5	80-120			
PCB 77	20				ng/mL	20.00		102	80-120			
PCB 8	44				ng/mL	40.00		110	80-120			
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	20				ng/mL	20.00		97.5	80-120			
Surrogate: PCB 198	18				ng/mL	20.00		90.1	80-120			

Batch B18K002 - EPA 3510C

Blank (B18K002-BLK1)

Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018

PCB 101	ND	0.420	0.004	1.20	ug/L							U
PCB 105	ND	0.420	0.004	1.20	ug/L							U
PCB 118	ND	0.420	0.004	1.20	ug/L							U
PCB 126	ND	0.420	0.004	1.20	ug/L							U
PCB 128	ND	0.420	0.004	1.20	ug/L							U
PCB 138	ND	0.420	0.004	1.20	ug/L							U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Blank (B18K002-BLK1)

Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018

PCB 153	ND	0.420	0.004	1.20	ug/L							U
PCB 169	ND	0.420	0.004	1.20	ug/L							U
PCB 170	ND	0.420	0.004	1.20	ug/L							U
PCB 18	ND	0.420	0.004	1.20	ug/L							U
PCB 180	ND	0.420	0.004	1.20	ug/L							U
PCB 187	ND	0.420	0.004	1.20	ug/L							U
PCB 28	ND	0.420	0.004	1.20	ug/L							U
PCB 44	ND	0.420	0.004	1.20	ug/L							U
PCB 52	ND	0.420	0.004	1.20	ug/L							U
PCB 66	ND	0.420	0.004	1.20	ug/L							U
PCB 77	ND	0.420	0.004	1.20	ug/L							U
PCB 8	ND	0.006	1.50	3.00	ug/L							U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.10				ug/L	0.1000		101	30-150			
Surrogate: PCB 198	0.062				ug/L	0.1200		51.8	30-150			

LCS (B18K002-BS3)

Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018

PCB 101	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 105	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 118	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 126	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 128	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 138	ND	0.420	0.004	1.20	ug/L	0.2400			50-150			U
PCB 153	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 169	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 170	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			Q, U
PCB 18	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 180	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 187	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 28	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

LCS (B18K002-BS3)						Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018						
PCB 44	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 52	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 66	ND	0.420	0.004	1.20	ug/L	0.1600			50-150			U
PCB 77	ND	0.420	0.004	1.20	ug/L	0.08000			50-150			U
PCB 8	0.12	0.006	1.50	3.00	ug/L	0.1600		74.5	50-150			J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.087				ug/L	0.1000		87.0	50-150			
Surrogate: PCB 198	0.035				ug/L	0.1200		28.9	50-150			S-GC

LCS Dup (B18K002-BSD3)						Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018						
PCB 101	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 105	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 118	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 126	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 128	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 138	ND	0.420	0.004	1.20	ug/L	0.2400			50-150		30	U
PCB 153	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 169	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 170	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	Q, U
PCB 18	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 180	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 187	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 28	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 44	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 52	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 66	ND	0.420	0.004	1.20	ug/L	0.1600			50-150		30	U
PCB 77	ND	0.420	0.004	1.20	ug/L	0.08000			50-150		30	U
PCB 8	0.13	0.006	1.50	3.00	ug/L	0.1600		79.7	50-150	6.67	30	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.085				ug/L	0.1000		85.0	50-150			
Surrogate: PCB 198	0.038				ug/L	0.1200		32.0	50-150			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control
ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Duplicate (B18K002-DUP1)		Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018						
PCB 101	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 105	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 118	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 126	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 128	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 138	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 153	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 169	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 170	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 18	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 180	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 187	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 28	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 44	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 52	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 66	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 77	ND	0.420	0.004	1.20	ug/L		ND				30	U
PCB 8	ND	0.006	1.50	3.00	ug/L		ND				30	U
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.11				ug/L	0.1000		107	30-150			
Surrogate: PCB 198	0.058				ug/L	0.1200		48.6	30-150			

Matrix Spike (B18K002-MS3)

Matrix Spike (B18K002-MS3)		Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018						
PCB 101	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 105	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 118	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 126	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 128	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 138	ND	0.840	0.008	2.40	ug/L	0.4800	ND		50-150			U
PCB 153	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Matrix Spike (B18K002-MS3)		Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018						
PCB 169	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 170	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			Q, U
PCB 18	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 180	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 187	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 28	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 44	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 52	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 66	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150			U
PCB 77	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150			U
PCB 8	0.23	0.012	3.00	6.00	ug/L	0.3200	ND	72.5	50-150			J
<i>Surrogate: 2,4,5,6 Tetrachloro-m-xylene</i>	<i>0.16</i>				<i>ug/L</i>	<i>0.2000</i>		<i>80.6</i>	<i>50-150</i>			
<i>Surrogate: PCB 198</i>	<i>0.076</i>				<i>ug/L</i>	<i>0.2400</i>		<i>31.7</i>	<i>50-150</i>			

Matrix Spike Dup (B18K002-MSD3)		Source: 18J0403-12				Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018						
PCB 101	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 105	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 118	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 126	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 128	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 138	ND	0.840	0.008	2.40	ug/L	0.4800	ND		50-150		30	U
PCB 153	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 169	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 170	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 18	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 180	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 187	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 28	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 44	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)

Project: Houston Ship Channel-North of Morgan's Point

ERDC, 3909 Halls Ferry Road

Reported:

Vicksburg MS, 39180

Project Manager: Cheryl Montgomery

23-May-2019

Polychlorinated Biphenyls (as Congeners) by EPA Method 8082 - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K002 - EPA 3510C

Matrix Spike Dup (B18K002-MSD3)

Source: 18J0403-12

Prepared: 03-Nov-2018 Analyzed: 20-Dec-2018

PCB 52	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 66	ND	0.840	0.008	2.40	ug/L	0.3200	ND		50-150		30	U
PCB 77	ND	0.840	0.008	2.40	ug/L	0.1600	ND		50-150		30	U
PCB 8	0.23	0.012	3.00	6.00	ug/L	0.3200	ND	73.2	50-150	0.906	30	J
Surrogate: 2,4,5,6 Tetrachloro-m-xylene	0.18				ug/L	0.2000		88.1	50-150			
Surrogate: PCB 198	0.083				ug/L	0.2400		34.4	50-150			



USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry - Quality Control

ERDC-EL-EP-C

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch B18K003 - none

Blank (B18K003-BLK1)						Prepared & Analyzed: 31-Oct-2018						
Total Suspended Solids	ND	1.00	2.00	5.00	mg/L							U

Blank (B18K003-BLK2)						Prepared & Analyzed: 31-Oct-2018						
Total Suspended Solids	ND	1.00	2.00	5.00	mg/L							U

Duplicate (B18K003-DUP1)						Source: 18J0403-04		Prepared & Analyzed: 31-Oct-2018				
Total Suspended Solids	45.0	1.00	2.00	5.00	mg/L		43.0			4.55	20	

Duplicate (B18K003-DUP2)						Source: 18J0403-09		Prepared & Analyzed: 31-Oct-2018				
Total Suspended Solids	19.5	0.500	1.00	2.50	mg/L		19.5			0.00	20	

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175682 - EPA 3510C

BLK (WG1175682-1)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

1,2,4-Trichlorobenzene	ND	0.096		0.5	ug/l				-			Ub
1,2-Dichlorobenzene	ND	0.068		0.5	ug/l				-			Ub
1,3-Dichlorobenzene	ND	0.078		0.5	ug/l				-			Ub
1,4-Dichlorobenzene	ND	0.083		0.5	ug/l				-			Ub
2,4-Dichlorophenol	ND	0.1		0.5	ug/l				-			Ub
2,4-Dimethylphenol	ND	0.241		2	ug/l				-			Ub
2,4-Dinitrophenol	ND	0.728		5	ug/l				-			Ub
2,4-Dinitrotoluene	ND	0.163		0.5	ug/l				-			Ub
2,6-Dinitrotoluene	ND	0.168		0.5	ug/l				-			Ub
2-Chloronaphthalene	ND	0.09		0.5	ug/l				-			Ub
2-Chlorophenol	ND	0.091		0.5	ug/l				-			Ub
2-Methylphenol	ND	0.104		0.5	ug/l				-			Ub
2-Nitrophenol	ND	0.115		0.5	ug/l				-			Ub
3,3'-Dichlorobenzidine	ND	0.193		0.5	ug/l				-			Ub
4,6-Dinitro-2-methylphenol	ND	0.51		2	ug/l				-			Ub
4-Bromophenyl-phenylether	ND	0.1		0.5	ug/l				-			Ub
4-Chloro-3-methylphenol	ND	0.103		0.5	ug/l				-			Ub
4-Chlorophenyl-phenylether	ND	0.079		0.5	ug/l				-			Ub
4-Methylphenol	Nd	0.113		0.5	ug/l				-			Ub
4-Nitrophenol	ND	0.59		2.5	ug/l				-			Ub
Azobenzene	ND	0.128		0.5	ug/l				-			Ub
Benzidine	ND	0.464		20	ug/l				-			Ub
bis(2-Chloroethoxy)methane	ND	0.085		0.5	ug/l				-			Ub
bis(2-Chloroethyl)ether	ND	0.093		0.5	ug/l				-			Ub
bis(2-chloroisopropyl)ether	ND	0.108		0.5	ug/l				-			Ub
bis(2-Ethylhexyl)phthalate	ND	0.081		0.5	ug/l				-			Ub
Butylbenzylphthalate	ND	0.085		0.5	ug/l				-			Ub
Diethylphthalate	ND	0.18		0.5	ug/l				-			Ub

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ERDC -- Vicksburg (EL)
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 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175682 - EPA 3510C

BLK (WG1175682-1)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

Dimethylphthalate	ND	0.117		0.5	ug/l				-			Ub
Di-n-butylphthalate	ND	0.1		0.5	ug/l				-			Ub
Di-n-octylphthalate	ND	0.079		1	ug/l				-			Ub
Hexachlorobenzene	ND	0.122		0.5	ug/l				-			Ub
Hexachlorobutadiene	ND	0.086		0.5	ug/l				-			Ub
Hexachlorocyclopentadiene	ND	0.153		0.5	ug/l				-			Ub
Hexachloroethane	ND	0.102		0.5	ug/l				-			Ub
Isophorone	ND	0.126		0.5	ug/l				-			Ub
Nitrobenzene	ND	0.102		0.5	ug/l				-			Ub
N-Nitrosodimethylamine	ND	0.072		0.5	ug/l				-			Ub
N-Nitroso-di-n-propylamine	ND	0.123		0.5	ug/l				-			Ub
n-Nitrosodiphenylamine	ND	0.072		0.5	ug/l				-			Ub
Pentachlorophenol	ND	0.43		2	ug/l				-			Ub
Phenol	ND	0.051		0.5	ug/l				-			Ub
<i>Surrogate:</i>	<i>18.6</i>				<i>ug/l</i>			<i>93</i>	<i>15-115</i>			
<i>2,4,6-Tribromophenol</i>												
<i>Surrogate: 2-Fluorobiphenyl</i>	<i>16.4</i>				<i>ug/l</i>			<i>82</i>	<i>30-130</i>			
<i>Surrogate: 2-Fluorophenol</i>	<i>11.8</i>				<i>ug/l</i>			<i>59</i>	<i>15-115</i>			
<i>Surrogate: Nitrobenzene-d5</i>	<i>16</i>				<i>ug/l</i>			<i>80</i>	<i>30-130</i>			
<i>Surrogate: Phenol-d5</i>	<i>10</i>				<i>ug/l</i>			<i>50</i>	<i>15-115</i>			
<i>Surrogate: Terphenyl-d14</i>	<i>20.5</i>				<i>ug/l</i>			<i>102</i>	<i>30-130</i>			

LCS (WG1175682-2)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

1,2,4-Trichlorobenzene	5.95	0.096		0.5	ug/l	10		59	40-140			
1,2-Dichlorobenzene	5.5	0.068		0.5	ug/l	10		55	40-140			
1,3-Dichlorobenzene	5.14	0.078		0.5	ug/l	10		51	40-140			
1,4-Dichlorobenzene	5.28	0.083		0.5	ug/l	10		53	40-140			
2,4-Dichlorophenol	7.34	0.1		0.5	ug/l	10		73	40-140			
2,4-Dimethylphenol	5.38	0.241		2	ug/l	10		54	40-140			
2,4-Dinitrophenol	10.5	0.728		5	ug/l	10		105	40-140			
2,4-Dinitrotoluene	9.55	0.163		0.5	ug/l	10		96	40-140			

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175682 - EPA 3510C

LCS (WG1175682-2)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

2,6-Dinitrotoluene	8.7	0.168		0.5	ug/l	10		87	40-140			
2-Chloronaphthalene	7.23	0.09		0.5	ug/l	10		72	40-140			
2-Chlorophenol	6.56	0.091		0.5	ug/l	10		66	40-140			
2-Methylphenol	6.62	0.104		0.5	ug/l	10		66	40-140			
2-Nitrophenol	7.2	0.115		0.5	ug/l	10		72	40-140			
3,3'-Dichlorobenzidine	7.82	0.193		0.5	ug/l	10		78	40-140			
4,6-Dinitro-2-methylphenol	10.2	0.51		2	ug/l	10		102	40-140			
4-Bromophenyl-phenylether	8.54	0.1		0.5	ug/l	10		85	40-140			
4-Chloro-3-methylphenol	7.98	0.103		0.5	ug/l	10		80	40-140			
4-Chlorophenyl-phenylether	8.33	0.079		0.5	ug/l	10		83	40-140			
4-Methylphenol	6.68	0.113		0.5	ug/l	10		67	40-140			
4-Nitrophenol	6.87	0.59		2.5	ug/l	10		69	17-65			N
Azobenzene	8.43	0.128		0.5	ug/l	10		84	40-140			
Benzidine	2.03	0.464		20	ug/l	10		8.1	10-82			N
bis(2-Chloroethoxy)methane	7.44	0.085		0.5	ug/l	10		74	40-140			
bis(2-Chloroethyl)ether	6.88	0.093		0.5	ug/l	10		69	40-140			
bis(2-chloroisopropyl)ether	7.06	0.108		0.5	ug/l	10		71	40-140			
bis(2-Ethylhexyl)phthalate	9.93	0.081		0.5	ug/l	10		99	40-140			
Butylbenzylphthalate	9.81	0.085		0.5	ug/l	10		98	40-140			
Diethylphthalate	9.49	0.18		0.5	ug/l	10		95	40-140			
Dimethylphthalate	8.83	0.117		0.5	ug/l	10		88	40-140			
Di-n-butylphthalate	9.8	0.1		0.5	ug/l	10		98	40-140			
Di-n-octylphthalate	9.96	0.079		1	ug/l	10		100	40-140			
Hexachlorobenzene	8.6	0.122		0.5	ug/l	10		86	40-140			
Hexachlorobutadiene	5.2	0.086		0.5	ug/l	10		52	40-140			
Hexachlorocyclopentadiene	7.39	0.153		0.5	ug/l	10		74	10-109			
Hexachloroethane	4.72	0.102		0.5	ug/l	10		47	10-97			
Isophorone	7.72	0.126		0.5	ug/l	10		77	40-140			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175682 - EPA 3510C

LCS (WG1175682-2)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

Nitrobenzene	6.97	0.102		0.5	ug/l	10		70	40-140			
N-Nitrosodimethylamine	5.7	0.072		0.5	ug/l	10		57	27-70			
N-Nitroso-di-n-propylamine	7.68	0.123		0.5	ug/l	10		77	40-140			
n-Nitrosodiphenylamine	9.1	0.072		0.5	ug/l	10		91	40-140			
Pentachlorophenol	11	0.43		2	ug/l	10		110	40-140			
Phenol	4.7	0.051		0.5	ug/l	10		47	18-54			
<i>Surrogate:</i>	20				ug/l			100	15-115			
<i>2,4,6-Tribromophenol</i>												
<i>Surrogate: 2-Fluorobiphenyl</i>	15				ug/l			75	30-130			
<i>Surrogate: 2-Fluorophenol</i>	10.9				ug/l			55	15-115			
<i>Surrogate: Nitrobenzene-d5</i>	14.8				ug/l			74	30-130			
<i>Surrogate: Phenol-d5</i>	9.27				ug/l			46	15-115			
<i>Surrogate: Terphenyl-d14</i>	19.8				ug/l			99	30-130			

LCD (WG1175682-3)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

1,2,4-Trichlorobenzene	6.6	0.096		0.5	ug/l	10		66	40-140	11	30	
1,2-Dichlorobenzene	6.1	0.068		0.5	ug/l	10		61	40-140	10	30	
1,3-Dichlorobenzene	5.62	0.078		0.5	ug/l	10		56	40-140	9	30	
1,4-Dichlorobenzene	5.79	0.083		0.5	ug/l	10		58	40-140	9	30	
2,4-Dichlorophenol	8.25	0.1		0.5	ug/l	10		82	40-140	12	30	
2,4-Dimethylphenol	6.28	0.241		2	ug/l	10		63	40-140	15	30	
2,4-Dinitrophenol	11.6	0.728		5	ug/l	10		116	40-140	10	30	
2,4-Dinitrotoluene	10.6	0.163		0.5	ug/l	10		106	40-140	10	30	
2,6-Dinitrotoluene	9.77	0.168		0.5	ug/l	10		98	40-140	12	30	
2-Chloronaphthalene	8.24	0.09		0.5	ug/l	10		82	40-140	13	30	
2-Chlorophenol	7.12	0.091		0.5	ug/l	10		71	40-140	7	30	
2-Methylphenol	7.23	0.104		0.5	ug/l	10		72	40-140	9	30	
2-Nitrophenol	7.91	0.115		0.5	ug/l	10		79	40-140	9	30	
3,3'-Dichlorobenzidine	8.42	0.193		0.5	ug/l	10		84	40-140	7	30	
4,6-Dinitro-2-methylphenol	11.2	0.51		2	ug/l	10		112	40-140	9	30	
4-Bromophenyl-phenylether	9.59	0.1		0.5	ug/l	10		96	40-140	12	30	

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USACE ERDC-EP-C
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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175682 - EPA 3510C

LCD (WG1175682-3)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

4-Chloro-3-methylphenol	9.12	0.103		0.5	ug/l	10		91	40-140	13	30	
4-Chlorophenyl-phenylether	9.24	0.079		0.5	ug/l	10		92	40-140	10	30	
4-Methylphenol	7.35	0.113		0.5	ug/l	10		73	40-140	9	30	
4-Nitrophenol	7.73	0.59		2.5	ug/l	10		77	17-65	11	30	N
Azobenzene	9.24	0.128		0.5	ug/l	10		92	40-140	9	30	
Benzidine	3.36	0.464		20	ug/l	10		13	10-82	46	30	*
bis(2-Chloroethoxy)methane	8.4	0.085		0.5	ug/l	10		84	40-140	13	30	
bis(2-Chloroethyl)ether	7.44	0.093		0.5	ug/l	10		74	40-140	7	30	
bis(2-chloroisopropyl)ether	7.61	0.108		0.5	ug/l	10		76	40-140	7	30	
bis(2-Ethylhexyl)phthalate	10.6	0.081		0.5	ug/l	10		106	40-140	7	30	
Butylbenzylphthalate	10.5	0.085		0.5	ug/l	10		105	40-140	7	30	
Diethylphthalate	10.4	0.18		0.5	ug/l	10		104	40-140	9	30	
Dimethylphthalate	9.78	0.117		0.5	ug/l	10		98	40-140	11	30	
Di-n-butylphthalate	10.5	0.1		0.5	ug/l	10		105	40-140	7	30	
Di-n-octylphthalate	10.7	0.079		1	ug/l	10		107	40-140	7	30	
Hexachlorobenzene	9.4	0.122		0.5	ug/l	10		94	40-140	9	30	
Hexachlorobutadiene	5.92	0.086		0.5	ug/l	10		59	40-140	13	30	
Hexachlorocyclopentadiene	8.68	0.153		0.5	ug/l	10		87	10-109	16	30	
Hexachloroethane	5.26	0.102		0.5	ug/l	10		52	10-97	10	30	
Isophorone	8.73	0.126		0.5	ug/l	10		87	40-140	12	30	
Nitrobenzene	7.7	0.102		0.5	ug/l	10		77	40-140	10	30	
N-Nitrosodimethylamine	6.16	0.072		0.5	ug/l	10		62	27-70	8	30	
N-Nitroso-di-n-propylamine	8.49	0.123		0.5	ug/l	10		85	40-140	10	30	
n-Nitrosodiphenylamine	9.8	0.072		0.5	ug/l	10		98	40-140	7	30	
Pentachlorophenol	11.8	0.43		2	ug/l	10		118	40-140	7	30	
Phenol	5.09	0.051		0.5	ug/l	10		51	18-54	8	30	
Surrogate: 2,4,6-Tribromophenol	21.5				ug/l			107	15-115			
Surrogate: 2-Fluorobiphenyl	16.8				ug/l			84	30-130			

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Semivolatile Organics by GC-MS - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175682 - EPA 3510C

LCD (WG1175682-3)

Prepared: 03-Nov-2018 Analyzed: 15-Nov-2018

Surrogate: 2-Fluorophenol	11.1				ug/l			56	15-115			
Surrogate: Nitrobenzene-d5	15.8				ug/l			79	30-130			
Surrogate: Phenol-d5	9.75				ug/l			49	15-115			
Surrogate: Terphenyl-d14	20.6				ug/l			103	30-130			



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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

TNRCC 1005 - Quality Control

Katahdin

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG240531 - TPH TCEQ 1005

BLK (WG240531-1)

Prepared & Analyzed: 11-Nov-2018

>C12-C28	ND								-			Uc
>C28-C35	ND	3900		5000	ug/L				-			Uc
C6-C12	ND	2000		5000	ug/L				-			Uc
C6-C35	ND	6900		10000	ug/L				-			Uc
Surrogate: 1-Chlorooctane	76.5				%			76.5	70-130			
Surrogate: O-TERPHENYL	104.				%			104.	70-130			

BS (WG240531-2)

Prepared & Analyzed: 11-Nov-2018

>C12-C28	32900	3900		5000	ug/L	33300		98.8	70-125			
C6-C12	35400	2000		5000	ug/L	33300		106	75-125			
C6-C35	67400	6900		10000	ug/L	66700		101	70-125			
Surrogate: 1-Chlorooctane	104.				%			104.	70-130			
Surrogate: O-TERPHENYL	103.				%			103.	70-130			



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Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Blank (BBK0112-BLK1)

Prepared & Analyzed: 02-Nov-2018

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L				-			Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L				-			Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L				-			Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L				-			Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L				-			Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L				-			Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L				-			Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L				-			Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L				-			Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L				-			Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L				-			Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L				-			Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L				-			Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L				-			Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L				-			Ua
1,4-Dioxane	ND	40.0		80.0	ug/L				-			Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L				-			Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L				-			Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L				-			Ua
Acetone	ND	7.00		10.0	ug/L				-			Ua
Benzene	ND	0.40		1.00	ug/L				-			Ua
Bromodichloromethane	ND	0.40		0.50	ug/L				-			Ua
Bromoform	ND	0.40		1.00	ug/L				-			Ua
Bromomethane	ND	0.80		1.00	ug/L				-			Ua
Carbon disulfide	ND	1.00		10.0	ug/L				-			Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L				-			Ua
Chlorobenzene	ND	0.40		1.00	ug/L				-			Ua
Chloroethane	ND	0.70		1.00	ug/L				-			Ua

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Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Blank (BBK0112-BLK1)

Prepared & Analyzed: 02-Nov-2018

Chloroform	ND	0.50		0.50	ug/L				-			Ua
Chloromethane	ND	0.95		1.00	ug/L				-			Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L				-			Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L				-			Ua
Cyclohexane	ND	0.50		1.00	ug/L				-			Ua
Dibromochloromethane	ND	0.35		0.50	ug/L				-			Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L				-			Ua
Ethylbenzene	ND	0.40		1.00	ug/L				-			Ua
Isopropylbenzene	ND	0.50		1.00	ug/L				-			Ua
m+p-Xylenes	ND	0.60		2.00	ug/L				-			Ua
Methyl acetate	ND	1.00		4.00	ug/L				-			Ua
Methyl cyclohexane	ND	0.50		1.00	ug/L				-			Ua
Methylene chloride	ND	1.00		4.00	ug/L				-			Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L				-			Ua
o-Xylene	ND	0.40		1.00	ug/L				-			Ua
Styrene	ND	0.40		1.00	ug/L				-			Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L				-			Ua
Toluene	ND	0.50		1.00	ug/L				-			Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L				-			Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L				-			Ua
Trichloroethylene	ND	0.40		1.00	ug/L				-			Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L				-			Ua
Vinyl chloride	ND	0.50		0.50	ug/L				-			Ua
Surrogate: 1,2-Dichloroethane-d4 (Surr)	58.6				ug/L	50.0		117	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	53.7				ug/L	50.0		107	75-120			
Surrogate: Dibromofluoromethane (Surr)	57.7				ug/L	50.0		115	70-130			
Surrogate: Toluene-d8 (Surr)	50.7				ug/L	50.0		101	70-130			

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Blank (BBK0112-BLK2)

Prepared & Analyzed: 02-Nov-2018

1,1,1-Trichloroethane	ND	0.60		1.00	ug/L				-			Ua
1,1,2,2-Tetrachloroethane	ND	0.30		0.40	ug/L				-			Ua
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.00		10.0	ug/L				-			Ua
1,1,2-Trichloroethane	ND	0.50		1.00	ug/L				-			Ua
1,1-Dichloroethane	ND	0.60		1.00	ug/L				-			Ua
1,1-Dichloroethylene	ND	0.70		1.00	ug/L				-			Ua
1,2,3-Trichlorobenzene	ND	0.70		1.00	ug/L				-			Ua
1,2,4-Trichlorobenzene	ND	0.50		0.90	ug/L				-			Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.60		1.00	ug/L				-			Ua
1,2-Dibromoethane (EDB)	ND	0.40		1.00	ug/L				-			Ua
1,2-Dichlorobenzene	ND	0.40		0.50	ug/L				-			Ua
1,2-Dichloroethane	ND	0.70		1.00	ug/L				-			Ua
1,2-Dichloropropane	ND	0.40		0.50	ug/L				-			Ua
1,3-Dichlorobenzene	ND	0.30		0.90	ug/L				-			Ua
1,4-Dichlorobenzene	ND	0.40		1.00	ug/L				-			Ua
1,4-Dioxane	ND	40.0		80.0	ug/L				-			Ua
2-Butanone (MEK)	ND	3.00		10.0	ug/L				-			Ua
2-Hexanone (MBK)	ND	2.20		5.00	ug/L				-			Ua
4-Methyl-2-pentanone (MIBK)	ND	1.50		5.00	ug/L				-			Ua
Acetone	ND	7.00		10.0	ug/L				-			Ua
Benzene	ND	0.40		1.00	ug/L				-			Ua
Bromodichloromethane	ND	0.40		0.50	ug/L				-			Ua
Bromoform	ND	0.40		1.00	ug/L				-			Ua
Bromomethane	ND	0.80		1.00	ug/L				-			Ua
Carbon disulfide	ND	1.00		10.0	ug/L				-			Ua
Carbon tetrachloride	ND	0.50		1.00	ug/L				-			Ua
Chlorobenzene	ND	0.40		1.00	ug/L				-			Ua
Chloroethane	ND	0.70		1.00	ug/L				-			Ua

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Blank (BBK0112-BLK2)

Prepared & Analyzed: 02-Nov-2018

Chloroform	ND	0.50		0.50	ug/L				-			Ua
Chloromethane	ND	0.95		1.00	ug/L				-			Ua
cis-1,2-Dichloroethylene	ND	0.40		1.00	ug/L				-			Ua
cis-1,3-Dichloropropene	ND	0.30		1.00	ug/L				-			Ua
Cyclohexane	ND	0.50		1.00	ug/L				-			Ua
Dibromochloromethane	ND	0.35		0.50	ug/L				-			Ua
Dichlorodifluoromethane	ND	0.95		1.00	ug/L				-			Ua
Ethylbenzene	ND	0.40		1.00	ug/L				-			Ua
Isopropylbenzene	ND	0.50		1.00	ug/L				-			Ua
m+p-Xylenes	ND	0.60		2.00	ug/L				-			Ua
Methyl acetate	9.09	1.00		4.00	ug/L				-			
Methyl cyclohexane	ND	0.50		1.00	ug/L				-			Ua
Methylene chloride	ND	1.00		4.00	ug/L				-			Ua
Methyl-t-butyl ether (MTBE)	ND	0.60		1.00	ug/L				-			Ua
o-Xylene	ND	0.40		1.00	ug/L				-			Ua
Styrene	ND	0.40		1.00	ug/L				-			Ua
Tetrachloroethylene (PCE)	ND	0.40		1.00	ug/L				-			Ua
Toluene	ND	0.50		1.00	ug/L				-			Ua
trans-1,2-Dichloroethylene	ND	0.60		1.00	ug/L				-			Ua
trans-1,3-Dichloropropene	ND	0.30		1.00	ug/L				-			Ua
Trichloroethylene	ND	0.40		1.00	ug/L				-			Ua
Trichlorofluoromethane	ND	0.80		1.00	ug/L				-			Ua
Vinyl chloride	ND	0.50		0.50	ug/L				-			Ua
Surrogate: 1,2-Dichloroethane-d4 (Surr)	57.6				ug/L	50.0		115	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	56.6				ug/L	50.0		113	75-120			
Surrogate: Dibromofluoromethane (Surr)	57.8				ug/L	50.0		116	70-130			
Surrogate: Toluene-d8 (Surr)	51.7				ug/L	50.0		103	70-130			

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Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

LCS (BBK0112-BS1)

Prepared & Analyzed: 02-Nov-2018

1,1,1-Trichloroethane	57.5				ug/L	50.0		115	65-130			
1,1,2,2-Tetrachloroethane	47.6				ug/L	50.0		95.2	65-130			
1,1,2-Trichloroethane	47.9				ug/L	50.0		95.8	75-125			
1,1-Dichloroethane	60.0				ug/L	50.0		120	70-135			
1,1-Dichloroethylene	56.8				ug/L	50.0		114	70-130			
1,2,3-Trichlorobenzene	46.3				ug/L	50.0		92.6	55-140			
1,2,4-Trichlorobenzene	47.5				ug/L	50.0		95.0	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	46.3				ug/L	50.0		92.5	50-130			
1,2-Dibromoethane (EDB)	45.5				ug/L	50.0		91.0	80-120			
1,2-Dichlorobenzene	47.2				ug/L	50.0		94.4	70-120			
1,2-Dichloroethane	56.0				ug/L	50.0		112	70-130			
1,2-Dichloropropane	52.5				ug/L	50.0		105	75-125			
1,3-Dichlorobenzene	49.2				ug/L	50.0		98.3	75-125			
1,4-Dichlorobenzene	48.0				ug/L	50.0		96.1	75-125			
2-Butanone (MEK)	47.7				ug/L	50.0		95.3	30-150			
2-Hexanone (MBK)	41.6				ug/L	50.0		83.3	55-130			
4-Methyl-2-pentanone (MIBK)	55.0				ug/L	50.0		110	60-135			
Acetone	56.3				ug/L	50.0		113	40-140			
Benzene	53.2				ug/L	50.0		106	80-120			
Bromodichloromethane	53.5				ug/L	50.0		107	75-120			
Bromoform	45.3				ug/L	50.0		90.6	70-130			
Bromomethane	45.5				ug/L	50.0		91.0	30-145			
Carbon disulfide	61.5				ug/L	50.0		123	35-160			
Carbon tetrachloride	51.9				ug/L	50.0		104	65-140			
Chlorobenzene	48.2				ug/L	50.0		96.4	80-120			
Chloroethane	59.3				ug/L	50.0		119	60-135			
Chloroform	54.9				ug/L	50.0		110	65-135			
Chloromethane	54.7				ug/L	50.0		109	40-125			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
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Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

LCS (BBK0112-BS1)

Prepared & Analyzed: 02-Nov-2018

cis-1,2-Dichloroethylene	54.6				ug/L	50.0		109	70-125			
cis-1,3-Dichloropropene	52.6				ug/L	50.0		105	70-130			
Dibromochloromethane	48.6				ug/L	50.0		97.2	60-135			
Dichlorodifluoromethane	43.5				ug/L	50.0		87.1	30-155			
Ethylbenzene	54.2				ug/L	50.0		108	75-125			
Isopropylbenzene	55.5				ug/L	50.0		111	75-125			
m+p-Xylenes	107				ug/L	100		107	75-130			
Methylene chloride	53.2				ug/L	50.0		106	55-140			
Methyl-t-butyl ether (MTBE)	51.0				ug/L	50.0		102	65-125			
o-Xylene	50.5				ug/L	50.0		101	80-120			
Styrene	53.1				ug/L	50.0		106	65-135			
Tetrachloroethylene (PCE)	61.6				ug/L	50.0		123	45-150			
Toluene	45.0				ug/L	50.0		90.0	75-120			
trans-1,2-Dichloroethylene	53.4				ug/L	50.0		107	60-140			
trans-1,3-Dichloropropene	42.9				ug/L	50.0		85.8	55-140			
Trichloroethylene	51.0				ug/L	50.0		102	70-125			
Trichlorofluoromethane	52.6				ug/L	50.0		105	60-145			
Vinyl chloride	57.5				ug/L	50.0		115	50-145			
Surrogate: 1,2-Dichloroethane-d4 (Surr)	53.1				ug/L	50.0		106	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	54.3				ug/L	50.0		109	75-120			
Surrogate: Dibromofluoromethane (Surr)	55.5				ug/L	50.0		111	70-130			
Surrogate: Toluene-d8 (Surr)	48.8				ug/L	50.0		97.6	70-130			

LCS (BBK0112-BS2)

Prepared & Analyzed: 02-Nov-2018

1,1,1-Trichloroethane	55.8				ug/L	50.0		112	65-130			
1,1,1,2-Tetrachloroethane	40.9				ug/L	50.0		81.9	65-130			
1,1,2-Trichloroethane	52.5				ug/L	50.0		105	75-125			
1,1-Dichloroethane	59.1				ug/L	50.0		118	70-135			
1,1-Dichloroethylene	54.7				ug/L	50.0		109	70-130			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

LCS (BBK0112-BS2)

Prepared & Analyzed: 02-Nov-2018

1,2,3-Trichlorobenzene	46.4				ug/L	50.0		92.9	55-140			
1,2,4-Trichlorobenzene	47.4				ug/L	50.0		94.8	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	40.4				ug/L	50.0		80.8	50-130			
1,2-Dibromoethane (EDB)	46.5				ug/L	50.0		92.9	80-120			
1,2-Dichlorobenzene	44.1				ug/L	50.0		88.2	70-120			
1,2-Dichloroethane	55.4				ug/L	50.0		111	70-130			
1,2-Dichloropropane	52.1				ug/L	50.0		104	75-125			
1,3-Dichlorobenzene	47.0				ug/L	50.0		93.9	75-125			
1,4-Dichlorobenzene	46.1				ug/L	50.0		92.2	75-125			
2-Butanone (MEK)	48.8				ug/L	50.0		97.7	30-150			
2-Hexanone (MBK)	48.7				ug/L	50.0		97.5	55-130			
4-Methyl-2-pentanone (MIBK)	53.2				ug/L	50.0		106	60-135			
Acetone	53.4				ug/L	50.0		107	40-140			
Benzene	51.9				ug/L	50.0		104	80-120			
Bromodichloromethane	53.4				ug/L	50.0		107	75-120			
Bromoform	44.3				ug/L	50.0		88.5	70-130			
Bromomethane	45.7				ug/L	50.0		91.5	30-145			
Carbon disulfide	59.8				ug/L	50.0		120	35-160			
Carbon tetrachloride	49.6				ug/L	50.0		99.2	65-140			
Chlorobenzene	46.8				ug/L	50.0		93.6	80-120			
Chloroethane	56.6				ug/L	50.0		113	60-135			
Chloroform	54.4				ug/L	50.0		109	65-135			
Chloromethane	54.2				ug/L	50.0		108	40-125			
cis-1,2-Dichloroethylene	53.9				ug/L	50.0		108	70-125			
cis-1,3-Dichloropropene	51.3				ug/L	50.0		103	70-130			
Dibromochloromethane	49.6				ug/L	50.0		99.1	60-135			
Dichlorodifluoromethane	40.1				ug/L	50.0		80.2	30-155			
Ethylbenzene	51.1				ug/L	50.0		102	75-125			

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
 23-May-2019

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

LCS (BBK0112-BS2)

Prepared & Analyzed: 02-Nov-2018

Isopropylbenzene	46.6				ug/L	50.0		93.1	75-125			
m+p-Xylenes	101				ug/L	100		101	75-130			
Methylene chloride	52.7				ug/L	50.0		105	55-140			
Methyl-t-butyl ether (MTBE)	51.6				ug/L	50.0		103	65-125			
o-Xylene	45.1				ug/L	50.0		90.2	80-120			
Styrene	47.7				ug/L	50.0		95.3	65-135			
Tetrachloroethylene (PCE)	63.2				ug/L	50.0		126	45-150			
Toluene	50.9				ug/L	50.0		102	75-120			
trans-1,2-Dichloroethylene	53.3				ug/L	50.0		107	60-140			
trans-1,3-Dichloropropene	50.2				ug/L	50.0		100	55-140			
Trichloroethylene	48.9				ug/L	50.0		97.9	70-125			
Trichlorofluoromethane	48.7				ug/L	50.0		97.4	60-145			
Vinyl chloride	55.5				ug/L	50.0		111	50-145			
<i>Surrogate:</i>	<i>54.5</i>				<i>ug/L</i>	<i>50.0</i>		<i>109</i>	<i>70-120</i>			
<i>1,2-Dichloroethane-d4 (Surr)</i>												
<i>Surrogate:</i>	<i>46.4</i>				<i>ug/L</i>	<i>50.0</i>		<i>92.8</i>	<i>75-120</i>			
<i>4-Bromofluorobenzene (Surr)</i>												
<i>Surrogate:</i>	<i>55.6</i>				<i>ug/L</i>	<i>50.0</i>		<i>111</i>	<i>70-130</i>			
<i>Dibromofluoromethane (Surr)</i>												
<i>Surrogate: Toluene-d8 (Surr)</i>	<i>51.8</i>				<i>ug/L</i>	<i>50.0</i>		<i>104</i>	<i>70-130</i>			

Duplicate (BBK0112-DUP1)

Source: 18K0055-04

Prepared & Analyzed: 02-Nov-2018

1,1,1-Trichloroethane	ND	3.00		5.00	ug/L		ND	-		30		Ua
1,1,1,2-Tetrachloroethane	ND	1.50		2.00	ug/L		ND	-		30		Ua
1,1,1,2-Trichloro-1,2,2-trifluoroethane	ND	25.0		50.0	ug/L		ND	-		30		Ua
1,1,2-Trichloroethane	ND	2.50		5.00	ug/L		ND	-		30		Ua
1,1-Dichloroethane	ND	3.00		5.00	ug/L		ND	-		30		Ua
1,1-Dichloroethylene	ND	3.50		5.00	ug/L		ND	-		30		Ua
1,2,3-Trichlorobenzene	ND	3.50		5.00	ug/L		ND	-		30		Ua
1,2,4-Trichlorobenzene	ND	2.50		4.50	ug/L		ND	-		30		Ua
1,2-Dibromo-3-chloropropane (DBCP)	ND	3.00		5.00	ug/L		ND	-		30		Ua

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ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Duplicate (BBK0112-DUP1)	Source: 18K0055-04				Prepared & Analyzed: 02-Nov-2018							
1,2-Dibromoethane (EDB)	ND	2.00		5.00	ug/L		ND		-		30	Ua
1,2-Dichlorobenzene	ND	2.00		2.50	ug/L		ND		-		30	Ua
1,2-Dichloroethane	ND	3.50		5.00	ug/L		ND		-		30	Ua
1,2-Dichloropropane	ND	2.00		2.50	ug/L		ND		-		30	Ua
1,3-Dichlorobenzene	ND	1.50		4.50	ug/L		ND		-		30	Ua
1,4-Dichlorobenzene	ND	2.00		5.00	ug/L		ND		-		30	Ua
1,4-Dioxane	ND	200		400	ug/L		ND		-		30	Ua
2-Butanone (MEK)	ND	15.0		50.0	ug/L		ND		-		30	Ua
2-Hexanone (MBK)	ND	11.0		25.0	ug/L		ND		-		30	Ua
4-Methyl-2-pentanone (MIBK)	ND	7.50		25.0	ug/L		ND		-		30	Ua
Acetone	153	35.0		50.0	ug/L		122		-	22.8	30	
Benzene	ND	2.00		5.00	ug/L		ND		-		30	Ua
Bromodichloromethane	5.18	2.00		2.50	ug/L		3.88		-	28.7	30	
Bromoform	ND	2.00		5.00	ug/L		ND		-		30	Ua
Bromomethane	ND	4.00		5.00	ug/L		ND		-		30	Ua
Carbon disulfide	ND	5.00		50.0	ug/L		ND		-		30	Ua
Carbon tetrachloride	ND	2.50		5.00	ug/L		ND		-		30	Ua
Chlorobenzene	ND	2.00		5.00	ug/L		ND		-		30	Ua
Chloroethane	ND	3.50		5.00	ug/L		ND		-		30	Ua
Chloroform	52.8	2.50		2.50	ug/L		42.6		-	21.3	30	
Chloromethane	ND	4.75		5.00	ug/L		ND		-		30	Ua
cis-1,2-Dichloroethylene	ND	2.00		5.00	ug/L		ND		-		30	Ua
cis-1,3-Dichloropropene	ND	1.50		5.00	ug/L		ND		-		30	Ua
Cyclohexane	ND	2.50		5.00	ug/L		ND		-		30	Ua
Dibromochloromethane	ND	1.75		2.50	ug/L		ND		-		30	Ua
Dichlorodifluoromethane	ND	4.75		5.00	ug/L		ND		-		30	Ua
Ethylbenzene	ND	2.00		5.00	ug/L		ND		-		30	Ua
Isopropylbenzene	ND	2.50		5.00	ug/L		ND		-		30	Ua

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Project: Houston Ship Channel-North of Morgan's Point

Project Manager: Cheryl Montgomery

Reported:
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Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Duplicate (BBK0112-DUP1)		Source: 18K0055-04			Prepared & Analyzed: 02-Nov-2018							
m+p-Xylenes	ND	3.00		10.0	ug/L		ND	-			30	Ua
Methyl acetate	ND	5.00		20.0	ug/L		ND	-			30	Ua
Methyl cyclohexane	ND	2.50		5.00	ug/L		ND	-			30	Ua
Methylene chloride	ND	5.00		20.0	ug/L		ND	-			30	Ua
Methyl-t-butyl ether (MTBE)	ND	3.00		5.00	ug/L		ND	-			30	Ua
o-Xylene	ND	2.00		5.00	ug/L		ND	-			30	Ua
Styrene	ND	2.00		5.00	ug/L		ND	-			30	Ua
Tetrachloroethylene (PCE)	ND	2.00		5.00	ug/L		ND	-			30	Ua
Toluene	ND	2.50		5.00	ug/L		ND	-			30	Ua
trans-1,2-Dichloroethylene	ND	3.00		5.00	ug/L		ND	-			30	Ua
trans-1,3-Dichloropropene	ND	1.50		5.00	ug/L		ND	-			30	Ua
Trichloroethylene	ND	2.00		5.00	ug/L		ND	-			30	Ua
Trichlorofluoromethane	ND	4.00		5.00	ug/L		ND	-			30	Ua
Vinyl chloride	ND	2.50		2.50	ug/L		ND	-			30	Ua
Surrogate: 1,2-Dichloroethane-d4 (Surr)	286				ug/L	250		114	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	257				ug/L	250		103	75-120			
Surrogate: Dibromofluoromethane (Surr)	279				ug/L	250		111	70-130			
Surrogate: Toluene-d8 (Surr)	213				ug/L	250		85.0	70-130			

Matrix Spike (BBK0112-MS1)		Source: 18J0403-12			Prepared & Analyzed: 02-Nov-2018							
1,1,1-Trichloroethane	49.5				ug/L	50.0	0.00	99.0	65-130			
1,1,1,2-Tetrachloroethane	44.8				ug/L	50.0	0.00	89.5	65-130			
1,1,2-Trichloroethane	47.3				ug/L	50.0	0.00	94.6	75-125			
1,1-Dichloroethane	52.3				ug/L	50.0	0.00	105	70-135			
1,1-Dichloroethylene	48.5				ug/L	50.0	0.00	97.0	70-130			
1,2,3-Trichlorobenzene	41.3				ug/L	50.0	0.00	82.6	55-140			
1,2,4-Trichlorobenzene	42.2				ug/L	50.0	0.00	84.5	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	45.2				ug/L	50.0	0.00	90.4	50-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Matrix Spike (BBK0112-MS1)	Source: 18J0403-12		Prepared & Analyzed: 02-Nov-2018									
1,2-Dibromoethane (EDB)	44.5				ug/L	50.0	0.00	89.0	80-120			
1,2-Dichlorobenzene	44.1				ug/L	50.0	0.00	88.1	70-120			
1,2-Dichloroethane	50.3				ug/L	50.0	0.00	101	70-130			
1,2-Dichloropropane	46.7				ug/L	50.0	0.00	93.4	75-125			
1,3-Dichlorobenzene	45.4				ug/L	50.0	0.00	90.8	75-125			
1,4-Dichlorobenzene	43.7				ug/L	50.0	0.00	87.3	75-125			
2-Butanone (MEK)	45.4				ug/L	50.0	0.00	90.8	30-150			
2-Hexanone (MBK)	50.2				ug/L	50.0	0.00	100	55-130			
4-Methyl-2-pentanone (MIBK)	53.0				ug/L	50.0	0.00	106	60-135			
Acetone	79.4				ug/L	50.0	27.4	104	40-140			
Benzene	46.5				ug/L	50.0	0.00	93.1	80-120			
Bromodichloromethane	47.8				ug/L	50.0	0.00	95.6	75-120			
Bromoform	41.9				ug/L	50.0	0.00	83.7	70-130			
Bromomethane	40.1				ug/L	50.0	0.00	80.1	30-145			
Carbon disulfide	52.5				ug/L	50.0	0.00	105	35-160			
Carbon tetrachloride	45.3				ug/L	50.0	0.00	90.6	65-140			
Chlorobenzene	42.7				ug/L	50.0	0.00	85.4	80-120			
Chloroethane	52.0				ug/L	50.0	0.00	104	60-135			
Chloroform	48.5				ug/L	50.0	0.18	96.7	65-135			
Chloromethane	49.6				ug/L	50.0	3.07	93.1	40-125			
cis-1,2-Dichloroethylene	47.2				ug/L	50.0	0.00	94.5	70-125			
cis-1,3-Dichloropropene	44.9				ug/L	50.0	0.00	89.8	70-130			
Dibromochloromethane	44.7				ug/L	50.0	0.00	89.4	60-135			
Dichlorodifluoromethane	35.2				ug/L	50.0	0.00	70.4	30-155			
Ethylbenzene	45.3				ug/L	50.0	0.00	90.5	75-125			
Isopropylbenzene	46.2				ug/L	50.0	0.00	92.4	75-125			
m+p-Xylenes	89.3				ug/L	100	0.00	89.3	75-130			
Methylene chloride	52.7				ug/L	50.0	6.15	93.1	55-140			

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Reported:
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Project Manager: Cheryl Montgomery

Volatile Organic Compounds by GCMS - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0112 - SW5030B

Matrix Spike (BBK0112-MS1)	Source: 18J0403-12		Prepared & Analyzed: 02-Nov-2018									
Methyl-t-butyl ether (MTBE)	46.2				ug/L	50.0	0.00	92.4	65-125			
o-Xylene	42.6				ug/L	50.0	0.00	85.1	80-120			
Styrene	44.0				ug/L	50.0	0.00	88.0	65-135			
Tetrachloroethylene (PCE)	58.1				ug/L	50.0	0.00	116	45-150			
Toluene	44.2				ug/L	50.0	0.00	88.3	75-120			
trans-1,2-Dichloroethylene	45.9				ug/L	50.0	0.00	91.8	60-140			
trans-1,3-Dichloropropene	44.3				ug/L	50.0	0.00	88.6	55-140			
Trichloroethylene	43.9				ug/L	50.0	0.00	87.9	70-125			
Trichlorofluoromethane	43.8				ug/L	50.0	0.00	87.5	60-145			
Vinyl chloride	51.4				ug/L	50.0	0.00	103	50-145			
Surrogate: 1,2-Dichloroethane-d4 (Surr)	56.5				ug/L	50.0		113	70-120			
Surrogate: 4-Bromofluorobenzene (Surr)	50.2				ug/L	50.0		100	75-120			
Surrogate: Dibromofluoromethane (Surr)	55.5				ug/L	50.0		111	70-130			
Surrogate: Toluene-d8 (Surr)	51.0				ug/L	50.0		102	70-130			

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0178 - No Prep Wet Chem

Blank (BBK0178-BLK1)						Prepared & Analyzed: 06-Nov-2018						
Cyanide	ND	10		10	ug/L				-			Ua

LCS (BBK0178-BS1)						Prepared & Analyzed: 06-Nov-2018						
Cyanide	240				ug/L	250		97.7	80-120			

LCS Dup (BBK0178-BSD1)						Prepared & Analyzed: 06-Nov-2018						
Cyanide	250				ug/L	250		101	80-120	3.54	20	

Matrix Spike (BBK0178-MS1)						Source: 18J1232-01		Prepared & Analyzed: 06-Nov-2018				
Cyanide	260	10		10	ug/L	250	ND	103	80-120			

Matrix Spike (BBK0178-MS2)						Source: 18J0403-10		Prepared & Analyzed: 06-Nov-2018				
Cyanide	240	10		10	ug/L	250	ND	97.0	80-120			

Matrix Spike Dup (BBK0178-MSD1)						Source: 18J1232-01		Prepared & Analyzed: 06-Nov-2018				
Cyanide	280	10		10	ug/L	250	ND	110	80-120	6.26	20	

Matrix Spike Dup (BBK0178-MSD2)						Source: 18J0403-10		Prepared & Analyzed: 06-Nov-2018				
Cyanide	270	10		10	ug/L	250	ND	109	80-120	11.5	20	

Batch BBK0283 - No Prep Wet Chem

Blank (BBK0283-BLK1)						Prepared & Analyzed: 08-Nov-2018						
Cyanide	ND	10		10	ug/L				-			Ua

LCS (BBK0283-BS1)						Prepared & Analyzed: 08-Nov-2018						
Cyanide	230				ug/L	250		93.7	80-120			

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Project Manager: Cheryl Montgomery

Wet Chemistry Analysis - Quality Control
Air Water & Soil Laboratories, Inc.

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch BBK0283 - No Prep Wet Chem

						Prepared & Analyzed: 08-Nov-2018						
LCS Dup (BBK0283-BSD1)												
Cyanide	240				ug/L	250		96.4	80-120	2.82	20	
Matrix Spike (BBK0283-MS1)						Source: 18J0403-11		Prepared & Analyzed: 08-Nov-2018				
Cyanide	220	10		10	ug/L	250	ND	87.8	80-120			
Matrix Spike (BBK0283-MS2)						Source: 18J0403-12		Prepared & Analyzed: 08-Nov-2018				
Cyanide	210	10		10	ug/L	250	ND	83.3	80-120			
Matrix Spike Dup (BBK0283-MSD1)						Source: 18J0403-11		Prepared & Analyzed: 08-Nov-2018				
Cyanide	240	10		10	ug/L	250	ND	94.7	80-120	7.54	20	
Matrix Spike Dup (BBK0283-MSD2)						Source: 18J0403-12		Prepared & Analyzed: 08-Nov-2018				
Cyanide	210	10		10	ug/L	250	ND	85.6	80-120	2.70	20	

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PAHs by GC/MS SIM - Quality Control

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Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175786 - EPA 3510C

BLK (WG1175786-1)

Prepared: 04-Nov-2018 Analyzed: 20-Nov-2018

Acenaphthene	ND	0.00161		0.01	ug/l				-			Ub
Acenaphthylene	ND	0.00177		0.01	ug/l				-			Ub
Anthracene	ND	0.00194		0.01	ug/l				-			Ub
Benz(a)anthracene	ND	0.00173		0.01	ug/l				-			Ub
Benzo(a)pyrene	ND	0.00084		0.01	ug/l				-			Ub
Benzo(b)fluoranthene	ND	0.00148		0.01	ug/l				-			Ub
Benzo(e)pyrene	ND	0.00127		0.01	ug/l				-			Ub
Benzo(g,h,i)perylene	ND	0.00131		0.01	ug/l				-			Ub
Benzo(k)fluoranthene	ND	0.00117		0.01	ug/l				-			Ub
Chrysene	ND	0.000936		0.01	ug/l				-			Ub
Dibenz(a,h)anthracene	ND	0.000685		0.01	ug/l				-			Ub
Fluoranthene	ND	0.00149		0.01	ug/l				-			Ub
Fluorene	ND	0.00173		0.01	ug/l				-			Ub
Indeno(1,2,3-cd)pyrene	0.00552	0.000533		0.01	ug/l				-			Jb
Naphthalene	ND	0.00177		0.01	ug/l				-			Ub
Phenanthrene	ND	0.00189		0.01	ug/l				-			Ub
Pyrene	ND	0.00152		0.01	ug/l				-			Ub
Surrogate: 2-Methylnaphthalene-d10	0.362				ug/l			72	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.508				ug/l			102	30-130			
Surrogate: Pyrene-d10	0.467				ug/l			93	30-130			

LCS (WG1175786-2)

Prepared: 04-Nov-2018 Analyzed: 20-Nov-2018

Acenaphthene	0.359	0.00161		0.01	ug/l	0.5		72	40-140		30	
Acenaphthylene	0.378	0.00177		0.01	ug/l	0.5		76	40-140		30	
Anthracene	0.442	0.00194		0.01	ug/l	0.5		88	40-140		30	
Benz(a)anthracene	0.466	0.00173		0.01	ug/l	0.5		93	40-140		30	
Benzo(a)pyrene	0.467	0.00084		0.01	ug/l	0.5		93	40-140		30	
Benzo(b)fluoranthene	0.445	0.00148		0.01	ug/l	0.5		89	40-140		30	
Benzo(e)pyrene	0.475	0.00127		0.01	ug/l	0.5		95	40-140		30	

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PAHs by GC/MS SIM - Quality Control

Alpha

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Batch WG1175786 - EPA 3510C

LCS (WG1175786-2)

Prepared: 04-Nov-2018 Analyzed: 20-Nov-2018

Benzo(g,h,i)perylene	0.451	0.00131		0.01	ug/l	0.5		90	40-140		30	
Benzo(k)fluoranthene	0.468	0.00117		0.01	ug/l	0.5		94	40-140		30	
Chrysene	0.431	0.000936		0.01	ug/l	0.5		86	40-140		30	
Dibenz(a,h)anthracene	0.468	0.000685		0.01	ug/l	0.5		94	40-140		30	
Fluoranthene	0.453	0.00149		0.01	ug/l	0.5		91	40-140		30	
Fluorene	0.386	0.00173		0.01	ug/l	0.5		77	40-140		30	
Indeno(1,2,3-cd)pyrene	0.461	0.000533		0.01	ug/l	0.5		92	40-140		30	
Naphthalene	0.346	0.00177		0.01	ug/l	0.5		69	40-140		30	
Phenanthrene	0.387	0.00189		0.01	ug/l	0.5		77	40-140		30	
Pyrene	0.392	0.00152		0.01	ug/l	0.5		78	40-140		30	
Surrogate: 2-Methylnaphthalene-d10	0.349				ug/l			70	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.424				ug/l			85	30-130			
Surrogate: Pyrene-d10	0.413				ug/l			83	30-130			

LCD (WG1175786-3)

Prepared: 04-Nov-2018 Analyzed: 20-Nov-2018

Acenaphthene	0.334	0.00161		0.01	ug/l	0.5		67	40-140	7	30	
Acenaphthylene	0.349	0.00177		0.01	ug/l	0.5		70	40-140	8	30	
Anthracene	0.424	0.00194		0.01	ug/l	0.5		85	40-140	3	30	
Benz(a)anthracene	0.459	0.00173		0.01	ug/l	0.5		92	40-140	1	30	
Benzo(a)pyrene	0.462	0.00084		0.01	ug/l	0.5		92	40-140	1	30	
Benzo(b)fluoranthene	0.439	0.00148		0.01	ug/l	0.5		88	40-140	1	30	
Benzo(e)pyrene	0.476	0.00127		0.01	ug/l	0.5		95	40-140	0	30	
Benzo(g,h,i)perylene	0.448	0.00131		0.01	ug/l	0.5		90	40-140	0	30	
Benzo(k)fluoranthene	0.474	0.00117		0.01	ug/l	0.5		95	40-140	1	30	
Chrysene	0.43	0.000936		0.01	ug/l	0.5		86	40-140	0	30	
Dibenz(a,h)anthracene	0.463	0.000685		0.01	ug/l	0.5		93	40-140	1	30	
Fluoranthene	0.439	0.00149		0.01	ug/l	0.5		88	40-140	3	30	
Fluorene	0.362	0.00173		0.01	ug/l	0.5		72	40-140	7	30	
Indeno(1,2,3-cd)pyrene	0.453	0.000533		0.01	ug/l	0.5		91	40-140	1	30	

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PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175786 - EPA 3510C

LCD (WG1175786-3)

Prepared: 04-Nov-2018 Analyzed: 20-Nov-2018

Naphthalene	0.319	0.00177		0.01	ug/l	0.5		64	40-140	8	30	
Phenanthrene	0.37	0.00189		0.01	ug/l	0.5		74	40-140	4	30	
Pyrene	0.388	0.00152		0.01	ug/l	0.5		78	40-140	0	30	
Surrogate: 2-Methylnaphthalene-d10	0.332				ug/l			66	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.425				ug/l			85	30-130			
Surrogate: Pyrene-d10	0.408				ug/l			82	30-130			

MS (WG1175786-4)

Source: 18J0403-12

Prepared: 04-Nov-2018 Analyzed: 21-Nov-2018

Acenaphthene	0.352	0.00644		0.04	ug/l	0.5	0.173	36	40-140		30	N
Acenaphthylene	0.274	0.00708		0.04	ug/l	0.5	0.00564	55	40-140		30	
Anthracene	0.445	0.00776		0.04	ug/l	0.5	0.057	78	40-140		30	
Benz(a)anthracene	0.498	0.00692		0.04	ug/l	0.5	0.00655	100	40-140		30	
Benzo(a)pyrene	0.447	0.00336		0.04	ug/l	0.5	ND	89	40-140		30	
Benzo(b)fluoranthene	0.429	0.00592		0.04	ug/l	0.5	ND	86	40-140		30	
Benzo(e)pyrene	0.475	0.00508		0.04	ug/l	0.5	ND	95	40-140		30	
Benzo(g,h,i)perylene	0.447	0.00524		0.04	ug/l	0.5	ND	89	40-140		30	
Benzo(k)fluoranthene	0.446	0.00468		0.04	ug/l	0.5	ND	89	40-140		30	
Chrysene	0.42	0.00374		0.04	ug/l	0.5	0.00666	84	40-140		30	
Dibenz(a,h)anthracene	0.462	0.00274		0.04	ug/l	0.5	ND	92	40-140		30	
Fluoranthene	0.515	0.00596		0.04	ug/l	0.5	0.103	82	40-140		30	
Fluorene	0.378	0.00692		0.04	ug/l	0.5	0.117	52	40-140		30	
Indeno(1,2,3-cd)pyrene	0.484	0.00213		0.04	ug/l	0.5	0.0055	97	40-140		30	
Naphthalene	0.209	0.00708		0.04	ug/l	0.5	0.0106	40	40-140		30	
Phenanthrene	0.41	0.00756		0.04	ug/l	0.5	0.144	53	40-140		30	
Pyrene	0.449	0.00608		0.04	ug/l	0.5	0.0743	75	40-140		30	
Surrogate: 2-Methylnaphthalene-d10	0.278				ug/l			56	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.431				ug/l			86	30-130			
Surrogate: Pyrene-d10	0.434				ug/l			87	30-130			

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PAHs by GC/MS SIM - Quality Control

Alpha

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch WG1175786 - EPA 3510C

MSD (WG1175786-5)

Prepared: 04-Nov-2018 Analyzed: 21-Nov-2018

Acenaphthene	0.338	0.00537		0.0333	ug/l	0.5	0.173	40	40-140	4	30	
Acenaphthylene	0.258	0.0059		0.0333	ug/l	0.5	0.00564	62	40-140	6	30	
Anthracene	0.385	0.00647		0.0333	ug/l	0.5	0.057	79	40-140	14	30	
Benz(a)anthracene	0.425	0.00577		0.0333	ug/l	0.5	0.00655	102	40-140	16	30	
Benzo(a)pyrene	0.388	0.0028		0.0333	ug/l	0.5	ND	93	40-140	14	30	
Benzo(b)fluoranthene	0.366	0.00493		0.0333	ug/l	0.5	ND	88	40-140	16	30	
Benzo(e)pyrene	0.41	0.00423		0.0333	ug/l	0.5	ND	98	40-140	15	30	
Benzo(g,h,i)perylene	0.381	0.00437		0.0333	ug/l	0.5	ND	91	40-140	16	30	
Benzo(k)fluoranthene	0.396	0.0039		0.0333	ug/l	0.5	ND	95	40-140	12	30	
Chrysene	0.373	0.00312		0.0333	ug/l	0.5	0.00666	90	40-140	12	30	
Dibenz(a,h)anthracene	0.392	0.00228		0.0333	ug/l	0.5	ND	94	40-140	16	30	
Fluoranthene	0.444	0.00497		0.0333	ug/l	0.5	0.103	82	40-140	15	30	
Fluorene	0.344	0.00577		0.0333	ug/l	0.5	0.117	54	40-140	9	30	
Indeno(1,2,3-cd)pyrene	0.381	0.00178		0.0333	ug/l	0.5	0.0055	91	40-140	24	30	
Naphthalene	0.206	0.0059		0.0333	ug/l	0.5	0.0106	47	40-140	1	30	
Phenanthrene	0.36	0.0063		0.0333	ug/l	0.5	0.144	52	40-140	13	30	
Pyrene	0.386	0.00507		0.0333	ug/l	0.5	0.0743	75	40-140	15	30	
Surrogate: 2-Methylnaphthalene-d10	0.222				ug/l			53	30-130			
Surrogate: Benzo(b)fluoranthene-d12	0.367				ug/l			88	30-130			
Surrogate: Pyrene-d10	0.36				ug/l			86	30-130			

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USACE ERDC-EP-C
3909 Halls Ferry Road
Vicksburg, MS 39180-6199

ERDC -- Vicksburg (EL)
 ERDC, 3909 Halls Ferry Road
 Vicksburg MS, 39180

Project: Houston Ship Channel-North of Morgan's Point

Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5841831 - NA

Blank (5841831-BLK)

Prepared: 14-Nov-2018 Analyzed: 17-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	ND	1.52		50	pg/L				-			Ud
1,2,3,4,6,7,8-Hepta CDF	ND	1.16		50	pg/L				-			Ud
1,2,3,4,7,8,9-Hepta CDF	ND	1.15		50	pg/L				-			Ud
1,2,3,4,7,8-Hexa CDD	ND	1.28		50	pg/L				-			Ud
1,2,3,4,7,8-Hexa CDF	ND	1.14		50	pg/L				-			Ud
1,2,3,6,7,8-Hexa CDD	ND	1.3		50	pg/L				-			Ud
1,2,3,6,7,8-Hexa CDF	ND	1.22		50	pg/L				-			Ud
1,2,3,7,8,9-Hexa CDD	ND	1.31		50	pg/L				-			Ud
1,2,3,7,8,9-Hexa CDF	ND	1.18		50	pg/L				-			Ud
1,2,3,7,8-Penta CDD	ND	1.37		50	pg/L				-			Ud
1,2,3,7,8-Penta CDF	ND	1.08		50	pg/L				-			Ud
2,3,4,6,7,8-Hexa CDF	ND	1.1		50	pg/L				-			Ud
2,3,4,7,8-Penta CDF	ND	0.982		50	pg/L				-			Ud
2,3,7,8-Tetra CDD	ND	1.26		10	pg/L				-			Ud
2,3,7,8-Tetra CDF	ND	0.632		10	pg/L				-			Ud
Octa CDD	ND	2.9		100	pg/L				-			Ud
Octa CDF	ND	2.24		100	pg/L				-			Ud
Total Hepta CDD	ND	1.52		50	pg/L				-			Ud
Total Hepta CDF	ND	1.16		50	pg/L				-			Ud
Total Hexa CDD	ND	1.31		50	pg/L				-			Ud
Total Hexa CDF	ND	1.16		50	pg/L				-			Ud
Total Penta CDD	ND	1.37		50	pg/L				-			Ud
Total Penta CDF	ND	1.03		50	pg/L				-			Ud
Total Tetra CDD	ND	1.26		10	pg/L				-			Ud
Total Tetra CDF	ND	0.632		10	pg/L				-			Ud
Surrogate: 37CL4 2378 Tetra CDD	1380				pg/L	2000		69	35-197			
Surrogate: C13-1234678 HeptaCDD	1520				pg/L	2000		76	23-140			

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Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5841831 - NA

Blank (5841831-BLK)

Prepared: 14-Nov-2018 Analyzed: 17-Nov-2018

Surrogate: C13-1234678 HeptaCDF	1540				pg/L	2000		77	28-143			
Surrogate: C13-123478 HexaCDD	1640				pg/L	2000		82	32-141			
Surrogate: C13-123478 HexaCDF	1560				pg/L	2000		78	26-152			
Surrogate: C13-1234789 HeptaCDF	1440				pg/L	2000		72	28-143			
Surrogate: C13-123678 HexaCDD	1800				pg/L	2000		90	28-130			
Surrogate: C13-123678 HexaCDF	1720				pg/L	2000		86	26-123			
Surrogate: C13-12378 PentaCDD	1560				pg/L	2000		78	25-181			
Surrogate: C13-12378 PentaCDF	1300				pg/L	2000		65	24-185			
Surrogate: C13-123789 HexaCDF	1540				pg/L	2000		77	28-136			
Surrogate: C13-234678 HexaCDF	1560				pg/L	2000		78	29-147			
Surrogate: C13-23478 PentaCDF	1580				pg/L	2000		79	21-178			
Surrogate: C13-2378 TetraCDD	1360				pg/L	2000		68	24-164			
Surrogate: C13-2378 TetraCDF	1580				pg/L	2000		79	24-169			
Surrogate: C13-OCDD	3040				pg/L	4000		76	17-157			

LCS (5841831-LCS)

Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018

1,2,3,4,6,7,8-Hepta CDD	95	1.41		50	pg/L	100		95	70-140			
1,2,3,4,6,7,8-Hepta CDF	94	1.08		50	pg/L	100		94	82-122			
1,2,3,4,7,8,9-Hepta CDF	97	1.07		50	pg/L	100		97	78-138			
1,2,3,4,7,8-Hexa CDD	87	0.923		50	pg/L	100		87	70-164			
1,2,3,4,7,8-Hexa CDF	98	1.22		50	pg/L	100		98	72-134			
1,2,3,6,7,8-Hexa CDD	96	0.94		50	pg/L	100		96	76-134			
1,2,3,6,7,8-Hexa CDF	95	1.31		50	pg/L	100		95	84-130			
1,2,3,7,8,9-Hexa CDD	98	0.947		50	pg/L	100		98	64-162			
1,2,3,7,8,9-Hexa CDF	100	1.27		50	pg/L	100		100	78-130			
1,2,3,7,8-Penta CDD	99	1.46		50	pg/L	100		99	25-181			

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EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5841831 - NA

LCS (5841831-LCS)						Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018						
1,2,3,7,8-Penta CDF	97	1.2		50	pg/L	100		97	80-134			
2,3,4,6,7,8-Hexa CDF	99	1.18		50	pg/L	100		99	70-156			
2,3,4,7,8-Penta CDF	91	1.09		50	pg/L	100		91	68-160			
2,3,7,8-Tetra CDD	88	1.28		10	pg/L	100		88	67-158			
2,3,7,8-Tetra CDF	87	1.22		10	pg/L	100		87	75-158			
Octa CDD	97	1.95		100	pg/L	100		97	78-144			
Octa CDF	96	1.31		100	pg/L	100		96	63-170			
Surrogate: 37CL4 2378 Tetra CDD	1280				pg/L	2000		64	35-197			
Surrogate: C13-1234678 HeptaCDD	1580				pg/L	2000		79	23-140			
Surrogate: C13-1234678 HeptaCDF	1620				pg/L	2000		81	28-143			
Surrogate: C13-123478 HexaCDD	1640				pg/L	2000		82	32-141			
Surrogate: C13-123478 HexaCDF	1660				pg/L	2000		83	26-152			
Surrogate: C13-1234789 HeptaCDF	1560				pg/L	2000		78	28-143			
Surrogate: C13-123678 HexaCDD	2020				pg/L	2000		101	28-130			
Surrogate: C13-123678 HexaCDF	1840				pg/L	2000		92	26-123			
Surrogate: C13-12378 PentaCDD	1540				pg/L	2000		77	25-181			
Surrogate: C13-12378 PentaCDF	1280				pg/L	2000		64	24-185			
Surrogate: C13-123789 HexaCDF	1600				pg/L	2000		80	28-136			
Surrogate: C13-234678 HexaCDF	1680				pg/L	2000		84	29-147			
Surrogate: C13-23478 PentaCDF	1600				pg/L	2000		80	21-178			
Surrogate: C13-2378 TetraCDD	1380				pg/L	2000		69	24-164			
Surrogate: C13-2378 TetraCDF	1560				pg/L	2000		78	24-169			
Surrogate: C13-OCDD	3320				pg/L	4000		83	17-157			

Matrix Spike (5841831-MS)						Source: 18J0403-12 Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018						
1,2,3,4,6,7,8-Hepta CDD	99.1	1.58		50	pg/L	100	1.14	98	70-140			

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5841831 - NA

Matrix Spike (5841831-MS)	Source: 18J0403-12		Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018									
1,2,3,4,6,7,8-Hepta CDF	94.4	1.29		50	pg/L	100	1.36	93	82-122			
1,2,3,4,7,8,9-Hepta CDF	96.4	1.28		50	pg/L	100	1.35	95	78-138			
1,2,3,4,7,8-Hexa CDD	88.1	1.29		50	pg/L	100	1.11	87	70-164			
1,2,3,4,7,8-Hexa CDF	95.7	1.07		50	pg/L	100	0.732	95	72-134			
1,2,3,6,7,8-Hexa CDD	105	1.31		50	pg/L	100	1.13	104	76-134			
1,2,3,6,7,8-Hexa CDF	106	1.15		50	pg/L	100	0.786	105	84-130			
1,2,3,7,8,9-Hexa CDD	96.1	1.32		50	pg/L	100	1.14	95	64-162			
1,2,3,7,8,9-Hexa CDF	95.8	1.11		50	pg/L	100	0.76	95	78-130			
1,2,3,7,8-Penta CDD	100	1.31		50	pg/L	100	1.04	99	25-181			
1,2,3,7,8-Penta CDF	100	1.37		50	pg/L	100	1.19	99	80-134			
2,3,4,6,7,8-Hexa CDF	104	1.03		50	pg/L	100	0.707	103	70-156			
2,3,4,7,8-Penta CDF	92.1	1.25		50	pg/L	100	1.08	91	68-160			
2,3,7,8-Tetra CDD	96.5	1.19		10	pg/L	100	2.54	94	67-158			
2,3,7,8-Tetra CDF	97.7	1.19		10	pg/L	100	5.74	92	75-158			
Octa CDD	99	2.02		100	pg/L	100	4.16	95	78-144			
Octa CDF	96	1.88		100	pg/L	100	1.35	95	63-170			
<i>Surrogate: 37CL4 2378 Tetra CDD</i>	<i>1460</i>				<i>pg/L</i>	<i>2000</i>		<i>73</i>	<i>35-197</i>			
<i>Surrogate: C13-1234678 HeptaCDD</i>	<i>1460</i>				<i>pg/L</i>	<i>2000</i>		<i>73</i>	<i>23-140</i>			
<i>Surrogate: C13-1234678 HeptaCDF</i>	<i>1540</i>				<i>pg/L</i>	<i>2000</i>		<i>77</i>	<i>28-143</i>			
<i>Surrogate: C13-123478 HexaCDD</i>	<i>1700</i>				<i>pg/L</i>	<i>2000</i>		<i>85</i>	<i>32-141</i>			
<i>Surrogate: C13-123478 HexaCDF</i>	<i>1660</i>				<i>pg/L</i>	<i>2000</i>		<i>83</i>	<i>26-152</i>			
<i>Surrogate: C13-1234789 HeptaCDF</i>	<i>1480</i>				<i>pg/L</i>	<i>2000</i>		<i>74</i>	<i>28-143</i>			
<i>Surrogate: C13-123678 HexaCDD</i>	<i>1900</i>				<i>pg/L</i>	<i>2000</i>		<i>95</i>	<i>28-130</i>			
<i>Surrogate: C13-123678 HexaCDF</i>	<i>1740</i>				<i>pg/L</i>	<i>2000</i>		<i>87</i>	<i>26-123</i>			
<i>Surrogate: C13-12378 PentaCDD</i>	<i>1680</i>				<i>pg/L</i>	<i>2000</i>		<i>84</i>	<i>25-181</i>			
<i>Surrogate: C13-12378 PentaCDF</i>	<i>1320</i>				<i>pg/L</i>	<i>2000</i>		<i>66</i>	<i>24-185</i>			

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Reported:
 23-May-2019

Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5841831 - NA

Matrix Spike (5841831-MS)	Source: 18J0403-12		Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018									
Surrogate: C13-123789 HexaCDF	1640				pg/L	2000		82	28-136			
Surrogate: C13-234678 HexaCDF	1580				pg/L	2000		79	29-147			
Surrogate: C13-23478 PentaCDF	1680				pg/L	2000		84	21-178			
Surrogate: C13-2378 TetraCDD	1460				pg/L	2000		73	24-164			
Surrogate: C13-2378 TetraCDF	1660				pg/L	2000		83	24-169			
Surrogate: C13-OCDD	3200				pg/L	4000		80	17-157			

Matrix Spike Dup (5841831-MS Dup)	Source: 18J0403-12		Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018									
1,2,3,4,6,7,8-Hepta CDD	98.1	1.49		50	pg/L	100	1.14	97	70-140	1.0	25	
1,2,3,4,6,7,8-Hepta CDF	92.4	1.13		50	pg/L	100	1.36	91	82-122	2.2	25	
1,2,3,4,7,8,9-Hepta CDF	96.4	1.12		50	pg/L	100	1.35	95	78-138	0	25	
1,2,3,4,7,8-Hexa CDD	88.1	1.01		50	pg/L	100	1.11	87	70-164	0	25	
1,2,3,4,7,8-Hexa CDF	99.7	1.16		50	pg/L	100	0.732	99	72-134	4.1	25	
1,2,3,6,7,8-Hexa CDD	105	1.03		50	pg/L	100	1.13	104	76-134	0	25	
1,2,3,6,7,8-Hexa CDF	99.8	1.25		50	pg/L	100	0.786	99	84-130	5.9	25	
1,2,3,7,8,9-Hexa CDD	96.1	1.04		50	pg/L	100	1.14	95	64-162	0	25	
1,2,3,7,8,9-Hexa CDF	98.8	1.21		50	pg/L	100	0.76	98	78-130	3.1	25	
1,2,3,7,8-Penta CDD	106	1.33		50	pg/L	100	1.04	105	25-181	5.9	25	
1,2,3,7,8-Penta CDF	98.2	1.23		50	pg/L	100	1.19	97	80-134	2.0	25	
2,3,4,6,7,8-Hexa CDF	98.7	1.13		50	pg/L	100	0.707	98	70-156	5.0	25	
2,3,4,7,8-Penta CDF	94.1	1.12		50	pg/L	100	1.08	93	68-160	2.2	25	
2,3,7,8-Tetra CDD	92.5	1.07		10	pg/L	100	2.54	90	67-158	4.3	25	
2,3,7,8-Tetra CDF	93.7	1.27		10	pg/L	100	5.74	88	75-158	4.4	25	
Octa CDD	100	1.65		100	pg/L	100	4.16	96	78-144	0	25	
Octa CDF	97	1.32		100	pg/L	100	1.35	96	63-170	0	25	
Surrogate: 37CL4 2378 Tetra CDD	1440				pg/L	2000		72	35-197			
Surrogate: C13-1234678 HeptaCDD	1460				pg/L	2000		73	23-140			

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Reported:
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Project Manager: Cheryl Montgomery

EPA 1613B m - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5841831 - NA

Matrix Spike Dup (5841831-MS Dup)	Source: 18J0403-12		Prepared: 14-Nov-2018 Analyzed: 18-Nov-2018									
Surrogate: C13-1234678 HeptaCDF	1560		pg/L	2000	78	28-143						
Surrogate: C13-123478 HexaCDD	1640		pg/L	2000	82	32-141						
Surrogate: C13-123478 HexaCDF	1620		pg/L	2000	81	26-152						
Surrogate: C13-1234789 HeptaCDF	1500		pg/L	2000	75	28-143						
Surrogate: C13-123678 HexaCDD	1940		pg/L	2000	97	28-130						
Surrogate: C13-123678 HexaCDF	1800		pg/L	2000	90	26-123						
Surrogate: C13-12378 PentaCDD	1560		pg/L	2000	78	25-181						
Surrogate: C13-12378 PentaCDF	1360		pg/L	2000	68	24-185						
Surrogate: C13-123789 HexaCDF	1620		pg/L	2000	81	28-136						
Surrogate: C13-234678 HexaCDF	1600		pg/L	2000	80	29-147						
Surrogate: C13-23478 PentaCDF	1620		pg/L	2000	81	21-178						
Surrogate: C13-2378 TetraCDD	1520		pg/L	2000	76	24-164						
Surrogate: C13-2378 TetraCDF	1760		pg/L	2000	88	24-169						
Surrogate: C13-OCDD	3200		pg/L	4000	80	17-157						

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ERDC -- Vicksburg (EL)
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Reported:
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Project Manager: Cheryl Montgomery

EPA M8290A / M1613 - Quality Control
MAXXAM ANALYTICS, Mississauga

Analyte	Result	MDL	DL	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 5847385 - NA

Blank (5847385-BLK)

Prepared: 14-Nov-2018 Analyzed: 19-Nov-2018

2,3,7,8-Tetra CDF	ND	0.95		10	pg/L				-			Ud
Surrogate: C13-2378 TetraCDF	74				pg/L	100		74	40-135			

ERDC SAMPLE RECEIPT CHECKLIST

Client: ERIOC - Vicksburg (EL)		Work Order: 18J0403		
Project: Houston Ship Channel ECIP		Date/Time Received 10/29/18		
Shipping Company: N/A North of Morgan's Point				
Suspected Hazard Information	Yes	No	NA	Comments:
Shipped as DOT Hazardous?		<input checked="" type="checkbox"/>		
Samples identified as Foreign Material?		<input checked="" type="checkbox"/>		
Sample Receipt Criteria	Yes	No	NA	Comments:
1. Shipping containers received intact and sealed?			<input checked="" type="checkbox"/>	
2. Chain of Custody documents included with shipment?			<input checked="" type="checkbox"/>	
3. COC form is properly signed in relinquished/received sections?			<input checked="" type="checkbox"/>	
4. Samples requiring chemical preservation at proper pH?	<input checked="" type="checkbox"/>			
5. Samples requiring cold preservation within 0-5°C?	<input checked="" type="checkbox"/>			
6. Samples IDs on COC match IDs on containers?	<input checked="" type="checkbox"/>			
7. Date and time of COC match date and time on containers?	<input checked="" type="checkbox"/>			
8. Number of containers received match number indicated on COC?	<input checked="" type="checkbox"/>			
9. Samples received within holding time?	<input checked="" type="checkbox"/>			
10. Aqueous samples found to have visible solids?	<input checked="" type="checkbox"/>			
Additional Comments: elutriates created by EPC 10/28/18 - 10/29/18 filtered and preserved in-house				
Checklist preformed by: Kelli Hartman				
Time/Date Completed: 10/29/18				

1850403

CHAIN OF CUSTODY RECORD

USACE ERDC Laboratories, 3909 Hall's Ferry Road, Vicksburg, MS 39180

Page _____

Sampling Company: Houston Ship Channel North of Morgan's Point POC: Address: Email: Phone:	ERDC: Project Manager: Address: Email: Phone:	EL CEERD-EPR: Cheryl Montgomery 696 Virginia Road Concord, MA 01742 Cheryl.Montgomery@usace.army.mil W. 978-318-8644 C: 781-536-8317	EL CEERD-EPR: Dan Farrar 3909 Hall's Ferry Road Bldg 6009 Vicksburg, MS 39180 dan.farrar@erdc.er.mil W. 601-534-2118 M. 601-529-8042	Additional Notes:
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Sample Name	Date	Time	Depth	Media	# of containers	Station	DOC	Dissolved Ammonia	Dissolved Metals	Dissolved Sulfides	Dissolved Cyanide	Dioxins/ Furans, OC Pests, PAH/PCP, PCBs, SVOC	TPH high-level	TOC	Total Hg and Se	TSS	VOC	Cr III and VI	VOC (3.40 ml Clear VOA w/ NaHSO4)	VOC (1.40 ml Clear VOA w/ MeOH)	TPH
1 HSCNew-NMP-01-EL	10/29/18	0600					X	X	X	X	X	X	X	X	X	X	X	X			
2 HSCNew-NMP-02-EL	10/29/19	0600					X	X	X	X	X	X	X	X	X	X	X	X			
3 HSCNew-NMP-03-EL	10/29/20	0600					X	X	X	X	X	X	X	X	X	X	X	X			
4 HSCNew-NMP-04-EL	10/29/21	0730					X	X	X	X	X	X	X	X	X	X	X	X			
5 HSCNew-NMP-05-EL	10/29/22	0730					X	X	X	X	X	X	X	X	X	X	X	X			
6 HSCNew-NMP-06-EL	10/29/23	0730					X	X	X	X	X	X	X	X	X	X	X	X			
7 HSCNew-NMP-07-EL	10/29/24	0900					X	X	X	X	X	X	X	X	X	X	X	X			
8 HSCNew-NMP-08-EL	10/29/25	0900					X	X	X	X	X	X	X	X	X	X	X	X			
9 HSCNew-NMP-09-EL	10/29/26	0900					X	X	X	X	X	X	X	X	X	X	X	X			
10 HSCNew-NMP-10-EL	10/29/27	1000					X	X	X	X	X	X	X	X	X	X	X	X			
11 HSCNew-NMP-11-EL	10/29/28	1000					X	X	X	X	X	X	X	X	X	X	X	X			
12 HSCNew-NMP-03-DUP-EL	10/29/28	1000					X	X	X	X	X	X	X	X	X	X	X	X			
13																					
14																					
15																					
Total																					

1 Transfer/transfer the sample containers to ERDC. Samples have been properly labeled and kept on ice or refrigerated.

Signature _____ Date _____

2 I accept these samples for transfer to ERDC. Signature of ERDC Representative _____ Date _____

Temperature of Cooler _____

Items for Project Manager Review

LabNumber	Analysis	Analyte	Exception
			Data included from: W:\TransferIn\18J0403 TRANSFER 27 Dec 2018 1123.mdb
			Data included from: W:\TransferIn\18J0403 TRANSFER 28 Dec 2018 1428.mdb
			Data included from: W:\TransferIn\18J0403 TRANSFER 28 Dec 2018 1430.mdb
			Data included from: W:\TransferIn\18J0403 TRANSFER 28 Dec 2018 1543.mdb
			Data included from: W:\TransferIn\18J0403 TRANSFER 28 Dec 2018 1544.mdb