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Analysis Report

ANALYTICAL RESULTS

Prepared by:

Eurofins Lancaster Laboratories Environmental
2425 New Holland Pike
Lancaster, PA 17601

Prepared for:

EA Engineering
405 State Highway 121 Bypass
Building C, Suite 100
Lewisville TX 75067-8192

Report Date: June 09, 2017

Project: Wilcox Oil Company Superfund Site

Submittal Date: 05/31/2017
Group Number: 1807464
SDG: WLC10
PO Number: 15838
State of Sample Origin: OK

Client Sample Description	Lancaster Labs #	Collected
ETF-WC-01 Soil	9021494	04/25/2017 14:35

METHODOLOGY

The specified methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

Regulatory agencies do not accredit laboratories for all methods, analytes, and matrices.
Our current scopes of accreditation can be viewed at
http://www.eurofinsus.com/environment-testing/laboratories/eurofins-lancaster-laboratories-environmental/resources/certifications/
To request copies of prior scopes of accreditation, contact your project manager.

Electronic Copy To EA Engineering Attn: Pamela Moss

Respectfully Submitted,

Angela M. Miller
Specialist

9957060

** = This limit was used in the evaluation of the final result

EA Engineering
Project: Wilcox Oil Company Superfund Site
SDG: WLC10

Report Date: 6/9/2017 10:15
Submit Date: 5/31/2017 17:00

Analysis Name	Units	9021494 ETF-WC-		
		Dry Result	Dry MDL**	Dry LOQ
Acetone	ug/kg	N.D.	1,200	3,400
Benzene	ug/kg	N.D.	86	860
Bromodichloromethane	ug/kg	N.D.	170	860
Bromoform	ug/kg	N.D.	170	860
Bromomethane	ug/kg	N.D.	340	860
2-Butanone	ug/kg	N.D.	690	1,700
Carbon Disulfide	ug/kg	N.D.	170	860
Carbon Tetrachloride	ug/kg	N.D.	170	860
Chlorobenzene	ug/kg	N.D.	170	860
Chloroethane	ug/kg	N.D.	340	860
Chloroform	ug/kg	N.D.	170	860
Chloromethane	ug/kg	N.D.	340	860
Dibromochloromethane	ug/kg	N.D.	170	860
1,1-Dichloroethane	ug/kg	N.D.	170	860
1,2-Dichloroethane	ug/kg	N.D.	170	860
1,1-Dichloroethene	ug/kg	N.D.	170	860
cis-1,2-Dichloroethene	ug/kg	N.D.	170	860
trans-1,2-Dichloroethene	ug/kg	N.D.	170	860
1,2-Dichloropropane	ug/kg	N.D.	170	860
cis-1,3-Dichloropropene	ug/kg	N.D.	170	860
trans-1,3-Dichloropropene	ug/kg	N.D.	170	860
Ethylbenzene	ug/kg	N.D.	170	860
2-Hexanone	ug/kg	N.D.	520	1,700
4-Methyl-2-pentanone	ug/kg	N.D.	520	1,700

Methylene Chloride	ug/kg	N.D.		340	860
Styrene	ug/kg	N.D.		170	860
1,1,2,2-Tetrachloroethane	ug/kg	N.D.		170	860
Tetrachloroethene	ug/kg	N.D.		170	860
Toluene	ug/kg	180	J	170	860
1,1,1-Trichloroethane	ug/kg	N.D.		170	860
1,1,2-Trichloroethane	ug/kg	N.D.		170	860
Trichloroethene	ug/kg	N.D.		170	860
Vinyl Chloride	ug/kg	N.D.		170	860
Xylene (Total)	ug/kg	N.D.		170	860
Acenaphthene	ug/kg	N.D.		1,600	8,000
Acenaphthylene	ug/kg	N.D.		1,600	8,000
Anthracene	ug/kg	N.D.		1,600	8,000
Benzo(a)anthracene	ug/kg	N.D.		1,600	8,000
Benzo(a)pyrene	ug/kg	N.D.		1,600	8,000
Benzo(b)fluoranthene	ug/kg	N.D.		1,600	8,000
Benzo(g,h,i)perylene	ug/kg	N.D.		1,600	8,000
Benzo(k)fluoranthene	ug/kg	N.D.		1,600	8,000
4-Bromophenyl-phenylether	ug/kg	N.D.		7,900	16,000
Butylbenzylphthalate	ug/kg	N.D.		32,000	79,000
Di-n-butylphthalate	ug/kg	N.D.		32,000	79,000
Carbazole	ug/kg	N.D.		7,900	16,000
4-Chloro-3-methylphenol	ug/kg	N.D.		7,900	16,000
4-Chloroaniline	ug/kg	N.D.		16,000	32,000
bis(2-Chloroethoxy)methane	ug/kg	N.D.		7,900	16,000
bis(2-Chloroethyl)ether	ug/kg	N.D.		7,900	16,000
2-Chloronaphthalene	ug/kg	N.D.		3,200	16,000
2-Chlorophenol	ug/kg	N.D.		7,900	16,000
4-Chlorophenyl-phenylether	ug/kg	N.D.		7,900	16,000
2,2'-oxybis(1-Chloropropane)	ug/kg	N.D.		7,900	16,000
Chrysene	ug/kg	19,000		1,600	8,000
Dibenz(a,h)anthracene	ug/kg	N.D.		1,600	8,000
Dibenzofuran	ug/kg	N.D.		7,900	16,000

1,2-Dichlorobenzene	ug/kg	N.D.		7,900	16,000
1,3-Dichlorobenzene	ug/kg	N.D.		7,900	16,000
1,4-Dichlorobenzene	ug/kg	N.D.		7,900	16,000
3,3'-Dichlorobenzidine	ug/kg	N.D.		47,000	160,000
2,4-Dichlorophenol	ug/kg	N.D.		7,900	16,000
Diethylphthalate	ug/kg	N.D.		32,000	79,000
2,4-Dimethylphenol	ug/kg	N.D.		7,900	16,000
Dimethylphthalate	ug/kg	N.D.		32,000	79,000
4,6-Dinitro-2-methylphenol	ug/kg	N.D.		79,000	240,000
2,4-Dinitrophenol	ug/kg	N.D.		140,000	470,000
2,4-Dinitrotoluene	ug/kg	N.D.		32,000	79,000
2,6-Dinitrotoluene	ug/kg	N.D.		7,900	16,000
bis(2-Ethylhexyl)phthalate	ug/kg	N.D.		32,000	80,000
Fluoranthene	ug/kg	N.D.		1,600	8,000
Fluorene	ug/kg	5,500	J	1,600	8,000
Hexachlorobenzene	ug/kg	N.D.		1,600	8,000
Hexachlorobutadiene	ug/kg	N.D.		7,900	16,000
Hexachlorocyclopentadiene	ug/kg	N.D.		79,000	240,000
Hexachloroethane	ug/kg	N.D.		16,000	79,000
Indeno(1,2,3-cd)pyrene	ug/kg	N.D.		1,600	8,000
Isophorone	ug/kg	N.D.		7,900	16,000
2-Methylnaphthalene	ug/kg	8,400		1,600	8,000
2-Methylphenol	ug/kg	N.D.		7,900	16,000
4-Methylphenol	ug/kg	N.D.		7,900	16,000
Naphthalene	ug/kg	N.D.		1,600	8,000
2-Nitroaniline	ug/kg	N.D.		7,900	16,000
3-Nitroaniline	ug/kg	N.D.		32,000	79,000
4-Nitroaniline	ug/kg	N.D.		32,000	79,000
Nitrobenzene	ug/kg	N.D.		7,900	16,000
2-Nitrophenol	ug/kg	N.D.		7,900	16,000
4-Nitrophenol	ug/kg	N.D.		79,000	240,000
N-Nitroso-di-n-propylamine	ug/kg	N.D.		7,900	16,000
N-Nitrosodiphenylamine	ug/kg	N.D.		7,900	16,000

Di-n-octylphthalate	ug/kg		N.D.	32,000	79,000
Pentachlorophenol	ug/kg		N.D.	16,000	80,000
Phenanthrene	ug/kg	7,400	J	1,600	8,000
Phenol	ug/kg		N.D.	7,900	16,000
Pyrene	ug/kg		8,400	1,600	8,000
1,2,4-Trichlorobenzene	ug/kg		N.D.	7,900	16,000
2,4,5-Trichlorophenol	ug/kg		N.D.	7,900	16,000
2,4,6-Trichlorophenol	ug/kg		N.D.	7,900	16,000
Arsenic	mg/kg		N.D.	1.48	6.08
Barium	mg/kg		20.3	0.0502	1.52
Cadmium	mg/kg	0.141	J	0.0745	1.52
Chromium	mg/kg	0.876	J	0.213	4.56
Lead	mg/kg		15.8	0.837	4.56
Selenium	mg/kg		N.D.	1.37	6.08
Silver	mg/kg		N.D.	0.228	1.52
Mercury	mg/kg	0.0443	J	0.0157	0.157
Moisture	%		41.3	0.50	0.50

CAT No.	Analysis Name	Method	Trial ID	Batch	Analysis Date/Time	Analyst	Dilution
9021494	**ETF-WC-01 Soil**						
10237	VOCs- Solid by 8260B	SW-846 8260B	1	Q171571AA	6/6/17 1706	Angela D Sneeringer	100.81
10445	High Level Bulk Prep DP 21	SW-846 5035A Modified	1	201715245628	6/1/17 1422	Anastasia Jaynes	n.a.
10445	High Level Bulk Prep DP 21	SW-846 5035A Modified	2	201715245628	6/1/17 1424	Anastasia Jaynes	n.a.
10726	SVOA 8270D (microwave)	SW-846 8270D	1	17153SLB026	6/6/17 1631	Joseph M Gambler	5
10813	BNA Soil Microwave APP IX	SW-846 3546	1	17153SLB026	6/3/17 0700	Michelle A Newswanger	1
06935	Arsenic	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
06946	Barium	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
06949	Cadmium	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
06951	Chromium	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
06955	Lead	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
06936	Selenium	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
06966	Silver	SW-846 6010C	1	171531063705	6/5/17 1809	Cindy M Gehman	1
00159	Mercury	SW-846 7471B	1	171531063805	6/5/17 0924	Damary Valentin	1
10637	ICP/ICPMS-SW, 3050B - U4	SW-846 3050B	1	171531063705	6/5/17 0150	Denise L Trimby	1
10638	Hg - SW, 7471B - U4	SW-846 7471B	1	171531063805	6/5/17 0500	Denise L Trimby	1
00111	Moisture	SM 2540 G-1997	1	17153820003A	6/2/17 2049	Scott W Freisher	1

Client Name: EA Engineering

Group Number: 1807464

Laboratory Compliance Quality Control

** = This limit was used in the evaluation of the final result for the blank

Analysis Name	Blank Result	Blank MDL**	Blank LOQ	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: Q171571AA	Sample number(s): 9021494								
Acetone	N.D.	350.	1,000	ug/kg	48	59	32-144	19	30
Benzene	N.D.	25.	250	ug/kg	93	90	80-120	3	30
Bromodichloromethane	N.D.	50.	250	ug/kg	75	77	75-120	3	30
Bromoform	N.D.	50.	250	ug/kg	58*	60*	61-122	3	30
Bromomethane	N.D.	100.	250	ug/kg	163*	148	39-155	10	30
2-Butanone	N.D.	200.	500	ug/kg	71	77	41-134	8	30
Carbon Disulfide	N.D.	50.	250	ug/kg	99	92	60-128	7	30
Carbon Tetrachloride	N.D.	50.	250	ug/kg	63*	61*	69-130	3	30
Chlorobenzene	N.D.	50.	250	ug/kg	94	92	80-120	2	30
Chloroethane	N.D.	100.	250	ug/kg	105	99	50-137	6	30
Chloroform	N.D.	50.	250	ug/kg	87	86	80-120	1	30
Chloromethane	N.D.	100.	250	ug/kg	98	93	56-120	5	30
Dibromochloromethane	N.D.	50.	250	ug/kg	66*	68*	71-120	2	30
1,1-Dichloroethane	N.D.	50.	250	ug/kg	96	92	77-120	4	30
1,2-Dichloroethane	N.D.	50.	250	ug/kg	93	91	78-127	2	30
1,1-Dichloroethene	N.D.	50.	250	ug/kg	98	91	73-129	8	30
cis-1,2-Dichloroethene	N.D.	50.	250	ug/kg	93	91	80-120	2	30
trans-1,2-Dichloroethene	N.D.	50.	250	ug/kg	96	91	80-125	6	30
1,2-Dichloropropane	N.D.	50.	250	ug/kg	96	95	76-120	1	30
cis-1,3-Dichloropropene	N.D.	50.	250	ug/kg	83	83	74-120	0	30
trans-1,3-Dichloropropene	N.D.	50.	250	ug/kg	82	83	70-120	1	30
Ethylbenzene	N.D.	50.	250	ug/kg	90	88	80-120	2	30
2-Hexanone	N.D.	150.	500	ug/kg	85	93	45-138	9	30
4-Methyl-2-pentanone	N.D.	150.	500	ug/kg	97	100	53-134	3	30
Methylene Chloride	N.D.	100.	250	ug/kg	96	92	76-122	4	30
Styrene	N.D.	50.	250	ug/kg	87	87	76-120	0	30
1,1,2,2-Tetrachloroethane	N.D.	50.	250	ug/kg	86	99	67-121	14	30

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Tetrachloroethene	N.D.	50.	250	ug/kg	90	86	74-126	5	30
Toluene	N.D.	50.	250	ug/kg	96	95	80-120	0	30
1,1,1-Trichloroethane	N.D.	50.	250	ug/kg	76	75	66-128	1	30
1,1,2-Trichloroethane	N.D.	50.	250	ug/kg	95	95	80-120	0	30
Trichloroethene	N.D.	50.	250	ug/kg	87	85	80-120	2	30
Vinyl Chloride	N.D.	50.	250	ug/kg	97	91	59-120	6	30
Xylene (Total)	N.D.	50.	250	ug/kg	91	89	80-120	2	30

Batch number: 17153SLB026 Sample number(s): 9021494

Acenaphthene	N.D.	3.	17	ug/kg	101	83-116
Acenaphthylene	N.D.	3.	17	ug/kg	98	83-119
Anthracene	N.D.	3.	17	ug/kg	96	82-118
Benzo(a)anthracene	N.D.	3.	17	ug/kg	105	76-119
Benzo(a)pyrene	N.D.	3.	17	ug/kg	106	78-117
Benzo(b)fluoranthene	N.D.	3.	17	ug/kg	118	79-121
Benzo(g,h,i)perylene	N.D.	3.	17	ug/kg	106	71-123
Benzo(k)fluoranthene	N.D.	3.	17	ug/kg	97	71-123
4-Bromophenyl-phenylether	N.D.	17.	33	ug/kg	105	78-122
Butylbenzylphthalate	N.D.	67.	170	ug/kg	103	80-118
Di-n-butylphthalate	N.D.	67.	170	ug/kg	100	84-120
Carbazole	N.D.	17.	33	ug/kg	97	80-120
4-Chloro-3-methylphenol	N.D.	17.	33	ug/kg	98	78-124
4-Chloroaniline	N.D.	33.	67	ug/kg	61	10-110
bis(2-Chloroethoxy)methane	N.D.	17.	33	ug/kg	103	77-116
bis(2-Chloroethyl)ether	N.D.	17.	33	ug/kg	96	68-115
2-Chloronaphthalene	N.D.	7.	33	ug/kg	123	57-148
2-Chlorophenol	N.D.	17.	33	ug/kg	105	80-121
4-Chlorophenyl-phenylether	N.D.	17.	33	ug/kg	104	73-119
2,2'-oxybis(1-Chloropropane)	N.D.	17.	33	ug/kg	87	60-123
Chrysene	N.D.	3.	17	ug/kg	103	72-121
Dibenz(a,h)anthracene	N.D.	3.	17	ug/kg	114	72-129
Dibenzofuran	N.D.	17.	33	ug/kg	102	79-114
1,2-Dichlorobenzene	N.D.	17.	33	ug/kg	98	77-113
1,3-Dichlorobenzene	N.D.	17.	33	ug/kg	96	79-113
1,4-Dichlorobenzene	N.D.	17.	33	ug/kg	96	79-112
3,3'-Dichlorobenzidine	N.D.	100.	330	ug/kg	95	12-125
2,4-Dichlorophenol	N.D.	17.	33	ug/kg	108	86-125
Diethylphthalate	N.D.	67.	170	ug/kg	94	81-118

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

2,4-Dimethylphenol	N.D.	17.	33	ug/kg	79	57-109
Dimethylphthalate	N.D.	67.	170	ug/kg	103	82-113
4,6-Dinitro-2-methylphenol	N.D.	170.	500	ug/kg	104	53-130
2,4-Dinitrophenol	N.D.	300.	1,000	ug/kg	90	27-136
2,4-Dinitrotoluene	N.D.	67.	170	ug/kg	108	81-122
2,6-Dinitrotoluene	N.D.	17.	33	ug/kg	110	80-120
bis(2-Ethylhexyl)phthalate	N.D.	67.	170	ug/kg	106	81-121
Fluoranthene	N.D.	3.	17	ug/kg	98	72-120
Fluorene	N.D.	3.	17	ug/kg	101	75-118
Hexachlorobenzene	N.D.	3.	17	ug/kg	102	73-120
Hexachlorobutadiene	N.D.	17.	33	ug/kg	102	72-120
Hexachlorocyclopentadiene	N.D.	170.	500	ug/kg	85	57-142
Hexachloroethane	N.D.	33.	170	ug/kg	93	69-116
Indeno(1,2,3-cd)pyrene	N.D.	3.	17	ug/kg	106	69-125
Isophorone	N.D.	17.	33	ug/kg	93	70-118
2-Methylnaphthalene	N.D.	3.	17	ug/kg	99	77-116
2-Methylphenol	N.D.	17.	33	ug/kg	103	74-128
4-Methylphenol	N.D.	17.	33	ug/kg	95	72-120
Naphthalene	N.D.	3.	17	ug/kg	96	75-113
2-Nitroaniline	N.D.	17.	33	ug/kg	112	84-126
3-Nitroaniline	N.D.	67.	170	ug/kg	96	60-125
4-Nitroaniline	N.D.	67.	170	ug/kg	92	50-112
Nitrobenzene	N.D.	17.	33	ug/kg	94	70-122
2-Nitrophenol	N.D.	17.	33	ug/kg	112	83-120
4-Nitrophenol	N.D.	170.	500	ug/kg	57	52-133
N-Nitroso-di-n-propylamine	N.D.	17.	33	ug/kg	89	67-121
N-Nitrosodiphenylamine	N.D.	17.	33	ug/kg	104	83-118
Di-n-octylphthalate	N.D.	67.	170	ug/kg	118	80-140
Pentachlorophenol	N.D.	33.	170	ug/kg	55*	56-131
Phenanthrene	N.D.	3.	17	ug/kg	99	74-114
Phenol	N.D.	17.	33	ug/kg	95	73-122
Pyrene	N.D.	3.	17	ug/kg	100	74-112
1,2,4-Trichlorobenzene	N.D.	17.	33	ug/kg	106	79-114
2,4,5-Trichlorophenol	N.D.	17.	33	ug/kg	102	86-123
2,4,6-Trichlorophenol	N.D.	17.	33	ug/kg	108	81-123

Batch number: 171531063705 Sample number(s): 9021494

Arsenic	N.D.	0.970	4.00	mg/kg	108	80-120

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

Barium	0.223 J	0.0330	1.00	mg/kg	101	80-120
Cadmium	N.D.	0.0490	1.00	mg/kg	105	80-120
Chromium	N.D.	0.140	3.00	mg/kg	103	80-120
Lead	N.D.	0.550	3.00	mg/kg	104	80-120
Selenium	N.D.	0.900	4.00	mg/kg	101	80-120
Silver	N.D.	0.150	1.00	mg/kg	114	80-120
Batch number: 171531063805	Sample number(s): 9021494					
Mercury	N.D.	0.0100	0.100	mg/kg	92	80-120
Batch number: 17153820003A	Sample number(s): 9021494					
Moisture					100	99-101

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	DUP RPD Max
Batch number: Q171571AA	Sample number(s): 9021494 UNSPK: P017478								
Acetone	154*	165*	32-144	9	30				
Benzene	1215*	348*	80-120	115*	30				
Bromodichloromethane	157*	157*	75-120	16	30				
Bromoform	89	99	61-122	6	30				
Bromomethane	193*	209*	39-155	8	30				
2-Butanone	175*	176*	41-134	16	30				
Carbon Disulfide	72	84	60-128	1	30				
Carbon Tetrachloride	73	87	69-130	1	30				
Chlorobenzene	135*	147*	80-120	8	30				
Chloroethane	133	140*	50-137	11	30				
Chloroform	147*	155*	80-120	11	30				
Chloromethane	119	120	56-120	15	30				
Dibromochloromethane	91	107	71-120	1	30				

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

1,1-Dichloroethane	143*	155*	77-120	8	30
1,2-Dichloroethane	150*	154*	78-127	13	30
1,1-Dichloroethene	109	122	73-129	5	30
cis-1,2-Dichloroethene	137*	148*	80-120	8	30
trans-1,2-Dichloroethene	115	128*	80-125	5	30
1,2-Dichloropropane	162*	165*	76-120	14	30
cis-1,3-Dichloropropene	119	135*	74-120	3	30
trans-1,3-Dichloropropene	120	135*	70-120	4	30
Ethylbenzene	480*	268*	80-120	63*	30
2-Hexanone	349*	362*	45-138	12	30
4-Methyl-2-pentanone	189*	199*	53-134	11	30
Methylene Chloride	142*	148*	76-122	12	30
Styrene	135*	146*	76-120	8	30
1,1,2,2-Tetrachloroethane	197*	194*	67-121	18	30
Tetrachloroethene	101	117	74-126	2	30
Toluene	788*	310*	80-120	92*	30
1,1,1-Trichloroethane	98	109	66-128	5	30
1,1,2-Trichloroethane	575*	577*	80-120	16	30
Trichloroethene	121*	130*	80-120	9	30
Vinyl Chloride	109	112	59-120	14	30
Xylene (Total)	442*	270*	80-120	57*	30

Batch number: 17153SLB026 Sample number(s): 9021494 UNSPK: P011609

Acenaphthene	88	91	83-116	3	30
Acenaphthylene	75*	85	83-119	12	30
Anthracene	81*	88	82-118	8	30
Benzo(a)anthracene	76	88	76-119	14	30
Benzo(a)pyrene	75*	89	78-117	16	30
Benzo(b)fluoranthene	80	96	79-121	17	30
Benzo(g,h,i)perylene	77	90	71-123	15	30
Benzo(k)fluoranthene	77	85	71-123	10	30
4-Bromophenyl-phenylether	85	89	78-122	4	30
Butylbenzylphthalate	76*	89	80-118	15	30
Di-n-butylphthalate	77*	86	84-120	11	30
Carbazole	72*	83	80-120	14	30
4-Chloro-3-methylphenol	86	90	78-124	4	30
4-Chloroaniline	0*	16	10-110	200*	30
bis(2-Chloroethoxy)methane	96	87	77-116	10	30

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

bis(2-Chloroethyl)ether	86	88	68-115	3	30
2-Chloronaphthalene	108	109	57-148	1	30
2-Chlorophenol	90	98	80-121	8	30
4-Chlorophenyl-phenylether	86	94	73-119	8	30
2,2'-oxybis(1-Chloropropane)	84	82	60-123	3	30
Chrysene	75	87	72-121	15	30
Dibenz(a,h)anthracene	83	97	72-129	16	30
Dibenzofuran	87	91	79-114	4	30
1,2-Dichlorobenzene	91	93	77-113	1	30
1,3-Dichlorobenzene	90	90	79-113	0	30
1,4-Dichlorobenzene	93	91	79-112	2	30
3,3'-Dichlorobenzidine	0*	0*	12-125	0	30
2,4-Dichlorophenol	89	94	86-125	5	30
Diethylphthalate	74*	78*	81-118	5	30
2,4-Dimethylphenol	61	65	57-109	5	30
Dimethylphthalate	83	86	82-113	3	30
4,6-Dinitro-2-methylphenol	0*	78	53-130	200*	30
2,4-Dinitrophenol	0*	62	27-136	200*	30
2,4-Dinitrotoluene	55*	87	81-122	45*	30
2,6-Dinitrotoluene	62*	95	80-120	42*	30
bis(2-Ethylhexyl)phthalate	79*	90	81-121	13	30
Fluoranthene	76	85	72-120	10	30
Fluorene	86	90	75-118	5	30
Hexachlorobenzene	82	90	73-120	10	30
Hexachlorobutadiene	94	94	72-120	1	30
Hexachlorocyclopentadiene	0*	0*	57-142	0	30
Hexachloroethane	55*	85	69-116	42*	30
Indeno(1,2,3-cd)pyrene	77	91	69-125	16	30
Isophorone	81	82	70-118	1	30
2-Methylnaphthalene	92	93	77-116	0	30
2-Methylphenol	89	89	74-128	1	30
4-Methylphenol	82	86	72-120	5	30
Naphthalene	90	89	75-113	1	30
2-Nitroaniline	116	98	84-126	17	30
3-Nitroaniline	0*	24*	60-125	200*	30
4-Nitroaniline	0*	33*	50-112	200*	30
Nitrobenzene	82	86	70-122	4	30
2-Nitrophenol	80*	98	83-120	20	30
4-Nitrophenol	75	66	52-133	13	30
N-Nitroso-di-n-propylamine	88	87	67-121	1	30

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

N-Nitrosodiphenylamine	72*	89	83-118	20	30				
Di-n-octylphthalate	90	105	80-140	15	30				
Pentachlorophenol	74	72	56-131	2	30				
Phenanthrene	80	88	74-114	9	30				
Phenol	89	91	73-122	2	30				
Pyrene	75	85	74-112	13	30				
1,2,4-Trichlorobenzene	98	96	79-114	3	30				
2,4,5-Trichlorophenol	86	90	86-123	5	30				
2,4,6-Trichlorophenol	93	94	81-123	1	30				
Batch number: 171531063705	Sample number(s): 9021494 UNSPK: P018277 BKG: P018277								
Arsenic	1918 (2)	761 (2)	75-125	61*	20	72.0	54.1	28*	20
Barium	102	100	75-125	1	20	23.7	24.2	2	20
Cadmium	101	98	75-125	0	20	N.D.	N.D.	0 (1)	20
Chromium	1791 (2)	404 (2)	75-125	73*	20	153	86.9	55*	20
Lead	156*	111	75-125	23*	20	6.00	6.05	1 (1)	20
Selenium	103	94	75-125	6	20	N.D.	N.D.	0 (1)	20
Silver	106	106	75-125	3	20	N.D.	N.D.	0 (1)	20
Batch number: 171531063805	Sample number(s): 9021494 UNSPK: P018278 BKG: P018278								
Mercury	79*	79*	80-120	4	20	0.0430 J	0.0363 J	17 (1)	20
Batch number: 17153820003A	Sample number(s): 9021494 BKG: P009946								
Moisture						23.3	23.1	1	5

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed
unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: VOCs- Solid by 8260B
Batch number: Q171571AA

Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

9021494	65	67	56	55
Blank	81	86	90	80
LCS	88	91	95	93
LCSD	86	87	95	92
MS	59	58	64	56
MSD	61	58	63	57
Limits:	50-141	54-135	52-141	50-131

Analysis Name: SVOA 8270D (microwave)
Batch number: 17153SLB026

	Phenol-d6	2-Fluorophenol	2,4,6-Tribromophenol	Nitrobenzene-d5
9021494	84	93	92	100
Blank	86	90	89	86
LCS	92	96	92	86
MS	82	84	81	76
MSD	85	86	86	77
Limits:	46-125	43-130	28-141	45-125

	2-Fluorobiphenyl	Terphenyl-d14
9021494	96	103
Blank	92	100
LCS	94	98
MS	84	78
MSD	83	85
Limits:	50-124	43-132

* - Outside of specification
(1) The result for one or both determinations was less than five times the LOQ.
(2) The unspiked result was more than four times the spike added.

QC Comment

Matrix QC may not be reported if insufficient sample or site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

All Inorganic Initial Calibration and Continuing Calibration Blanks met acceptable method criteria unless otherwise noted on the Analysis Report.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

9021494 **ETF-WC-01 Soil**

00111 Moisture

Moisture represents the loss in weight of the sample after oven drying at 103 - 105 degrees Celsius. The moisture result reported is on an as-received basis.

10726 4-Methylphenol

3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

10726	N-Nitrosodiphenylamine N-nitrosodiphenylamine decomposes in the GC inlet forming diphenylamine. The result reported for N-nitrosodiphenylamine represents the combined total of both compounds.
10726	2,2'-oxybis(1-Chloropropane) Bis(2-chloroisopropyl) ether CAS #39638-32-9 and 2,2'-Oxybis(1-chloropropane) CAS #108-60-1 cannot be separated chromatographically. The reported result represents the combined total of both compounds.
10726	SVOA 8270D (microwave) The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the TNI/DoD Standards. The following analytes are accepted based on this allowance: Pentachlorophenol Reporting limits were raised due to interference from the sample matrix. The holding time was not met. The analysis was added after the holding time had already expired.

10237

VOCs- Solid by 8260B

Preservation requirements were not met. Due to the preservative not covering the soil or the matrix of the sample, methanol was added at the laboratory after the net weight was determined.

Reporting limits were raised due to interference from the sample matrix.

The LCS and/or LCSD recoveries are outside the stated QC window but within the marginal exceedance allowance of +/- 4 standard deviations as defined in the TNI/DoD Standards. The following analytes are accepted based on this allowance: carbon tetrachloride, dibromochloromethane, and bromoform.

This sample was originally submitted to the laboratory on 04/26/17 at 09:40. We received authorization for further testing on 05/31/17.

Analysis Name	Units	Method	Cas Number	9021494 ETF-WC-01 Dry Result		Dry MDL**	Dry LOQ
Acetone	ug/kg	SW-846 8260B	67-64-1	N.D.		1,200	3,400
Benzene	ug/kg	SW-846 8260B	71-43-2	N.D.		86	860
Bromodichloromethane	ug/kg	SW-846 8260B	75-27-4	N.D.		170	860
Bromoform	ug/kg	SW-846 8260B	75-25-2	N.D.		170	860
Bromomethane	ug/kg	SW-846 8260B	74-83-9	N.D.		340	860
2-Butanone	ug/kg	SW-846 8260B	78-93-3	N.D.		690	1,700
Carbon Disulfide	ug/kg	SW-846 8260B	75-15-0	N.D.		170	860
Carbon Tetrachloride	ug/kg	SW-846 8260B	56-23-5	N.D.		170	860
Chlorobenzene	ug/kg	SW-846 8260B	108-90-7	N.D.		170	860
Chloroethane	ug/kg	SW-846 8260B	75-00-3	N.D.		340	860
Chloroform	ug/kg	SW-846 8260B	67-66-3	N.D.		170	860
Chloromethane	ug/kg	SW-846 8260B	74-87-3	N.D.		340	860
Dibromochloromethane	ug/kg	SW-846 8260B	124-48-1	N.D.		170	860
1,1-Dichloroethane	ug/kg	SW-846 8260B	75-34-3	N.D.		170	860
1,2-Dichloroethane	ug/kg	SW-846 8260B	107-06-2	N.D.		170	860
1,1-Dichloroethene	ug/kg	SW-846 8260B	75-35-4	N.D.		170	860
cis-1,2-Dichloroethene	ug/kg	SW-846 8260B	156-59-2	N.D.		170	860
trans-1,2-Dichloroethene	ug/kg	SW-846 8260B	156-60-5	N.D.		170	860
1,2-Dichloropropane	ug/kg	SW-846 8260B	78-87-5	N.D.		170	860
cis-1,3-Dichloropropene	ug/kg	SW-846 8260B	10061-01-5	N.D.		170	860
trans-1,3-Dichloropropene	ug/kg	SW-846 8260B	10061-02-6	N.D.		170	860
Ethylbenzene	ug/kg	SW-846 8260B	100-41-4	N.D.		170	860
2-Hexanone	ug/kg	SW-846 8260B	591-78-6	N.D.		520	1,700
4-Methyl-2-pentanone	ug/kg	SW-846 8260B	108-10-1	N.D.		520	1,700
Methylene Chloride	ug/kg	SW-846 8260B	75-09-2	N.D.		340	860
Styrene	ug/kg	SW-846 8260B	100-42-5	N.D.		170	860
1,1,2,2-Tetrachloroethane	ug/kg	SW-846 8260B	79-34-5	N.D.		170	860
Tetrachloroethene	ug/kg	SW-846 8260B	127-18-4	N.D.		170	860
Toluene	ug/kg	SW-846 8260B	108-88-3	180	J	170	860
1,1,1-Trichloroethane	ug/kg	SW-846 8260B	71-55-6	N.D.		170	860

** = This limit was used in the evaluation of the final result

1,1,2-Trichloroethane	ug/kg	SW-846 8260B	79-00-5	N.D.	170	860
Trichloroethene	ug/kg	SW-846 8260B	79-01-6	N.D.	170	860
Vinyl Chloride	ug/kg	SW-846 8260B	75-01-4	N.D.	170	860
Xylene (Total)	ug/kg	SW-846 8260B	1330-20-7	N.D.	170	860
Acenaphthene	ug/kg	SW-846 8270D	83-32-9	N.D.	1,600	8,000
Acenaphthylene	ug/kg	SW-846 8270D	208-96-8	N.D.	1,600	8,000
Anthracene	ug/kg	SW-846 8270D	120-12-7	N.D.	1,600	8,000
Benzo(a)anthracene	ug/kg	SW-846 8270D	56-55-3	N.D.	1,600	8,000
Benzo(a)pyrene	ug/kg	SW-846 8270D	50-32-8	N.D.	1,600	8,000
Benzo(b)fluoranthene	ug/kg	SW-846 8270D	205-99-2	N.D.	1,600	8,000
Benzo(g,h,i)perylene	ug/kg	SW-846 8270D	191-24-2	N.D.	1,600	8,000
Benzo(k)fluoranthene	ug/kg	SW-846 8270D	207-08-9	N.D.	1,600	8,000
4-Bromophenyl-phenylether	ug/kg	SW-846 8270D	101-55-3	N.D.	7,900	16,000
Butylbenzylphthalate	ug/kg	SW-846 8270D	85-68-7	N.D.	32,000	79,000
Di-n-butylphthalate	ug/kg	SW-846 8270D	84-74-2	N.D.	32,000	79,000
Carbazole	ug/kg	SW-846 8270D	86-74-8	N.D.	7,900	16,000
4-Chloro-3-methylphenol	ug/kg	SW-846 8270D	59-50-7	N.D.	7,900	16,000
4-Chloroaniline	ug/kg	SW-846 8270D	106-47-8	N.D.	16,000	32,000
bis(2-Chloroethoxy)methane	ug/kg	SW-846 8270D	111-91-1	N.D.	7,900	16,000
bis(2-Chloroethyl)ether	ug/kg	SW-846 8270D	111-44-4	N.D.	7,900	16,000
2-Chloronaphthalene	ug/kg	SW-846 8270D	91-58-7	N.D.	3,200	16,000
2-Chlorophenol	ug/kg	SW-846 8270D	95-57-8	N.D.	7,900	16,000
4-Chlorophenyl-phenylether	ug/kg	SW-846 8270D	7005-72-3	N.D.	7,900	16,000
2,2'-oxybis(1-Chloropropane)	ug/kg	SW-846 8270D	108-60-1	N.D.	7,900	16,000
Chrysene	ug/kg	SW-846 8270D	218-01-9	19,000	1,600	8,000
Dibenz(a,h)anthracene	ug/kg	SW-846 8270D	53-70-3	N.D.	1,600	8,000
Dibenzofuran	ug/kg	SW-846 8270D	132-64-9	N.D.	7,900	16,000
1,2-Dichlorobenzene	ug/kg	SW-846 8270D	95-50-1	N.D.	7,900	16,000
1,3-Dichlorobenzene	ug/kg	SW-846 8270D	541-73-1	N.D.	7,900	16,000
1,4-Dichlorobenzene	ug/kg	SW-846 8270D	106-46-7	N.D.	7,900	16,000
3,3'-Dichlorobenzidine	ug/kg	SW-846 8270D	91-94-1	N.D.	47,000	160,000
2,4-Dichlorophenol	ug/kg	SW-846 8270D	120-83-2	N.D.	7,900	16,000
Diethylphthalate	ug/kg	SW-846 8270D	84-66-2	N.D.	32,000	79,000

** = This limit was used in the evaluation of the final result

2,4-Dimethylphenol	ug/kg	SW-846 8270D	105-67-9		N.D.	7,900	16,000
Dimethylphthalate	ug/kg	SW-846 8270D	131-11-3		N.D.	32,000	79,000
4,6-Dinitro-2-methylphenol	ug/kg	SW-846 8270D	534-52-1		N.D.	79,000	240,000
2,4-Dinitrophenol	ug/kg	SW-846 8270D	51-28-5		N.D.	140,000	470,000
2,4-Dinitrotoluene	ug/kg	SW-846 8270D	121-14-2		N.D.	32,000	79,000
2,6-Dinitrotoluene	ug/kg	SW-846 8270D	606-20-2		N.D.	7,900	16,000
bis(2-Ethylhexyl)phthalate	ug/kg	SW-846 8270D	117-81-7		N.D.	32,000	80,000
Fluoranthene	ug/kg	SW-846 8270D	206-44-0		N.D.	1,600	8,000
Fluorene	ug/kg	SW-846 8270D	86-73-7	5,500	J	1,600	8,000
Hexachlorobenzene	ug/kg	SW-846 8270D	118-74-1		N.D.	1,600	8,000
Hexachlorobutadiene	ug/kg	SW-846 8270D	87-68-3		N.D.	7,900	16,000
Hexachlorocyclopentadiene	ug/kg	SW-846 8270D	77-47-4		N.D.	79,000	240,000
Hexachloroethane	ug/kg	SW-846 8270D	67-72-1		N.D.	16,000	79,000
Indeno(1,2,3-cd)pyrene	ug/kg	SW-846 8270D	193-39-5		N.D.	1,600	8,000
Isophorone	ug/kg	SW-846 8270D	78-59-1		N.D.	7,900	16,000
2-Methylnaphthalene	ug/kg	SW-846 8270D	91-57-6		8,400	1,600	8,000
2-Methylphenol	ug/kg	SW-846 8270D	95-48-7		N.D.	7,900	16,000
4-Methylphenol	ug/kg	SW-846 8270D	106-44-5		N.D.	7,900	16,000
Naphthalene	ug/kg	SW-846 8270D	91-20-3		N.D.	1,600	8,000
2-Nitroaniline	ug/kg	SW-846 8270D	88-74-4		N.D.	7,900	16,000
3-Nitroaniline	ug/kg	SW-846 8270D	99-09-2		N.D.	32,000	79,000
4-Nitroaniline	ug/kg	SW-846 8270D	100-01-6		N.D.	32,000	79,000
Nitrobenzene	ug/kg	SW-846 8270D	98-95-3		N.D.	7,900	16,000
2-Nitrophenol	ug/kg	SW-846 8270D	88-75-5		N.D.	7,900	16,000
4-Nitrophenol	ug/kg	SW-846 8270D	100-02-7		N.D.	79,000	240,000
N-Nitroso-di-n-propylamine	ug/kg	SW-846 8270D	621-64-7		N.D.	7,900	16,000
N-Nitrosodiphenylamine	ug/kg	SW-846 8270D	86-30-6		N.D.	7,900	16,000
Di-n-octylphthalate	ug/kg	SW-846 8270D	117-84-0		N.D.	32,000	79,000
Pentachlorophenol	ug/kg	SW-846 8270D	87-86-5		N.D.	16,000	80,000
Phenanthrene	ug/kg	SW-846 8270D	85-01-8	7,400	J	1,600	8,000
Phenol	ug/kg	SW-846 8270D	108-95-2		N.D.	7,900	16,000
Pyrene	ug/kg	SW-846 8270D	129-00-0		8,400	1,600	8,000
1,2,4-Trichlorobenzene	ug/kg	SW-846 8270D	120-82-1		N.D.	7,900	16,000

** = This limit was used in the evaluation of the final result

2,4,5-Trichlorophenol	ug/kg	SW-846 8270D	95-95-4	N.D.	7,900	16,000
2,4,6-Trichlorophenol	ug/kg	SW-846 8270D	88-06-2	N.D.	7,900	16,000
Arsenic	mg/kg	SW-846 6010C	7440-38-2	N.D.	1.48	6.08
Barium	mg/kg	SW-846 6010C	7440-39-3	20.3	0.0502	1.52
Cadmium	mg/kg	SW-846 6010C	7440-43-9	0.141 J	0.0745	1.52
Chromium	mg/kg	SW-846 6010C	7440-47-3	0.876 J	0.213	4.56
Lead	mg/kg	SW-846 6010C	7439-92-1	15.8	0.837	4.56
Selenium	mg/kg	SW-846 6010C	7782-49-2	N.D.	1.37	6.08
Silver	mg/kg	SW-846 6010C	7440-22-4	N.D.	0.228	1.52
Mercury	mg/kg	SW-846 7471B	7439-97-6	0.0443 J	0.0157	0.157
Moisture	%	SM 2540 G-1997	n.a.	41.3	0.50	0.50

** = This limit was used in the evaluation of the final result