

			MPCA SQT I	MPCA SQT II
PAH (Method 8270, SIM)	ug/kg	Naphthalene	180	560
	ug/kg	Acenaphthylene	5.9	130
	ug/kg	Acenaphthene	6.7	89
	ug/kg	Fluorene	77	540
	ug/kg	Phenanthrene	200	1200
	ug/kg	Anthracene	57	850
	ug/kg	Fluoranthene	420	2200
	ug/kg	Pyrene	200	1500
	ug/kg	Benzo[a]anthracene	110	1100
	ug/kg	Chrysene	170	1300
	ug/kg	Benzo[b]fluoranthene		
	ug/kg	Benzo[k]fluoranthene		
	ug/kg	Benzo[a]pyrene	150	1500
	ug/kg	Benzo[e]pyrene		
	ug/kg	Indeno[1,2,3-cd]pyrene		
	ug/kg	Dibenzo[a,h]anthracene	33	140
ug/kg	Benzo[g,h,i]perylene			
ug/kg	2-Methylnaphthalene	20	200	
STICIDES (8081/8082)	ug/kg	Hexachlorobenzene		
	ug/kg	O,P'-DDE		
	ug/kg	Chlordane, trans-		
	ug/kg	Chlordane, cis-		
	ug/kg	P,P'-DDE		
	ug/kg	O,P'-DDD		
	ug/kg	Dieldrin	1.9	62
	ug/kg	O,P'-DDT		

PE	ug/kg		P,P'-DDD		
	ug/kg		P,P'-DDT		
PCBS (8081/8082)	ug/kg		Aroclor 1016		
	ug/kg		Aroclor 1221		
	ug/kg		Aroclor 1232		
	ug/kg		Aroclor 1242		
	ug/kg		Aroclor 1248		
	ug/kg		Aroclor 1254		
	ug/kg		Aroclor 1260		
	ug/kg		Total PCBs		
Inorganics	mg/kg		Arsenic	9.8	33
	mg/kg		Cadmium	0.99	5
	mg/kg		Chromium	43	110
	mg/kg		Chromium, +6		
	mg/kg		Copper	32	150
	mg/kg		Lead	36	130
	mg/kg		Manganese		
	mg/kg		Mercury	0.18	1.1
	mg/kg		Nickel	23	49
	mg/kg		Zinc	120	460
	mg/kg		Cyanide, total		
	mg/kg		Kjeldahl nitrogen		
	mg/kg		Nitrogen, ammonia		
	%		Moisture (Gravimetric)		
	mg/kg		Phenol IC		
	mg/kg		Phosphorus, total		
	%		Solids, total		
	%		Total Volatile Solids		
mg/kg		Total Organic Carbon			
PARTICLE SIZE % FINER	SAND	coarse	4		
			10		
		medium	20		
			40		
		fine	60		
			100		
	SILT	clay	140		
		200			
Particle Size	%		Gravel		
	%		Sand		
	%		Silt		
	%		Clay		

J - Indicates an estimated value. This flag is used either when estimating a concentration or when a compound was analyzed for but not detected. LOQ is shown for the compound.
ND or < - Indicates compound was analyzed for but not detected. LOQ is shown for the compound.
Q- This flag indicates analyte(s) associated with a DOD-QSM specified non-compliance.
B- Flag is used when the analyte is found in the blank as well as the sample. It indicates a background level.

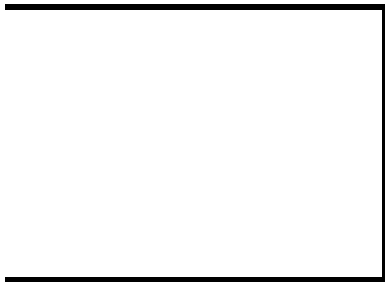
X- Sample preparation under/or analysis was performed outside of holding time req

MPCA August 2016 Residential/Recreational Soil Reference Value (SRV)	Dredge Cut	Above Smith Ave	Below Smith Ave	Small Boat Harbor - St. Paul	Small Boat Harbor - St. Paul	St. Paul Barge Terminal
	River Mile Pool	840.4 2	840.3 2	839.6 2	839.6 2	836.9 2
	Latitude	44°55'58.4 0"N	44°56'4.70 "N	44°56'26.8 0"N	44°56'28.2 0"N	44°56'4.00 "N
	Longitude	93° 6'18.50"W	93° 6'11.80"W	93° 5'34.40"W	93° 5'32.80"W	93° 3'2.90"W
	Lab	ADRL, INC	ADRL, INC	ADRL, INC	ADRL, INC	ADRL, INC
	database ID	P2-01-2013	P2-02-2013	P2-03-2013	P2-04-2013	P2-05-2013
	Lab ID	8967-10	8967-09	8967-08	8967-07	8967-06
	Corps ID	15B	15A	14B	14A	13B
	Date Collected	9/10/2013	9/10/2013	9/10/2013	9/10/2013	9/10/2013
		Results	Results	Results	Results	Results
81000	ND	ND	1.45 J	ND	ND	
1300000 850000	ND	2.77 J	ND	1.28 J	ND	
6500000 510000 44000	ND 7.9 7.15 4.26	1.21 J 4.6 4.81 2.72 J	1.55 J 16.5 13.7 7.86	3.33 J 41.6 38.6 17.2	1.4 J 13.7 12.4 8.18	
1000**	5.51 1.4 J 3.21 J	2.44 J ND 1.59 J	12.8 4.01 J 6.77	32.4 9.42 19.4	12.1 3.52J 7.27	
39000	2.8 J	1.20 J	6.13	24.4	6.4	
230	ND	ND	ND	ND	ND	
950*	ND	ND	ND	ND	ND	
950*	ND	ND	ND	ND	ND	
22000	ND	ND	ND	ND	ND	
110	ND	ND	ND	ND	ND	
	ND	ND	ND	ND	ND	

19000		ND	ND	ND	ND	ND
7300		ND	ND	ND	ND	ND
		ND	ND	ND	ND	ND
		ND	ND	ND	ND	ND
810***		ND	ND	ND	ND	ND
9		1.8	1.5	1.4	1.1	1.3
1.6		0.34	0.3	0.22	0.23	0.21
23000		5.6	6.8	5	7.5	5.2
11		ND	ND	ND	ND	ND
2200		2.3	4	1.9	3.6	1.6
300		2.1	1.9	2.2	2.6	1.9
2100		381	244	174	194	237
3.1		ND	ND	ND	ND	ND
170		4.8	8.2	4.3	6.2	4.7
4600		17.5	18.5	16	19.2	12.4
		ND	ND	ND	ND	ND
		122	65.4	213	169	78.2
		ND	5.4	15.5	5.8	ND
3500		9.2	10.3	20.9	15.1	16.8
		ND	ND	ND	ND	0.31
		170	198	377	256	184
		90.8	89.7	79.1	84.9	83.2
		ND	ND	ND	ND	ND
		1600	570	1900	2600	510
		38.5	51.4	100	99.3	99.9
		24.7	32.8	100	94.7	98.9
		16.9	20	100	80.5	88.1
		10.6	9.7	99.7	54	41.9
		4.4	3.5	90	32.9	9.5
		1.2	0.6	63.6	9.9	3.8
		1.1	0.6	59.7	8.6	3.7

tion or this flag indicates analyte(s) associated with a DOD-QSM specified non-compliance pertaining to ma
 result. The sample quantitation limit has been corrected for weight, dilution and/or percent moisture.
 ce pertaining to calibration or control QC criteria.
 tes possible/probable blank contamination and warns the data user to take appropriate action.

uirements.



ND	ND	ND	ND	ND	ND	ND	< 4.36
ND	ND	ND	ND	ND	ND	ND	< 4.36
ND	ND	ND	ND	ND	ND	ND	< 8.74
ND	ND	ND	ND	ND	ND	ND	< 13.1
ND	ND	ND	17.2 J	ND	ND	ND	< 13.1
ND	ND	ND	ND	ND	ND	ND	< 8.74
ND	ND	ND	ND	ND	ND	ND	<65.5
1.3	1.0	1.3	2.2	1.3	3.1	4.6	1.7
0.24	0.22	0.21	0.44	0.26	0.54	0.68	<0.25
6	6	5.1	9.5	6.1	11.3	12.6	19.8
ND	ND	ND	ND	ND	2.5	3.9	<1.3
2.7	2.2	2.2	5.7	2.4	8.8	11.3	18.5
2.4	1.5	2	5.1	2.9	6	7.2	6.7
345	220	262	471	229	571	1230	587
ND	0.04	ND	ND	ND	ND	0.12	<0.1
4.8	5.9	4.8	7.3	5	11.3	12.5	13
15.3	13.7	14	36.3	21	51.0	58.1	58.5
ND	0.7	ND	ND	ND	ND	ND	<0.31
404	69.4	162	984	195	1220	2760	493
22.7	ND	7.1	39.5	12.8	68.5	445	14.8
19.9	15.6	17.8	31.9	20.2	38.2	55.5	22.9
ND	ND	ND	ND	ND	ND	ND	<3.2
307	333	228	388	266	446	748	252
80.1	84.4	82.2	68.1	79.8	61.8	44.5	77.1
ND	ND	ND	1.6	ND	1.8	2.8	2.3
3200	570	1400	7800	1800	12000	26000	17000
100	99.4	99.5	99.6	99.6	99.9	100	98.6
99.9	99.4	97.6	98.6	97.9	99.8	100	90.3
98.1	82.6	86.3	97.9	95.4	99.6	99.9	45.9
68.7	19.5	49.6	96.4	84.9	98.6	99.4	19.6
21.4	3.8	17.3	91.4	39.7	96	97.8	16.5
11.9	1.5	3.7	46.2	7.7	68.6	68	12.5
11.5	1.4	3.6	40.5	7	64.8	66.5	10.8

trix QC criteria.

< 4.49	< 3.91	< 4.06	13.1	< 4.22	< 4.80	< 5.02	<1.54 Q
< 4.49	< 3.91	< 4.06	120	< 4.22	< 4.80	< 5.02	<1.54 Q
< 9.0	< 7.83	< 8.14	< 8.32	< 8.46	< 9.61	< 10.1	<7.69
< 13.5	< 11.7	< 12.2	< 12.5	< 12.7	< 14.4	< 15.1	<15.4
< 13.5	< 11.7	< 12.2	< 12.5	< 12.7	< 14.4	< 15.1	<15.4
< 9.0	< 7.83	< 8.14	< 8.32	< 8.46	< 9.61	< 10.1	<7.69
< 67.5	< 58.7	< 61.0	< 62.3	< 63.4	< 72.0	< 75.4	<76.9
2.7	1.1	0.85	1.6	1.4	4.3	4.2	2.13
<0.26	< 0.24	< 0.24	< 0.25	< 0.25	0.33	0.36	.19 J
12.9	5.9	9.3	6.9	6.9	14.1	12	8.82
<1.3	< 1.2	< 1.2	< 1.3	< 1.3	< 1.4	< 1.5	<1.55
10.8	2.3	1.8	2.8	2.2	9.5	7.8	6.18
5.4	2.4	1.4	3.4	5.5	7	7	5.04
521	226	177	235	215	653	710	318
<0.10	< 0.094	< 0.093	< 0.096	< 0.097	< 0.11	< 0.12	<0.105
12	6.8	5	5.1	5.1	11.1	11	5.3
47.1	14.4	11.5	18.7	18.4	42	46.7	34
<0.30	< 0.30	< 0.29	< 0.31	< 0.31	< 0.35	< 0.37	<0.266
764	47.8	27.6	165	215	837	760	1040
27.1	5.1	4.6	14.5	14.1	65.2	60.6	39.1
25.4	16.2	17.5	20.6	20.9	29.9	33.5	35.4
<3.4	< 3.0	< 3.0	< 3.2	< 3.2	< 3.6	< 3.8	<1.59
280	127	177	356	359	480	530	482
74.6	83.8	82.5	79.4	79.1	70.1	66.5	64.6
2.1	< 1.2	< 1.2	< 1.3	< 1.3	2.7	2.8	5.84
3100	2500	1700	6300	6300	14000	14000	19000
99.8	95	94.5	100	100	99.5	99.8	88.1
98.1	81.8	81	100	100	99.2	99.1	82.4
93.1	52.1	45.1	99.7	99.9	98.9	98.6	78.4
86.5	10.1	6.3	99.4	99.8	98.1	97.7	72.6
70.1	1.9	0.8	97.8	99.4	95.6	95.2	59.1
15.5	1.6	0.7	25.9	20.5	58.2	54.2	20.3
9.9	1.5	0.7	13.1	9.7	38.6	37.2	10.6

<1.4	3.72	<	3.83	<	4.1	<	4.39	<
<1.4	3.72	<	3.83	<	4.1	<	4.39	<
<7	74.4	<	76.7	<	82.1	<	88	<
					82.1	<	88	<
					82.1	<	88	<
					82.1	<	88	<
<14	74.4	<	76.7	<	82.1	<	88	<
<14	74.4	<	76.7	<	82.1	<	88	<
<7	74.4	<	76.7	<	82.1	<	88	<
<70	74.4	<	76.7	<				
1.29	1.39		0.8		0.74664	J	0.75433	
1.67 J	0.124	J	0.113	J	0.0534		0.0416	J
9.6	5.01		3.55		3.95	J	3.3	
<1.37	1.11	<	1.02	<	0.47	<	0.48	<
4.52	3.53		2.82		1.67	J	1.82	
16.4	2.09		1.7		1.71	J	1.44	
279	385		158		179		181	
<.0943	0.0849	<	0.0888	<	0.00466		0.00409	
6.08	6		4.24		4.79	J	3.67	
27.9	13.1		10.9		9.23	J	7.96	
<0.231	0.205	<	0.203	<	1.2	<	1.2	<
437	21.1		28.7	<	27.3	J	28.5	
29.6	10.9		3.05	J	1.18		0.95	
27.8	10.4		13		19		23.2	
11	2.95	<	3.07	<	2.1	<	2.1	<
306	254		113		142	J	236	
72.2	89.6		87		81		76.8	
4.17	1.12	<	1.15	<	0.1	<	0.1	<
14000	1000	<	1000	<	1200	<	1200	<
97.2	87.3		99.8		100		100	
96.3	73.4		98.7		99.3		98.8	
94.2	31.6		93.2		97.5		93.9	
92.3	4.5		30.3		82.2		51.2	
79.1	0.7		6.8		16.9		5.6	
					3		2.7	
14.2	0.4		4.1					
6.9	0.3		4		2.2		2.2	
	12.7		0.2		0		0	
	86.9		95.8		97.8		97.8	
	0		3.1		2.2		2.2	
	0.4		0.9		0		0	

L/D 1 Chamber		Boulangier Bend		Boulangier Bend Access		Boulangier Bend Access		Boulang Acc	
847.58 2		820.9 2		821.1 2		821.3 2		82: 2	
P2-27-2019 008529-04 9/16/2019		P2-28-2019 008529-05 9/17/2019		P2-29-2019 008529-06 9/17/2019		P2-30-2019 008529-07 9/17/2019		P2-31 0085: 9/17/	
Results	flag	Results	flag	Results	flag	Results	flag	Results	
254		3.7	J	4.31	<	0.893	J	3.06	
37.6		16.9		1.27	J	4.44	<	5.54	
53.3		6.48		2.08	J	1.01	J	3.35	
84.2	B	14.4	B	3.38	JB	1.97	JB	5.54	
293	B	256	B	40.6	B	8	B	43.6	
58.3		236		5.1		1.56	J	7.02	
526		744		70.4		11.9		91.2	
495		933		50.9		9.89		85.2	
261		310		26.3		5.96		41.5	
324		320		29.5		6.17		52.9	
483		381		37.4		8		78.4	
148		130		13.1		2.61	J	25.5	
301		415		25.7		5.97	J	48.6	
247		254		18.4		4.46		41.7	
105		158		16.2		3.62	J	19.6	
36.3		28.9		4.07	J	0.919	J	6.43	
142		194		16.4		4.17	J	25.2	
164		4.58	J	4.31	<	4.44	<	2.86	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<	4.69	<	4.3	<	4.41	<	5.66	
8.61	<Q	4.69	<Q	4.3	<	4.41	<	5.66	

8.61	<	4.69	<	4.3	<	4.41	<	5.66
8.61	<Q	4.69	<Q	4.3	<	4.41	<	5.66
172	<	93.9	<	86.1	<	88.3	<	113
172	<	93.9	<	86.1	<	88.3	<	113
172	<	93.9	<	86.1	<	88.3	<	113
172	<	93.9	<	86.1	<	88.3	<	113
172	<	93.9	<	86.1	<	88.3	<	113
172	<	93.9	<	86.1	<	88.3	<	113
172	<	93.9	<	86.1	<	88.3	<	113
3.93867		1.86436		1.17649		1.00251		3.0126
0.192		0.101		0.0588		0.055		0.235
8.38		4.44		4.46		4.08		6.6
1	<	0.53	<	0.44	J	0.49	<	0.64
7.19		2.18		1.36		0.967		5.25
8.2		2.6		1.87		1.73		4.18
1100		291		175		173		760
0.05413		0.01755		0.00928		0.00658		0.02744
7.25		6.12		5		4.01		9.9
3.93867		18.8		11.8		9.84		35.5
2.4	<	1.3	<	1.2	<	1.2	<	1.6
1740		66.7		45.2		38.7		661
109		15.1		23.4		1.45		70.3
60.8		28		22		24.3		40.4
5.5	<	2.1	J	2.4	<	2.4	<	3.1
980		372		192		331		737
39.2		72		78		75.8		59.6
9.3		1.27		0.1	<	0.1	<	3.68
47000		3000		1200	<	1200	<	9200
99.3		100		99.5		100		100
97.9		100		97.3		99.9		100
96.7		99.9		94.1		99.3		100
94.7		99.2		73.8		86.3		99.7
91.8		88.6		40.9		38.9		98.8
82.3		38		6.5		3.2		92.3
50.5		21		3.5		2.1		70.2
0.7		0		0.5		0		0
48.8		79		96		97.9		29.8
44.5		16.5		2.7		0.6		56.2
6		4.5		0.8		1.5		14

er Bend ess	Boulangier Bend	Pine Bend	Pine Bend Access	Pine Bend
1.3 ?	821.3 2	822.6 2	823.9 2	824.1 2
-2019 29-08 2019	P2-32-2019 008529-09 9/17/2019	P2-33-2019 008529-10 9/17/2019	P2-34-2019 008529-11 9/17/2019	P2-35-2019 008529-12 9/17/2019

flag	Results	flag	Results	flag	Results	flag	Results	flag
J	1.12	J	4.36	<	3.99	J	4.38	<
J	6.92		5.43		20.7		4.38	<
J	1.26	J	4.36	<	2.29	J	4.38	<
JB	2.08	JB	1.52	JB	4.95	B	0.974	JB
B	14.7	B	5.75	B	48.9	B	2	JB
	5.47		3.17	J	38.2		4.38	<
	55.2		12.2		328		4.38	<
	69.7		12.6		332		4.38	<
	36.7		10.6		249		4.38	<
	33.8		13.1		186		4.38	<
	40.3		22.3		251		4.38	<
	13.9		7.98		94.7		4.38	<
	46		17.3		217		4.38	<
	27.9		12.9		117		4.38	<
	23.5		11.2		58.9		4.38	<
	5.28		3.34	J	20.2		4.38	<
	28.8		11.5		53.4		4.38	<
J	1.71	J	4.36	<	1.93	J	4.38	<
	4.28	<	4.32	<	4.52	<	4.36	<
	4.28	<	4.32	<	4.52	<	4.36	<
	4.28	<	4.32	<	4.52	<	4.36	<
	4.28	<	4.32	<	4.52	<	4.36	<
	4.28	<	4.32	<	4.52	<	4.36	<
	4.28	<	4.32	<	4.52	<	4.36	<
	4.28	<	4.32	<	4.52	<	4.36	<
Q	4.28	<	4.32	<	4.52	<Q	4.36	<

	4.28 <	4.32 <	4.52 <	4.36 <
Q	4.28 <	4.32 <	4.52 <Q	4.36 <
<	85.8 <	86.4 <	90.6 <	87.2 <
<	85.8 <	86.4 <	90.6 <	87.2 <
<	85.8 <	86.4 <	90.6 <	87.2 <
<	85.8 <	86.4 <	90.6 <	87.2 <
<	85.8 <	86.4 <	90.6 <	87.2 <
<	85.8 <	86.4 <	90.6 <	87.2 <
	0.93994	0.90106	1.39212	1.18931
	0.0575	0.0571	0.22	0.052
	4.93	4.63	6.9	4.21
<	0.47 <	0.26 J	0.49 <	0.26 J
	1.58	1.24	3.79	1.43
	1.61	1.4	3.09	1.48
	203	165	359	200
	0.00976	0.00653	0.01604	0.00587
	5.3	4.59	6.9	4.57
	12.4	10.6	20.7	10.8
<	0.86 J	1.1 <	1.1 <J	1.2 <
	20.8	29.8	145	52.4
	1.16	1.55	16.9	1.33
	21.2	23.6	25.6	23.8
<	2.4 <	2.2 <	2.3 <	2.2 <
	120	190	305	174
	78.8	76.4	74.4	76.2
	0.1 <	0.1 <	0.1 <	0.1 <
	1200 <	1200 <	1600	1200 <
	94.8	99.7	100	100
	89.1	94.9	99.2	98.9
	78.1	85.1	91.1	91.7
	41.1	56.7	43	39.9
	8.2	10.1	10.4	10.8
	2.1	2	6.7	2.3
	1.5	1.5	6.4	1.8
	5.2	0.3	0	0
	93.3	98.2	93.6	98.2
	0.7	0.7	1.6	1
	0.8	0.8	4.8	0.8

4.18	<	4.12	<
4.18	<	4.12	<
83.8	<	82.4	<
83.8	<	82.4	<
83.8	<	82.4	<
83.8	<	82.4	<
83.8	<	82.4	<
83.8	<	82.4	<
83.8	<	82.4	<
1.76453		0.95183	
0.035	J	0.0614	
3.37		6.64	
0.48	<	0.51	<
1.28		1.84	
1.26		1.67	
309		270	
0.00536		0.0043	
3.6		7.21	
7.28		13	
1.2	<	1.2	<
35.8		30.9	
1.41		1.08	
21.2		19.1	
2.3	<	2.3	<
200		228	
78.8		90.9	
0.1	<	0.1	<
1200	<	1300	<
88.8		94.2	
73.8		80.5	
49.8		62.1	
16.5		25	
4.4		6.5	
1.5		2.1	
1.2		1.7	
11.2		5.8	
87.6		92.5	
0		0.9	
1.2		0.8	