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Subject: Superior Refining Co Summary Water Sample Table
Date: Monday, May 14, 2018 2:51:17 PM
Attachments: [20180514145107196.pdf](#)

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TABLE 1
2018 SUPERIOR REFINERY FIRE
SUMMARY OF WATER SAMPLING RESULTS FOR ONGOING MONITORING
 (Through 5/8/18 Sampling Event)

Sample Location	Date	Benzene (ug/L)	Ethylbenzene (ug/L)	Toluene (ug/L)	Total Xylenes (m.o.p) (ug/L)	Methyl Tert Butyl Ether (MTBE) (ug/L)	1,2,4-Trimethylbenzene (ug/L)	1,3,5-Trimethylbenzene (ug/L)	Naphthalene (ug/L)	PAHs (All) (ug/L)	GRO (ug/L)	DRO (mg/L)	ORO (mg/L)	Oil & Grease (mg/L)	Perfluorooctane sulfonic acid (PFOS) (ng/L)	Perfluorooctanoic acid (PFOA) (ng/L)	Combined Total "PFAS" (ng/L)	
FIRE WATER PONDS 2 & 3																		
Human Health Screening Level →		610	2920	13359	8300	None	330	4200	1200	0.00013 to 1200	None	None	None	30	None ^a	None ^a	None ^a	
Aquatic Life Protection Screening Level →		None	None	None	None	None	None	None	None	None	None	None	None	None	None ^a	None ^a	None ^a	
FIRE WATER POND 4																		
Fire Water Ponds 2 & 3	4/29/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2018	1.0	ND (0.14)	1.1	ND (0.24)	ND (0.40)	0.44 J	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.56	0.19	ND (1.5)	720	90	810	
	4/30/2018	0.94 J	ND (0.14)	0.85 J	ND (0.24)	ND (0.40)	0.24 J	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.79	0.34	ND (1.5)	1120	300	1510	
	4/30/2018	1.0	ND (0.14)	0.86 J	ND (0.24)	ND (0.40)	0.22 J	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.74	0.34	ND (1.5)	980	330	1310	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.49	0.21	ND (1.5)	340	250	590	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.46	0.22	ND (1.4)	330	260	610	
	5/4/2018	0.56 J	ND (0.14)	1.2	ND (0.24)	ND (0.40)	1.4	0.84 J	ND (0.42)	ND	18.0 J	0.34	0.18	ND (1.4)	330	280	610	
	5/6/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.42	0.22	ND (1.6)	Pending	Pending	Pending	
	5/8/2018	1.4	ND (0.14)	ND (0.20)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	24.7 J	0.45	0.17	ND (1.5)	Pending	Pending	Pending	
	5/10/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	ND (8.9)	ND (0.30)	ND (0.21)	ND (1.5)	Pending	Pending	Pending	
STORM WATER POND 4																		
Storm Water Pond 4	4/29/2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4/29/2018	7.5	0.65 J	7.4	5.3	ND (0.40)	2.0	1.0	1.1 J	ND	115	3.4	0.80	ND (1.5)	290	790	1080	
	4/29/2018	6.8	0.61 J	6.6	4.6	ND (0.40)	1.8	0.93 J	1.0 J	ND	104	3.4	0.95	ND (1.4)	330	920	1250	
	4/30/2018	7.6	0.20 J	4.7	2.2 J	ND (0.40)	0.47 J	1.1	0.69 J	ND	113	3.4	0.95	1.6 J	270	820	1090	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	0.63	ND (0.42)	ND	18.7 J	1.3	0.50	ND (1.6)	220	760	980	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.52	0.32	ND (1.5)	200	660	860	
	5/4/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.45	0.28	ND (1.4)	210	650	860	
	5/6/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.44	0.37	ND (1.5)	Pending	Pending	Pending	
	5/8/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	ND (8.9)	0.39	0.28	ND (1.5)	Pending	Pending	Pending	
	5/10/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	ND (8.9)	ND (0.63)	ND (0.62)	ND (1.5)	Pending	Pending	Pending	
NEWTON CREEK IMPOUNDMENT HEAD WATER																		
Impoundment Headwater	4/29/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND*	ND (8.9)	5.7	5.0	1.9 J	410	40	450	
	4/30/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	ND (0.14)	0.15	ND (1.4)	ND (10)	ND (10)	0	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	ND (0.081)	0.080	ND (1.4)	20	ND (10)	20	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	ND (0.076)	0.073	ND (1.4)	20	20	60	
	5/4/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	ND (0.075)	0.072	ND (1.4)	40	ND (10)	20	
	5/6/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.098	0.13	ND (1.5)	Pending	Pending	Pending	
	5/8/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	11.7 J	ND (0.11)	0.10	ND (1.4)	Pending	Pending	Pending	
	5/10/2018	0.40 J	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	ND (8.9)	ND (0.095)	ND (0.11)	ND (1.4)	Pending	Pending	Pending	
* = All ND except Phenanthrene at 1.2 J ppb																		
NEWTON CREEK IMPOUNDMENT WEIR at 21st Street																		
Impoundment Weir 21 st St.	4/29/2018	5.8	0.81 J	7.3	5.7	ND (0.40)	3.2	1.1	1.8 J	ND*	141	2.7	0.55	ND (1.4)	120	560	680	
	4/30/2018	2.5	0.20 J	3.3	1.3 J	ND (0.40)	0.99 J	0.84 J	1.1 J	ND	111	2.7	0.95	2.8 J	190	870	1060	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	31.7 J	0.30	0.16	ND (1.4)	100	150	250	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	21.8 J	0.29	0.17	ND (1.6)	80	110	190	
	5/4/2018	ND (0.34)	ND (0.14)	0.43 J	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	0.67 J	ND	37.3 J	0.30	0.18	ND (1.5)	70	100	170	
	5/6/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (52.0)	0.25	0.18	ND (1.5)	Pending	Pending	Pending	
	5/8/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	54.4 J	0.28	0.15	ND (1.4)	Pending	Pending	Pending	
	5/10/2018	0.39 J	ND (0.14)	0.68 J	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	49.7 J	0.27	0.15	ND (1.4)	Pending	Pending	Pending	
	5/10/2018	0.38 J	ND (0.14)	0.70 J	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	16.9 J	ND (0.21)	ND (0.18)	ND (1.5)	Pending	Pending	Pending	
* = All ND except 1-Methylnaphthalene (3.8 J), 2-Methylnaphthalene (3.6 J), Phenanthrene (1.2 J)																		
NEWTON CREEK AT 21st STREET PLUNGE POOL																		
21 st Street Plunge Pool	4/26/2018	ND (1.0)	7.0	73.9	42.6	ND (0.40)	17.2	4.0	12.0	ND*	474	5.6	6.3	11.1	None Collected	None Collected	N/A	
	4/27/2018	ND (1.0)	4.7	40.2	29.0	ND (0.40)	15.2	3.7	8.2	ND	510	-	13.1	5.3	None Collected	None Collected	N/A	
	4/28/2018	-	-	-	-	-	-	-	-	ND	-	-	-	-	None Collected	None Collected	N/A	
	4/28/2018	ND (1.0)	2.5	22.2	16.5	ND (0.40)	9.0	2.3	4.9	ND	330	-	10.3	2.4 J	None Collected	None Collected	N/A	
* = All ND except 1-Methylnaphthalene (12.0 J), 2-Methylnaphthalene (17.2 J), 2-Methylphenol (5.7 J), 3&4-Methylphenol (10.9 J), Fluorene (3.1 J), Naphthalene (9.7 J), Phenanthrene (4.0 J), Phenol (32.2 J)																		
NEWTON CREEK AT 11th STREET																		
Newton Creek 11 th Street	4/27/2018	11.2	1.8	14.0	11.0	ND (0.40)	5.8	1.6	3.5 J	ND*	227	-	-	ND (1.4)	-	-	-	
	4/28/2018	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	-	
	4/28/2018	4.4	0.73 J	5.5	4.6	ND (0.40)	2.5	0.82 J	1.6 J	ND	150	-	-	1.4 J	-	-	-	
	4/29/2018	ND (0.34)	ND (0.14)	0.29 J	ND (0.24)	ND (0.40)	0.21 J	0.35 J	ND (0.42)	ND	45.2 J	0.70	0.32	ND (1.5)	80	740	820	
	4/30/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	9.0 J	0.56	0.22	ND (1.4)	100	210	310	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	24.1 J	0.21	0.11	ND (1.4)	50	90	140	
	5/4/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	19.2 J	0.21	0.11	ND (1.4)	80	80	160	
	5/6/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (32.0)	0.20	0.14	ND (1.5)	Pending	Pending	Pending	
	5/8/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	25.5 J	0.21	0.11	ND (1.4)	Pending	Pending	Pending	
	5/10/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	Pending	ND (8.9)	ND (0.19)	ND (0.16)	ND (1.4)	Pending	Pending	Pending	
* = All ND except 1-Methylnaphthalene (2.4 J), Phenanthrene (1.2 J)																		
NEWTON CREEK AT 3rd STREET																		
Newton Creek 3 rd Street	4/26/2018	41.9	4.3	54.3	25.7	ND (0.40)	8.8	2.1	7.5	ND*	297	1.3	-	6.4	-	-	-	
	4/27/2018	6.8	1.1	8.7	7.0	ND (0.40)	4.0	1.0	2.6 J	ND	148	-	-	ND (1.4)	-	-	-	
	4/28/2018	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	-	
	4/28/2018	2.0	0.33 J	2.5	ND (0.24)	ND (0.40)	ND (1.1)	0.40 J	0.92 J	-	328	-	-	ND (1.5)	-	-	-	
	4/29/2018	ND (0.34)	ND (0.14)	0.22 J	ND (0.24)	ND (0.40)	0.14 J	ND (0.18)	ND (0.42)	ND	11.1 J	0.56	0.22	ND (1.5)	50	300	350	
	4/30/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.60	0.26	ND (1.4)	50	200	250	
	5/2/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	ND (8.9)	0.14	0.089	ND (1.4)	30	60	90	
	5/4/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND	11.7 J	0.11	0.069	ND (1.4)	20	40	60	
	5/6/2018	ND (0.34)	ND (0.14)	ND (0.17)	ND (0.24)	ND (0.40)	ND (0.14)	ND (0.18)	ND (0.42)	ND								