

Location: Vaughn 1, 391537, api 05-081-05332

Spill location 445224

6n91w SESE 9

On 4/4/2016, soil samples were taken to investigate spill number 401015814. The following soil samples were collected and analyzed; 2 discrete samples were taken to characterize the spill area; 3 discrete background samples were collected and analyzed for arsenic and inorganics, 1 composite sample was taken from soil material that was excavated from the wellhead. Sample results, locations and depths are provided below.

Contaminant of Concern	Sample ID							
	1145-SP1	1310-SP2	1340-COMP	BG1-1410	BG2-1415	BG3-1420	cogcc TABLE 910-1 STANDARDS	units
Organic Compounds in Soil								
TPH (total volatile and extractable petroleum hydrocarbons)	6,400 (6,400 DRO, 0 GRO)	2,000 (2,000 DRO, 0 GRO)	10075 (10,000 DRO, 75 GRO)	***	***	***	500	mg/kg2
Benzene	ND	ND	ND	***	***	***	0.17	mg/kg2
Toluene	ND	ND	ND	***	***	***	85	mg/kg2
Ethylbenzene	ND	ND	ND	***	***	***	100	mg/kg2
Xylenes (total	ND	ND	ND	***	***	***	175	mg/kg2
Acenaphthene	0.022	0.12	0.21	***	***	***	1,000	mg/kg2
Anthracene	0.022	0.12	0.35	***	***	***	1,000	mg/kg2
Benzo(A)anthracene	0.022	0.12	ND	***	***	***	0.22	mg/kg2
Benzo(B)fluoranthene	0.11	0.12	0.11	***	***	***	0.22	mg/kg2
Benzo(K)fluoranthene	0.022	0.12	ND	***	***	***	2.2	mg/kg2
Benzo(A)pyrene	0.022	0.12	ND	***	***	***	0.022	mg/kg2
Chrysene	0.022	0.12	ND	***	***	***	22	mg/kg2
Dibenzo(A,H)anthracene	0.022	0.12	ND	***	***	***	0.022	mg/kg2
Fluoranthene	0.022	0.12	0.94	***	***	***	1,000	mg/kg2
Fluorene	0.022	0.12	0.94	***	***	***	1,000	mg/kg2
Indeno(1,2,3,C,D)pyrene	0.022	0.12	ND	***	***	***	0.22	mg/kg2
Napthalene	0.025	0.12	0.21	***	***	***	23	mg/kg2
Pyrene	0.13	0.12	0.42	***	***	***	1,000	mg/kg2

Contaminant of Concern	Sample ID							
	1145-SP1	1310-SP2	1340-COMP	BG1-1410	BG2-1415	BG3-1420	cogcc TABLE 910-1 STANDARDS	units
Electrical Conductivity (EC)	0.57	0.48	0.81				<4	mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	8.5	5.1	4.6	140	170	160	<125	
pH	9.22	8.33	8.8	7.32	7.91	7.97	"6-9"	
Metals in Soils								
Arsenic	3.7	3.9	2.6	3.1	3.8	4	0.39	mg/kg2
Barium (LDNR True Total Barium)	460	450	1900	***	***	***	15,000	mg/kg2
Boron (Hot Water Soluble)	***	***	***	***	***	***	2	mg/l3
Cadmium	0.34	0.41	0.35	***	***	***	70	mg/kg2
Chromium (III)	13	14	7500	***	***	***	120,000	mg/kg2
Chromium (VI)	4.7	9.8	1.8	***	***	***	23	mg/kg2
Copper	24	25	15	***	***	***	3,100	mg/kg2
Lead (inorganic)	59	72	38	***	***	***	400	mg/kg2
Mercury	140	220	ND	***	***	***	23	mg/kg2
Nickel (soluble salts)	14	12	9.7	***	***	***	1,600	mg/kg2
Selenium	1	1.2	1	***	***	***	390	mg/kg2
Silver	0.68	0.82	0.67	***	***	***	390	mg/kg2
zinc	67	73	58	***	***	***	23,000	mg/kg2
				*** Not Sampled				
				ND Non-Dect				



Aerial Image, location identified as “Vaughn spill location” is area of 2 discrete samples;1145-SP1 and 1310-SP2



Shovel is at sample location "1145-SP1", sample depth 0-3" BGS.



Shovel is at sample location "1310-SP2", sample depth 0-3" BGS