

Table 1

Soil Analytical Results - Soil Boring Samples
Grynberg State 1 Pit
Moffat County, Colorado

Analyte	COGCC Table 915 1 RSSL Concentrations	Sample ID	SB01 SE	SB02 SW	SB03 NW	SB04 NE
		Date Sampled	5/27/2021	5/27/2021	5/27/2021	5/27/2021
		Depth (feet)	13-15	13	12.5	12.5
Volatile Organic Compounds (VOCs)		Units				
Benzene	1.2	mg/kg	2.2	0.86	7.9	12
Toluene	490	mg/kg	71	21	98	55
Ethylbenzene	5.8	mg/kg	24	14	47	42
Xylenes (total)	58	mg/kg	240	150	340	300
1,2,4-trimethylbenzene	30	mg/kg	52	35	84	76
1,3,5-trimethylbenzene	27	mg/kg	31	20	53	46
Naphthalene	2	mg/kg	3.4	2.7	7.0	5.6
Gasoline Range Organics (GRO)	NPS	mg/kg	3,100	1,900	5,700	5,400
Extractable Petroleum Hydrocarbons (DRO)	NPS	mg/kg	1,200	470	800	1,300
Extractable Petroleum Hydrocarbons (ORO)	NPS	mg/kg	<50	<50	<50	<50
Total Petroleum Hydrocarbons (TPH)	500	mg/kg	4,300	2,370	6,500	6,700
Polycyclic Aromatic Hydrocarbons						
Acenaphthene	360	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Anthracene	1800	mg/kg	0.0238	0.0101	0.0271	0.00730
Benz(a)anthracene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(a)pyrene	0.11	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(b)fluoranthene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Benzo(k)fluoranthene	11	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Chrysene	110	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Dibenzo(a,h)anthracene	0.11	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Fluoranthene	240	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Fluorene	240	mg/kg	0.0274	0.000843	0.0323	<0.00500
Indeno(1,2,3-cd)pyrene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
Pyrene	180	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500
1-Methylnaphthalene	18	mg/kg	1.49	0.802	0.959	1.34
2-Methylnaphthalene	24	mg/kg	2.25	1.36	1.46	2.31
Total Metals						
Arsenic	0.68	mg/kg	88.8	51.5	81.1	61.8
Barium	15,000	mg/kg	92.0	53.8	65.3	68.9
Cadmium	71	mg/kg	<0.256	<0.248	<0.253	<0.249
Copper	3,100	mg/kg	40.2	26.5	45.5	38.9
Lead	400	mg/kg	18.8	10.1	16.0	24.6
Nickel	1,500	mg/kg	10.8	3.13	10.6	6.47
Selenium	390	mg/kg	5.58	1.86	5.05	3.49
Silver	390	mg/kg	0.117	0.0715	0.138	0.0731
Zinc	23,000	mg/kg	23.8	13.7	21.2	27.6
Chromium, Hexavalent	0.3	mg/kg	<0.30	<0.30	<0.30	<0.30
Reclamation Suitability Parameters						
Sodium Absorption Ratio	6	--	5.44	5.03	1.24	0.763
Boron	2	mg/L	0.939	1.19	1.05	1.19
pH	6-8.3	--	4.21	3.82	6.70	6.50
Specific Conductance (EC)	4	mmhos/cm	4.68	3.69	0.117	0.0714

Notes

COGCC - Colorado Oil and Gas Conservation Commission

RSSL - Residential Soil Screening Level

NPS - no published standard

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

mmhos/cm - millimhos per centimeter

< = less than the indicated laboratory reporting limit

Bold - Indicates result exceeds the applicable regulatory standard

-- - not applicable

SAR is calculated by equation

Table 2

Soil Analytical Results - Excavation Samples
Grynbeg State 1 Pit
Moffat County, Colorado

Analyte	COGCC Table 915-1 RSSL Concentrations	Sample ID	SS01	SS02	SS03	SS04	SS05	SS06	TP-E	TP-E	TP-W	TP-W
		Date Sampled	7/30/2021	7/30/2021	7/30/2021	7/30/2021	8/12/2021	8/12/2021	8/18/2021	8/18/2021	8/20/2021	8/20/2021
		Depth (feet)	16	15	15	20	20	15	17	19	8	14.5
Volatile Organic Compounds (VOCs)		Units										
Benzene	1.2	mg/kg	0.013	0.015	0.080	0.0086	0.028	<0.0020	3.2	0.26	<0.0020	<0.0020
Toluene	490	mg/kg	0.42	17	6.5	0.051	<0.0050	0.015	0.83	0.22	<0.0050	0.023
Ethylbenzene	5.8	mg/kg	0.28	12	2.3	0.017	0.015	0.014	0.015	<0.0050	<0.0050	0.013
Xylenes (total)	58	mg/kg	140	160	28	<0.010	<0.010	<0.010	0.078	0.021	<0.0050	0.53
1,2,4-trimethylbenzene	30	mg/kg	44	50	9.0	0.042	<0.0050	0.064	<0.0050	<0.0050	<0.0050	0.18
1,3,5-trimethylbenzene	27	mg/kg	26	30	5.3	<0.0050	<0.0050	0.026	<0.0050	<0.0050	0.041	0.14
Naphthalene	2	mg/kg	5.3	6.0	1.4	0.013	<0.038	<0.038	<0.0038	<0.0038	<0.0038	0.0046
Gasoline Range Organics (GRO)	NPS	mg/kg	4,300	6,200	1,200	8.1	0.51	1.2	4.6	1.6	<0.50	2.9
Extractable Petroleum Hydrocarbons (DRO)	NPS	mg/kg	<50	70	<50	67	<50	<50	<50	<50	<50	<50
Extractable Petroleum Hydrocarbons (ORO)	NPS	mg/kg	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Total Petroleum Hydrocarbons (TPH)	500	mg/kg	4,300	6,270	1,200	75	0.51	1.2	4.6	1.6	<100.5	2.9
Polycyclic Aromatic Hydrocarbons												
Acenaphthene	360	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Anthracene	1800	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Benzo(a)anthracene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Benzo(a)pyrene	0.11	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Benzo(b)fluoranthene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Benzo(k)fluoranthene	11	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Chrysene	110	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Dibenzo(a,h)anthracene	0.11	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Fluoranthene	240	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Fluorene	240	mg/kg	0.0164	0.0124	0.0184	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Indeno(1,2,3-cd)pyrene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
Pyrene	180	mg/kg	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500	pending	pending	pending	pending
1-Methylnaphthalene	18	mg/kg	0.990	0.522	0.679	0.0868	<0.00500	0.00841	pending	pending	pending	pending
2-Methylnaphthalene	24	mg/kg	1.96	1.16	1.04	0.189	<0.00500	0.0235	pending	pending	pending	pending
Total Metals												
Arsenic	0.68	mg/kg	54.3	116	26.3	13.9	14.2	89.3	pending	pending	pending	pending
Barium	15,000	mg/kg	24.1	153	231	43.8	118	120	pending	pending	pending	pending
Cadmium	71	mg/kg	<0.259	0.646	<0.312	<0.241	<0.236	0.351	pending	pending	pending	pending
Copper	3,100	mg/kg	17.2	48.0	5.05	13.6	24.0	32.4	pending	pending	pending	pending
Lead	400	mg/kg	10.6	9.83	3.32	6.62	36.2	19.8	pending	pending	pending	pending
Nickel	1,500	mg/kg	5.44	29.4	8.02	5.69	3.45	12.8	pending	pending	pending	pending
Selenium	390	mg/kg	3.17	6.70	1.49	1.75	1.10	4.09	pending	pending	pending	pending
Silver	390	mg/kg	0.0414	0.261	<0.0312	0.0439	0.120	0.0723	pending	pending	pending	pending
Zinc	23,000	mg/kg	14.5	18.7	53.2	20.9	13.5	42.9	pending	pending	pending	pending
Chromium, Hexavalent	0.3	mg/kg	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30
Reclamation Suitability Parameters												
Sodium Absorption Ratio	6	--	8.85	8.02	4.38	5.90	5.90	8.82	pending	pending	pending	pending
Boron	2	mg/L	0.942	0.592	0.845	0.907	0.216	1.13	pending	pending	pending	pending
pH	6-8.3	--	3.62	3.64	7.00	7.54	4.51	4.66	pending	pending	pending	pending
Specific Conductance (EC)	4	mmhos/cm	7.05	7.19	5.19	5.24	4.15	8.61	pending	pending	pending	pending

Notes

COGCC - Colorado Oil and Gas Conservation Commission

RSSL - Residential Soil Screening Level

NPS - no published standard

mg/kg - milligrams per kilogram

mg/L - milligrams per liter

mmhos/cm - millimhos per centimeter

<= less than the indicated laboratory reporting limit

Bold - Indicates result exceeds the applicable regulatory standard

-- - not applicable

SAR is calculated by equation

Table 3

Soil Analytical Results - Stockpiles and Backgrounds
Grynberg State 1 Pit
Moffat County, Colorado

Analyte	COGCC Table 915-1 RSSL Concentrations	Sample ID Date Sampled Depth (feet)	Soil Pile 01	Soil Pile 02	Soil Pile 03	BG01	BG01	BG01	BG01	BG01	BG02	BG02	BG02	BG02	BG02	BG02	TP01-CS
			7/30/2021	7/30/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/12/2021	8/16/2021
			--	--	--	0.5	2	4	6	8	0.5	2	4	6	8	2-4	
Volatile Organic Compounds (VOCs)			Units														
Benzene	1.2	mg/kg	<0.0020	<0.0020	<0.0020	--	--	--	--	--	--	--	--	--	--	--	
Toluene	490	mg/kg	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	
Ethylbenzene	5.8	mg/kg	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	
Xylenes (total)	58	mg/kg	<0.010	<0.010	<0.010	--	--	--	--	--	--	--	--	--	--	--	
1,2,4-trimethylbenzene	30	mg/kg	<0.0050	<0.0050	0.038	--	--	--	--	--	--	--	--	--	--	--	
1,3,5-trimethylbenzene	27	mg/kg	<0.0050	<0.0050	<0.0050	--	--	--	--	--	--	--	--	--	--	--	
Naphthalene	2	mg/kg	<0.0038	<0.0038	<0.0038	--	--	--	--	--	--	--	--	--	--	--	
Gasoline Range Organics (GRO)	NPS	mg/kg	<0.50	<0.50	<0.50	--	--	--	--	--	--	--	--	--	--	<0.50	
Extractable Petroleum Hydrocarbons (DRO)	NPS	mg/kg	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	<50	
Extractable Petroleum Hydrocarbons (ORO)	NPS	mg/kg	<50	<50	<50	--	--	--	--	--	--	--	--	--	--	<50	
Total Petroleum Hydrocarbons (TPH)	500	mg/kg	<100.50	<100.50	<100.50	--	--	--	--	--	--	--	--	--	--	<100.50	
Polycyclic Aromatic Hydrocarbons																	
Acenaphthene	360	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Anthracene	1800	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Benzo(a)anthracene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Benzo(a)pyrene	0.11	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Benzo(b)fluoranthene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Benzo(k)fluoranthene	11	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Chrysene	110	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Dibenz(a,h)anthracene	0.11	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Fluoranthene	240	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Fluorene	240	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Indeno(1,2,3-cd)pyrene	1.1	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
Pyrene	180	mg/kg	<0.00500	<0.00500	<0.00500	--	--	--	--	--	--	--	--	--	--	--	
1-Methylnaphthalene	18	mg/kg	<0.00500	<0.00500	0.00831	--	--	--	--	--	--	--	--	--	--	--	
2-Methylnaphthalene	24	mg/kg	<0.00500	<0.00500	0.0146	--	--	--	--	--	--	--	--	--	--	--	
Total Metals																	
Arsenic	0.68	mg/kg	18.3	10.0	30.4	12.2	17.1	9.64	6.31	19.1	11.2	6.61	26.8	2.43	24.40	--	
Barium	15,000	mg/kg	78.8	64.8	69.2	--	--	--	--	--	--	--	--	--	--	--	
Cadmium	71	mg/kg	0.367	0.283	0.447	--	--	--	--	--	--	--	--	--	--	--	
Copper	3,100	mg/kg	17.4	13.4	13.9	--	--	--	--	--	--	--	--	--	--	--	
Lead	400	mg/kg	10.2	7.89	8.66	--	--	--	--	--	--	--	--	--	--	--	
Nickel	1,500	mg/kg	26.7	15.0	16.7	--	--	--	--	--	--	--	--	--	--	--	
Selenium	390	mg/kg	1.25	1.18	1.01	--	--	--	--	--	--	--	--	--	--	--	
Silver	390	mg/kg	0.0713	0.0491	0.0788	--	--	--	--	--	--	--	--	--	--	--	
Zinc	23,000	mg/kg	51.5	41.5	47.8	--	--	--	--	--	--	--	--	--	--	--	
Chromium, Hexavalent	0.3	mg/kg	<0.30	<0.30	<0.30	--	--	--	--	--	--	--	--	--	--	--	
Reclamation Suitability Parameters																	
Sodium Absorption Ratio	6	--	5.00	3.73	9.70	pending	pending	pending	pending	pending	pending	pending	pending	pending	pending	--	
Boron	2	mg/L	0.602	0.553	1.06	--	--	--	--	--	--	--	--	--	--	--	
pH	6-8.3	--	8.03	8.00	7.81	pending	pending	pending	pending	pending	pending	pending	pending	pending	pending	--	
Specific Conductance (EC)	4	mmhos/cm	4.68	3.87	18.0	0.365	1.94	4.18	4.99	5.95	1.28	3.46	3.02	4.42	5.41	--	

Notes

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