

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

Headwaters					
ENV602	ENV603	ENV603S	ENV604	ENV605	ENV624
10-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	10-Jan-14
0-0.1	0-0.2	-0.1	0-0.2	0-0.2	0-0.1
L1412224	L1412224	L1412224	L1412224	L1412224	L1412224
471327	471249	471249	471464	471606	470959
5938723	5938618	5938618	5938635	5938561	5938449

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				31	<71	93	<20	<20	<20
Total Hydrocarbons (C6-C50)	mg/kg	20				984	103	622	37	22	211
Chrom. to baseline at nC50	-					0	1	1	1	1	1
Gravimetric Heavy Hydrocarbons	mg/kg	500				1790	670	520	<500	<500	<500
TEH: (C16-C34)	mg/kg	20				478	103	453	37	22	94
TEH: (C34-C50)	mg/kg	20				475	<71	76	<20	<20	117
TVH	mg/kg	10				<10	<50	<20	<10	<10	<10
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				<10	<50	<20	<10	<10	<10
Leachable Metals											
Barium, extractable	mg/kg	5				65	88	32.9	25.7	<5	62
Boron (B), Hot Water Ext.	mg/kg	0.1				1.96	<0.5	0.88	0.27	0.37	1.15
Metals											
Aluminium	mg/kg	50				3290	13,000	8400	7080	6620	3860
Antimony	mg/kg	0.1	20			0.17	0.34	0.38	0.27	0.41	0.2
Arsenic	mg/kg	0.1	17	5.9	17	1.6	2.43	7.71	6.33	6.63	1.83
Barium	mg/kg	0.5	750			161	462	734	145	173	222
Beryllium	mg/kg	0.2	5			<0.2	0.75	0.53	0.37	0.42	0.22
Bismuth	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	mg/kg	0.1	3.8	0.6	3.5	0.64	0.74	0.24	0.16	0.17	0.51
Calcium	mg/kg	100				12,000	39,000	15,500	5220	8070	13,400
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	5.98	9.15	10.2	13.3	12.7	10.1
Cobalt	mg/kg	0.1	20			2.34	5.07	5.59	6.26	7.28	2.87
Copper	mg/kg	0.5	63	35.7	197	9.27	23.8	11.6	7.7	8.19	6.87
Iron	mg/kg	50				5150	11,500	11,000	18,200	17,000	5490
Lead	mg/kg	0.5	70	35	91.3	6.98	4.85	11.7	5.87	6.55	6.85
Lithium	mg/kg	0.5				2.61	4.92	7.1	7.91	7.25	2.88
Magnesium	mg/kg	20				1770	2470	4010	2940	3100	1700
Manganese	mg/kg	1				841	922	311	600	493	496
Mercury	mg/kg	0.005	12	0.17	0.486	0.103	0.158	0.0693	0.0189	0.0197	0.0702
Molybdenum	mg/kg	0.1	4			0.7	0.92	1.11	0.77	0.87	0.73
Nickel	mg/kg	0.5	50			5.94	20.4	14.5	16.2	19.4	9.24
Phosphorus	mg/kg	50				1050	1860	481	416	660	831
Potassium	mg/kg	50				1390	327	769	579	522	1020
Selenium	mg/kg	0.2	1			<0.2	2.04	0.42	<0.2	<0.2	<0.2
Silver	mg/kg	0.2	20			<0.2	0.44	<0.2	<0.2	<0.2	<0.2
Sodium	mg/kg	100				<100	230	640	120	180	<100
Strontium	mg/kg	1				33.5	90.5	149	34.1	52.7	51.4
Thallium	mg/kg	0.05	1			0.062	0.1	0.181	0.073	0.092	0.077
Tin	mg/kg	2	5			<2	<2	<2	<2	<2	<2
Titanium	mg/kg	1				40.9	56.1	199	56	98.1	37.3
Uranium	mg/kg	0.05	33			0.349	4.22	1.86	0.569	0.853	0.51
Vanadium	mg/kg	0.2	130			8.11	12.9	17.5	19.6	21.1	8.7
Zinc	mg/kg	5	200	123	315	59.7	15.2	53.1	39.1	36.6	53.9
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				1.58	0.99	2.36	0.93	2.15	1.07
Inorganic Carbon	mg/kg	0.1				0.19	0.12	0.28	0.11	0.26	0.13
TOC	% dry weight	0.1				34.8 ^{#1}	31.4 ^{#1}	16.2 ^{#1}	1.35 ^{#1}	3.71 ^{#1}	23.7 ^{#1}
Total Carbon by Combustion	%	0.1				35	31.5	16.5	1.5	4	23.8
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				70.3	18.3	28.5	73.1	76.1	55.9
Physical Tests											
Moisture	%	0.1				38.7	79.4	55.6	33.7	16.3	36.6

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SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV625	ENV626	ENV626S	ENV627	ENV628	ENV629
09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14
0-0.1	0-0.2	-0.1	0-0.2	0-0.2	0-0.2
L1412224	L1412224	L1412224	L1412224	L1412224	L1412224
471129	471018	471018	471075	471130	471015
5938826	5938565	5938565	5938743	5938592	5938628

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				<20	<91	<20	<20	<20	<60
Total Hydrocarbons (C6-C50)	mg/kg	20				141	1070	29	<20	<20	405
Chrom. to baseline at nC50	-					1	0	1	1	1	1
Gravimetric Heavy Hydrocarbons	mg/kg	500				<500	3230	<500	<500	<500	1020
TEH: (C16-C34)	mg/kg	20				74	574	29	<20	<20	250
TEH: (C34-C50)	mg/kg	20				67	499	<20	<20	<20	155
TVH	mg/kg	10				<10	<60	<10	<10	<10	<50
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				<10	<60	<10	<10	<10	<50
Leachable Metals											
Barium, extractable	mg/kg	5				51.3	95	31.7	5.4	26.7	90
Boron (B), Hot Water Ext.	mg/kg	0.1				0.78	3.56	0.76	<0.1	0.14	1.27
Metals											
Aluminium	mg/kg	50				6980	5960	5890	12,900	12,400	3290
Antimony	mg/kg	0.1	20			0.19	0.33 - 0.64	0.34	0.44	0.23	0.37 - 0.41
Arsenic	mg/kg	0.1	17	5.9	17	2.86	10.4 - 18.4	6.4	8.99	5.63	17.4 - 693
Barium	mg/kg	0.5	750			156	99.5 - 351	351	69	111	251 - 538
Beryllium	mg/kg	0.2	5			0.24	<1 - 0.41	0.44	0.33	0.44	<1 - 0.53
Bismuth	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	mg/kg	0.1	3.8	0.6	3.5	0.44	0.7 - 1.24	0.34	0.15	<0.1	0.69 - 0.79
Calcium	mg/kg	100				7740	32,600	11,200	1970	2200	12,100
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	9.02	7.64 - 9.65	10.9	16.6	17.2	6.44 - 8
Cobalt	mg/kg	0.1	20			4.11	4.35 - 6.2	5.38	5.07	7.3	6.3 - 10.8
Copper	mg/kg	0.5	63	35.7	197	7.82	13.4 - 14.8	11	7.83	8.97	7.74 - 13.1
Iron	mg/kg	50				9600	21,300	11,400	22,100	18,900	407,000
Lead	mg/kg	0.5	70	35	91.3	8.4	<5 - 4.1	7.98	8.6	10.1	<5 - 1.13
Lithium	mg/kg	0.5				6.14	4.33	5.86	18.9	13.1	0.99
Magnesium	mg/kg	20				2170	3770	2930	2660	3200	964
Manganese	mg/kg	1				612	676	375	160	322	1690
Mercury	mg/kg	0.005	12	0.17	0.486	0.0656	0.074 - 0.092	0.0346	0.0099	0.0187	<0.05 - 0.074
Molybdenum	mg/kg	0.1	4			0.82	4.8 - 5.74	0.88	1.26	0.79	4.6 - 43.3
Nickel	mg/kg	0.5	50			8.74	15.7 - 15.9	15.5	13.7	16	16 - 18.5
Phosphorus	mg/kg	50				749	1360	398	603	438	1790
Potassium	mg/kg	50				1210	344	526	506	668	113
Selenium	mg/kg	0.2	1			<0.2	1.17 - 1.87	0.28	<0.2	<0.2	0.84 - 1.3
Silver	mg/kg	0.2	20			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sodium	mg/kg	100				<100	750	280	<100	<100	270
Strontium	mg/kg	1				26.6	387	82.1	8.1	12.1	98
Thallium	mg/kg	0.05	1			0.072	<0.5 - 0.08	0.096	0.104	<0.05	<0.05
Tin	mg/kg	2	5			<2	<2	<2	<2	<2	<2
Titanium	mg/kg	1				38.7	25.1	121	49.9	68.7	26.1
Uranium	mg/kg	0.05	33			0.383	4.3 - 7.18	0.962	0.33	0.481	<2 - 4.3
Vanadium	mg/kg	0.2	130			15.9	14 - 17.3	18.4	30.8	28.8	14.2 - 17.4
Zinc	mg/kg	5	200	123	315	40.6	37 - 65.8	40.1	49.8	45.8	35 - 181
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				1.8	1.64	2.49	<0.8	1.05	1.47
Inorganic Carbon	mg/kg	0.1				0.22	0.2	0.3	<0.1	0.13	0.18
TOC	% dry weight	0.1				26.2 ^{#1}	39.3 ^{#1}	1.04 ^{#1}	1.36 ^{#1}	3.88 ^{#1}	19.8 ^{#1}
Total Carbon by Combustion	%	0.1				26.4	39.5	1.3	1.4	4	19.9
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				54.5	32.6	60.4	37.6	23.6	57.6
Physical Tests											
Moisture	%	0.1				29.4	82.5	21.6	13.1	19.8	78.5

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Northing (NAD83 Zone 11N)

ENV625	ENV626	ENV626S	ENV627	ENV628	ENV629
09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14
0-0.1	0-0.2	-0.1	0-0.2	0-0.2	0-0.2
L1412224	L1412224	L1412224	L1412224	L1412224	L1412224
471129	471018	471018	471075	471130	471015
5938826	5938565	5938565	5938743	5938592	5938628

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL					
Polycyclic Aromatic Hydrocarbons										
Benzo[b]fluoranthene	mg/kg	0.005	6.2			<0.005	<0.008	<0.005	<0.005	<0.007
C4 Benzoanthracenes/Chrysenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C4 Dibenzothiophenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C4 Naphthalenes	mg/kg	0.04				0.129	0.074	0.075	<0.04	<0.056
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				0.8	0.181	0.809	<0.04	<0.131
Biphenyl	mg/kg	0.01				<0.01	<0.016	<0.01	<0.01	<0.014
1-Methylnaphthalene	mg/kg	0.01				0.03	<0.016	<0.01	<0.01	<0.014
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	0.0307	0.0136	0.0066	<0.005	0.0073
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	<0.005	<0.008	<0.005	<0.005	<0.007
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	<0.005	<0.008	<0.005	<0.005	<0.007
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	<0.004	<0.008	<0.004	<0.004	<0.007
Benzo(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	<0.005	<0.008	<0.005	<0.005	<0.007
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	<0.005	<0.008	<0.005	<0.005	<0.007
Acridine	mg/kg	0.005				<0.005	<0.008	<0.005	<0.005	<0.007
Benzo(e)pyrene	mg/kg	0.01				<0.01	<0.016	<0.01	<0.01	<0.014
Benzo(g,h,i)perylene	mg/kg	0.005				<0.005	<0.008	<0.005	<0.005	<0.007
Benzo(k)fluoranthene	mg/kg	0.005	6.2			<0.005	<0.008	<0.005	<0.005	<0.007
C1 Acenaphthenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C1 Benzo(a)Anthracenes/Chrysenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C1 Biphenyls	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C1 Dibenzothiophenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	<0.005	<0.008	<0.005	<0.005	<0.007
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C1 Fluorenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				0.046	<0.064	<0.04	<0.04	<0.056
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	<0.005	<0.008	<0.005	<0.005	<0.007
Dibenzothiophene	mg/kg	0.01				<0.01	<0.016	<0.01	<0.01	<0.014
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	<0.005	<0.008	0.0058	<0.005	<0.007
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	<0.005	<0.008	<0.005	<0.005	<0.007
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				<0.005	<0.008	<0.005	<0.005	<0.007
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	0.0203	<0.008	<0.005	<0.005	0.0115
Perylene	mg/kg	0.01				<0.01	0.114	0.013	<0.01	1.62
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	<0.005	<0.008	0.0072	<0.005	0.0068
Pyrene	mg/kg	0.005	0.034	0.053	0.875	<0.005	<0.008	0.0077	<0.005	0.008
Quinoline	mg/kg	0.005				<0.005	<0.008	<0.005	<0.005	<0.007
Retene	mg/kg	0.01				0.77	0.182	0.85	<0.01	<0.01
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C2 Biphenyls	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C2 Dibenzothiophenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C2 Naphthalenes	mg/kg	0.04				0.121	0.098	0.055	<0.04	0.068
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C2 Fluorenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C3 Benzoanthracenes/Chrysenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C3 Dibenzothiophenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C3 Fluorenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
C3 Naphthalenes	mg/kg	0.04				0.092	0.089	0.045	<0.04	<0.056
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				<0.04	<0.064	<0.04	<0.04	<0.056
Saturated Paste Extractables										
Sulfur (as SO4)	mg/kg	9.5				131 ^{#1}	757 ^{#1}	93 ^{#1}	<11 ^{#1}	11 ^{#1}
Calcium	mg/kg	1.6				282 ^{#1}	213 ^{#1}	26.5 ^{#1}	16.7 ^{#1}	9.5 ^{#1}
Chloride	mg/kg	6.4				85 ^{#1}	102 ^{#1}	<7.6 ^{#1}	<7.5 ^{#1}	<7.1 ^{#1}
Saturation Percentage	%	1				238	296	37.8	37.3	35.5
Electrical Conductivity (lab)	dS/m	0.01				0.746	0.783	0.929	0.272	0.234
Magnesium	mg/kg	0.95				63.8 ^{#1}	61.8 ^{#1}	5.6 ^{#1}	3.5 ^{#1}	2.4 ^{#1}
pH (Lab)	pH	0.1	6-8.5			4.87	6.57	7.17	5.36	5.08
Potassium	mg/kg	0.64				134 ^{#1}	15.4 ^{#1}	1.83 ^{#1}	<0.75 ^{#1}	<0.71 ^{#1}
Sodium	mg/kg	0.64				5.9 ^{#1}	231 ^{#1}	50.1 ^{#1}	2.89 ^{#1}	3.65 ^{#1}
Sodium Adsorption Ratio	---	0.1				<0.1 ^{#1}	2.08 ^{#1}	3.76 ^{#1}	0.27 ^{#1}	0.46 ^{#1}
Speciated Metals										
Chromium (hexavalent)	mg/kg	0.1	0.4			<1	<1	<0.1	<0.1	<0.1
Volatile Organic Compounds										
Benzene	mg/kg	0.005	0.046			<0.005	<0.03	<0.005	<0.005	<0.025
Toluene	mg/kg	0.05	0.52			<0.05	<0.3	<0.05	<0.05	<0.25
Ethylbenzene	mg/kg	0.01	0.11			<0.015	<0.9	<0.015	<0.015	<0.075
Xylene (m & p)	mg/kg	0.05				<0.05	<0.3	<0.05	<0.05	<0.25
Xylene (o)	mg/kg	0.05				<0.05	<0.3	<0.05	<0.05	<0.25
Xylenes Total	mg/kg	0.1	15			<0.1 ^{#1}	<0.6 ^{#1}	<0.1 ^{#1}	<0.1 ^{#1}	<0.5 ^{#1}
Styrene	mg/kg	0.05	0.68			<0.05	<0.3	<0.05	<0.05	<0.25

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV629S	ENV630	ENV631	ENV632	ENV632S	ENV633	ENV633S
09-Jan-14	08-Jan-14	09-Jan-14	08-Jan-14	08-Jan-14	09-Jan-14	09-Jan-14
-0.2	0-0.2	0-0.2	0-0.2	-0.1	0-0.2	-0.15
L1412224	L1412224	L1412224	L1412224	L1412224	L1412224	L1412224
471015	471025	470828	471032	471032	470977	470977
5938628	5938936	5938516	5938851	5938851	5938745	5938745

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	mg/kg	20				<20	<20	<20	<32	<31	<66	<33
Total Hydrocarbons (C6-C50)	mg/kg	20				85	<20	<20	43	69	267	274
Chrom. to baseline at nC50	-					1	1	1	1	1	0	0
Gravimetric Heavy Hydrocarbons	mg/kg	500				<500	<500	<500	<500	<500	<500	680
TEH: (C16-C34)	mg/kg	20				85	<20	<20	43	69	119	184
TEH: (C34-C50)	mg/kg	20				<20	<20	<20	<32	<31	148	90
TVH	mg/kg	10				<10	<10	<10	<20	<20	<50	<30
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				<10	<10	<10	<20	<20	<50	<30
Leachable Metals												
Barium, extractable	mg/kg	5				6.9	23.3	46.1	45.2	41.3	74.1	39.8
Boron (B), Hot Water Ext.	mg/kg	0.1				0.58	0.45	0.18	0.45	0.47	1.12	0.47
Metals												
Aluminium	mg/kg	50				6550	13,400	11,400	13,700	10,600	7290	9730
Antimony	mg/kg	0.1	20			0.31	<0.1	0.21	0.44	0.4	0.64	0.39
Arsenic	mg/kg	0.1	17	5.9	17	7.07	3.91	2.49	12	7.59	3.1	6.91
Barium	mg/kg	0.5	750			423	103	139	415	342	438	300
Beryllium	mg/kg	0.2	5			0.38	0.32	0.46	0.63	0.54	0.5	0.63
Bismuth	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	mg/kg	0.1	3.8	0.6	3.5	0.16	0.12	0.18	0.69	0.3	0.62	0.22
Calcium	mg/kg	100				11,900	1570	3440	25,100	11,500	43,800	8560
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	11.6	14.7	28.2	18.3	24.7	11.3	17.2
Cobalt	mg/kg	0.1	20			5.75	4.9	4.95	12.1	8.29	5.21	8.85
Copper	mg/kg	0.5	63	35.7	197	9.83	3.8	12.1	17.1	15.1	18.6	17
Iron	mg/kg	50				11,600	16,900	14,500	31,000	17,800	10,200	18,200
Lead	mg/kg	0.5	70	35	91.3	8.38	7.95	9.06	8.73	9.3	5.1	10.3
Lithium	mg/kg	0.5				6.13	17.2	14	13.1	11.4	4.53	10.7
Magnesium	mg/kg	20				3560	2440	3600	4330	4040	3430	4250
Manganese	mg/kg	1				401	334	113	2380	698	893	478
Mercury	mg/kg	0.005	12	0.17	0.486	0.0394	0.0116	0.0212	0.0731	0.0488	0.1	0.0519
Molybdenum	mg/kg	0.1	4			0.83	0.69	0.59	2.78	1.3	1.56	1.14
Nickel	mg/kg	0.5	50			15.2	9.6	20.2	23.4	24.8	20.7	24.3
Phosphorus	mg/kg	50				469	490	689	1300	636	1420	634
Potassium	mg/kg	50				571	571	1050	833	823	493	882
Selenium	mg/kg	0.2	1			0.26	<0.2	<0.2	0.77	0.33	1.61	0.32
Silver	mg/kg	0.2	20			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sodium	mg/kg	100				310	<100	<100	210	180	170	160
Strontium	mg/kg	1				80.4	8.1	17.9	106	60.9	194	56.8
Thallium	mg/kg	0.05	1			0.149	<0.05	<0.05	0.146	0.132	0.073	0.163
Tin	mg/kg	2	5			<2	<2	<2	<2	<2	<2	<2
Titanium	mg/kg	1				136	74	62.5	38	67.7	31.4	64.1
Uranium	mg/kg	0.05	33			1.18	0.331	0.651	2.57	1.53	2.32	1.24
Vanadium	mg/kg	0.2	130			16.4	27.4	23.9	34.1	25.9	13.2	25.1
Zinc	mg/kg	5	200	123	315	43.8	44.8	57.1	61.3	58.5	29.4	71.4
Organic / Inorganic Carbon												
CaCO3 Equivalent	%	0.8				3.2	<0.8	<0.8	<0.8	1.72	1.53	1.19
Inorganic Carbon	mg/kg	0.1				0.38	<0.1	<0.1	<0.1	0.21	0.18	0.14
TOC	% dry weight	0.1				1.63 ^{#1}	1.52 ^{#1}	1.7 ^{#1}	12 ^{#1}	8.56 ^{#1}	31.8 ^{#1}	9.63 ^{#1}
Total Carbon by Combustion	%	0.1				2	1.5	1.7	12	8.8	32	9.8
Particle Size												
Soil Particle Size (>75 um)	% by weight	1				47.1	18.3	33.7	20.6	33.9	32.7	32.2
Physical Tests												
Moisture	%	0.1				28.6	16	34.4	55.8	50.6	78.7	65.4

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV634	ENV634S	ENV635	ENV635S	ENV636
09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14
0-0.2	-0.1	0-0.2	-0.1	0-0.2
L1412224	L1412224	L1412224	L1412224	L1412224
470952	470952	470902	470902	471206
5938650	5938650	5938564	5938564	5938729

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL					
Hydrocarbons										
F2 (C10-C16 Hydrocarbons)	mg/kg	20				<20	49	<54	<20	28
Total Hydrocarbons (C6-C50)	mg/kg	20				<20	520	238	160	524
Chrom. to baseline at nC50	-					1	1	0	1	0
Gravimetric Heavy Hydrocarbons	mg/kg	500				<500	770	<500	<500	740
TEH: (C16-C34)	mg/kg	20				<20	352	131	126	343
TEH: (C34-C50)	mg/kg	20				<20	119	107	34	153
TVH	mg/kg	10				<10	<20	<40	<10	<20
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				<10	<20	<40	<10	<20
Leachable Metals										
Barium, extractable	mg/kg	5				31.6	39.2	39.2	32.3	42.4
Boron (B), Hot Water Ext.	mg/kg	0.1				0.5	1.19	2.09	0.66	1.27
Metals										
Aluminium	mg/kg	50				12,500	9250	11,700	6980	9040
Antimony	mg/kg	0.1	20			0.25	0.51	0.35	0.36	0.31
Arsenic	mg/kg	0.1	17	5.9	17	8.06	7.66	5.81	6.07	5.59
Barium	mg/kg	0.5	750			202	635	321	281	576
Beryllium	mg/kg	0.2	5			0.37	0.65	0.56	0.5	0.45
Bismuth	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	mg/kg	0.1	3.8	0.6	3.5	0.14	0.36	0.28	0.21	0.51
Calcium	mg/kg	100				3890	16,300	18,300	11,900	23,100
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	38.5	14.2	18.6	12.3	9.88
Cobalt	mg/kg	0.1	20			6.73	7.6	6.02	6.32	4.97
Copper	mg/kg	0.5	63	35.7	197	7.32	18.7	15.4	13.9	11.9
Iron	mg/kg	50				21,300	14,400	17,200	12,700	11,200
Lead	mg/kg	0.5	70	35	91.3	8.87	12.1	8.21	7.89	9.15
Lithium	mg/kg	0.5				28.1	8.86	13	7.55	8.15
Magnesium	mg/kg	20				2960	4880	3870	3390	3900
Manganese	mg/kg	1				593	961	562	358	301
Mercury	mg/kg	0.005	12	0.17	0.486	0.0125	0.0779	0.0818	0.0347	0.0973
Molybdenum	mg/kg	0.1	4			2.05	1.47	1.65	0.92	3.15
Nickel	mg/kg	0.5	50			21.8	22.5	21.2	18.5	14.2
Phosphorus	mg/kg	50				366	643	1020	434	730
Potassium	mg/kg	50				625	828	713	588	683
Selenium	mg/kg	0.2	1			0.23	1.03	0.69	0.29	0.59
Silver	mg/kg	0.2	20			<0.2	<0.2	<0.2	<0.2	<0.2
Sodium	mg/kg	100				200	670	370	260	640
Strontium	mg/kg	1				53.5	188	157	78.3	201
Thallium	mg/kg	0.05	1			<0.05	0.177	0.12	0.085	0.158
Tin	mg/kg	2	5			<2	<2	<2	<2	<2
Titanium	mg/kg	1				65.2	112	50.3	101	64.6
Uranium	mg/kg	0.05	33			0.799	2.98	2.51	0.995	3.21
Vanadium	mg/kg	0.2	130			27.8	22.7	24.6	18.8	17.2
Zinc	mg/kg	5	200	123	315	56.7	66.8	48.1	45.9	45.8
Organic / Inorganic Carbon										
CaCO3 Equivalent	%	0.8				<0.8	1.89	1.45	1.33	2.05
Inorganic Carbon	mg/kg	0.1				<0.1	0.23	0.17	0.16	0.25
TOC	% dry weight	0.1				1.2 ^{#1}	17.2 ^{#1}	10.3 ^{#1}	6.95 ^{#1}	26.8 ^{#1}
Total Carbon by Combustion	%	0.1				1.2	17.4	10.5	7.1	27.1
Particle Size										
Soil Particle Size (>75 um)	% by weight	1				52	20.5	26.7	52.6	30.1
Physical Tests										
Moisture	%	0.1				30.8	57	72.2	35.4	53

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV634	ENV634S	ENV635	ENV635S	ENV636
09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14	09-Jan-14
0-0.2	-0.1	0-0.2	-0.1	0-0.2
L1412224	L1412224	L1412224	L1412224	L1412224
470952	470952	470902	470902	471206
5938650	5938650	5938564	5938564	5938729

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL					
Polycyclic Aromatic Hydrocarbons										
Benzo[b]fluoranthene	mg/kg	0.005	6.2			<0.005	<0.005	<0.005	<0.005	<0.005
C4 Benzantracenes/Chrysenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C4 Dibenzothiophenes	mg/kg	0.04				<0.04	0.104	<0.04	<0.04	<0.04
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C4 Naphthalenes	mg/kg	0.04				<0.04	2.24	<0.04	0.701	<0.04
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				0.052	24.1	0.493	5.7	0.66
Biphenyl	mg/kg	0.01				<0.01	0.024	0.016	<0.01	<0.01
1-Methylnaphthalene	mg/kg	0.01				<0.01	0.408	0.026	0.112	0.015
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	<0.005	0.279	0.0321	0.0702	0.0129
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	<0.005	0.0395	<0.005	0.0114	<0.005
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	<0.005	<0.005	<0.005	<0.005	<0.005
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	<0.004	<0.004	<0.005	0.0126	<0.004
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	<0.005	<0.005	<0.005	<0.005	<0.005
Acridine	mg/kg	0.005				<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(e)pyrene	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(g,h,i)perylene	mg/kg	0.005				<0.005	0.0099	<0.005	0.0051	<0.005
Benzo(k)fluoranthene	mg/kg	0.005	6.2			<0.005	<0.005	<0.005	<0.005	<0.005
C1 Acenaphthenes	mg/kg	0.04				<0.04	0.114	<0.04	<0.04	<0.04
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C1 Biphenyls	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C1 Dibenzothiophenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	<0.005	0.0222	<0.005	0.0084	<0.005
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	0.154	<0.04	0.051	<0.04
C1 Fluorenes	mg/kg	0.04				<0.04	0.16	<0.04	<0.04	<0.04
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				<0.04	0.53	0.061	0.163	<0.04
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	<0.005	<0.005	<0.005	<0.005	<0.005
Dibenzothiophene	mg/kg	0.01				<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	<0.005	0.131	0.0063	0.0407	<0.005
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	<0.005	<0.005	<0.005	<0.005	<0.005
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				<0.005	<0.005	<0.005	<0.005	<0.005
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	<0.005	<0.005	0.018	<0.005	<0.005
Perylene	mg/kg	0.01				<0.01	0.121	<0.01	0.051	<0.01
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	<0.005	0.171	0.0261	0.0531	0.0103
Pyrene	mg/kg	0.005	0.034	0.053	0.875	<0.005	0.125	0.0077	0.0452	0.0062
Quinoline	mg/kg	0.005				<0.005	<0.005	<0.005	<0.005	<0.005
Retene	mg/kg	0.01				0.052	24.1	0.493	5.7	0.66
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C2 Biphenyls	mg/kg	0.04				<0.04	0.062	<0.04	<0.04	<0.04
C2 Dibenzothiophenes	mg/kg	0.04				<0.04	0.114	<0.04	<0.04	<0.04
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	0.153	<0.04	0.056	<0.04
C2 Naphthalenes	mg/kg	0.04				<0.04	1.79	0.115	0.506	0.078
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				<0.04	0.199	<0.04	0.166	<0.04
C2 Fluorenes	mg/kg	0.04				<0.04	0.144	<0.04	0.051	<0.04
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				<0.04	0.047	<0.04	<0.04	<0.04
C3 Benzantracenes/Chrysenes	mg/kg	0.04				<0.04	<0.04	<0.04	<0.04	<0.04
C3 Dibenzothiophenes	mg/kg	0.04				<0.04	0.096	<0.04	<0.04	<0.04
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				<0.04	0.073	<0.04	<0.04	<0.04
C3 Fluorenes	mg/kg	0.04				<0.04	0.185	<0.04	0.068	<0.04
C3 Naphthalenes	mg/kg	0.04				<0.04	1.59	0.068	0.462	0.063
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				<0.04	<0.04	<0.04	0.136	<0.04
Saturated Paste Extractables										
Sulfur (as SO4)	mg/kg	9.5				95 ^{#1}	344 ^{#1}	312 ^{#1}	92 ^{#1}	325 ^{#1}
Calcium	mg/kg	1.6				46.6 ^{#1}	156 ^{#1}	129 ^{#1}	29.8 ^{#1}	222 ^{#1}
Chloride	mg/kg	6.4				<9.1 ^{#1}	21 ^{#1}	<22 ^{#1}	<8.3 ^{#1}	32 ^{#1}
Saturation Percentage	%	1				45.5	101	111	41.6	151
Electrical Conductivity (lab)	dS/m	0.01				1.06	1.52	0.988	0.877	1.33
Magnesium	mg/kg	0.95				12.6 ^{#1}	43.4 ^{#1}	26.9 ^{#1}	6.1 ^{#1}	59.4 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.9	7.04	6.54	7.23	6.79
Potassium	mg/kg	0.64				1.39 ^{#1}	15.9 ^{#1}	5.6 ^{#1}	1.81 ^{#1}	20.8 ^{#1}
Sodium	mg/kg	0.64				48.5 ^{#1}	158 ^{#1}	97 ^{#1}	42.7 ^{#1}	194 ^{#1}
Sodium Adsorption Ratio	---	0.1				2.41 ^{#1}	2.87 ^{#1}	1.92 ^{#1}	2.88 ^{#1}	2.43 ^{#1}
Speciated Metals										
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.1	<0.1	<0.7	<0.1	<0.2
Volatile Organic Compounds										
Benzene	mg/kg	0.005	0.046			<0.005	0.025	<0.2	<0.005	<0.01
Toluene	mg/kg	0.05	0.52			<0.05	<0.1	<0.2	<0.05	<0.1
Ethylbenzene	mg/kg	0.01	0.11			<0.015	0.079	<0.06	<0.015	<0.03
Xylene (m & p)	mg/kg	0.05				<0.05	<0.1	<0.2	<0.05	<0.1
Xylene (o)	mg/kg	0.05				<0.05	<0.1	<0.2	<0.05	<0.1
Xylenes Total	mg/kg	0.1	15			<0.1 ^{#1}	<0.2 ^{#1}	<0.4 ^{#1}	<0.1 ^{#1}	<0.2 ^{#1}
Styrene	mg/kg	0.05	0.68			<0.05	<0.1	<0.2	<0.05	<0.1

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV637	ENV637S	ENV638	ENV639	ENV646	ENV647
09-Jan-14	09-Jan-14	10-Jan-14	09-Jan-14	08-Jan-14	09-Jan-14
0-0.2	-0.1	0-0.12	0-0.2	0-0.2	0-0.2
L1412224	L1412224	L1412224	L1412224	L1412224	L1412224
471150	471150	471379	471359	470980	471018
5938662	5938662	5938737	5938636	5938922	5938809

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				<85	40	<20	<20	<20	<27
Total Hydrocarbons (C6-C50)	mg/kg	20				386	404	409	<20	42	408
Chrom. to baseline at nC50	-					0	0	0	1	1	0
Gravimetric Heavy Hydrocarbons	mg/kg	500				800	800	840	<500	<500	660
TEH: (C16-C34)	mg/kg	20				210	260	182	<20	42	252
TEH: (C34-C50)	mg/kg	20				176	104	227	<20	<20	156
TVH	mg/kg	10				<60	<20	<10	<10	<10	<30
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				<60	<20	<10	<10	<10	<30
Leachable Metals											
Barium, extractable	mg/kg	5				61	31.3	97.5	21.9	30.7	36.2
Boron (B), Hot Water Ext.	mg/kg	0.1				5.7	0.88	0.71	0.23	0.43	0.52
Metals											
Aluminium	mg/kg	50				6760	7670	4090	15,100	9440	8760
Antimony	mg/kg	0.1	20			0.55	0.33	0.19	0.34	0.45	0.43
Arsenic	mg/kg	0.1	17	5.9	17	5.01	7.1	2.24	7.55	6.6	6.59
Barium	mg/kg	0.5	750			360	428	243	140	251	298
Beryllium	mg/kg	0.2	5			0.41	0.44	0.24	0.76	0.59	0.54
Bismuth	mg/kg	0.2				<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Cadmium	mg/kg	0.1	3.8	0.6	3.5	0.54	0.21	0.4	0.11	0.27	0.37
Calcium	mg/kg	100				30,900	13,300	13,400	3540	16,500	12,100
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	9.4	11.1	36.9	28.9	19.4	27.8
Cobalt	mg/kg	0.1	20			5.5	6.35	3.67	12.8	8.68	8.36
Copper	mg/kg	0.5	63	35.7	197	19	10.8	9.66	15.5	18.7	17.9
Iron	mg/kg	50				11,300	12,700	7180	23,300	18,800	15,700
Lead	mg/kg	0.5	70	35	91.3	6.46	8.29	5.18	10.7	9.78	10.1
Lithium	mg/kg	0.5				5.33	7.09	3.37	11.6	9.69	8.87
Magnesium	mg/kg	20				4420	3830	2360	4070	4920	4430
Manganese	mg/kg	1				1030	598	478	550	449	537
Mercury	mg/kg	0.005	12	0.17	0.486	0.0846	0.0427	0.0632	0.0429	0.0441	0.0612
Molybdenum	mg/kg	0.1	4			1.71	0.97	0.54	1.17	0.99	1.4
Nickel	mg/kg	0.5	50			21.8	16.8	23.3	24.8	26.3	28.1
Phosphorus	mg/kg	50				1140	511	857	433	658	647
Potassium	mg/kg	50				476	653	1490	789	922	897
Selenium	mg/kg	0.2	1			2.56	0.44	<0.2	<0.2	0.27	0.32
Silver	mg/kg	0.2	20			<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Sodium	mg/kg	100				720	350	<100	150	130	270
Strontium	mg/kg	1				340	109	36.8	37.2	53.1	73.3
Thallium	mg/kg	0.05	1			0.108	0.103	0.058	<0.05	0.072	0.156
Tin	mg/kg	2	5			<2	<2	<2	<2	<2	<2
Titanium	mg/kg	1				27.9	118	25.3	48.1	65.6	69
Uranium	mg/kg	0.05	33			7.77	1.23	0.381	0.605	1.2	1.67
Vanadium	mg/kg	0.2	130			14.6	18.3	10.6	32	25.7	23.2
Zinc	mg/kg	5	200	123	315	40.2	48.9	84.9	49.5	70.2	74.7
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				2.1	2.79	<0.8	<0.8	2.36	<0.8
Inorganic Carbon	mg/kg	0.1				0.25	0.34	<0.1	<0.1	0.28	<0.1
TOC	% dry weight	0.1				33.5 ^{#1}	8.27 ^{#1}	8.89 ^{#1}	1.55 ^{#1}	2.15 ^{#1}	8.76 ^{#1}
Total Carbon by Combustion	%	0.1				33.7	8.6	8.9	1.5	2.4	8.8
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				7.2	50.7	47	38	37	30.4
Physical Tests											
Moisture	%	0.1				84	62.5	36.6	18.4	37.8	64.7

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV667			ENV668			
29-Jan-14			29-Jan-14			
0.2-0.5	0.5-1	0-0.2	0.2-0.5	0.5-1	0-0.2	1-1.5
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471016	471016	471016	471014	471014	471014	471014
5938629	5938629	5938629	5938625	5938625	5938625	5938625

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-	
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-	
Chrom. to baseline at nC50	-					-	-	-	-	-	-	
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-	
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-	
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-	
TVH	mg/kg	10				-	-	-	-	-	-	
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-	
Leachable Metals												
Barium, extractable	mg/kg	5				93.1	58.5	85.5	69.4	99.4	42.2	104
Boron (B), Hot Water Ext.	mg/kg	0.1				7.19	0.75	6.37	6.29	5.5	6.81	4.5
Metals												
Aluminium	mg/kg	50				-	-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.49	0.6	0.44	0.66	0.51	0.66	0.55
Arsenic	mg/kg	0.1	17	5.9	17	63.5	10.7	83.8	42.3	17.4	17.6	22.7
Barium	mg/kg	0.5	750			500	128	610	479	314	666	325
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	1.23	<0.5	1.62	0.64	0.95	<0.5	1.21
Calcium	mg/kg	100				-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	7.29	37.5	8.57	4.94	7.38	15	8.84
Cobalt	mg/kg	0.1	20			12.9	4.2	21.1	12.4	3	9.9	3.8
Copper	mg/kg	0.5	63	35.7	197	18.2	10.5	15.3	10.3	19.1	22.1	27.6
Iron	mg/kg	50				-	-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	<5	7.2	<5	<5	<5	9.9	<5
Lithium	mg/kg	0.5				-	-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0888	0.0402	0.0923	0.0786	0.0847	0.0892	0.0597
Molybdenum	mg/kg	0.1	4			8.4	1.5	10.8	11.6	4.1	1.7	4.8
Nickel	mg/kg	0.5	50			20.6	27.1	25.8	14.5	16	28.3	15.2
Phosphorus	mg/kg	50				-	-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-	-
Selenium	mg/kg	0.2	1			1.79	0.52	1.67	1.74	1.31	2.61	1.68
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-	-
Uranium	mg/kg	0.05	33			3.9	3.7	2.3	5.6	<2	3.4	4.1
Vanadium	mg/kg	0.2	130			13.9	36	14.2	9.6	18.8	22	22.4
Zinc	mg/kg	5	200	123	315	50	35	62	59	51	64	46
Organic / Inorganic Carbon												
CaCO3 Equivalent	%	0.8				<0.8	1.31	1.36	1.07	1.01	1.78	1.04
Inorganic Carbon	mg/kg	0.1				<0.1	0.16	0.16	0.13	0.12	0.21	0.13
TOC	% dry weight	0.1				28.1 ^{#1}	3.36 ^{#1}	25.3 ^{#1}	23.6 ^{#1}	37.4 ^{#1}	17.2 ^{#1}	32 ^{#1}
Total Carbon by Combustion	%	0.1				28.1	3.5	25.5	23.8	37.5	17.4	32.2
Particle Size												
Soil Particle Size (>75 um)	% by weight	1				17.3	48	21.9	30	23.4	27.8	16.5
Physical Tests												
Moisture	%	0.1				75.3	38.2	68.8	79.7	78	80.7	79.3

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV667			ENV668			
29-Jan-14			29-Jan-14			
0.2-0.5	0.5-1	0.0-2	0.2-0.5	0.5-1	0.0-2	1-1.5
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471016	471016	471016	471014	471014	471014	471014
5938629	5938629	5938629	5938625	5938625	5938625	5938625

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Polycyclic Aromatic Hydrocarbons											
Benzo[b+il]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Biphenyl	mg/kg	0.01				-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-
Acridine	mg/kg	0.005				-	-	-	-	-	-
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-
Perylene	mg/kg	0.01				-	-	-	-	-	-
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-
Quinoline	mg/kg	0.005				-	-	-	-	-	-
Retene	mg/kg	0.01				-	-	-	-	-	-
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Saturated Paste Extractables											
Sulfur (as SO4)	mg/kg	9.5				484 ^{#1}	80 ^{#1}	448 ^{#1}	480 ^{#1}	460 ^{#1}	605 ^{#1}
Calcium	mg/kg	1.6				99 ^{#1}	19 ^{#1}	104 ^{#1}	104 ^{#1}	104 ^{#1}	167 ^{#1}
Chloride	mg/kg	6.4				58 ^{#1}	<9 ^{#1}	97 ^{#1}	55 ^{#1}	<70 ^{#1}	62 ^{#1}
Saturation Percentage	%	1				252	45.2	236	267	351	186
Electrical Conductivity (lab)	dS/m	0.01				0.566	0.569	0.607	0.566	0.481	1.18
Magnesium	mg/kg	0.95				25.5 ^{#1}	4.3 ^{#1}	28.6 ^{#1}	29.9 ^{#1}	29 ^{#1}	53.5 ^{#1}
pH (Lab)	pH	0.1	6-8.5			5.97	5.73	5.93	6.44	5.8	6.86
Potassium	mg/kg	0.64				8 ^{#1}	2.47 ^{#1}	10.7 ^{#1}	12.6 ^{#1}	9.2 ^{#1}	23.2 ^{#1}
Sodium	mg/kg	0.64				145 ^{#1}	25.7 ^{#1}	144 ^{#1}	163 ^{#1}	164 ^{#1}	201 ^{#1}
Sodium Adsorption Ratio	---	0.1				2.12 ^{#1}	2.06 ^{#1}	2.09 ^{#1}	2.25 ^{#1}	1.96 ^{#1}	2.54 ^{#1}
Speciated Metals											
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.2	<0.1	<0.15	<0.2	<0.2	<0.2
Volatile Organic Compounds											
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV669			ENV669S		ENV670	
30-Jan-14			30-Jan-14		30-Jan-14	
0.2-0.5	0.5-1	0-0.2	0.08-0	0.2-0.5	0.5-1	
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471022	471022	471022	471022	471015	471015	
5938627	5938627	5938627	5938627	5938634	5938634	

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-
Leachable Metals											
Barium, extractable	mg/kg	5				107	77.6	174	37.2	95.8	58.9
Boron (B), Hot Water Ext.	mg/kg	0.1				4.36	0.87	6.29	1.24	1.89	0.6
Metals											
Aluminium	mg/kg	50				-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.39	0.42	0.68	0.35	0.41	0.2
Arsenic	mg/kg	0.1	17	5.9	17	36.4	15.8	33.5	9.4	22.4	10.7
Barium	mg/kg	0.5	750			1220	124	1450	658	866	293
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	0.77	<0.5	1.04	<0.5	0.66	<0.5
Calcium	mg/kg	100				-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	5.12	27.7	6.19	11.4	15	28.9
Cobalt	mg/kg	0.1	20			12.2	8.6	13.1	6	13	6.5
Copper	mg/kg	0.5	63	35.7	197	8.5	21.2	12.3	14	18.2	9.5
Iron	mg/kg	50				-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	<5	6.3	<5	11.7	6.5	8.3
Lithium	mg/kg	0.5				-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0545	0.119	0.0673	0.0757	0.115	0.0373
Molybdenum	mg/kg	0.1	4			12.6	2.5	9.9	1.4	5.2	2
Nickel	mg/kg	0.5	50			25.9	26.1	32.8	17.4	25.3	22
Phosphorus	mg/kg	50				-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-
Selenium	mg/kg	0.2	1			1.12	<0.5	1.69	0.69	1.41	<0.5
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-
Uranium	mg/kg	0.05	33			<2	<2	4.9	2.9	2.7	<2
Vanadium	mg/kg	0.2	130			10	20.6	10.2	16.9	21.4	23.8
Zinc	mg/kg	5	200	123	315	56	39	57	64	37	40
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				1.84	1.35	1.39	2.72	1.03	<0.8
Inorganic Carbon	mg/kg	0.1				0.22	0.16	0.17	0.33	0.12	<0.1
TOC	% dry weight	0.1				20.1 ^{#1}	4.22 ^{#1}	21.9 ^{#1}	9.78 ^{#1}	22.9 ^{#1}	4.48 ^{#1}
Total Carbon by Combustion	%	0.1				20.3	4.4	22	10.1	23	4.5
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				8.3	51.3	75.7	26.3	26	35.4
Physical Tests											
Moisture	%	0.1				72.8	46.6	72.7	55.6	67.7	35.9

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV669			ENV669S		ENV670	
30-Jan-14			30-Jan-14		30-Jan-14	
0.2-0.5	0.5-1	0-0.2	0.08-0	0.2-0.5	0.5-1	
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471022	471022	471022	471022	471015	471015	
5938627	5938627	5938627	5938627	5938634	5938634	

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Polycyclic Aromatic Hydrocarbons											
Benzo[b]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Biphenyl	mg/kg	0.01				-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-
Acridine	mg/kg	0.005				-	-	-	-	-	-
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-
Perylene	mg/kg	0.01				-	-	-	-	-	-
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-
Quinoline	mg/kg	0.005				-	-	-	-	-	-
Retene	mg/kg	0.01				-	-	-	-	-	-
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Saturated Paste Extractables											
Sulfur (as SO4)	mg/kg	9.5				296 ^{#1}	86 ^{#1}	476 ^{#1}	267 ^{#1}	283 ^{#1}	183 ^{#1}
Calcium	mg/kg	1.6				60 ^{#1}	41.6 ^{#1}	124 ^{#1}	194 ^{#1}	64.2 ^{#1}	36.1 ^{#1}
Chloride	mg/kg	6.4				45 ^{#1}	<10 ^{#1}	<52 ^{#1}	36 ^{#1}	<29 ^{#1}	23 ^{#1}
Saturation Percentage	%	1				178	50.9	259	112	144	52.3
Electrical Conductivity (lab)	dS/m	0.01				0.498	0.623	0.642	1.75	0.623	0.847
Magnesium	mg/kg	0.95				16.7 ^{#1}	4.3 ^{#1}	34.4 ^{#1}	52.4 ^{#1}	17.8 ^{#1}	10.8 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.28	5.73	6.42	6.84	6.61	6.83
Potassium	mg/kg	0.64				4.9 ^{#1}	2.7 ^{#1}	8.6 ^{#1}	26 ^{#1}	5.7 ^{#1}	5.1 ^{#1}
Sodium	mg/kg	0.64				91.1 ^{#1}	10.7 ^{#1}	161 ^{#1}	227 ^{#1}	98.7 ^{#1}	37.5 ^{#1}
Sodium Adsorption Ratio	---	0.1				2.01 ^{#1}	0.59 ^{#1}	2.05 ^{#1}	3.54 ^{#1}	2.34 ^{#1}	1.94 ^{#1}
Speciated Metals											
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.15	<0.1	<0.2	<0.1	0.18	<0.1
Volatile Organic Compounds											
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV670S		ENV671			ENV671S	
30-Jan-14		30-Jan-14			30-Jan-14	
0-0.2	0.1-0	0.2-0.5	0.5-1	0-0.2	0.06-0	0.2-0.5
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471015	471015	471008	471008	471008	471008	471023
5938634	5938634	5938632	5938632	5938632	5938632	5938648

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-	-
Leachable Metals												
Barium, extractable	mg/kg	5				52.9	49	116	106	35.5	23.2	101
Boron (B), Hot Water Ext.	mg/kg	0.1				5.95	0.59	2.64	1.27	5.35	0.8	2
Metals												
Aluminium	mg/kg	50				-	-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.55	0.27	0.28	0.26	0.58	0.36	0.61
Arsenic	mg/kg	0.1	17	5.9	17	8.13	7.19	12.5	12.8	7.14	9.16	18.7
Barium	mg/kg	0.5	750			728	480	753	318	322	722	462
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	1.07	<0.5	0.79	<0.5	0.58	<0.5	0.8
Calcium	mg/kg	100				-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	10.8	10	6.59	38.9	7.79	10.2	9.3
Cobalt	mg/kg	0.1	20			6.4	5.2	18	6.1	10	6.7	4.3
Copper	mg/kg	0.5	63	35.7	197	19.9	9	7	9.7	12.2	10.3	23.1
Iron	mg/kg	50				-	-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	<5	8.6	<5	6	<5	10.5	<5
Lithium	mg/kg	0.5				-	-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0874	0.055	0.0609	0.0457	0.0593	0.0633	<0.005
Molybdenum	mg/kg	0.1	4			7.8	<1	10	3.3	15.9	2.5	1.8
Nickel	mg/kg	0.5	50			25.5	14.1	14.3	26.8	19.5	15.9	22.9
Phosphorus	mg/kg	50				-	-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-	-
Selenium	mg/kg	0.2	1			1.81	<0.5	0.96	0.76	1.71	0.55	2.18
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-	-
Uranium	mg/kg	0.05	33			9.5	<2	2.6	2.9	18.7	<2	2.2
Vanadium	mg/kg	0.2	130			19	14.8	12.8	17.7	8.9	16.3	17.1
Zinc	mg/kg	5	200	123	315	56	43	39	27	33	53	18
Organic / Inorganic Carbon												
CaCO3 Equivalent	%	0.8				1.83	3.28	<0.8	<0.8	1.24	2.98	0.95
Inorganic Carbon	mg/kg	0.1				0.22	0.39	<0.1	<0.1	0.15	0.36	0.11
TOC	% dry weight	0.1				21.4 ^{#1}	4.34 ^{#1}	15.2 ^{#1}	8.46 ^{#1}	32 ^{#1}	6.63 ^{#1}	31.4 ^{#1}
Total Carbon by Combustion	%	0.1				21.6	4.7	15.2	8.5	32.1	7	31.5
Particle Size												
Soil Particle Size (>75 um)	% by weight	1				26.1	48.5	33.6	25.4	19.9	38.2	43.6
Physical Tests												
Moisture	%	0.1				79.4	34.8	68.6	47.2	82.3	45	74.7

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV670S		ENV671			ENV671S	
30-Jan-14		30-Jan-14			30-Jan-14	
0-0.2	0.1-0	0.2-0.5	0.5-1	0-0.2	0.06-0	0.2-0.5
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471015	471015	471008	471008	471008	471008	471023
5938634	5938634	5938632	5938632	5938632	5938632	5938648

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Polycyclic Aromatic Hydrocarbons												
Benzo[b]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Biphenyl	mg/kg	0.01				-	-	-	-	-	-	
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-	
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-	
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-	
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-	
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-	
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-	
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-	
Acridine	mg/kg	0.005				-	-	-	-	-	-	
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-	
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-	
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-	
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-	
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-	
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-	
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-	
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-	
Perylene	mg/kg	0.01				-	-	-	-	-	-	
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-	
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-	
Quinoline	mg/kg	0.005				-	-	-	-	-	-	
Retene	mg/kg	0.01				-	-	-	-	-	-	
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Saturated Paste Extractables												
Sulfur (as SO4)	mg/kg	9.5				1090 ^{#1}	96 ^{#1}	295 ^{#1}	132 ^{#1}	780 ^{#1}	275 ^{#1}	302 ^{#1}
Calcium	mg/kg	1.6				187 ^{#1}	30 ^{#1}	48.7 ^{#1}	29.2 ^{#1}	156 ^{#1}	103 ^{#1}	70 ^{#1}
Chloride	mg/kg	6.4				147 ^{#1}	13.6 ^{#1}	37 ^{#1}	<16 ^{#1}	<78 ^{#1}	16 ^{#1}	<52 ^{#1}
Saturation Percentage	%	1				367	44.2	136	79.2	391	72.4	261
Electrical Conductivity (lab)	dS/m	0.01				0.68	1.09	0.543	0.539	0.612	1.32	0.396
Magnesium	mg/kg	0.95				53 ^{#1}	7.5 ^{#1}	10.9 ^{#1}	6 ^{#1}	43 ^{#1}	23.8 ^{#1}	18.5 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.77	7.55	5.96	5.46	6.67	7.23	6.11
Potassium	mg/kg	0.64				12.2 ^{#1}	3.6 ^{#1}	5 ^{#1}	<1.6 ^{#1}	10 ^{#1}	8.5 ^{#1}	10.4 ^{#1}
Sodium	mg/kg	0.64				230 ^{#1}	68.3 ^{#1}	76.2 ^{#1}	40.9 ^{#1}	267 ^{#1}	75.1 ^{#1}	133 ^{#1}
Sodium Adsorption Ratio	---	0.1				2 ^{#1}	4.34 ^{#1}	2.21 ^{#1}	2.02 ^{#1}	2.47 ^{#1}	2.04 ^{#1}	2.26 ^{#1}
Speciated Metals												
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.2	<0.1	<0.15	<0.1	<0.25	<0.1	<0.15
Volatile Organic Compounds												
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-	-

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV672		ENV672S		ENV673	
30-Jan-14		30-Jan-14		30-Jan-14	
0.5-1	0-0.2	0.05-0	0.2-0.5	0.5-1	0-0.2
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471023	471023	471023	471042	471042	471042
5938648	5938648	5938648	5938647	5938647	5938647

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-
Leachable Metals											
Barium, extractable	mg/kg	5				65.7	76.6	39.6	119	58.9	97.2
Boron (B), Hot Water Ext.	mg/kg	0.1				0.52	4.89	0.87	1.38	0.23	3.55
Metals											
Aluminium	mg/kg	50				-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.25	0.31	0.32	0.36	<0.2	0.56
Arsenic	mg/kg	0.1	17	5.9	17	4.2	6.13	7.99	3.11	3.61	4.84
Barium	mg/kg	0.5	750			192	377	563	481	157	636
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	<0.5	<0.5	<0.5	0.68	<0.5	1.45
Calcium	mg/kg	100				-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	16.6	16.8	9.11	10.1	15.9	8.5
Cobalt	mg/kg	0.1	20			6.3	4.8	5.6	3.9	6.3	6.9
Copper	mg/kg	0.5	63	35.7	197	14.7	17.1	10.6	17.7	6.7	21.1
Iron	mg/kg	50				-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	7.1	7.2	10.2	<5	7.2	<5
Lithium	mg/kg	0.5				-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0511	0.0818	0.0711	0.0639	0.032	0.102
Molybdenum	mg/kg	0.1	4			<1	2.2	1.3	1.1	<1	2.2
Nickel	mg/kg	0.5	50			18.7	20	14	18	14.4	24.6
Phosphorus	mg/kg	50				-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-
Selenium	mg/kg	0.2	1			<0.5	0.94	<0.5	1.39	<0.5	1.94
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-
Uranium	mg/kg	0.05	33			<2	2.5	<2	<2	<2	2
Vanadium	mg/kg	0.2	130			21.8	24.8	15.4	12	20.5	11.3
Zinc	mg/kg	5	200	123	315	58	41	49	48	47	64
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				4.81	1.88	2.77	0.88	0.86	1.16
Inorganic Carbon	mg/kg	0.1				0.58	0.23	0.33	0.11	0.1	0.14
TOC	% dry weight	0.1				1.87 ^{#1}	14.6 ^{#1}	11.1 ^{#1}	28.2 ^{#1}	4.69 ^{#1}	34.8 ^{#1}
Total Carbon by Combustion	%	0.1				2.4	14.8	11.4	28.3	4.8	34.9
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				26.5	97.3	45.3	11.6	36.3	29.2
Physical Tests											
Moisture	%	0.1				36.2	53.7	87.6	71.8	27.2	77.6

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV672		ENV672S		ENV673	
30-Jan-14		30-Jan-14		30-Jan-14	
0.5-1	0-0.2	0.05-0	0.2-0.5	0.5-1	0-0.2
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471023	471023	471023	471042	471042	471042
5938648	5938648	5938648	5938647	5938647	5938647

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Polycyclic Aromatic Hydrocarbons											
Benzo[b]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Biphenyl	mg/kg	0.01				-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-
Acridine	mg/kg	0.005				-	-	-	-	-	-
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-
Perylene	mg/kg	0.01				-	-	-	-	-	-
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-
Quinoline	mg/kg	0.005				-	-	-	-	-	-
Retene	mg/kg	0.01				-	-	-	-	-	-
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Saturated Paste Extractables											
Sulfur (as SO4)	mg/kg	9.5				42 ^{#1}	284 ^{#1}	137 ^{#1}	201 ^{#1}	65 ^{#1}	630 ^{#1}
Calcium	mg/kg	1.6				57.1 ^{#1}	84.1 ^{#1}	46.1 ^{#1}	57 ^{#1}	12.9 ^{#1}	130 ^{#1}
Chloride	mg/kg	6.4				<12 ^{#1}	45 ^{#1}	23 ^{#1}	<41 ^{#1}	<9.3 ^{#1}	<67 ^{#1}
Saturation Percentage	%	1				58.3	173	70	204	46.6	333
Electrical Conductivity (lab)	dS/m	0.01				0.759	0.642	0.951	0.344	0.446	0.535
Magnesium	mg/kg	0.95				7.8 ^{#1}	23.3 ^{#1}	11.8 ^{#1}	15.8 ^{#1}	3.7 ^{#1}	31 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.25	6.41	7.45	6.44	6.02	6.28
Potassium	mg/kg	0.64				1.8 ^{#1}	6.9 ^{#1}	5.6 ^{#1}	11.2 ^{#1}	1.39 ^{#1}	12.2 ^{#1}
Sodium	mg/kg	0.64				23.5 ^{#1}	121 ^{#1}	79.3 ^{#1}	90.6 ^{#1}	21.3 ^{#1}	198 ^{#1}
Sodium Adsorption Ratio	---	0.1				1.01 ^{#1}	2.3 ^{#1}	3.22 ^{#1}	1.92 ^{#1}	1.98 ^{#1}	2.22 ^{#1}
Speciated Metals											
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.1	<0.1	<0.35	<0.15	<0.1	<0.2
Volatile Organic Compounds											
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-

Comments
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OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV673S	ENV674				ENV675		
30-Jan-14	30-Jan-14				30-Jan-14		
0.05-0	0.2-0.5	0.5-1	0.0-2	0.2-0.5	0.5-1	0.2-0.5	
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	
471042	471008	471008	471008	471006	471006	471034	
5938647	5938658	5938658	5938658	5938685	5938685	5938662	

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-	-
Leachable Metals												
Barium, extractable	mg/kg	5				41.6	66.2	68.7	58.8	57.3	75.6	99.1
Boron (B), Hot Water Ext.	mg/kg	0.1				0.66	1.9	0.35	1.88	0.96	0.63	5.24
Metals												
Aluminium	mg/kg	50				-	-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.3	0.35	0.23	<0.2	0.42	0.26	0.42
Arsenic	mg/kg	0.1	17	5.9	17	6.25	3.24	2.14	3.52	6.84	6.53	7.26
Barium	mg/kg	0.5	750			411	223	171	203	416	227	341
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	<0.5	0.59	<0.5	<0.5	<0.5	<0.5	0.75
Calcium	mg/kg	100				-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	9.82	12.8	20.6	15.1	14.8	17.7	9.85
Cobalt	mg/kg	0.1	20			6.7	3.5	6.6	3.8	7.6	6.4	7.3
Copper	mg/kg	0.5	63	35.7	197	9.3	19.8	15.4	12.3	18.2	13.4	15.7
Iron	mg/kg	50				-	-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	8.1	6	9.3	7.1	10.5	8.2	<5
Lithium	mg/kg	0.5				-	-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0448	0.114	0.0564	0.0738	0.0702	0.0453	0.105
Molybdenum	mg/kg	0.1	4			1.1	<1	<1	<1	1.7	1	2.9
Nickel	mg/kg	0.5	50			13.9	16.6	21.9	14.8	21.8	18.7	19.6
Phosphorus	mg/kg	50				-	-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-	-
Selenium	mg/kg	0.2	1			<0.5	1.06	<0.5	0.56	0.71	<0.5	1.05
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-	-
Uranium	mg/kg	0.05	33			<2	3.2	<2	2.1	2.3	<2	2.9
Vanadium	mg/kg	0.2	130			16.1	20.4	25.5	21.8	22.2	24.4	15
Zinc	mg/kg	5	200	123	315	40	31	62	38	60	58	21
Organic / Inorganic Carbon												
CaCO3 Equivalent	%	0.8				2.25	1.37	0.8	0.87	2.16	<0.8	1.06
Inorganic Carbon	mg/kg	0.1				0.27	0.16	<0.1	0.1	0.26	<0.1	0.13
TOC	% dry weight	0.1				7.83 ^{#1}	22.1 ^{#1}	3.88 ^{#1}	8.88 ^{#1}	12.3 ^{#1}	2.2 ^{#1}	25 ^{#1}
Total Carbon by Combustion	%	0.1				8.1	22.3	3.9	9	12.5	2.2	25.2
Particle Size												
Soil Particle Size (>75 um)	% by weight	1				66.4	96.4	20.5	82.3	25.5	32.5	9.2
Physical Tests												
Moisture	%	0.1				35	64.3	32.2	50	53.7	32.8	74.8

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV673S	ENV674				ENV675		
30-Jan-14	30-Jan-14				30-Jan-14		
0.05-0	0.2-0.5	0.5-1	0-0.2	0.2-0.5	0.5-1	0.2-0.5	
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	
471042	471008	471008	471008	471006	471006	471034	
5938647	5938658	5938658	5938658	5938685	5938685	5938662	

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Polycyclic Aromatic Hydrocarbons												
Benzo(b)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	-
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	-
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	-
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	-
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	-
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	-
Biphenyl	mg/kg	0.01				-	-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-	-
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-	-
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-	-
Acridine	mg/kg	0.005				-	-	-	-	-	-	-
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	-
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-	-
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	-
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	-
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	-
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	-
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-	-
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	-
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	-
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-	-
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-	-
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-	-
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-	-
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-	-
Perylene	mg/kg	0.01				-	-	-	-	-	-	-
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-	-
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-	-
Quinoline	mg/kg	0.005				-	-	-	-	-	-	-
Retene	mg/kg	0.01				-	-	-	-	-	-	-
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	-
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	-
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	-
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	-
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	-
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	-
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	-
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	-
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	-
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	-
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	-
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	-
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	-
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	-
Saturated Paste Extractables												
Sulfur (as SO4)	mg/kg	9.5				75 ^{#1}	109 ^{#1}	72 ^{#1}	146 ^{#1}	385 ^{#1}	65 ^{#1}	421 ^{#1}
Calcium	mg/kg	1.6				14.9 ^{#1}	36.4 ^{#1}	15.7 ^{#1}	48.2 ^{#1}	80.9 ^{#1}	15.7 ^{#1}	86 ^{#1}
Chloride	mg/kg	6.4				<7.7 ^{#1}	<29 ^{#1}	<9.9 ^{#1}	22 ^{#1}	60 ^{#1}	<11 ^{#1}	<44 ^{#1}
Saturation Percentage	%	1				38.6	146	49.4	112	91.5	57	222
Electrical Conductivity (lab)	dS/m	0.01				0.66	0.388	0.506	0.633	1.17	0.441	0.519
Magnesium	mg/kg	0.95				3.3 ^{#1}	9.7 ^{#1}	3.9 ^{#1}	14.4 ^{#1}	22.1 ^{#1}	3.7 ^{#1}	22 ^{#1}
pH (Lab)	pH	0.1	6-8.5			7.47	6.42	5.91	6.75	7.38	6.3	5.94
Potassium	mg/kg	0.64				1.47 ^{#1}	6 ^{#1}	1.56 ^{#1}	5.8 ^{#1}	8.1 ^{#1}	<1.1 ^{#1}	9.4 ^{#1}
Sodium	mg/kg	0.64				29.1 ^{#1}	79.4 ^{#1}	25.8 ^{#1}	86.8 ^{#1}	120 ^{#1}	28.9 ^{#1}	115 ^{#1}
Sodium Adsorption Ratio	---	0.1				2.86 ^{#1}	2.5 ^{#1}	2.15 ^{#1}	2.66 ^{#1}	3.19 ^{#1}	2.25 ^{#1}	1.93 ^{#1}
Speciated Metals												
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.1	<0.15	<0.1	<0.1	<0.1	<0.1	<0.15
Volatile Organic Compounds												
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-	-

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV676			ENV677		
30-Jan-14			30-Jan-14		
0.5-1	0-0.2	1-1.5	0.2-0.5	0.5-1	0-0.2
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471034	471034	471034	471058	471058	471058
5938662	5938662	5938662	5938658	5938658	5938658

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-
Leachable Metals											
Barium, extractable	mg/kg	5				81.2	76.4	54	40	36.5	8.2
Boron (B), Hot Water Ext.	mg/kg	0.1				1.91	1.96	0.21	0.24	0.17	4.41
Metals											
Aluminium	mg/kg	50				-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.51	0.27	0.24	<0.2	0.24	0.33
Arsenic	mg/kg	0.1	17	5.9	17	5.63	5.3	3.32	6.81	8.65	2.2
Barium	mg/kg	0.5	750			298	414	152	191	163	329
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	1.74	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium	mg/kg	100				-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	9.98	16.1	16.9	17.4	18.5	13.6
Cobalt	mg/kg	0.1	20			3.1	8.4	8.7	7.1	8	3.2
Copper	mg/kg	0.5	63	35.7	197	29.3	12.4	13.7	6.4	13.2	21.2
Iron	mg/kg	50				-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	<5	8.4	7.2	8	8.3	6.1
Lithium	mg/kg	0.5				-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0684	0.0835	0.0423	0.0269	0.0339	0.102
Molybdenum	mg/kg	0.1	4			2	1.5	<1	<1	<1	<1
Nickel	mg/kg	0.5	50			22	18.6	20.2	18.3	21.9	25.9
Phosphorus	mg/kg	50				-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-
Selenium	mg/kg	0.2	1			1.75	0.61	<0.5	<0.5	<0.5	1.19
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-
Uranium	mg/kg	0.05	33			8.7	<2	<2	<2	<2	2.6
Vanadium	mg/kg	0.2	130			16.3	23.1	21.4	22.2	26.1	17.1
Zinc	mg/kg	5	200	123	315	19	49	51	43	46	27
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				1.98	2.39	4.12	<0.8	<0.8	1
Inorganic Carbon	mg/kg	0.1				0.24	0.29	0.49	<0.1	<0.1	0.12
TOC	% dry weight	0.1				23.4 ^{#1}	22.9 ^{#1}	2.78 ^{#1}	2.33 ^{#1}	1.29 ^{#1}	14.4 ^{#1}
Total Carbon by Combustion	%	0.1				23.6	23.2	3.3	2.3	1.3	14.5
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				11.1	10.9	28.7	46.2	31.7	14.9
Physical Tests											
Moisture	%	0.1				76.7	46.4	39.9	22.3	20.8	62.1

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV676			ENV677		
30-Jan-14			30-Jan-14		
0.5-1	0-0.2	1-1.5	0.2-0.5	0.5-1	0-0.2
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471034	471034	471034	471058	471058	471058
5938662	5938662	5938662	5938658	5938658	5938658

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Polycyclic Aromatic Hydrocarbons											
Benzo[b]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Biphenyl	mg/kg	0.01				-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-
Acridine	mg/kg	0.005				-	-	-	-	-	-
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-
Perylene	mg/kg	0.01				-	-	-	-	-	-
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-
Quinoline	mg/kg	0.005				-	-	-	-	-	-
Retene	mg/kg	0.01				-	-	-	-	-	-
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Saturated Paste Extractables											
Sulfur (as SO4)	mg/kg	9.5				314 ^{#1}	234 ^{#1}	45 ^{#1}	178 ^{#1}	148 ^{#1}	3910 ^{#1}
Calcium	mg/kg	1.6				75 ^{#1}	73.1 ^{#1}	41.6 ^{#1}	35 ^{#1}	27.6 ^{#1}	914 ^{#1}
Chloride	mg/kg	6.4				<49 ^{#1}	<21 ^{#1}	<11 ^{#1}	<8.4 ^{#1}	<7.6 ^{#1}	<37 ^{#1}
Saturation Percentage	%	1				245	106	56.8	42.1	37.8	185
Electrical Conductivity (lab)	dS/m	0.01				0.435	0.879	0.591	1.02	0.926	3.09
Magnesium	mg/kg	0.95				13.9 ^{#1}	16 ^{#1}	5.7 ^{#1}	11.4 ^{#1}	6.4 ^{#1}	252 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.22	6.3	6.92	6.93	6.88	5.96
Potassium	mg/kg	0.64				<4.9 ^{#1}	5.3 ^{#1}	1.9 ^{#1}	1.9 ^{#1}	1 ^{#1}	9.8 ^{#1}
Sodium	mg/kg	0.64				124 ^{#1}	92.7 ^{#1}	21.8 ^{#1}	32.9 ^{#1}	29.3 ^{#1}	222 ^{#1}
Sodium Adsorption Ratio	---	0.1				2.2 ^{#1}	2.49 ^{#1}	1.12 ^{#1}	1.9 ^{#1}	2.13 ^{#1}	1.23 ^{#1}
Speciated Metals											
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.2	<0.1	<0.1	<0.1	<0.1	<0.15
Volatile Organic Compounds											
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV677S	ENV678		ENV678S		ENV679	
30-Jan-14	30-Jan-14		30-Jan-14		30-Jan-14	
0.05-0	0.2-0.5	0.5-1	0-0.2	0.03-0	0.2-0.5	0.5-1
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471058	471076	471076	471076	471076	471048	471048
5938658	5938679	5938679	5938679	5938679	5938672	5938672

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-	-
Leachable Metals												
Barium, extractable	mg/kg	5				21.3	46.5	45.4	47.2	35.9	79.3	80.3
Boron (B), Hot Water Ext.	mg/kg	0.1				0.88	0.27	0.32	1.42	1.26	0.33	0.23
Metals												
Aluminium	mg/kg	50				-	-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.24	<0.2	<0.2	0.24	0.3	<0.2	0.22
Arsenic	mg/kg	0.1	17	5.9	17	6.7	2.35	2.48	3.72	5.72	2.75	2.86
Barium	mg/kg	0.5	750			356	173	155	223	289	228	240
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Calcium	mg/kg	100				-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	10.5	24.5	24.3	21.4	9.63	19.5	20.6
Cobalt	mg/kg	0.1	20			5.4	9.9	10.3	5.8	5.4	5.4	6.4
Copper	mg/kg	0.5	63	35.7	197	8.1	7.9	8.1	14.2	11.6	13.7	16.9
Iron	mg/kg	50				-	-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	7.3	10.7	10.7	7.8	7.5	8.6	9.3
Lithium	mg/kg	0.5				-	-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0414	0.0319	0.0325	0.0609	0.0524	0.057	0.0604
Molybdenum	mg/kg	0.1	4			<1	<1	<1	<1	<1	<1	<1
Nickel	mg/kg	0.5	50			14.1	21.7	22.5	19.8	15.5	17.8	21.1
Phosphorus	mg/kg	50				-	-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-	-
Selenium	mg/kg	0.2	1			<0.5	<0.5	<0.5	0.86	0.51	<0.5	<0.5
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-	-
Uranium	mg/kg	0.05	33			<2	<2	<2	<2	<2	<2	<2
Vanadium	mg/kg	0.2	130			15.5	32.8	29.2	22.5	15.7	24.2	25.4
Zinc	mg/kg	5	200	123	315	37	81	74	48	36	60	67
Organic / Inorganic Carbon												
CaCO3 Equivalent	%	0.8				1.89	<0.8	<0.8	<0.8	1.58	<0.8	<0.8
Inorganic Carbon	mg/kg	0.1				0.23	<0.1	<0.1	<0.1	0.19	<0.1	<0.1
TOC	% dry weight	0.1				1.98 ^{#1}	3.3 ^{#1}	2.2 ^{#1}	5.11 ^{#1}	11 ^{#1}	2.55 ^{#1}	2.47 ^{#1}
Total Carbon by Combustion	%	0.1				2.2	3.3	2.2	5.1	11.2	2.5	2.5
Particle Size												
Soil Particle Size (>75 um)	% by weight	1				66.8	9.4	14.4	19.3	43.7	20.2	17.4
Physical Tests												
Moisture	%	0.1				26.3	23.5	33.7	57.2	52.5	28.8	28.5

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV677S	ENV678				ENV678S	ENV679
30-Jan-14	30-Jan-14				30-Jan-14	30-Jan-14
0.05-0	0.2-0.5	0.5-1	0-0.2	0.03-0	0.2-0.5	0.5-1
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471058	471076	471076	471076	471076	471048	471048
5938658	5938679	5938679	5938679	5938679	5938672	5938672

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Polycyclic Aromatic Hydrocarbons												
Benzofl(u)anthrene	mg/kg	0.005	6.2			-	-	-	-	-	-	
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Biphenyl	mg/kg	0.01				-	-	-	-	-	-	
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-	
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-	
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-	
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-	
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-	
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-	
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-	
Acridine	mg/kg	0.005				-	-	-	-	-	-	
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-	
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-	
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-	
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-	
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-	
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-	
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-	
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-	
Perylene	mg/kg	0.01				-	-	-	-	-	-	
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-	
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-	
Quinoline	mg/kg	0.005				-	-	-	-	-	-	
Retene	mg/kg	0.01				-	-	-	-	-	-	
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Saturated Paste Extractables												
Sulfur (as SO4)	mg/kg	9.5				805 ^{#1}	93 ^{#1}	91 ^{#1}	384 ^{#1}	273 ^{#1}	46 ^{#1}	55 ^{#1}
Calcium	mg/kg	1.6				196 ^{#1}	22.9 ^{#1}	20.3 ^{#1}	70.3 ^{#1}	76.6 ^{#1}	14.2 ^{#1}	45 ^{#1}
Chloride	mg/kg	6.4				<8.9 ^{#1}	<11 ^{#1}	<11 ^{#1}	<19 ^{#1}	<15 ^{#1}	<10 ^{#1}	<11 ^{#1}
Saturation Percentage	%	1				44.7	55.7	57	94	73.7	50.5	56.3
Electrical Conductivity (lab)	dS/m	0.01				2.8	0.602	0.543	0.933	0.979	0.386	0.804
Magnesium	mg/kg	0.95				39.5 ^{#1}	5.4 ^{#1}	4.3 ^{#1}	18.9 ^{#1}	17.6 ^{#1}	4.1 ^{#1}	7.7 ^{#1}
pH (Lab)	pH	0.1	6-8.5			7.04	6.26	6.34	6.13	6.87	6.45	6.68
Potassium	mg/kg	0.64				3.31 ^{#1}	1.9 ^{#1}	1.7 ^{#1}	3.8 ^{#1}	3.8 ^{#1}	1.1 ^{#1}	1.2 ^{#1}
Sodium	mg/kg	0.64				64.4 ^{#1}	38.7 ^{#1}	33.7 ^{#1}	75.6 ^{#1}	43.4 ^{#1}	20.7 ^{#1}	46.3 ^{#1}
Sodium Adsorption Ratio	---	0.1				1.64 ^{#1}	2.54 ^{#1}	2.35 ^{#1}	2.13 ^{#1}	1.35 ^{#1}	1.75 ^{#1}	2.23 ^{#1}
Speciated Metals												
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Volatile Organic Compounds												
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-	-

Comments
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OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

		ENV680			ENV681			
		30-Jan-14			30-Jan-14			
		0-0.2	0.2-0.5	0-0.2	0.2-0.5	0.5-1	0-0.2	0.2-0.5
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471048	471025	471025	471037	471037	471037	471037	471037	471056
5938672	5938697	5938697	5938704	5938704	5938704	5938704	5938704	5938698

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Hydrocarbons												
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-	-
Leachable Metals												
Barium, extractable	mg/kg	5				123	34.1	62.5	45.2	58.1	38.5	53
Boron (B), Hot Water Ext.	mg/kg	0.1				1.35	0.67	3.5	3.18	0.47	3.39	7.23
Metals												
Aluminium	mg/kg	50				-	-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.79	<0.2	<0.2	0.53	0.4	0.6	0.72
Arsenic	mg/kg	0.1	17	5.9	17	3.88	6.56	3.88	4.64	4.4	5.26	3.64
Barium	mg/kg	0.5	750			510	126	192	214	137	245	323
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	2.33	<0.5	<0.5	<0.5	<0.5	<0.5	0.54
Calcium	mg/kg	100				-	-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	9.17	38.5	3.35	16.6	21.5	19.7	9.56
Cobalt	mg/kg	0.1	20			4.2	4.6	4.4	5.8	6.9	6.1	3.9
Copper	mg/kg	0.5	63	35.7	197	42.2	6	5.2	19.8	35.1	21.1	17.4
Iron	mg/kg	50				-	-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	<5	6.9	<5	9.3	8.5	9.8	5.8
Lithium	mg/kg	0.5				-	-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.183	0.021	0.0423	0.0948	0.15	0.0837	0.0776
Molybdenum	mg/kg	0.1	4			1.7	1.7	2.6	3.4	1	2.9	3.9
Nickel	mg/kg	0.5	50			25	20.3	7.4	18.1	24.8	21.5	18.3
Phosphorus	mg/kg	50				-	-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-	-
Selenium	mg/kg	0.2	1			3.45	<0.5	<0.5	0.61	0.6	0.6	1.57
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-	-
Uranium	mg/kg	0.05	33			11.2	<2	5.9	3.9	<2	3.1	7.1
Vanadium	mg/kg	0.2	130			18.1	19	7.3	24.2	23.7	25.5	13.4
Zinc	mg/kg	5	200	123	315	26	32	28	46	51	52	28
Organic / Inorganic Carbon												
CaCO3 Equivalent	%	0.8				1.51	<0.8	2.34	2.42	8.26	0.81	1.33
Inorganic Carbon	mg/kg	0.1				0.18	<0.1	0.28	0.29	0.99	<0.1	0.16
TOC	% dry weight	0.1				23.8 ^{#1}	2.7 ^{#1}	22.5 ^{#1}	28.7 ^{#1}	1.35 ^{#1}	16.7 ^{#1}	19.3 ^{#1}
Total Carbon by Combustion	%	0.1				24	2.7	22.8	29	2.3	16.7	19.4
Particle Size												
Soil Particle Size (>75 um)	% by weight	1				9.7	44.8	48.8	15.2	19.5	5.2	23.8
Physical Tests												
Moisture	%	0.1				62	32.8	74.3	71.4	47	78.2	84.3

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV680		ENV681				
30-Jan-14		30-Jan-14				
0-0.2	0.2-0.5	0-0.2	0.2-0.5	0.5-1	0-0.2	0.2-0.5
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471048	471025	471025	471037	471037	471037	471056
5938672	5938697	5938697	5938704	5938704	5938704	5938698

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL							
Polycyclic Aromatic Hydrocarbons												
Benzo[b]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Biphenyl	mg/kg	0.01				-	-	-	-	-	-	
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-	
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-	
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-	
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-	
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-	
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-	
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-	
Acridine	mg/kg	0.005				-	-	-	-	-	-	
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-	
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-	
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-	
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-	
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-	
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-	
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-	
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-	
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-	
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-	
Perylene	mg/kg	0.01				-	-	-	-	-	-	
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-	
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-	
Quinoline	mg/kg	0.005				-	-	-	-	-	-	
Retene	mg/kg	0.01				-	-	-	-	-	-	
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-	
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-	
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-	
Saturated Paste Extractables												
Sulfur (as SO4)	mg/kg	9.5				241 ^{#1}	125 ^{#1}	500 ^{#1}	1780 ^{#1}	77 ^{#1}	1780 ^{#1}	1400 ^{#1}
Calcium	mg/kg	1.6				75 ^{#1}	28.4 ^{#1}	116 ^{#1}	331 ^{#1}	42 ^{#1}	340 ^{#1}	316 ^{#1}
Chloride	mg/kg	6.4				<54 ^{#1}	12 ^{#1}	<100 ^{#1}	102 ^{#1}	<11 ^{#1}	60 ^{#1}	<76 ^{#1}
Saturation Percentage	%	1				268	61.1	521	306	55.5	274	378
Electrical Conductivity (lab)	dS/m	0.01				0.37	0.672	0.37	1.16	0.854	1.28	0.922
Magnesium	mg/kg	0.95				14.6 ^{#1}	7.9 ^{#1}	30 ^{#1}	102 ^{#1}	8.6 ^{#1}	104 ^{#1}	94 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.39	6.54	6.23	6.58	6.54	6.4	6.54
Potassium	mg/kg	0.64				<5.4 ^{#1}	2.5 ^{#1}	18 ^{#1}	23.4 ^{#1}	3.8 ^{#1}	23.4 ^{#1}	19.9 ^{#1}
Sodium	mg/kg	0.64				132 ^{#1}	42.8 ^{#1}	232 ^{#1}	239 ^{#1}	44.8 ^{#1}	226 ^{#1}	256 ^{#1}
Sodium Adsorption Ratio	---	0.1				2.24 ^{#1}	2.35 ^{#1}	2.17 ^{#1}	1.69 ^{#1}	2.21 ^{#1}	1.66 ^{#1}	1.67 ^{#1}
Speciated Metals												
Chromium (hexavalent)	mg/kg	0.1	0.4			<0.15	<0.1	<0.15	<0.15	<0.1	<0.2	<0.25
Volatile Organic Compounds												
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-	-

Comments
#1 CALC

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
TABLE 4 - APETOWUN CREEK HEADWATERS

Monitoring Zone
Location
Date
Depth (m)
Lab Report
Easting (NAD83 Zone 11N)
Northing (NAD83 Zone 11N)

ENV682		ENV683			ENV683S	
30-Jan-14		30-Jan-14			30-Jan-14	
0.5-1	0-0.2	0.2-0.5	0.5-1	0-0.2	0.05-0	
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727	
471056	471056	471086	471086	471086	471086	
5938698	5938698	5938696	5938696	5938696	5938696	

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Hydrocarbons											
F2 (C10-C16 Hydrocarbons)	mg/kg	20				-	-	-	-	-	-
Total Hydrocarbons (C6-C50)	mg/kg	20				-	-	-	-	-	-
Chrom. to baseline at nC50	-					-	-	-	-	-	-
Gravimetric Heavy Hydrocarbons	mg/kg	500				-	-	-	-	-	-
TEH: (C16-C34)	mg/kg	20				-	-	-	-	-	-
TEH: (C34-C50)	mg/kg	20				-	-	-	-	-	-
TVH	mg/kg	10				-	-	-	-	-	-
TVH: (C6-C10 / BTEX CORRECTED)	mg/kg	10				-	-	-	-	-	-
Leachable Metals											
Barium, extractable	mg/kg	5				40.9	62	71.1	43.6	12.2	57.9
Boron (B), Hot Water Ext.	mg/kg	0.1				0.33	8.22	0.87	0.34	5.7	0.84
Metals											
Aluminium	mg/kg	50				-	-	-	-	-	-
Antimony	mg/kg	0.1	20			0.23	0.84	<0.2	0.24	0.47	0.41
Arsenic	mg/kg	0.1	17	5.9	17	5	3.2	2.6	6.36	5.65	6.38
Barium	mg/kg	0.5	750			172	268	241	171	416	581
Beryllium	mg/kg	0.2	5			<1	<1	<1	<1	<1	<1
Bismuth	mg/kg	0.2				-	-	-	-	-	-
Cadmium	mg/kg	0.1	3.8	0.6	3.5	<0.5	0.59	<0.5	<0.5	1.53	<0.5
Calcium	mg/kg	100				-	-	-	-	-	-
Chromium (III+VI)	mg/kg	0.5	64	37.3	90	20.3	5.51	18.5	22.3	9.52	15.6
Cobalt	mg/kg	0.1	20			10.1	2.9	8.7	8.1	6.7	7.5
Copper	mg/kg	0.5	63	35.7	197	11.7	16.2	9.7	9.4	16.3	18.3
Iron	mg/kg	50				-	-	-	-	-	-
Lead	mg/kg	0.5	70	35	91.3	9	<5	7.9	9.7	8.1	13.4
Lithium	mg/kg	0.5				-	-	-	-	-	-
Magnesium	mg/kg	20				-	-	-	-	-	-
Manganese	mg/kg	1				-	-	-	-	-	-
Mercury	mg/kg	0.005	12	0.17	0.486	0.0632	0.0584	0.0597	0.032	0.0601	0.0825
Molybdenum	mg/kg	0.1	4			<1	4.5	<1	<1	5.4	1.6
Nickel	mg/kg	0.5	50			21.3	17.2	18.5	20.6	18.8	20.2
Phosphorus	mg/kg	50				-	-	-	-	-	-
Potassium	mg/kg	50				-	-	-	-	-	-
Selenium	mg/kg	0.2	1			<0.5	1.79	<0.5	<0.5	0.66	<0.5
Silver	mg/kg	0.2	20			<1	<1	<1	<1	<1	<1
Sodium	mg/kg	100				-	-	-	-	-	-
Strontium	mg/kg	1				-	-	-	-	-	-
Thallium	mg/kg	0.05	1			<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Tin	mg/kg	2	5			<5	<5	<5	<5	<5	<5
Titanium	mg/kg	1				-	-	-	-	-	-
Uranium	mg/kg	0.05	33			<2	10.1	<2	<2	2.5	2.3
Vanadium	mg/kg	0.2	130			23.9	9.4	24.6	27.1	15.3	22.4
Zinc	mg/kg	5	200	123	315	45	20	52	55	46	65
Organic / Inorganic Carbon											
CaCO3 Equivalent	%	0.8				<0.8	1.9	<0.8	<0.8	1.45	1.55
Inorganic Carbon	mg/kg	0.1				<0.1	0.23	<0.1	<0.1	0.17	0.19
TOC	% dry weight	0.1				1.68 ^{#1}	33.9 ^{#1}	5.25 ^{#1}	1.76 ^{#1}	22 ^{#1}	8.82 ^{#1}
Total Carbon by Combustion	%	0.1				1.7	34.1	5.2	1.8	22.2	9
Particle Size											
Soil Particle Size (>75 um)	% by weight	1				27.9	27.6	18.3	14.3	25.1	7.2
Physical Tests											
Moisture	%	0.1				23.1	86.6	32.1	31.4	63.5	51.2

OBED MOUNTAIN MINE
SOIL/SEDIMENT TABLE
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Monitoring Zone
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Northing (NAD83 Zone 11N)

ENV682		ENV683			ENV683S
30-Jan-14		30-Jan-14			30-Jan-14
0.5-1	0-0.2	0.2-0.5	0.5-1	0-0.2	0.05-0
L1417727	L1417727	L1417727	L1417727	L1417727	L1417727
471056	471056	471086	471086	471086	471086
5938698	5938698	5938696	5938696	5938696	5938696

Parameter	Unit	MDL	AB Tier 1, Natural Area (Fine Soil)	CSQG FW Sediment ISQG	CSQG FW Sediment PEL						
Polycyclic Aromatic Hydrocarbons											
Benzo[b]fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C4 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C4 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C4 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C4 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C4 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Biphenyl	mg/kg	0.01				-	-	-	-	-	-
1-Methylnaphthalene	mg/kg	0.01				-	-	-	-	-	-
2-methylnaphthalene	mg/kg	0.005		0.0202	0.201	-	-	-	-	-	-
Acenaphthene	mg/kg	0.005	0.32	0.00671	0.0899	-	-	-	-	-	-
Acenaphthylene	mg/kg	0.005	5	0.00587	0.128	-	-	-	-	-	-
Anthracene	mg/kg	0.004	0.0046	0.00469	0.245	-	-	-	-	-	-
Benz(a)anthracene	mg/kg	0.005	0.07	0.0317	0.385	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.005	0.6	0.0319	0.782	-	-	-	-	-	-
Acridine	mg/kg	0.005				-	-	-	-	-	-
Benzo(e)pyrene	mg/kg	0.01				-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.005				-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	0.005	6.2			-	-	-	-	-	-
C1 Acenaphthenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benz(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C1 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C1 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
Chrysene	mg/kg	0.005	6.2	0.0571	0.862	-	-	-	-	-	-
C1 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C1 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C1 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Dibenz(a,h)anthracene	mg/kg	0.005	7.4	0.00622	0.135	-	-	-	-	-	-
Dibenzothiophene	mg/kg	0.01				-	-	-	-	-	-
Fluoranthene	mg/kg	0.005	0.032	0.111	2.355	-	-	-	-	-	-
Fluorene	mg/kg	0.005	0.29	0.0212	0.144	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	mg/kg	0.005				-	-	-	-	-	-
Naphthalene	mg/kg	0.005	0.016	0.0346	0.391	-	-	-	-	-	-
Perylene	mg/kg	0.01				-	-	-	-	-	-
Phenanthrene	mg/kg	0.005	0.051	0.0419	0.515	-	-	-	-	-	-
Pyrene	mg/kg	0.005	0.034	0.053	0.875	-	-	-	-	-	-
Quinoline	mg/kg	0.005				-	-	-	-	-	-
Retene	mg/kg	0.01				-	-	-	-	-	-
C2 Benzofluoranthenes/Benzopyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Biphenyls	mg/kg	0.04				-	-	-	-	-	-
C2 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C2 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C2 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
C2 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C2 subd B(a)Anthracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Benzantracenes/Chrysenes	mg/kg	0.04				-	-	-	-	-	-
C3 Dibenzothiophenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluoranthenes/Pyrenes	mg/kg	0.04				-	-	-	-	-	-
C3 Fluorenes	mg/kg	0.04				-	-	-	-	-	-
C3 Naphthalenes	mg/kg	0.04				-	-	-	-	-	-
C3 Phenanthrenes/Anthracenes	mg/kg	0.04				-	-	-	-	-	-
Saturated Paste Extractables											
Sulfur (as SO4)	mg/kg	9.5				66 ^{#1}	1930 ^{#1}	396 ^{#1}	167 ^{#1}	4140 ^{#1}	378 ^{#1}
Calcium	mg/kg	1.6				13 ^{#1}	397 ^{#1}	78.5 ^{#1}	34.8 ^{#1}	1120 ^{#1}	115 ^{#1}
Chloride	mg/kg	6.4				<10 ^{#1}	<92 ^{#1}	<15 ^{#1}	<9.7 ^{#1}	<73 ^{#1}	<21 ^{#1}
Saturation Percentage	%	1				51.1	461	77	48.6	364	106
Electrical Conductivity (lab)	dS/m	0.01				0.359	0.997	1.05	0.767	2.04	1.04
Magnesium	mg/kg	0.95				2.6 ^{#1}	117 ^{#1}	18.9 ^{#1}	8.4 ^{#1}	248 ^{#1}	27.6 ^{#1}
pH (Lab)	pH	0.1	6-8.5			6.29	6.47	6.08	6.26	6.13	7.36
Potassium	mg/kg	0.64				<1 ^{#1}	20.3 ^{#1}	1.6 ^{#1}	1.06 ^{#1}	26.8 ^{#1}	7.1 ^{#1}
Sodium	mg/kg	0.64				16.2 ^{#1}	348 ^{#1}	57.6 ^{#1}	22.1 ^{#1}	289 ^{#1}	79.8 ^{#1}
Sodium Adsorption Ratio	---	0.1				1.5 ^{#1}	1.84 ^{#1}	1.73 ^{#1}	1.25 ^{#1}	1.07 ^{#1}	1.69 ^{#1}
Speciated Metals											
Chromium (hexavalent)	mg/kg	0.1	0.4			0.13	<0.3	<0.1	<0.1	<0.15	<0.1
Volatile Organic Compounds											
Benzene	mg/kg	0.005	0.046			-	-	-	-	-	-
Toluene	mg/kg	0.05	0.52			-	-	-	-	-	-
Ethylbenzene	mg/kg	0.01	0.11			-	-	-	-	-	-
Xylene (m & p)	mg/kg	0.05				-	-	-	-	-	-
Xylene (o)	mg/kg	0.05				-	-	-	-	-	-
Xylenes Total	mg/kg	0.1	15			-	-	-	-	-	-
Styrene	mg/kg	0.05	0.68			-	-	-	-	-	-

Comments
#1 CALC