

**Arthur D. Little, Inc.**

Environmental Monitoring and Analysis

**Minerals Management Service - Shelikof Strait and Outermost Cook Inlet**

1997 Final Data (Not Surrogate Corrected) - Source Samples - METALS

Field ID	Ash	Ash	Beluga Coal	Coyote Lake Coal
Lab ID	Ash	Ash #2	98D2315-Beluga	98D1406-Matanuska
SDG	NA	NA	Coal	Coal
File	NA	NA	NA	NA
Sample Type	SAMP	QC	SAMP	SAMP
Matrix	Ash	Ash	Coal	Coal
Sample Size	0.5114 g	0.5673 g	NA NA	NA NA
Weight Basis	DRY	DRY	DRY	DRY
Associated Blank	NA	NA	NA	NA
Field Date	7/4/1998	7/4/1998	6/22/1998	5/16/1998
Extract Date	8/20/1998	8/20/1998	NA	NA
Analysis Date	8/20/1998	8/20/1998	NA	NA
Min Reporting Limit	NA	NA	NA	NA
Units	---	---	---	---

METALS				
Ag - Silver (ug/g)	0.07	0.07	0.11	0.02
Al - Aluminum (%)	7.14	7.51	4.76	0.18
As - Arsenic (ug/g)	10.2	10.2	6.1	0.1
Ba - Barium (ug/g)	930	966	400	63
Be - Beryllium (ug/g)	1.1	1.1	1.1	0.29
Ca - Calcium (%)	NA	NA	NA	NA
Cd - Cadmium (ug/g)	0.13	0.13	0.17	0.01 <
Cr - Chromium (ug/g)	0.7	0.9	75	7.3
Cu - Copper (ug/g)	10.2	11.1	1.5	51.8
Fe - Iron (%)	1.61	1.79	1.03	0.14
Hg - Mercury (ug/g)	0.002	0 ND	0.112	0.021
K - potassium (%)	NA	NA	NA	NA
Mg - Magnesium (%)	NA	NA	NA	NA
Mn - Manganese (ug/g)	424	437	103	6
Ni - Nickel (ug/g)	1.5	1.3	14.33	4.9
Pb - Lead (ug/g)	10.7	11.2	8.4	3.2
Sb - Antimony (ug/g)	0.83	0.85	2.66	10.4
Se - Selenium (ug/g)	0.05	0.06	0.3	0.11
Sn - Tin (ug/g)	1.4	1.45	0.89	0.09
Tl - Thallium (ug/g)	0.39	0.41	0.31	0.21
V - Vanadium (ug/g)	16.6	17.5	NA	NA
Zn - Zinc (ug/g)	41.6	48.8	46.3	5.1

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Field ID	Homer Coal	Ninilchik Coal	98-A-C1-01-00-MET-TSM	98-A-C2-01-00-MET-TSM
Lab ID	Homer Coal	Ninilchik Coal	98-A-C1-01-00-MET-TSM	98-A-C2-01-00-MET-TSM
SDG	NA	NA	NA	NA
File	NA	NA	NA	NA
Sample Type	SAMP	SAMP	SAMP	SAMP
Matrix	Coal	Coal	Particles	Particles
Sample Size	NA NA	NA NA	NA NA	NA NA
Weight Basis	DRY	DRY	DRY	DRY
Associated Blank	NA	NA	NA	NA
Field Date	7/7/1998	7/7/1998	6/27/1998	6/27/1998
Extract Date	NA	NA	NA	NA
Analysis Date	NA	NA	NA	NA
Min Reporting Limit	NA	NA	NA	NA
Units	---	---	---	---

**METALS**

Ag - Silver (ug/g)	0.02	0.15	0.11	0.07
Al - Aluminum (%)	1.37	3.04	8.09	7.61
As - Arsenic (ug/g)	3.8	5.9	18	11.9
Ba - Barium (ug/g)	384	195	625	514
Be - Beryllium (ug/g)	0.74	0.58	1.14	0.97
Ca - Calcium (%)	NA	NA	NA	NA
Cd - Cadmium (ug/g)	0.01 <	0.44	0.22	0.19
Cr - Chromium (ug/g)	8.3	24	97.1	80.2
Cu - Copper (ug/g)	7.2	89.4	62.7	53.3
Fe - Iron (%)	0.33	0.96	5.34	4.4
Hg - Mercury (ug/g)	0.039	0.419	0.198	0.183
K - potassium (%)	NA	NA	NA	NA
Mg - Magnesium (%)	NA	NA	NA	NA
Mn - Manganese (ug/g)	25	204	1000	961
Ni - Nickel (ug/g)	8.9	14	41.8	38.5
Pb - Lead (ug/g)	1.8	7.9	15.3	12.9
Sb - Antimony (ug/g)	0.26	0.96	1.06	0.86
Se - Selenium (ug/g)	0.1 <	0.1 <	0 ND	0 ND
Sn - Tin (ug/g)	0.23	0.53	2.71	2
Tl - Thallium (ug/g)	0.11	0.54	0.42	0.29
V - Vanadium (ug/g)	NA	NA	175	145
Zn - Zinc (ug/g)	7.7	15.8	106	81.9

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**Minerals Management Service - Shelikof Strait and Outermost Cook Inlet**

1997 Final Data (Not Surrogate Corrected) - Source Samples - METALS

Field ID	98-A-K1-01-00-MET-TSM	98-A-M1-01-00-MET-TSM	98-A-S1-01-00-MET-TSM	98-A-S2-01-00-MET-TSM
Lab ID	98-A-K1-01-00-MET-TSM	98-A-M1-01-00-MET-TSM	98-A-S1-01-00-MET-TSM	98-A-S2-01-00-MET-TSM
SDG	NA	NA	NA	NA
File	NA	NA	NA	NA
Sample Type	SAMP	SAMP	SAMP	SAMP
Matrix	Particles	Particles	Particles	Particles
Sample Size	NA NA	NA NA	NA NA	NA NA
Weight Basis	DRY	DRY	DRY	DRY
Associated Blank	NA	NA	NA	NA
Field Date	5/13/1998	5/13/1998	5/13/1998	6/25/1998
Extract Date	NA	NA	NA	NA
Analysis Date	NA	NA	NA	NA
Min Reporting Limit	NA	NA	NA	NA
Units	---	---	---	---

METALS				
Ag - Silver (ug/g)	0.1	0.66	0.2	0.36
Al - Aluminum (%)	10.13	9	6.61	8.34
As - Arsenic (ug/g)	38.5	23.8	37.2	34.8
Ba - Barium (ug/g)	1250	897	1050	1540
Be - Beryllium (ug/g)	2.33	0.6	3.44	1.99
Ca - Calcium (%)	NA	NA	NA	NA
Cd - Cadmium (ug/g)	0.4	0.19	0.49	0.58
Cr - Chromium (ug/g)	163	119	103	159
Cu - Copper (ug/g)	77.9	65.5	46.4	68.5
Fe - Iron (%)	7.01	6.19	5.15	6.06
Hg - Mercury (ug/g)	0.428	0.267	0.304	0.133
K - potassium (%)	NA	NA	NA	NA
Mg - Magnesium (%)	NA	NA	NA	NA
Mn - Manganese (ug/g)	1140	1240	995	1180
Ni - Nickel (ug/g)	57.8	55	48.5	76.7
Pb - Lead (ug/g)	32.5	18.9	16.2	21.8
Sb - Antimony (ug/g)	2.88	1.31	1.92	2.88
Se - Selenium (ug/g)	0 ND	0 ND	0 ND	0 ND
Sn - Tin (ug/g)	3.27	2.88	2.82	3.59
Tl - Thallium (ug/g)	0.75	0.53	0.62	0.98
V - Vanadium (ug/g)	209	202	170	197
Zn - Zinc (ug/g)	84.3	119	118	184

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1997 Final Data (Not Surrogate Corrected) - Source Samples - METALS

Field ID	98-A-K1-02-00-MET-TSM	98-A-M1-02-00-MET-TSM
Lab ID	98-A-K1-02-00-MET-TSM	98-A-M1-02-00-MET-TSM
SDG	NA	NA
File	NA	NA
Sample Type	SAMP	SAMP
Matrix	Particles	Particles
Sample Size	NA NA	NA NA
Weight Basis	DRY	DRY
Associated Blank	NA	NA
Field Date	6/25/1998	6/25/1998
Extract Date	NA	NA
Analysis Date	NA	NA
Min Reporting Limit	NA	NA
Units	---	---

METALS		
Ag - Silver (ug/g)	0.2	0.38
Al - Aluminum (%)	9.85	9.7
As - Arsenic (ug/g)	26.1	23.1
Ba - Barium (ug/g)	1170	1110
Be - Beryllium (ug/g)	2.18	0.82
Ca - Calcium (%)	NA	NA
Cd - Cadmium (ug/g)	0.21	0.35
Cr - Chromium (ug/g)	162	114
Cu - Copper (ug/g)	64.9	55.2
Fe - Iron (%)	6.23	6.06
Hg - Mercury (ug/g)	0.186	0.111
K - potassium (%)	NA	NA
Mg - Magnesium (%)	NA	NA
Mn - Manganese (ug/g)	1050	1050
Ni - Nickel (ug/g)	70.9	47.2
Pb - Lead (ug/g)	20.8	21.8
Sb - Antimony (ug/g)	2.55	0.93
Se - Selenium (ug/g)	0 ND	0 ND
Sn - Tin (ug/g)	2.04	1.22
Tl - Thallium (ug/g)	0.65	0.57
V - Vanadium (ug/g)	203	208
Zn - Zinc (ug/g)	143	267