APPENDIX I

PITTSBURGH NO. 8 WASHABILITY DATA AND RECOVERY- CURVES

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 56.26

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	34.07	4.52	2.01	0.54	14516
1.30	1.40	34.47	8.03	3.22	1.64	13924
1.40	1.55	5.57	20.43	4.74	2.46	11832
1.55	2.00	3.50	41.88	5.67	3.40	8215
2.00		22.39	85.82	6.40	3.95	804
		100.00	26.13	3.69	1.89	10872

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	34.07	4.52	2.01	0.54	14516
1.30	1.40	68.54	6.29	2.62	1.09	14218
1.40	1.55	74.11	7.35	2.78	1.20	14039
1.55	2.00	77.61	8.91	2.91	1.30	13776
2.00		100.00	26.13	3.69	1.89	10872

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	26.13	3.69	1.89	10872
1.30	1.40	65.93	37.29	4.56	2.59	8989
1.40	1.55	31.46	69.35	6.02	3.63	3581
1.55	2.00	25.89	79.88	6.30	3.88	1806
2.00		22.39	85.82	6.40	3.95	804

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 34.70

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	47.89	3.42	1.60	0.25	14701
1.30	1.40	32.93	7.24	2.79	1.08	14057
1.40	1.55	3.63	17.99	6.47	4.36	12244
1.55	2.00	2.97	37.09	8.51	6.31	9023
2.00		12.57	84.68	7.20	5.81	997
		99.99	16.42	3.08	1.55	12508

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	47.89	3.42	1.60	0.25	14701
1.30	1.40	80.82	4.98	2.08	0.59	14439
1.40	1.55	84.45	5.54	2.27	0.75	14344
1.55	2.00	87.42	6.61	2.49	0.94	14164
2.00		99.99	16.42	3.08	1.55	12508

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	16.42	3.08	1.55	12508
1.30	1.40	52.11	28.37	4.44	2.75	10493
1.40	1.55	19.18	64.65	7.26	5.61	4374
1.55	2.00	15.55	75.55	7.45	5.90	2537
2.00		12.58	84.63	7.20	5.81	1006

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	39.32	2.79	1.48	0.13	14807
1.30	1.40	36.70	7.01	1.88	0.44	14096
1.40	1.55	9.03	13.83	3.68	2.09	12946
1.55	2.00	4.56	32.48	6.93	5.32	9800
2.00		10.38	75.68	14.43	12.36	2515
		99.99	14.26	3.42	1.93	12874

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	39.32	2.79	1.48	0.13	14807
1.30	1.40	76.02	4.83	1.67	0.28	14464
1.40	1.55	85.05	5.78	1.89	0.47	14303
1.55	2.00	89.61	7.14	2.14	0.72	14074
2.00		99.99	14.26	3.42	1.93	12874

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	14.26	3.42	1.93	12874
1.30	1.40	60.68	21.69	4.67	3.09	11621
1.40	1.55	23.98	44.15	8.95	7.15	7832
1.55	2.00	14.95	62.46	12.14	10.21	4744
2.00		10.39	75.62	14.42	12.35	2525

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	2.77	5.49	1.67	0.40	14352
1.30	1.40	59.04	6.85	1.56	0.27	14123
1.40	1.55	12.49	13.40	2.19	0.91	13018
1.55	2.00	9.72	26.61	3.37	2.06	10790
2.00		15.98	75.62	18.82	17.37	2525
		100.00	20.54	4.58	3.26	11814

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	2.77	5.49	1.67	0.40	14352
1.30	1.40	61.81	6.79	1.56	0.28	14133
1.40	1.55	74.30	7.90	1.67	0.38	13946
1.55	2.00	84.02	10.06	1.87	0.58	13581
2.00		100.00	20.54	4.58	3.26	11814

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	20.54	4.58	3.26	11814
1.30	1.40	97.23	20.97	4.66	3.34	11742
1.40	1.55	38.19	42.80	9.45	8.09	8060
1.55	2.00	25.70	57.08	12.98	11.58	5651
2.00		15.98	75.62	18.82	17.37	2525

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 4.73

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	11.37	6.29	2.00	0.56	14217
1.30	1.40	23.73	10.52	3.19	1.16	13504
1.40	1.55	28.62	22.73	5.54	3.80	11445
1.55	2.00	27.76	42.73	6.27	4.52	8072
2.00		8.52	63.64	12.49	10.89	4545
		100.00	27.00	5.37	3.61	10724

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	11.37	6.29	2.00	0.56	14217
1.30	1.40	35.10	9.15	2.80	0.97	13735
1.40	1.55	63.72	15.25	4.03	2.24	12706
1.55	2.00	91.48	23.59	4.71	2.93	11300
2.00		100.00	27.00	5.37	3.61	10724

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	27.00	5.37	3.61	10724
1.30	1.40	88.63	29.66	5.81	4.00	10276
1.40	1.55	64.90	36.66	6.76	5.04	9096
1.55	2.00	36.28	47.64	7.73	6.02	7243
2.00		8.52	63.64	12.49	10.89	4545

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.23

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	27.14	2.93	1.61	0.21	14784
1.30	1.40	27.59	8.31	2.31	1.09	13877
1.40	1.55	15.96	18.07	3.67	2.07	12230
1.55	2.00	16.22	38.80	5.45	3.82	8734
2.00		13.09	65.89	20.06	16.09	4166
		100.00	20.89	5.17	3.41	11755

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	27.14	2.93	1.61	0.21	14784
1.30	1.40	54.73	5.64	1.96	0.65	14326
1.40	1.55	70.69	8.45	2.35	0.97	13853
1.55	2.00	86.91	14.11	2.93	1.50	12898
2.00		100.00	20.89	5.17	3.41	11755

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	20.89	5.17	3.41	11755
1.30	1.40	72.86	27.58	6.50	4.61	10627
1.40	1.55	45.27	39.32	9.05	6.75	8646
1.55	2.00	29.31	50.90	11.97	9.30	6694
2.00		13.09	65.89	20.06	16.09	4166

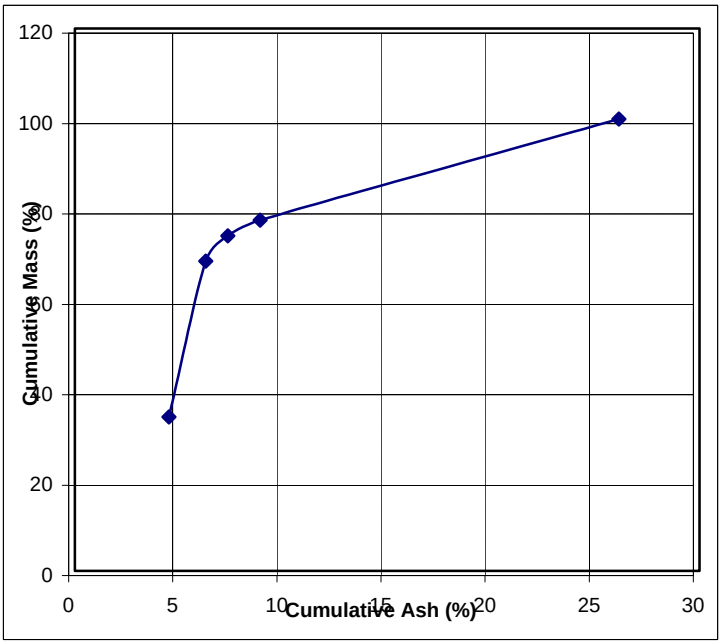
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.07

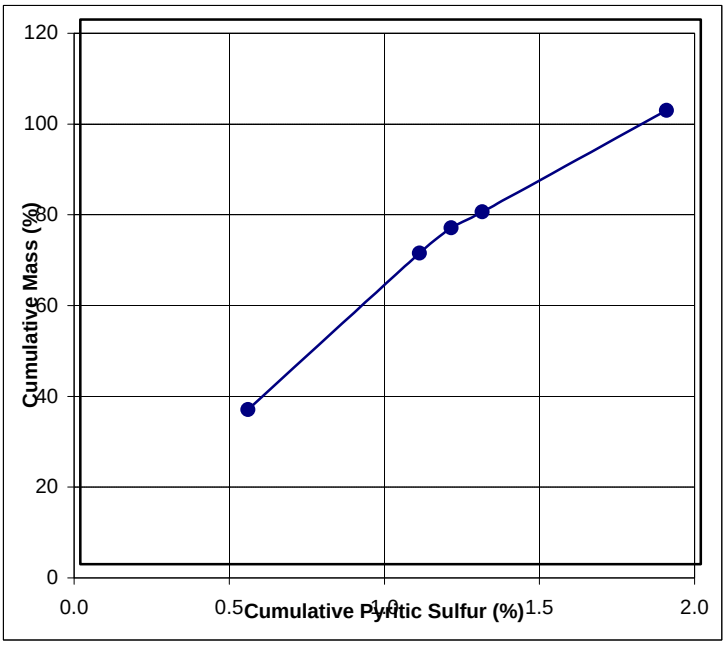
		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	2.66	4.61	1.70	0.03	14501
1.30	1.40	31.55	6.26	1.75	0.40	14222
1.40	1.55	29.53	15.16	2.41	1.20	12721
1.55	2.00	21.38	37.73	3.59	2.80	8915
2.00		14.89	70.65	22.76	19.97	3363
		100.01	25.16	5.46	4.05	11035

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	2.66	4.61	1.70	0.03	14501
1.30	1.40	34.21	6.13	1.75	0.37	14244
1.40	1.55	63.74	10.31	2.05	0.76	13538
1.55	2.00	85.12	17.20	2.44	1.27	12377
2.00		100.01	25.16	5.46	4.05	11035

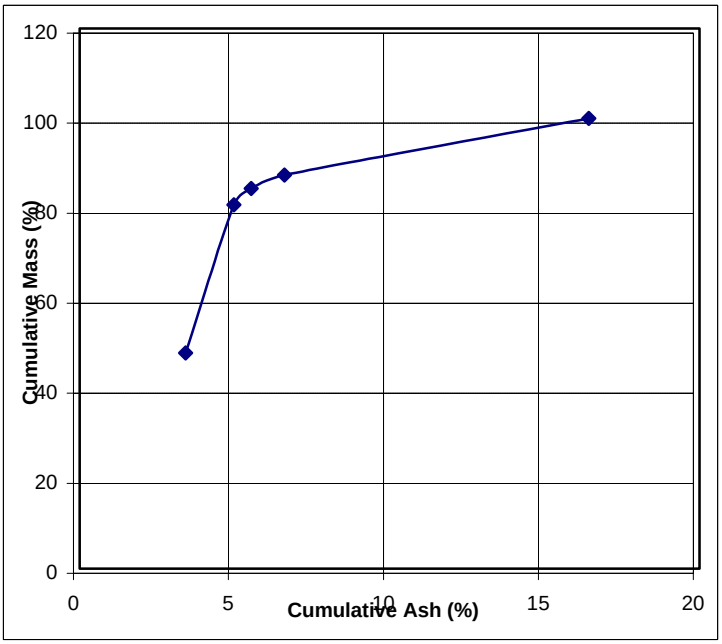
		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	25.16	5.46	4.05	11035
1.30	1.40	97.34	25.72	5.57	4.16	10940
1.40	1.55	65.79	35.05	7.40	5.97	9366
1.55	2.00	36.26	51.25	11.46	9.85	6634
2.00		14.88	70.68	22.77	19.98	3358

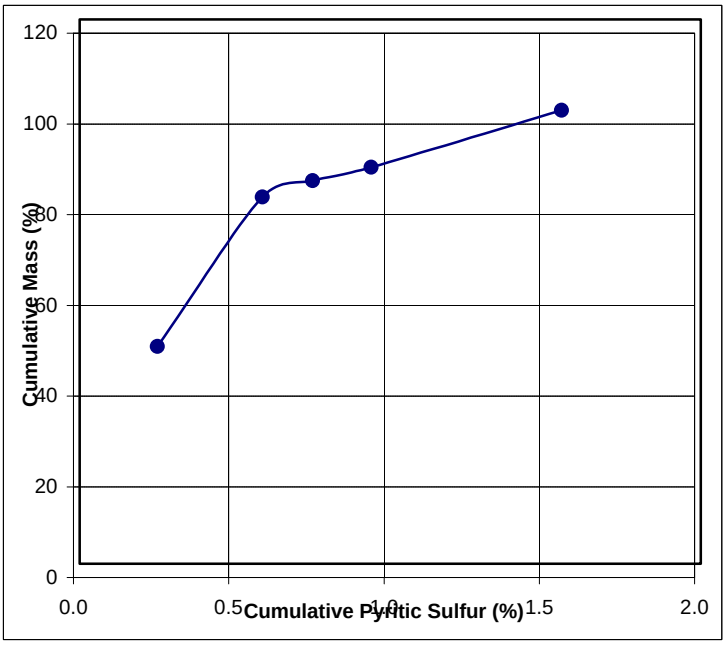
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 56.26



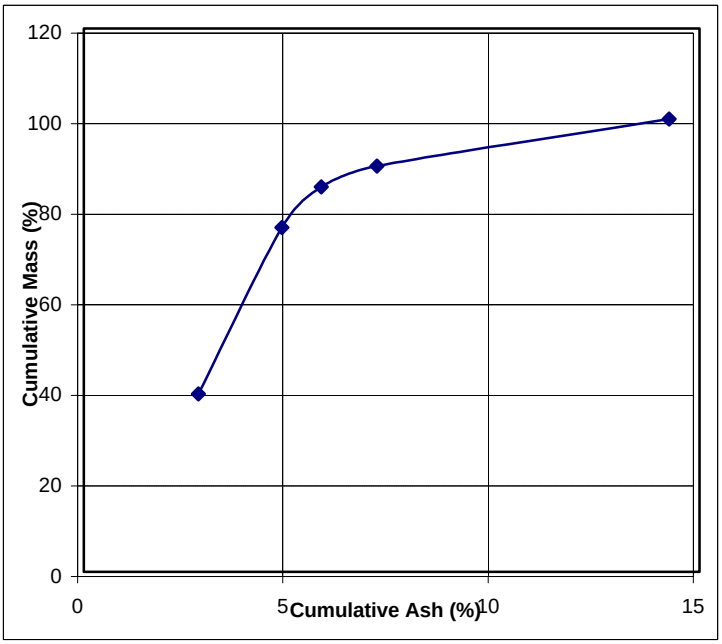


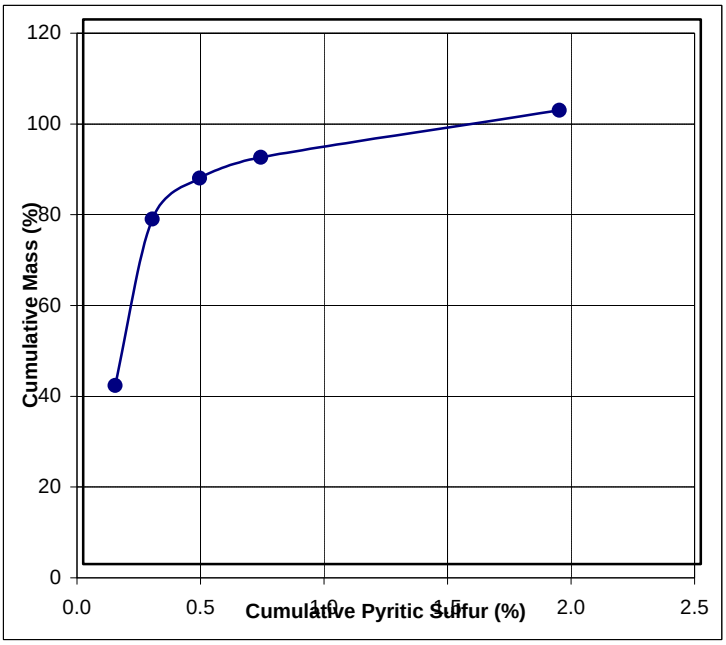
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 34.70



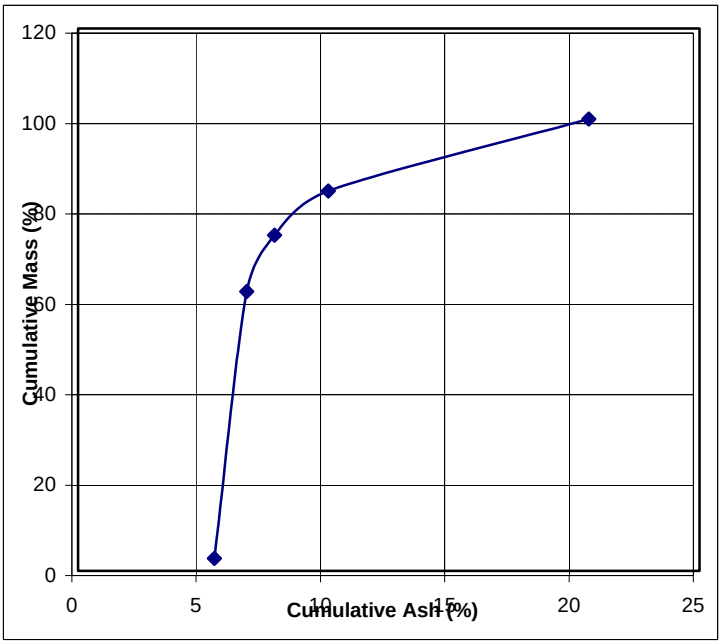


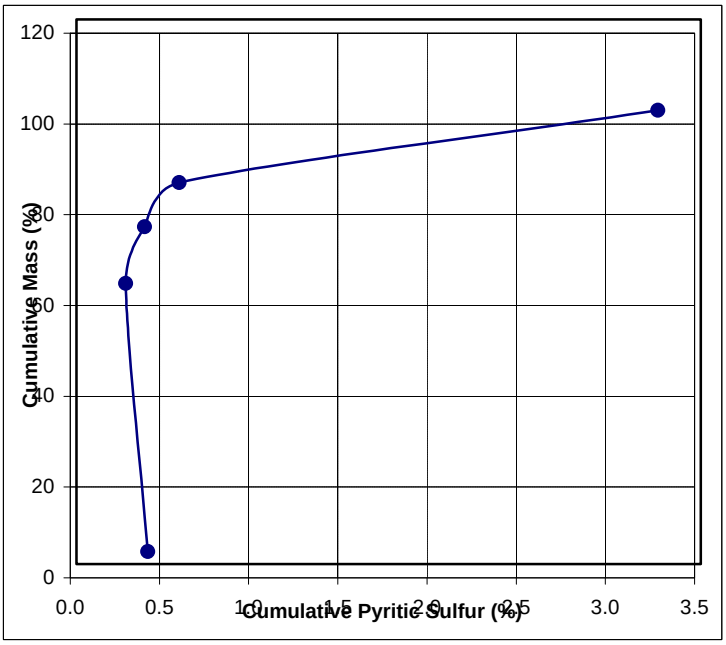
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85



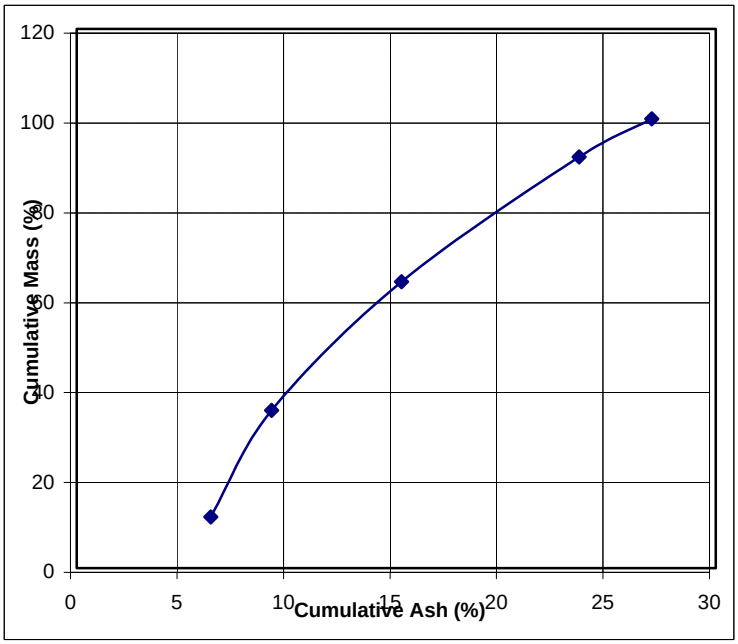


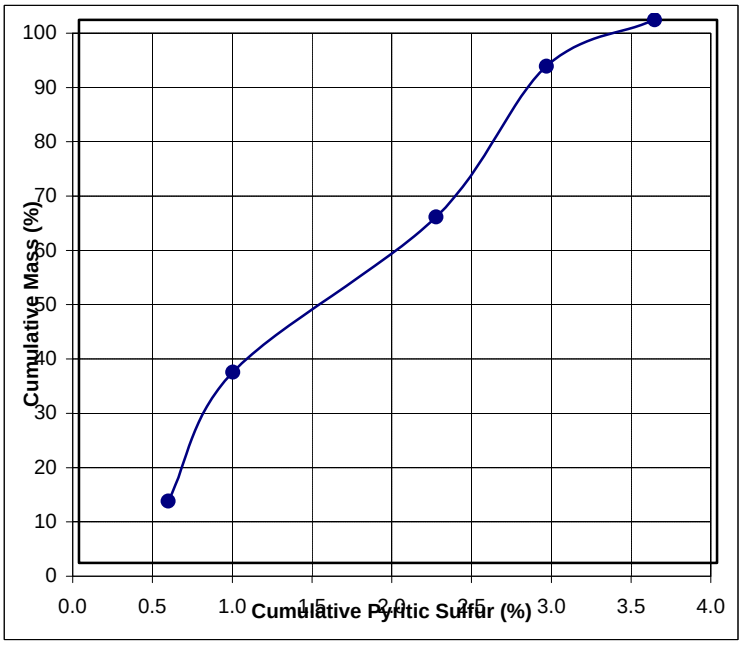
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19



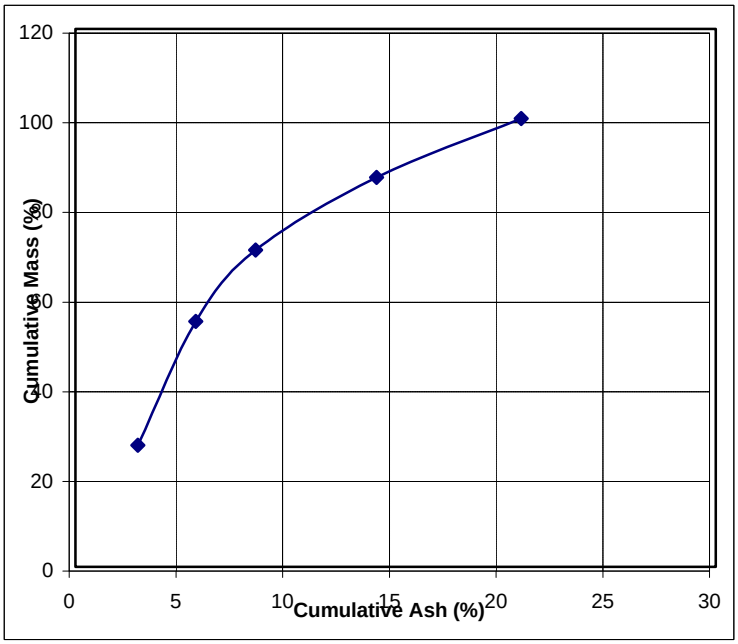


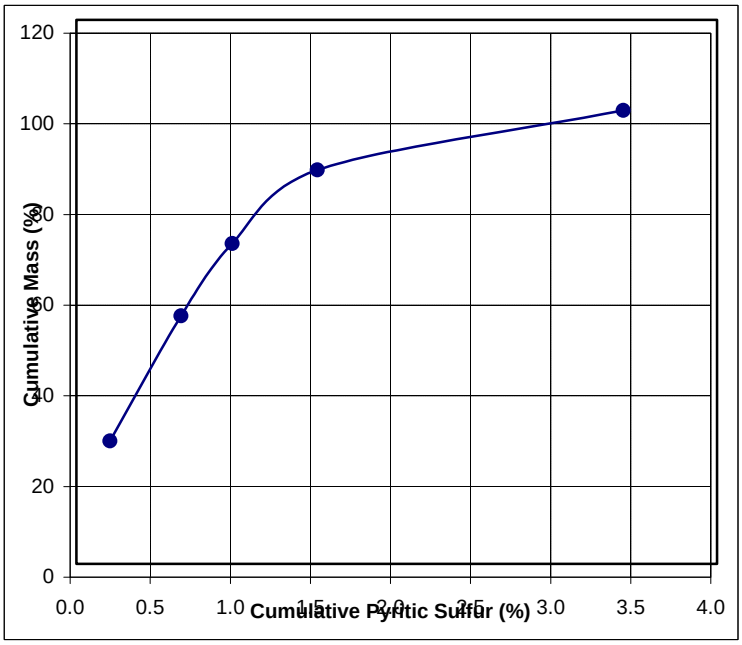
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 4.73



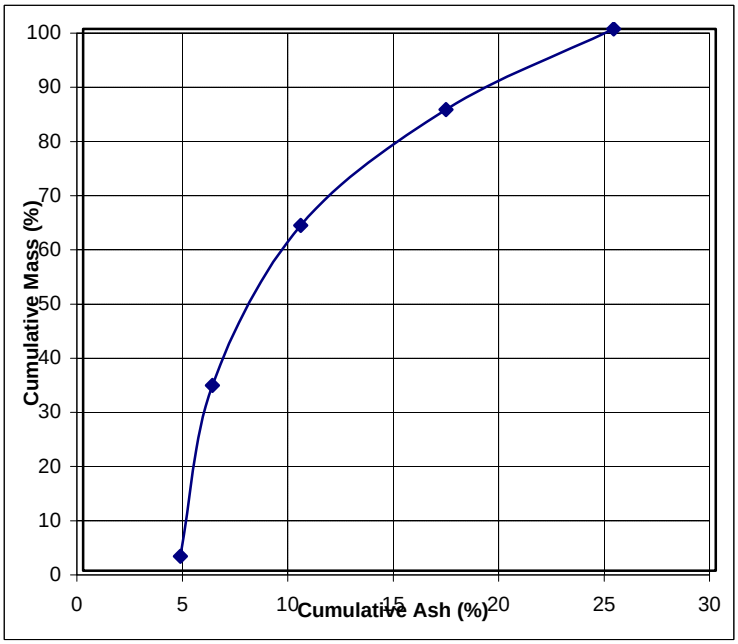


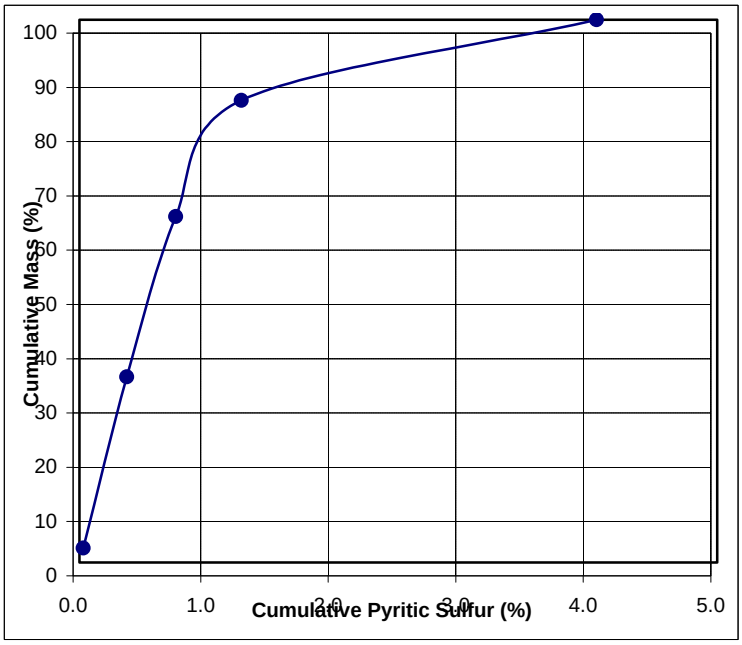
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.23





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.07





APPENDIX II

ILLINOIS NO. 6 WASHABILITY DATA AND RECOVERY-GRADE CURVES

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 39.16

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	28.62	6.96	3.10	0.54	14516
1.30	1.40	25.78	14.02	3.45	1.08	13924
1.40	1.55	6.63	22.33	5.50	3.05	11832
1.55	1.65	1.85	35.27	6.50	4.68	8215
1.65	1.80	2.86	38.91	7.14	6.22	804
1.80	2.00	2.98	57.32	6.78	5.88	
2.00		31.28	81.66	6.65	6.73	
		100.00	36.10	4.75	3.18	8703.41

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	28.62	6.96	3.10	0.54	14516
1.30	1.40	54.40	10.31	3.27	0.80	14235
1.40	1.55	61.03	11.62	3.51	1.04	13974
1.55	1.65	62.88	12.31	3.60	1.15	13805
1.65	1.80	65.74	13.47	3.75	1.37	13239
1.80	2.00	68.72	15.37	3.88	1.56	12665
2.00		100.00	36.10	4.75	3.18	8703

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.30	100.00	36.10	4.75	3.18	8703.41
1.30	1.40	71.38	47.79	5.41	4.24	6372.96
1.40	1.55	45.60	66.88	6.52	6.02	2104.12
1.55	1.65	38.97	74.46	6.69	6.53	449.02
1.65	1.80	37.12	76.41	6.70	6.62	61.98
1.80	2.00	34.26	79.54	6.66	6.66	0.00
2.00		31.28	81.66	6.65	6.73	0.00

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 50.82

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	68.23	10.46	2.66	0.50	14701
1.40	1.55	11.92	22.00	2.59	1.44	14057
1.55	1.65	2.48	29.04	2.46	2.26	12244
1.65	2.00	4.66	46.23	3.02	3.33	9023
2.00		12.71	81.21	6.33	7.52	997
		100.00	22.96	3.13	1.68	12557

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	68.23	10.46	2.66	0.50	14701
1.40	1.55	80.15	12.18	2.65	0.64	14605
1.55	1.65	82.63	12.68	2.64	0.69	14535
1.65	2.00	87.29	14.47	2.66	0.83	14240
2.00		100.00	22.96	3.13	1.68	12557

		Cumulative Sink				
Sink SG	Float SG	0 (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	22.96	3.13	1.68	12557
1.40	1.55	31.77	49.79	4.14	4.21	7953
1.55	1.65	19.85	66.48	5.07	5.88	4286
1.65	2.00	17.37	71.83	5.44	6.40	3150
2.00		12.71	81.21	6.33	7.52	997

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	38.10	9.05	2.80	0.34	14807
1.40	1.55	22.36	11.61	2.71	0.47	14096
1.55	1.65	5.73	12.48	2.56	0.45	12946
1.65	2.00	17.49	29.14	3.14	1.28	9800
2.00		16.31	80.84	6.49	5.18	2515
		100.00	25.05	3.43	1.33	11660

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	38.10	9.05	2.80	0.34	14807
1.40	1.55	60.46	10.00	2.77	0.39	14544
1.55	1.65	66.19	10.21	2.75	0.39	14406
1.65	2.00	83.69	14.17	2.83	0.58	13443
2.00		100.00	25.05	3.43	1.33	11660

		Cumulative Sink				
Sink SG	Float SG	0 (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	25.05	3.43	1.33	11660
1.40	1.55	61.90	34.89	3.82	1.94	9723
1.55	1.65	39.54	48.06	4.44	2.77	7250
1.65	2.00	33.81	54.09	4.76	3.16	6284
2.00		16.31	80.84	6.49	5.18	2515

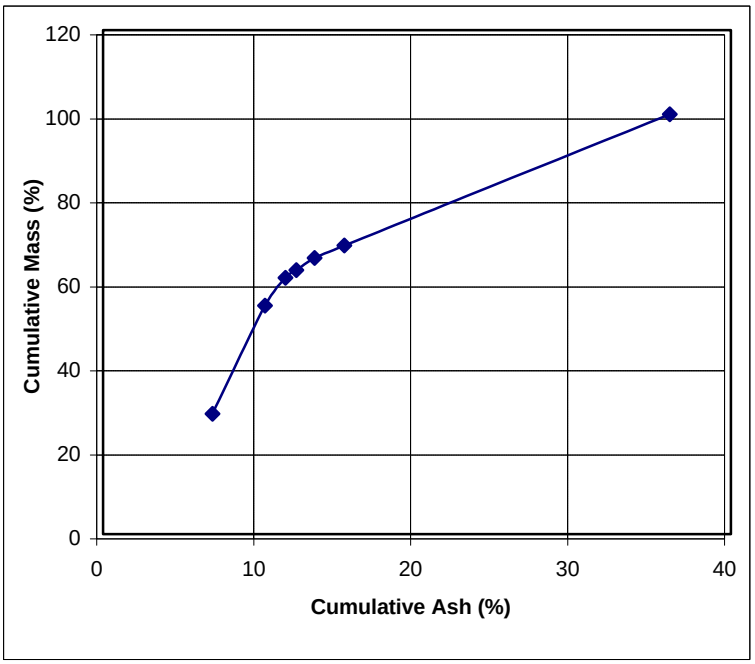
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27

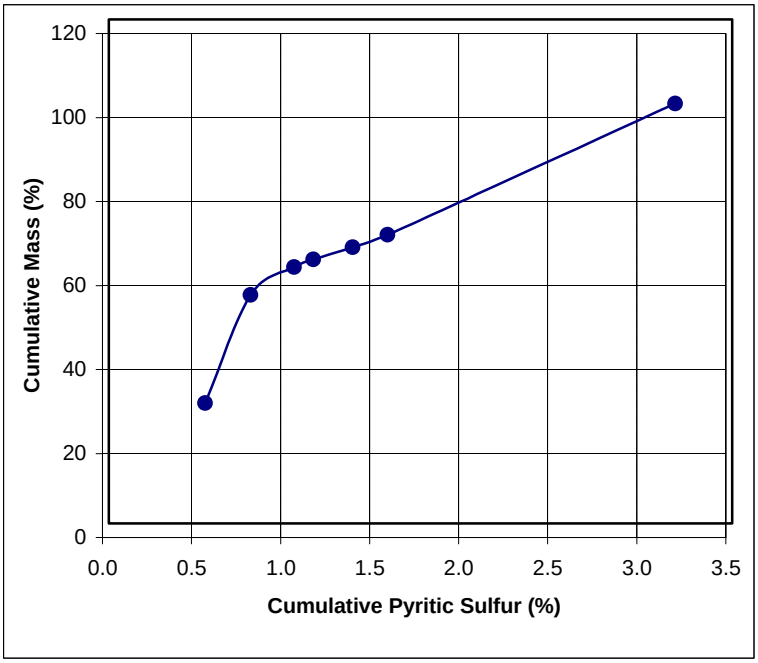
		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	2.67	20.77	2.65	0.89	14352
1.40	1.55	22.75	15.47	2.52	0.49	14123
1.55	1.65	7.92	27.21	2.89	1.07	13018
1.65	2.00	51.28	26.02	2.50	0.78	10790
2.00		15.38	82.50	8.99	7.63	2525
		100.00	32.26	3.54	1.79	10549

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	2.67	20.77	2.65	0.89	14352
1.40	1.55	25.42	16.02	2.54	0.53	14147
1.55	1.65	33.34	18.68	2.62	0.66	13879
1.65	2.00	84.62	23.13	2.55	0.73	12007
2.00		100.00	32.26	3.54	1.79	10549

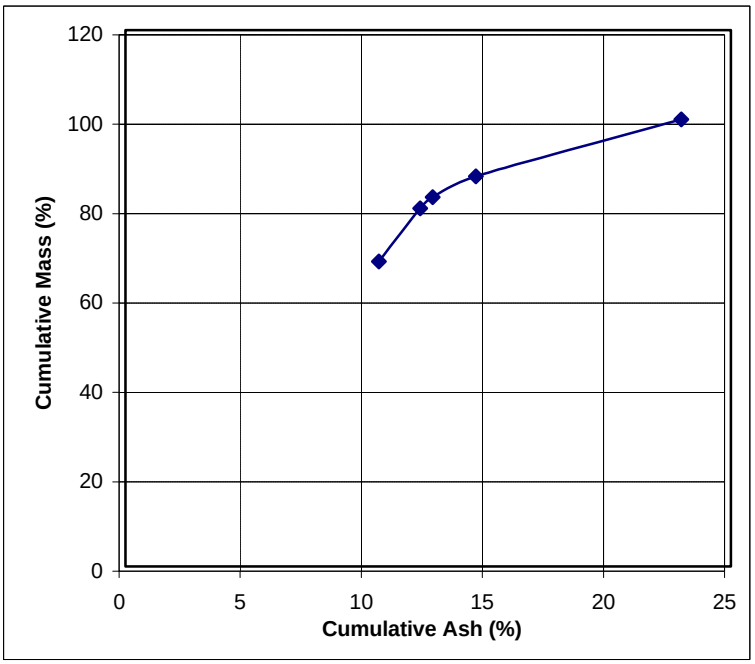
		Cumulative Sink				
Sink SG	Float SG	0 (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	32.26	3.54	1.79	10549
1.40	1.55	97.33	32.58	3.56	1.82	10444
1.55	1.65	74.58	37.80	3.88	2.22	9322
1.65	2.00	66.66	39.05	3.99	2.36	8883
2.00		15.38	82.50	8.99	7.63	2525

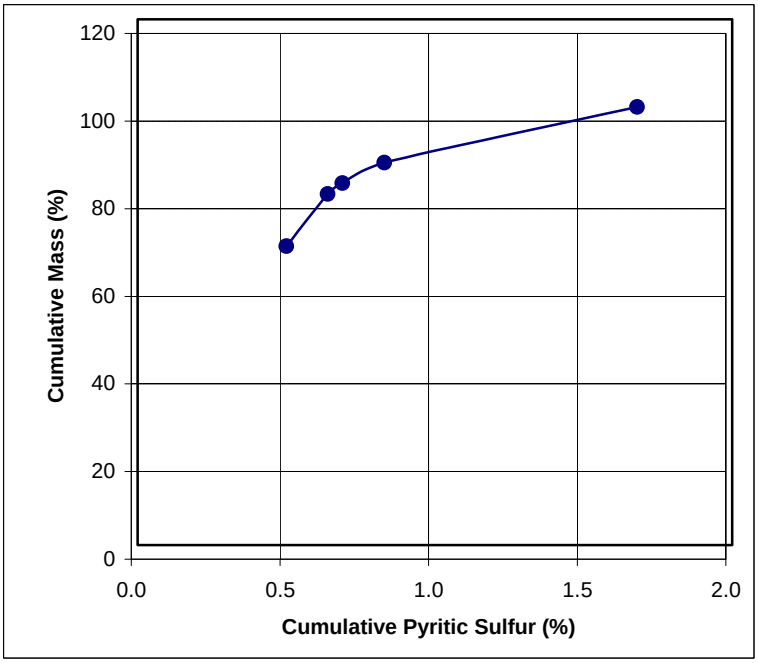
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 39.16



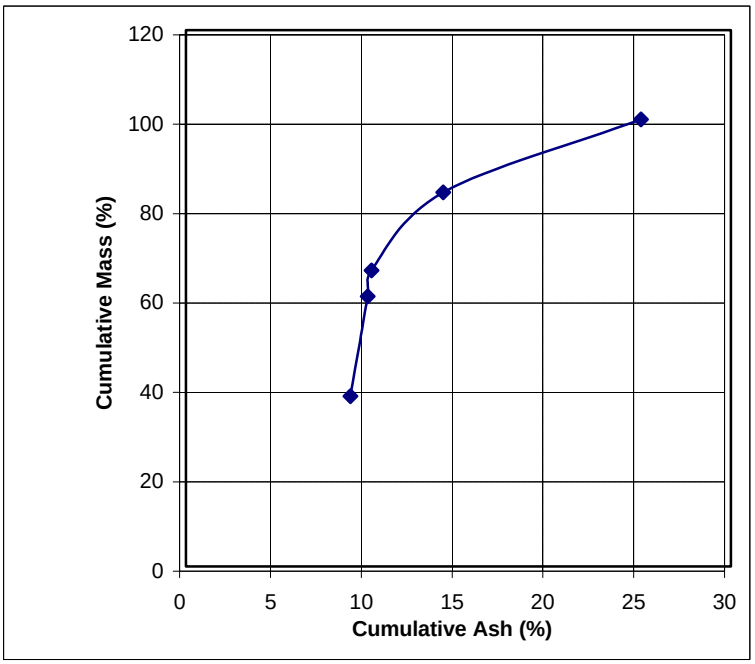


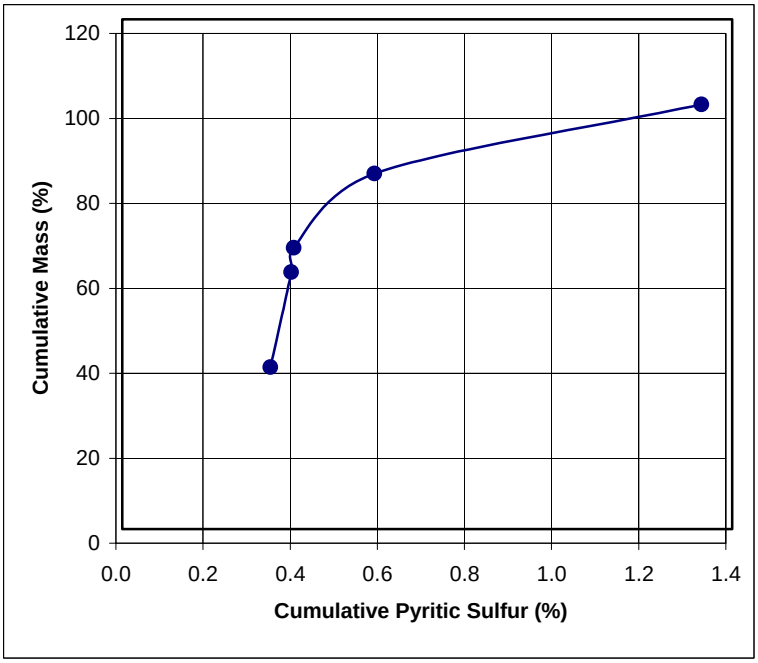
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 50.82



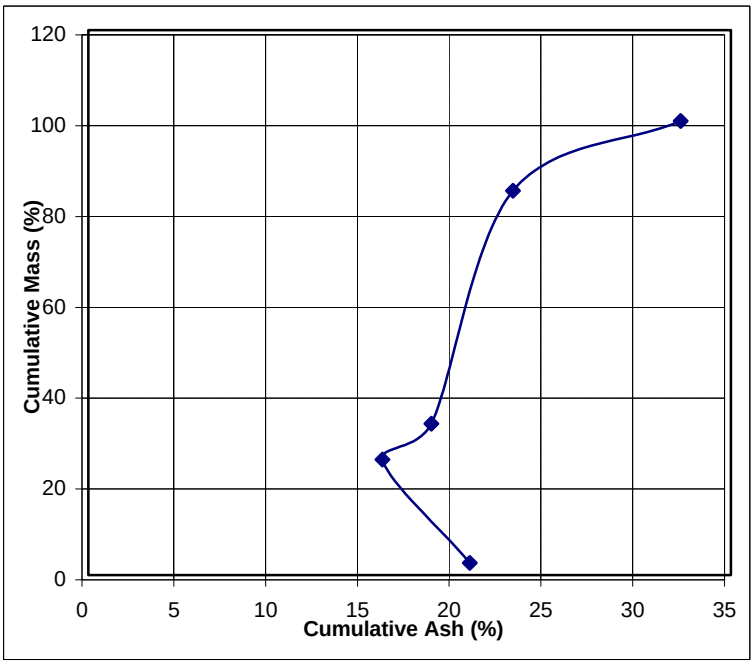


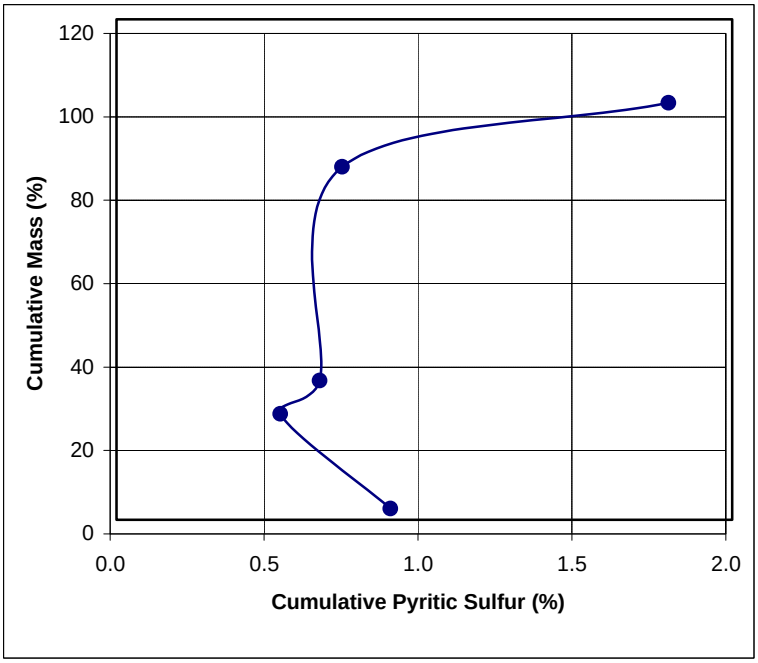
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02





Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 5.43

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	26.59	11.47	3.57	1.11	14217
1.40	1.55	23.15	23.44	5.40	2.93	13504
1.55	1.65	12.39	35.04	6.68	4.47	11445
1.65	2.00	28.19	52.49	6.94	5.09	8072
2.00		9.69	69.64	12.98	13.81	4545
		100.00	34.36	6.24	4.30	11039

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	26.59	11.47	3.57	1.11	14217
1.40	1.55	49.73	17.04	4.42	1.96	13885
1.55	1.65	62.12	20.63	4.87	2.46	13399
1.65	2.00	90.31	30.57	5.52	3.28	11736
2.00		100.00	34.36	6.24	4.30	11039

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	34.36	6.24	4.30	11039
1.40	1.55	73.41	42.65	7.21	5.46	9888
1.55	1.65	50.27	51.50	8.04	6.62	8223
1.65	2.00	37.88	56.88	8.48	7.32	7169
2.00		9.69	69.64	12.98	13.81	4545

Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	20.20	4.30	2.69	0.47	14784
1.40	1.55	28.54	10.34	3.08	0.95	13877
1.55	1.65	3.54	27.45	2.48	1.48	12230
1.65	2.00	20.20	38.41	3.44	2.26	8734
2.00		27.53	72.25	12.01	10.60	4166
		100.00	32.44	5.51	3.79	10290

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	20.20	4.30	2.69	0.47	14784
1.40	1.55	48.74	7.83	2.92	0.75	14253
1.55	1.65	52.27	9.16	2.89	0.80	14116
1.65	2.00	72.47	17.31	3.04	1.21	12616
2.00		100.00	32.44	5.51	3.79	10290

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	32.44	5.51	3.79	10290
1.40	1.55	79.80	39.56	6.22	4.63	9152
1.55	1.65	51.26	55.83	7.98	6.68	6522
1.65	2.00	47.73	57.93	8.38	7.07	6100
2.00		27.53	72.25	12.01	10.60	4166

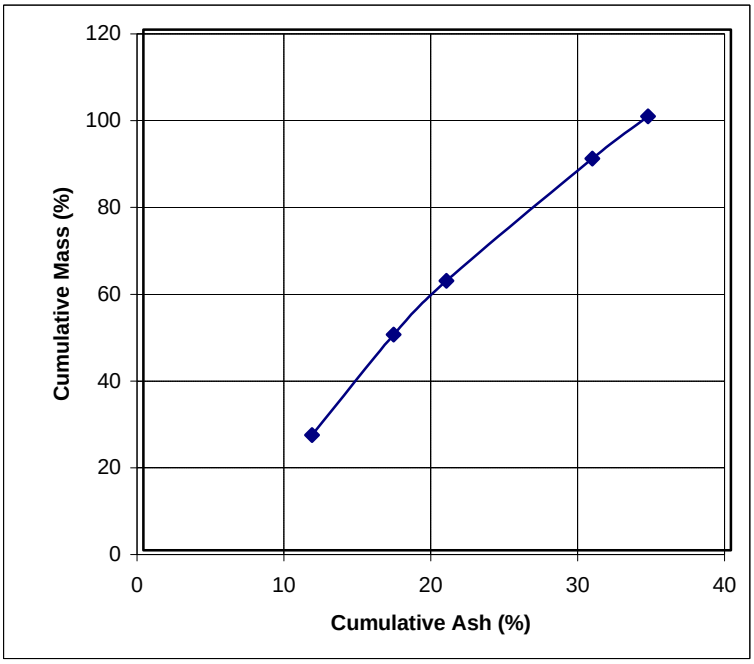
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03

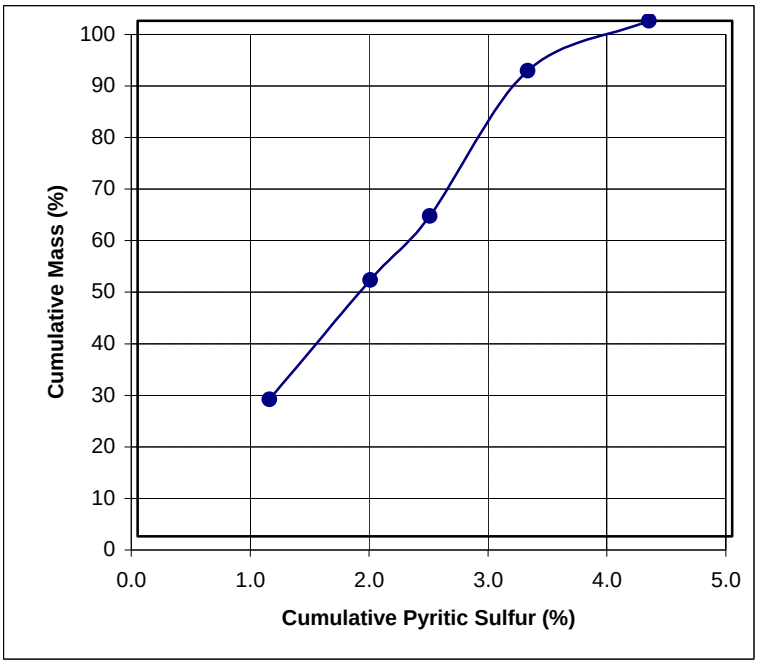
		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	15.84	7.77	2.77	0.54	14501
1.40	1.55	29.70	8.60	2.50	0.47	14222
1.55	1.65	2.97	23.02	2.07	*4.53*	12721
1.65	2.00	25.74	31.16	3.08	1.60	8915
2.00		25.74	74.72	12.82	11.86	3363
		100.00	31.72	5.34	3.82	10060

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	15.84	7.77	2.77	0.54	14501
1.40	1.55	45.54	8.31	2.59	0.49	14319
1.55	1.65	48.51	9.21	2.56	0.74	14221
1.65	2.00	74.26	16.82	2.74	1.04	12382
2.00		100.00	31.72	5.34	3.82	10060

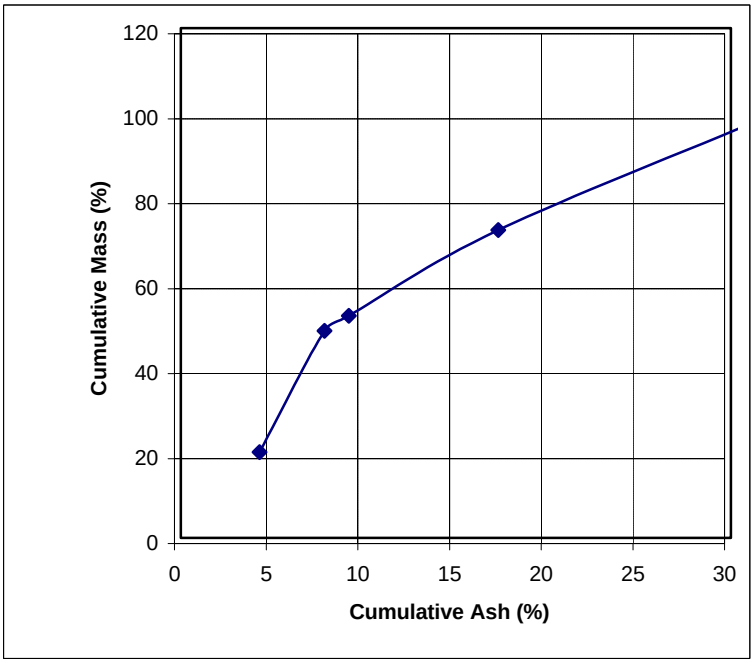
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	31.72	5.34	3.82	10060
1.40	1.55	84.16	36.23	5.82	4.44	9224
1.55	1.65	54.46	51.30	7.63	6.61	6498
1.65	2.00	51.49	52.94	7.95	6.73	6139
2.00		25.74	74.72	12.82	11.86	3363

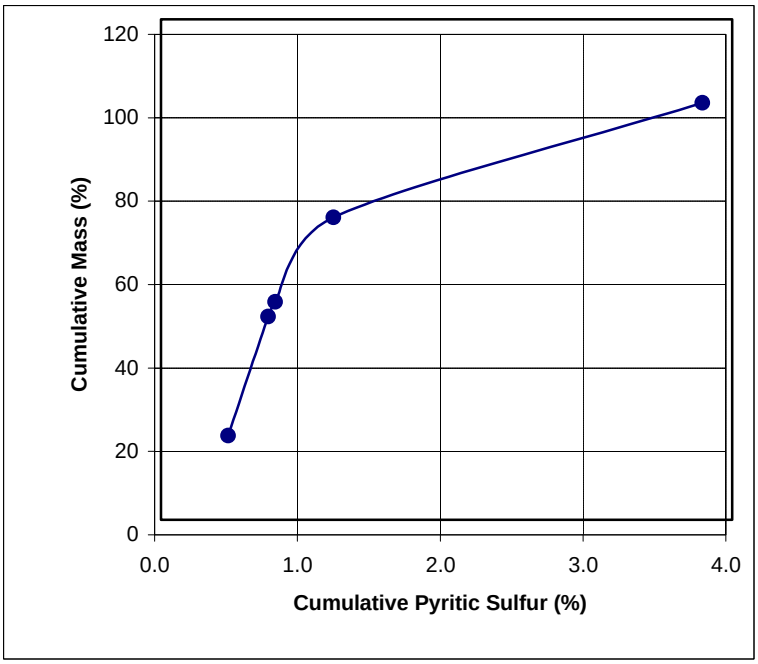
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 5.43



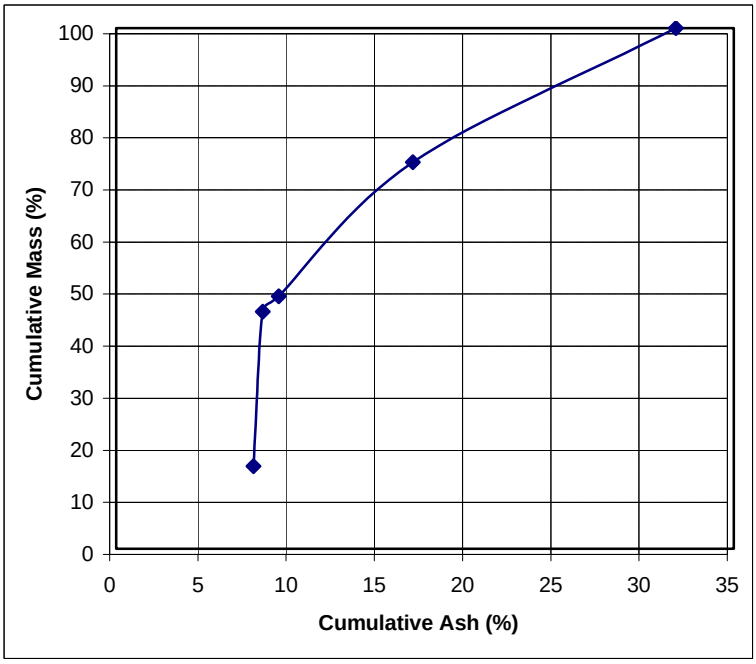


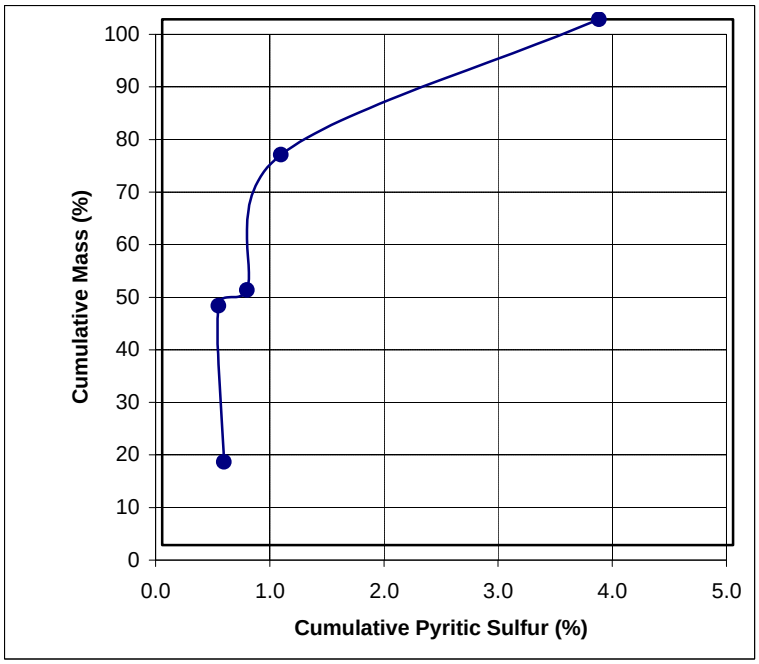
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03





APPENDIX III

COALBURG WASHABILITY DATA AND RECOVERY-GRADE CURVES

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: +50 mm
Mass (%): 18.45

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	0.26	11.27	0.38	0.01	13377
1.40	1.55	16.75	32.18	0.46	0.03	9851
1.55	1.65	36.20	39.39	0.38	0.04	8635
1.65	2.00	46.54	46.85	0.34	0.04	7376
2.00		0.26	64.61	0.17	0.02	4381
		100.00	41.65	0.38	0.04	8254

		Cumulative Float				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	0.26	11.27	0.38	0.01	13377
1.40	1.55	17.01	31.86	0.46	0.03	9905
1.55	1.65	53.21	36.98	0.41	0.04	9041
1.65	2.00	99.74	41.59	0.38	0.04	8264
2.00		100.00	41.65	0.38	0.04	8254

		Cumulative Sink				
Sink SG	Float SG	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	41.65	0.38	0.04	8254
1.40	1.55	99.74	41.73	0.38	0.04	8241
1.55	1.65	82.99	43.65	0.36	0.04	7916
1.65	2.00	46.79	46.95	0.34	0.04	7360
2.00		0.26	64.61	0.17	0.02	4381

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 46.34

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	7.86	8.40	0.64	0.03	14516
1.40	1.55	21.24	27.57	0.49	0.04	13924
1.55	1.65	27.32	38.17	0.40	0.05	11832
1.65	1.80	32.00	45.78	0.34	0.04	8215
1.80	2.00	9.46	55.93	0.22	0.03	804
2.00		2.12	72.53	0.12	0.07	
		100.00	38.42	0.39	0.04	10036.1

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	7.86	8.40	0.64	0.03	14516
1.40	1.55	29.10	22.39	0.53	0.04	14084
1.55	1.65	56.42	30.04	0.47	0.04	12993
1.65	1.80	88.42	35.73	0.42	0.04	11264
1.80	2.00	97.88	37.69	0.40	0.04	10253
2.00		100.00	38.42	0.39	0.04	10036

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
1.30	1.40	100.00	38.42	0.39	0.04	10036.1
1.40	1.55	92.14	40.98	0.37	0.04	9654.25
1.55	1.65	70.90	45.00	0.34	0.04	8375.02
1.65	1.80	43.58	49.28	0.30	0.04	6207.27
1.80	2.00	11.58	58.97	0.20	0.04	657.41
2.00		2.12	72.53	0.12	0.07	0.00

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 29.32

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	34.83	7.19	0.72	0.03	14701
1.40	1.55	22.25	21.51	0.51	0.03	14057
1.55	1.65	14.81	34.19	0.41	0.04	12244
1.65	2.00	25.05	46.94	0.29	0.05	9023
2.00		3.06	69.95	0.19	0.15	997
		100.00	26.25	0.50	0.04	12353

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	34.83	7.19	0.72	0.03	14701
1.40	1.55	57.09	12.77	0.64	0.03	14450
1.55	1.65	71.89	17.18	0.59	0.03	13996
1.65	2.00	96.94	24.87	0.51	0.04	12711
2.00		100.00	26.25	0.50	0.04	12353

		Cumulative Sink				
Sink SG	Float SG	0 (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	26.25	0.50	0.04	12353
1.40	1.55	65.17	36.44	0.39	0.05	11097
1.55	1.65	42.91	44.18	0.32	0.05	9562
1.65	2.00	28.11	49.45	0.28	0.06	8149
2.00		3.06	69.95	0.19	0.15	997

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	24.80	5.41	0.76	0.03	14807
1.40	1.55	26.17	12.38	0.58	0.07	14096
1.55	1.65	14.68	20.06	0.46	0.08	12946
1.65	2.00	27.86	38.49	0.32	0.08	9800
2.00		6.49	70.15	0.38	0.47	2515
		100.00	22.80	0.52	0.09	12155

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	24.80	5.41	0.76	0.03	14807
1.40	1.55	50.96	8.99	0.67	0.05	14442
1.55	1.65	65.65	11.47	0.62	0.06	14107
1.65	2.00	93.51	19.52	0.53	0.06	12824
2.00		100.00	22.80	0.52	0.09	12155

		Cumulative Sink				
Sink SG	Float SG	0 (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	22.80	0.52	0.09	12155
1.40	1.55	75.20	28.54	0.44	0.11	11280
1.55	1.65	49.04	37.16	0.37	0.13	9778
1.65	2.00	34.35	44.47	0.33	0.15	8424
2.00		6.49	70.15	0.38	0.47	2515

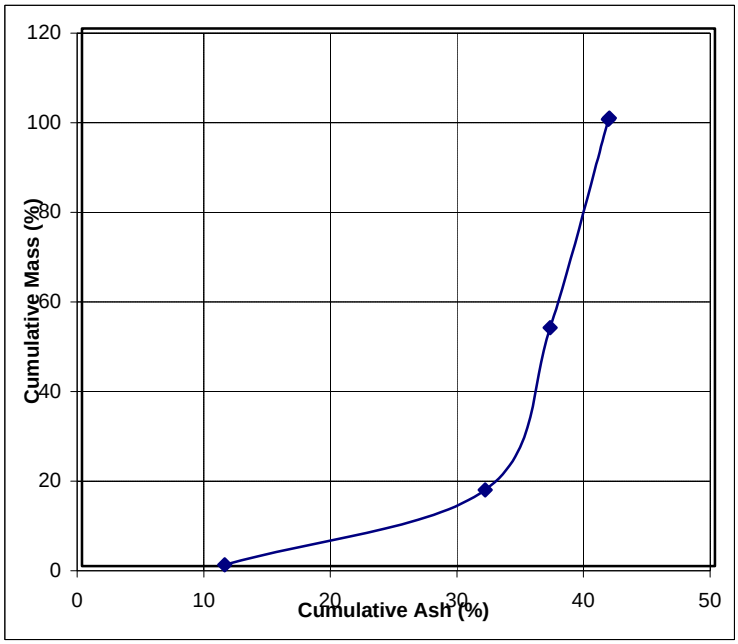
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98

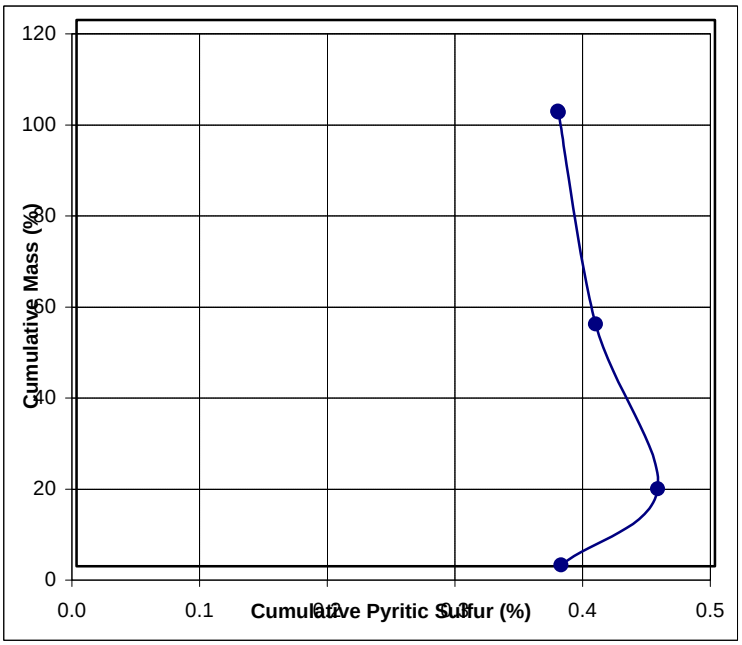
		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	3.99	11.80	0.62	0.05	14352
1.40	1.55	8.22	13.13	0.57	0.07	14123
1.55	1.65	36.31	15.60	0.45	0.06	13018
1.65	2.00	49.87	29.60	0.34	0.12	10790
2.00		1.62	71.36	0.59	0.69	2525
		100.00	23.13	0.41	0.10	11882

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	3.99	11.80	0.62	0.05	14352
1.40	1.55	12.21	12.70	0.59	0.06	14198
1.55	1.65	48.52	14.87	0.49	0.06	13315
1.65	2.00	98.38	22.33	0.41	0.09	12035
2.00		100.00	23.13	0.41	0.10	11882

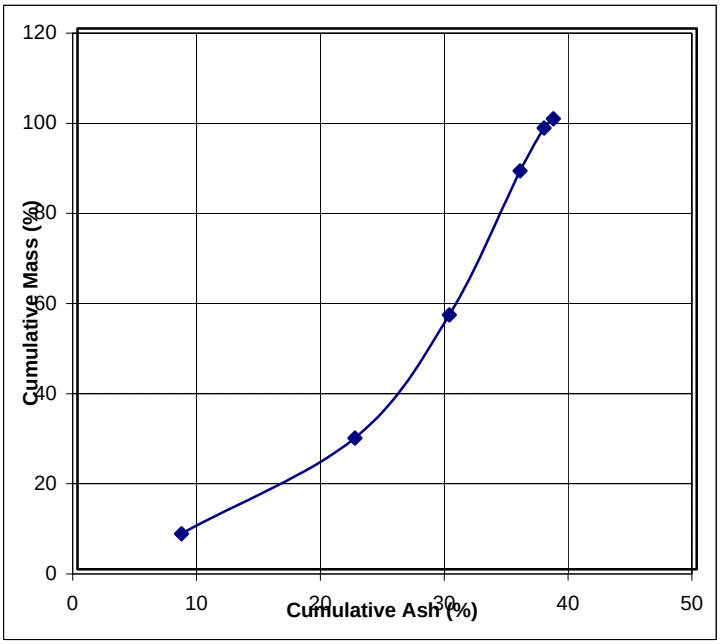
		Cumulative Sink				
Sink SG	Float SG	0 (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	23.13	0.41	0.10	11882
1.40	1.55	96.01	23.60	0.41	0.10	11779
1.55	1.65	87.79	24.58	0.39	0.11	11559
1.65	2.00	51.48	30.91	0.35	0.14	10531
2.00		1.62	71.36	0.59	0.69	2525

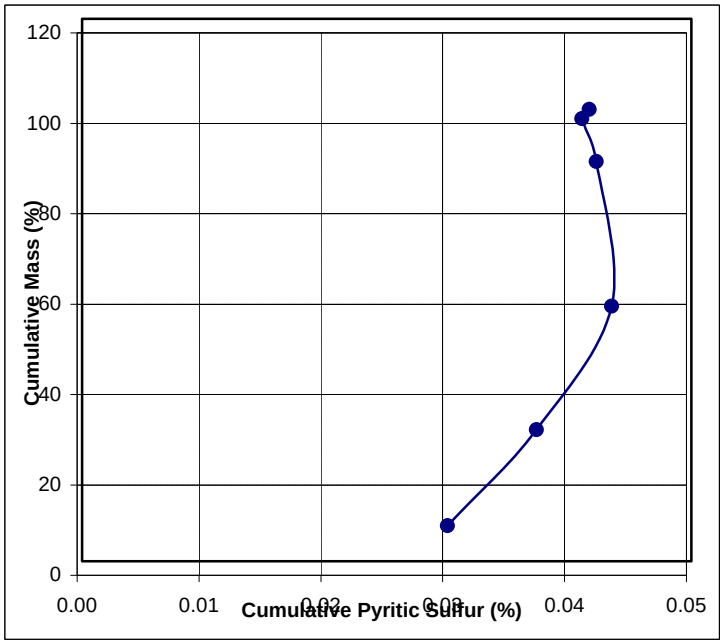
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: +50 mm
Mass (%): 18.45



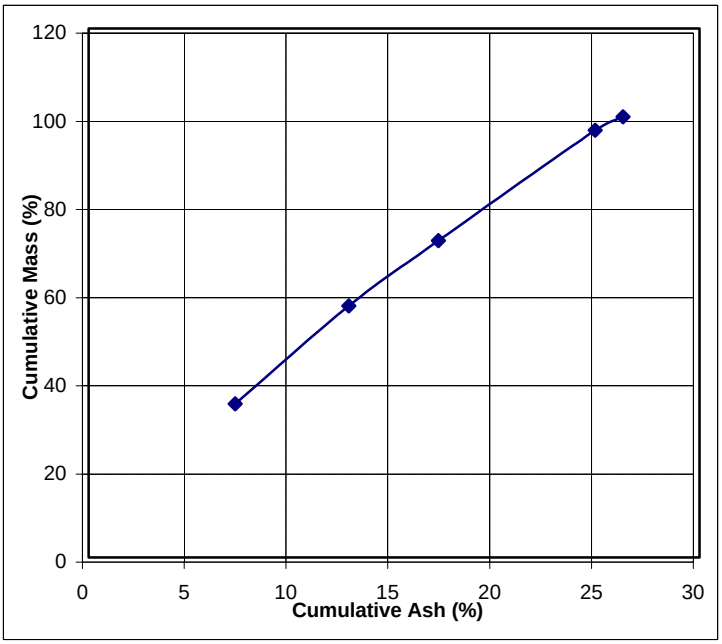


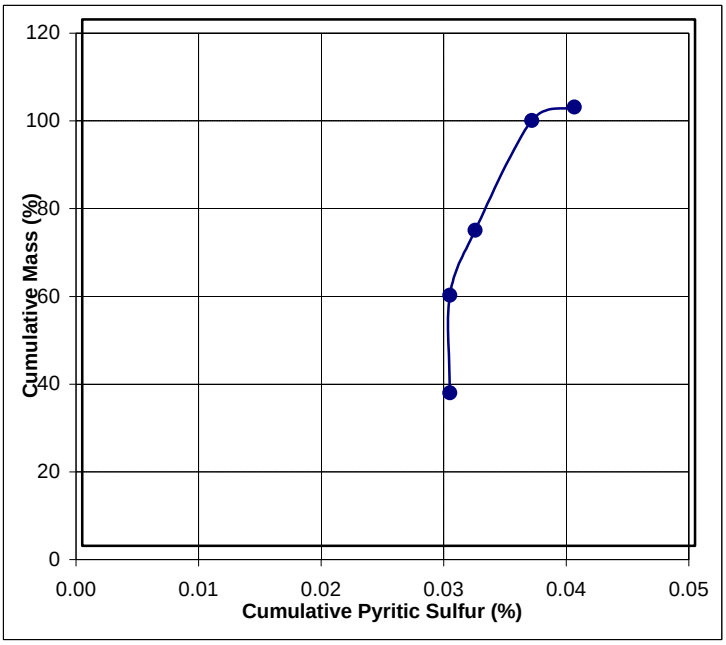
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 46.34



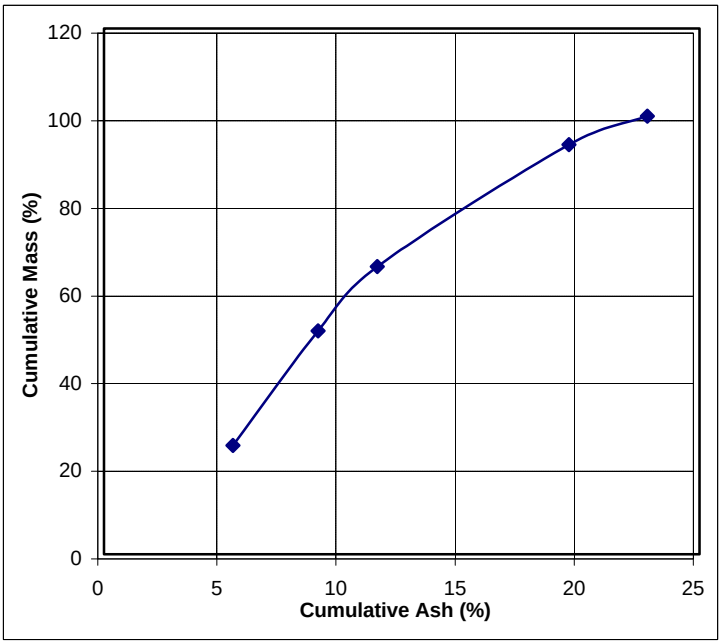


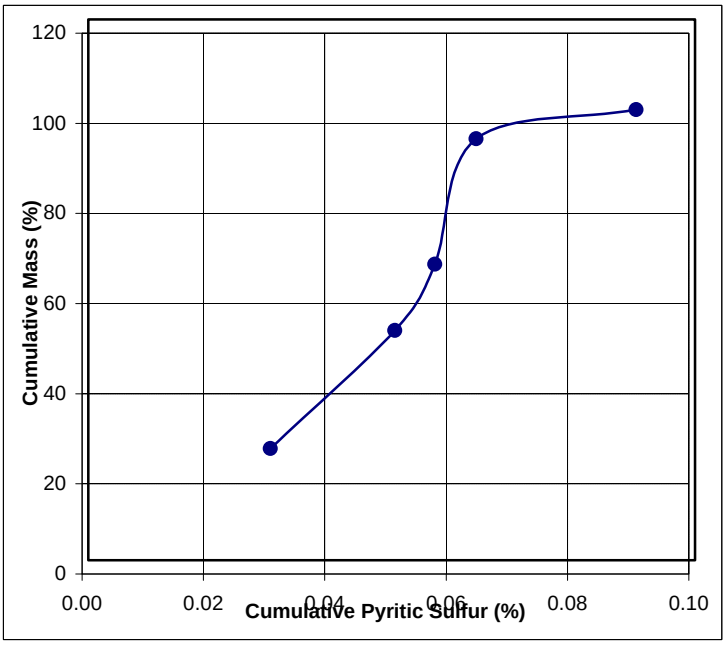
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 29.32



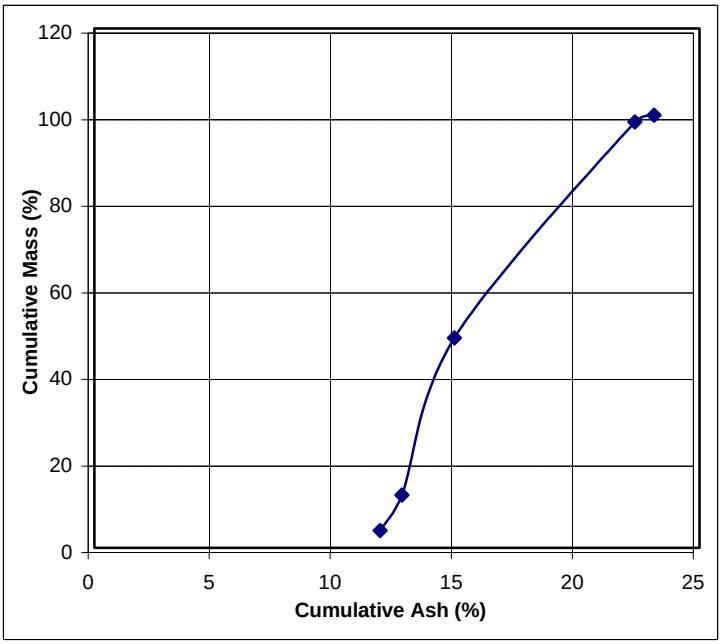


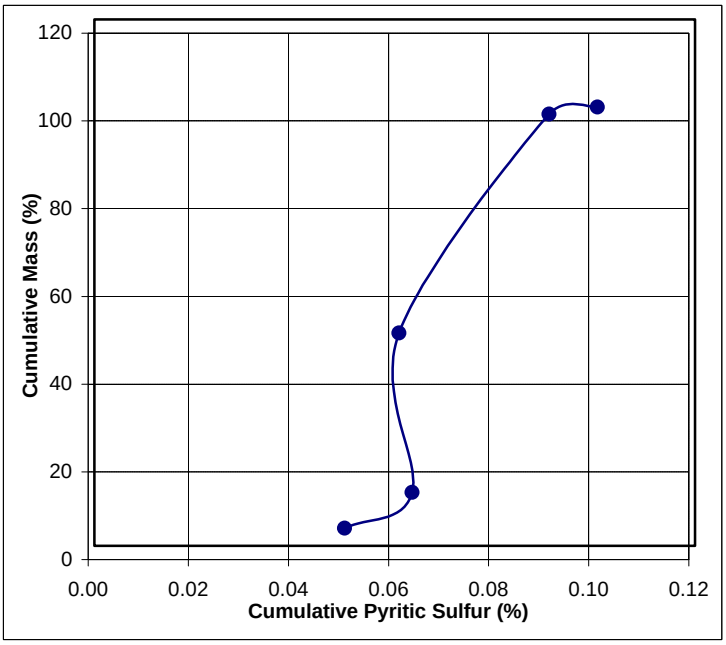
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10





Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98





Seam: Coalburg
Sample: Crushed Middlings Only
Class: 50 x 10 mm
Mass (%): 9.11

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	0.46	12.73	0.47	0.02	
1.40	1.55	31.28	29.06	0.48	0.03	
1.55	1.65	39.28	38.16	0.43	0.04	
1.65	2.00	23.90	50.82	0.31	0.05	
2.00		5.09	62.77	0.15	0.02	
		100.00	39.47	0.40	0.04	0

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	0.46	12.73	0.47	0.02	0
1.40	1.55	31.74	28.82	0.48	0.03	0
1.55	1.65	71.01	33.99	0.45	0.04	0
1.65	2.00	94.91	38.22	0.42	0.04	0
2.00		100.00	39.47	0.40	0.04	0

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	39.47	0.40	0.04	0
1.40	1.55	99.54	39.59	0.40	0.04	0
1.55	1.65	68.26	44.42	0.37	0.04	0
1.65	2.00	28.99	52.91	0.28	0.04	0
2.00		5.09	62.77	0.15	0.02	0

Seam: Coalburg
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 8.31

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	8.86	10.76	0.68	0.03	14217
1.40	1.55	19.01	25.63	0.51	0.03	13504
1.55	1.65	21.00	36.32	0.41	0.04	11445
1.65	2.00	48.05	50.47	0.29	0.04	8072
2.00		3.08	67.93	1.69	0.15	4545
		100.00	39.79	0.43	0.04	10249

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	8.86	10.76	0.68	0.03	14217
1.40	1.55	27.88	20.90	0.56	0.03	13731
1.55	1.65	48.88	27.53	0.50	0.03	12749
1.65	2.00	96.92	38.90	0.39	0.04	10430
2.00		100.00	39.79	0.43	0.04	10249

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	39.79	0.43	0.04	10249
1.40	1.55	91.14	42.62	0.41	0.04	9863
1.55	1.65	72.12	47.10	0.38	0.04	8903
1.65	2.00	51.12	51.52	0.37	0.05	7859
2.00		3.08	67.93	1.69	0.15	4545

Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68

		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	17.49	8.60	0.73	0.02	14784
1.40	1.55	22.62	18.82	0.58	0.04	13877
1.55	1.65	8.18	23.15	0.48	0.05	12230
1.65	2.00	35.43	44.72	0.33	0.05	8734
2.00		16.28	66.42	0.26	0.44	4166
		100.00	34.31	0.46	0.11	10498

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	17.49	8.60	0.73	0.02	14784
1.40	1.55	40.11	14.36	0.64	0.03	14272
1.55	1.65	48.29	15.85	0.62	0.03	13926
1.65	2.00	83.72	28.06	0.50	0.04	11729
2.00		100.00	34.31	0.46	0.11	10498

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	34.31	0.46	0.11	10498
1.40	1.55	82.51	39.76	0.40	0.12	9590
1.55	1.65	59.89	47.67	0.33	0.16	7970
1.65	2.00	51.71	51.55	0.31	0.17	7296
2.00		16.28	66.42	0.26	0.44	4166

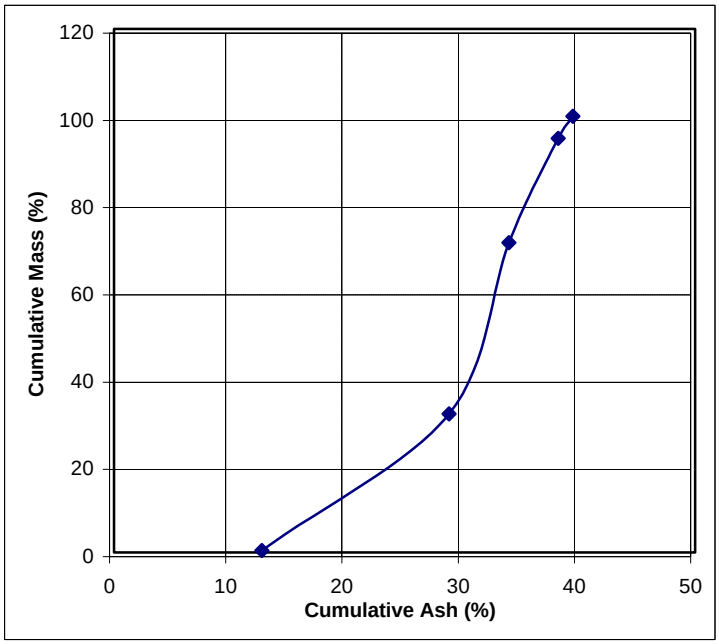
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13

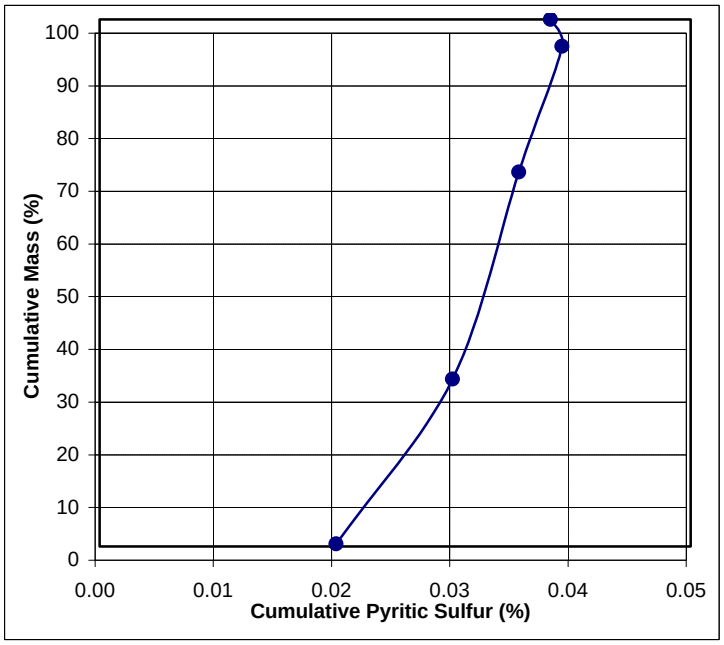
		Individual				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	5.89	9.49	0.69	0.04	14501
1.40	1.55	27.33	12.11	0.60	0.05	14222
1.55	1.65	10.33	17.09	0.48	*0.05*	12721
1.65	2.00	46.64	40.62	0.36	0.09	8915
2.00		9.81	67.12	0.39	0.59	3363
		100.00	31.16	0.46	0.12	10543

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	5.89	9.49	0.69	0.04	14501
1.40	1.55	33.22	11.64	0.62	0.05	14272
1.55	1.65	43.55	12.94	0.58	0.05	13904
1.65	2.00	90.19	27.25	0.47	0.07	11324
2.00		100.00	31.16	0.46	0.12	10543

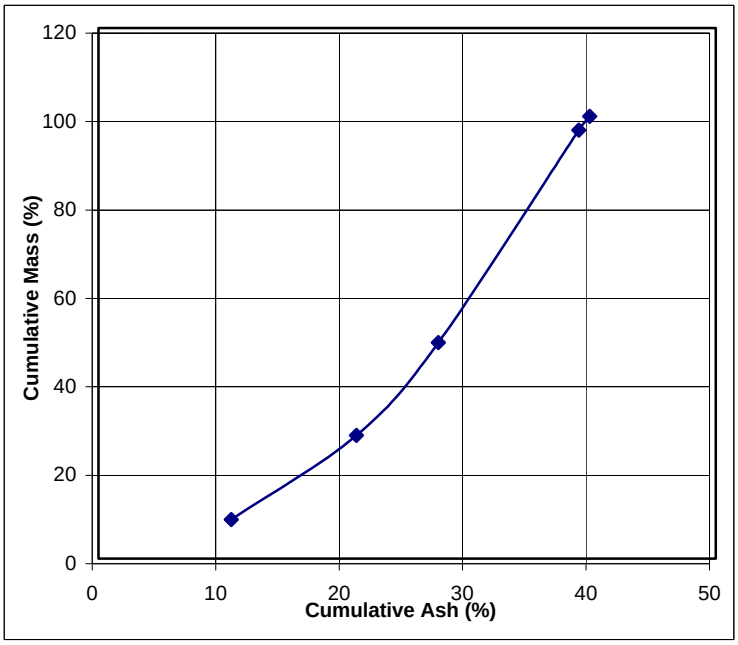
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
	1.40	100.00	31.16	0.46	0.12	10543
1.40	1.55	94.11	32.52	0.45	0.13	10295
1.55	1.65	66.78	40.87	0.38	0.16	8688
1.65	2.00	56.45	45.22	0.36	0.18	7950
2.00		9.81	67.12	0.39	0.59	3363

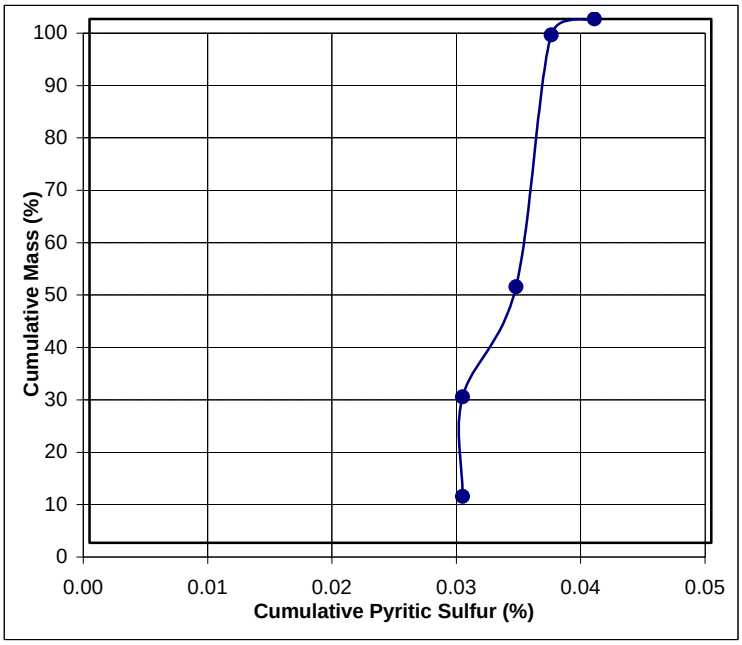
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 50 x 10 mm
Mass (%): 9.11



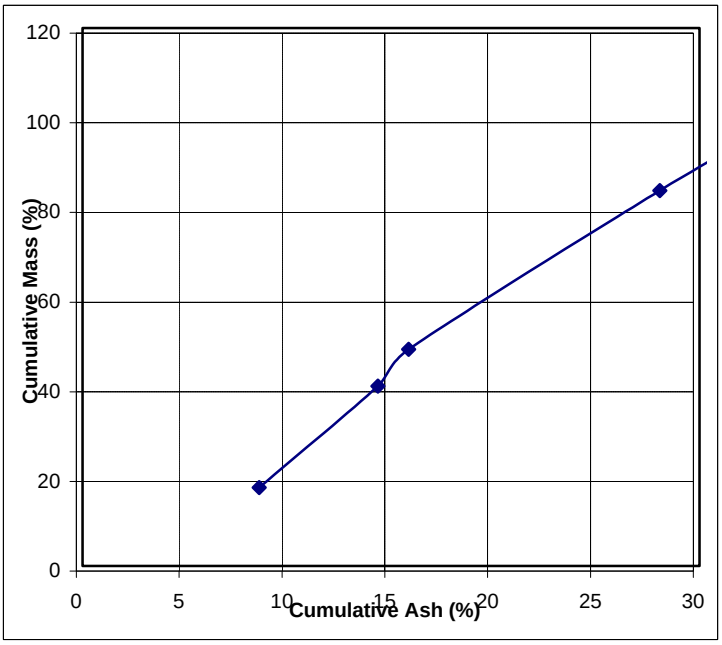


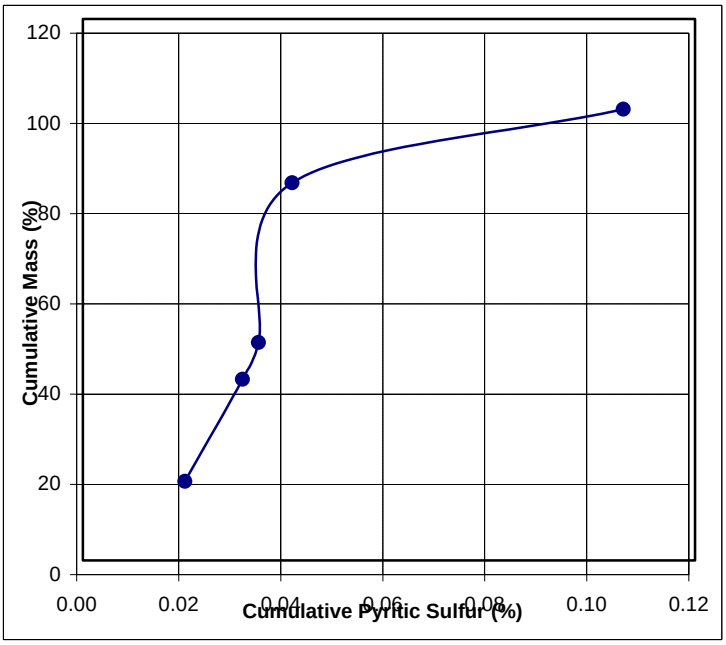
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 8.31



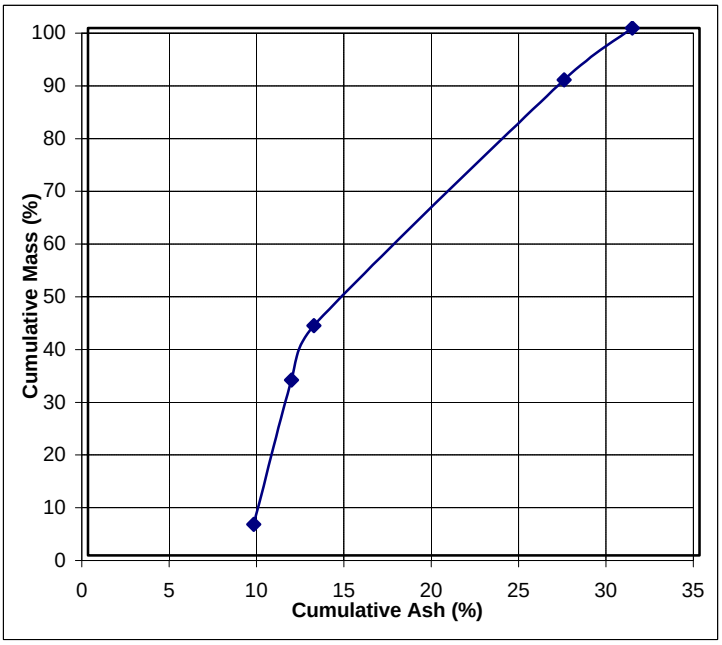


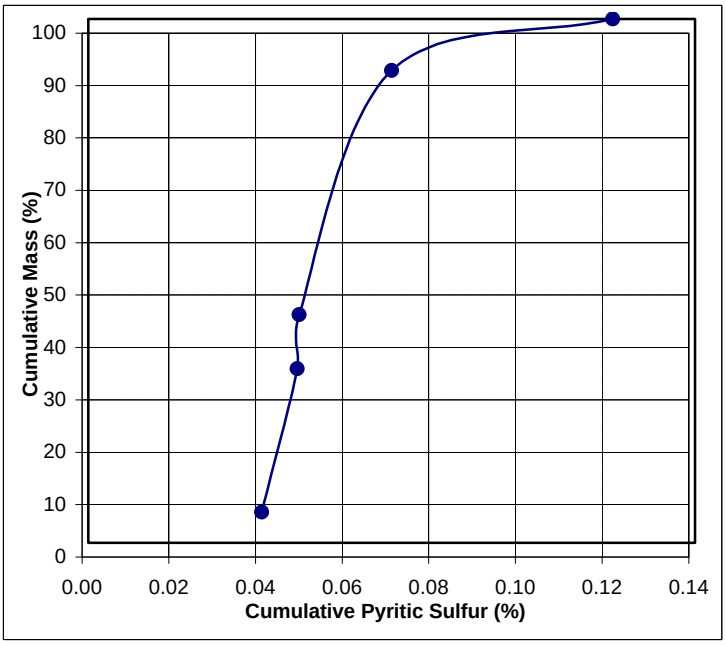
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68





Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13





APPENDIX IV

PITTSBURGH NO.8 TRACE ELEMENT WASHABILITY DATA AND RECOVERY GRADE CURVES

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 56.26

		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	34.07	10.05	0.07	5.60	
1.30	1.40	34.47	20.36	0.12	6.76	
1.40	1.55	5.57	42.96	0.24	12.84	
1.55	2.00	3.50	118.09	0.19	17.75	
2.00		22.39	456.53	0.19	53.41	2.85
		100.00	119.18	0.13	17.53	0.64

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	34.07	10.05	0.07	5.60	0.00
1.30	1.40	68.54	15.24	0.10	6.18	0.00
1.40	1.55	74.11	17.32	0.11	6.68	0.00
1.55	2.00	77.61	21.86	0.11	7.18	0.00
2.00		100.00	119.18	0.13	17.53	0.64

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	119.18	0.13	17.53	0.64
1.30	1.40	65.93	175.58	0.16	23.70	0.97
1.40	1.55	31.46	345.65	0.20	42.26	2.03
1.55	2.00	25.89	410.78	0.19	48.59	2.46
2.00		22.39	456.53	0.19	53.41	2.85

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 34.70

		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	47.89	7.80	0.05	3.15	
1.30	1.40	32.93	14.76	0.10	7.26	
1.40	1.55	3.63	44.39	0.29	15.29	
1.55	2.00	2.97	141.96	0.41	20.77	
2.00		12.57	409.34	0.28	44.63	
		99.99	65.88	0.11	10.68	0.00

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	47.89	7.80	0.05	3.15	0.00
1.30	1.40	80.82	10.64	0.07	4.82	0.00
1.40	1.55	84.45	12.09	0.08	5.27	0.00
1.55	2.00	87.42	16.50	0.09	5.80	0.00
2.00		99.99	65.88	0.11	10.68	0.00

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	65.88	0.11	10.68	0.00
1.30	1.40	52.11	119.27	0.17	17.60	0.00
1.40	1.55	19.18	298.69	0.30	35.37	0.00
1.55	2.00	15.55	358.05	0.30	40.05	0.00
2.00		12.58	409.07	0.28	44.60	0.00

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85

		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	39.32	5.52	0.05	5.47	
1.30	1.40	36.70	14.03	0.10	6.41	
1.40	1.55	9.03	32.29	0.29	13.25	
1.55	2.00	4.56	150.67	0.41	21.67	
2.00		10.38	549.01	0.28	49.71	
		99.99	74.10	0.13	11.85	0.00

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	39.32	5.52	0.05	5.47	0.00
1.30	1.40	76.02	9.63	0.07	5.92	0.00
1.40	1.55	85.05	12.04	0.09	6.70	0.00
1.55	2.00	89.61	19.09	0.11	7.46	0.00
2.00		99.99	74.10	0.13	11.85	0.00

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	74.10	0.13	11.85	0.00
1.30	1.40	60.68	118.54	0.18	15.98	0.00
1.40	1.55	23.98	278.49	0.31	30.63	0.00
1.55	2.00	14.95	427.19	0.32	41.13	0.00
2.00		10.39	548.56	0.28	49.67	0.00

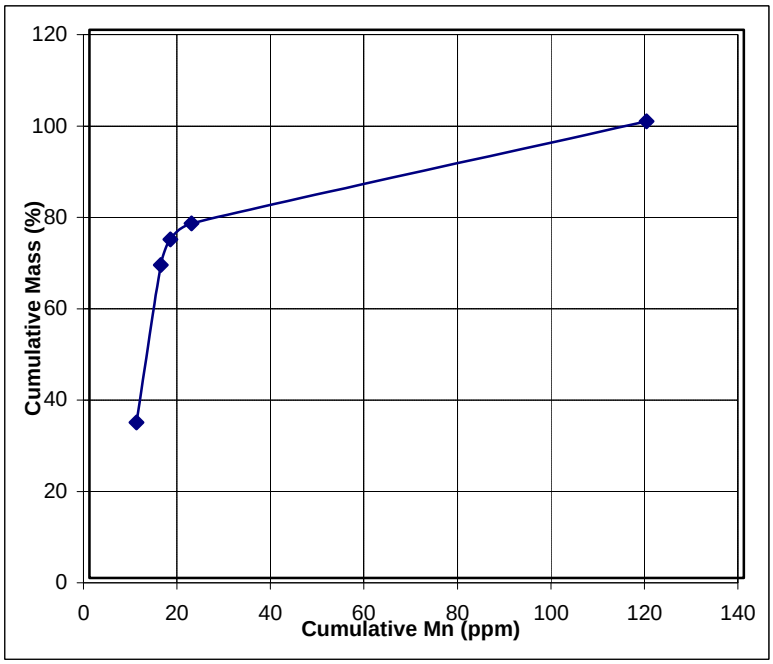
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19

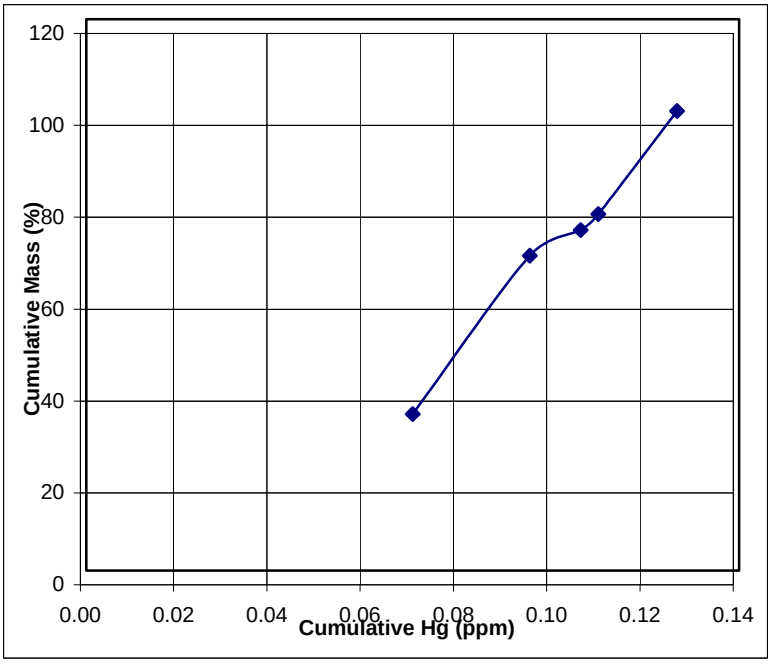
		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	2.77	13.52	0.14	6.28	
1.30	1.40	59.04	12.46	0.03	5.85	
1.40	1.55	12.49	36.43	0.06	10.96	
1.55	2.00	9.72	108.06	0.15	17.55	
2.00		15.98	383.23	0.96	50.89	
		100.00	84.02	0.20	14.84	0.00

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	2.77	13.52	0.14	6.28	0.00
1.30	1.40	61.81	12.50	0.03	5.87	0.00
1.40	1.55	74.30	16.52	0.04	6.73	0.00
1.55	2.00	84.02	27.11	0.05	7.98	0.00
2.00		100.00	84.02	0.20	14.84	0.00

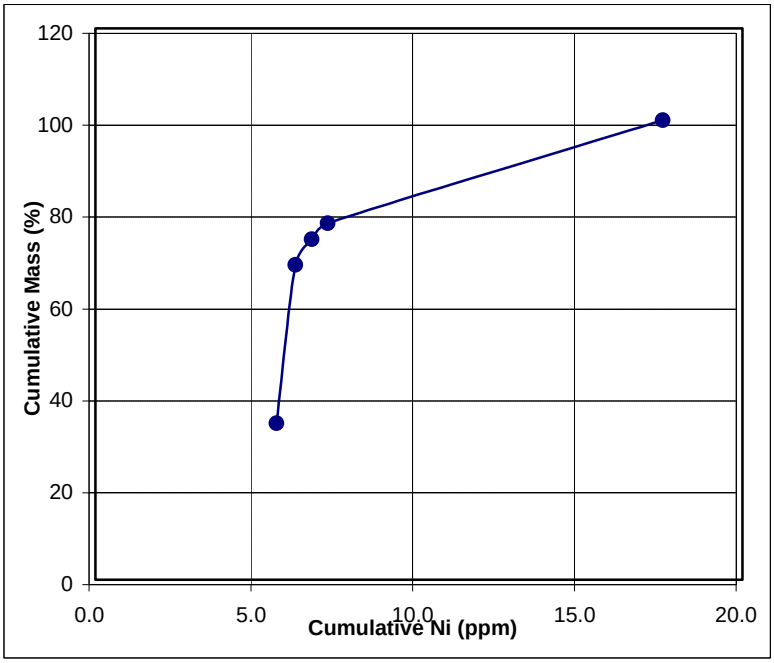
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	84.02	0.20	14.84	0.00
1.30	1.40	97.23	86.03	0.20	15.08	0.00
1.40	1.55	38.19	199.77	0.46	29.35	0.00
1.55	2.00	25.70	279.16	0.65	38.28	0.00
2.00		15.98	383.23	0.96	50.89	0.00

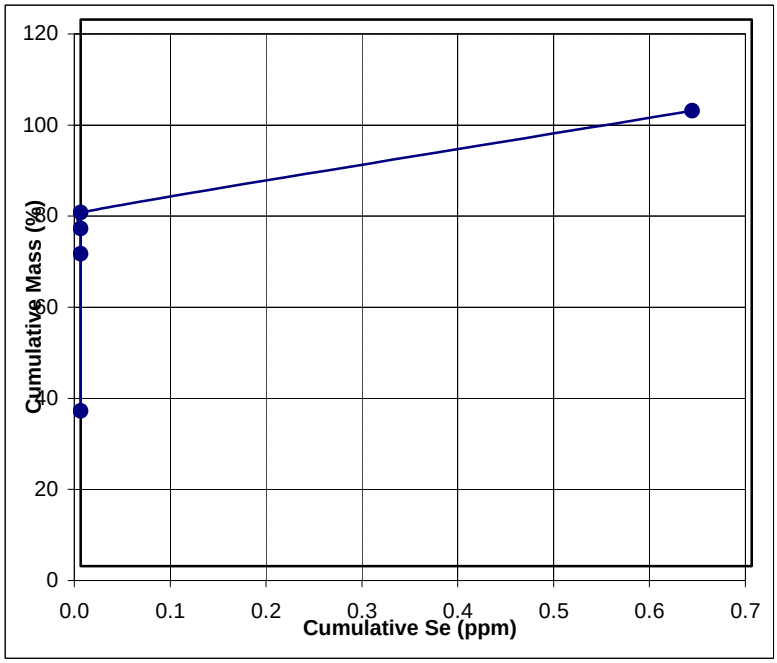
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 56.26



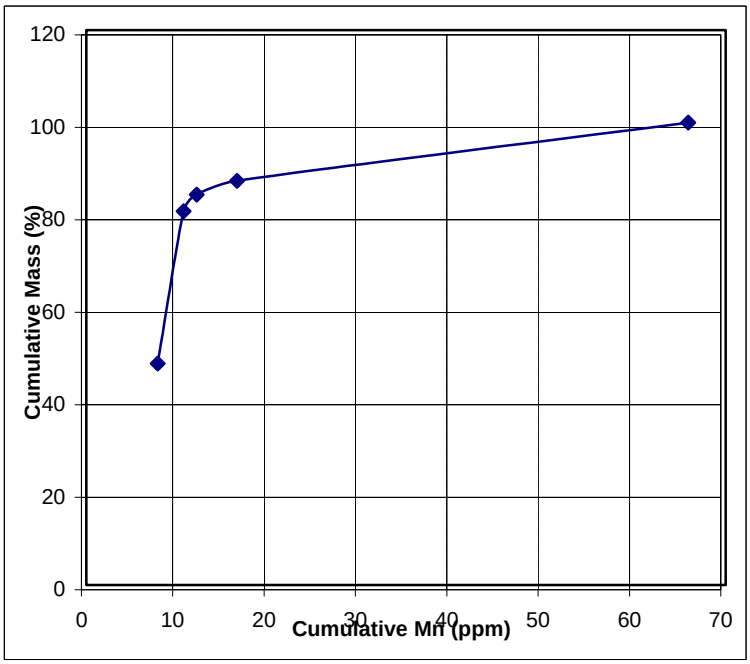


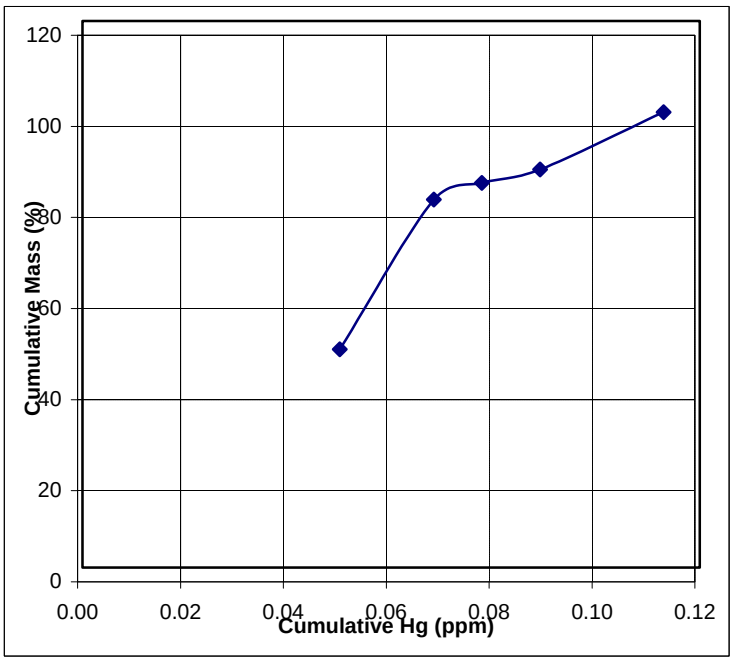
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 56.26



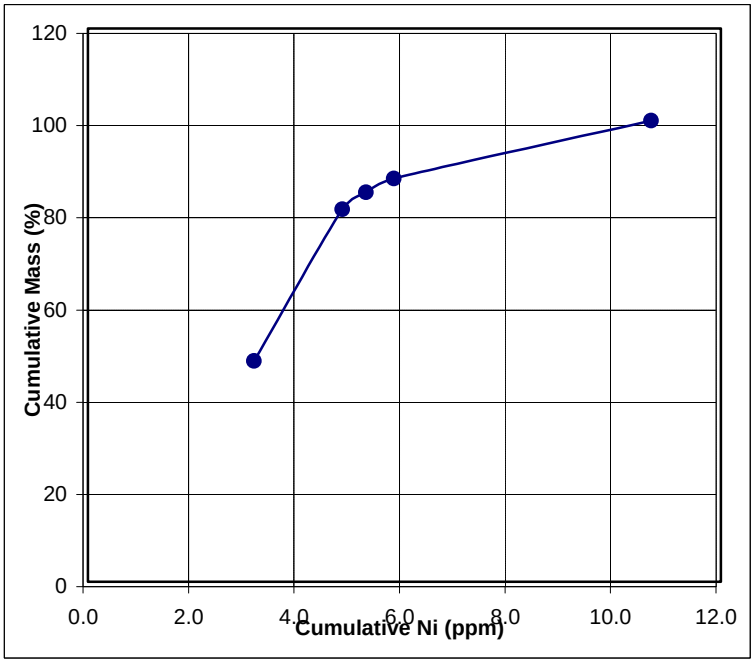


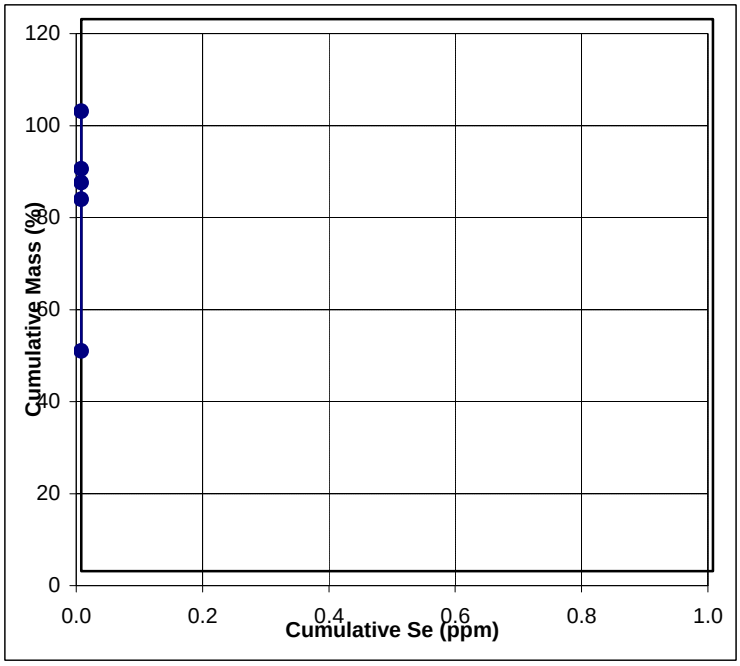
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 34.70



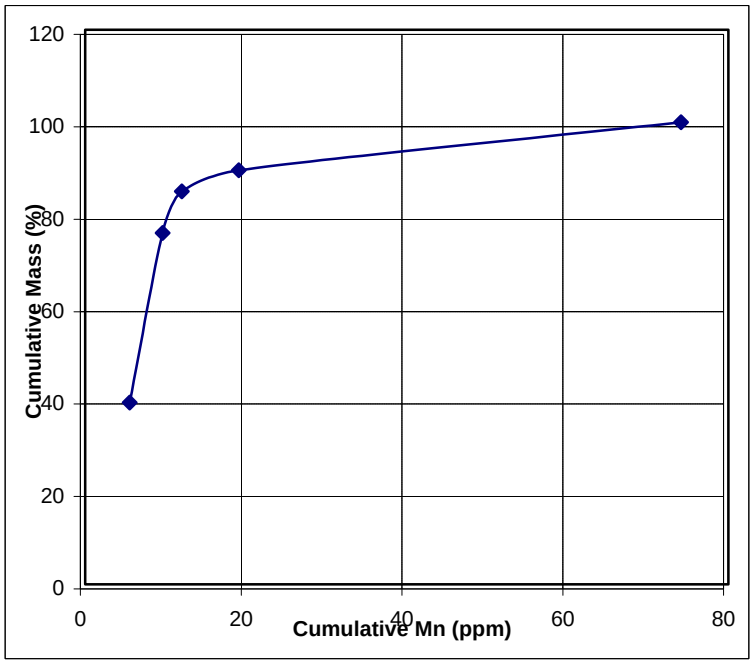


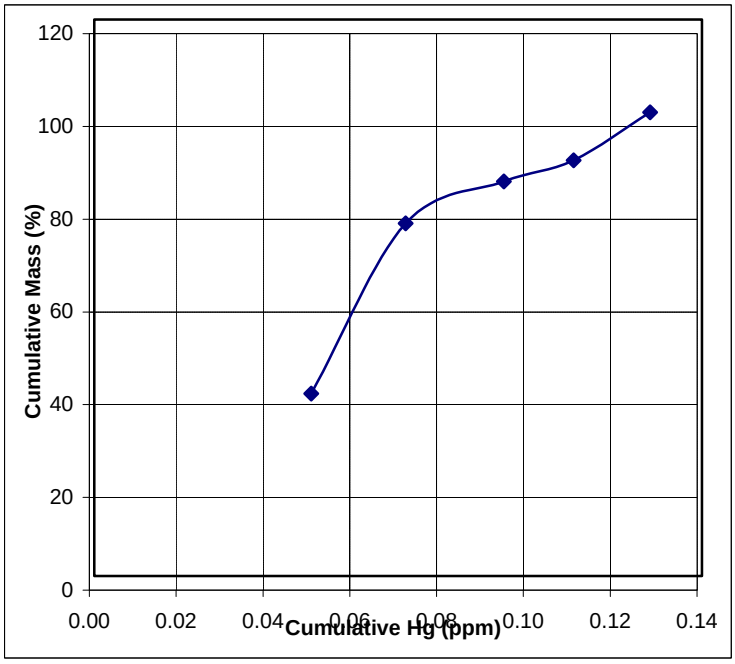
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 34.70



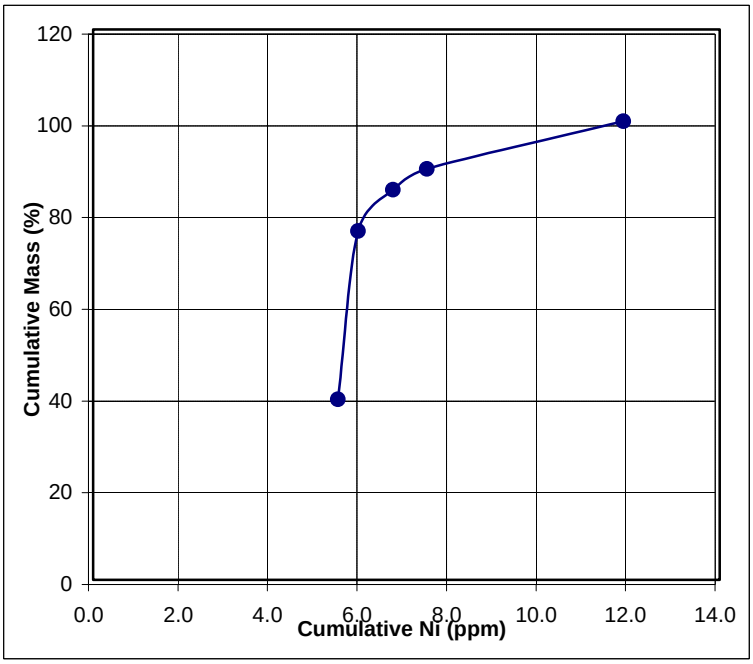


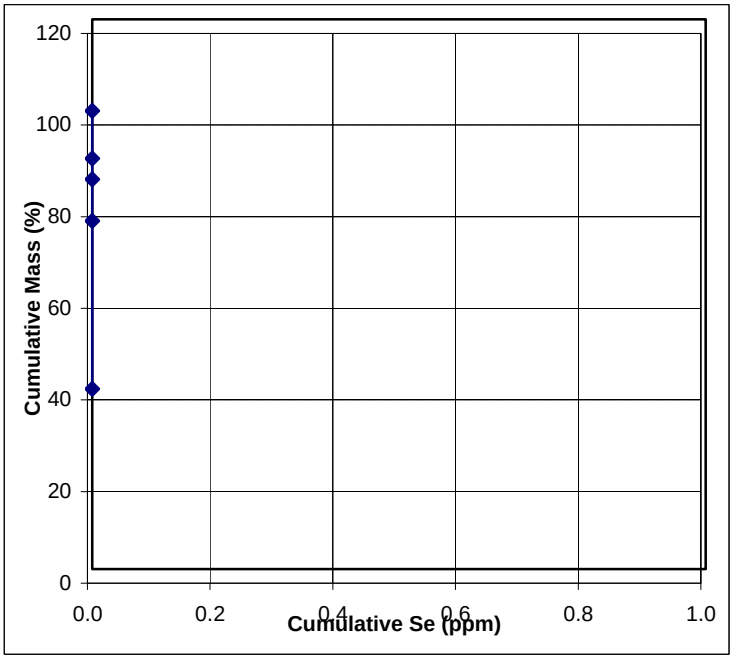
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85



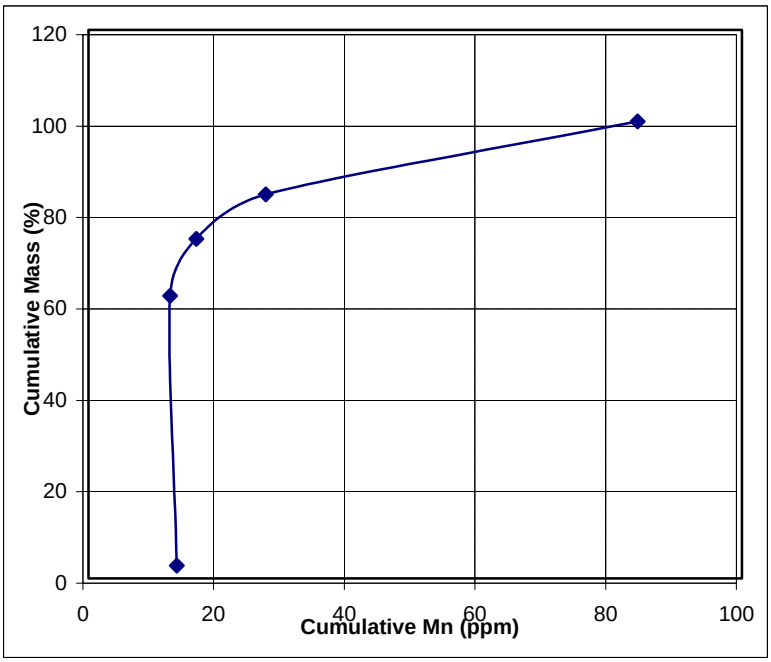


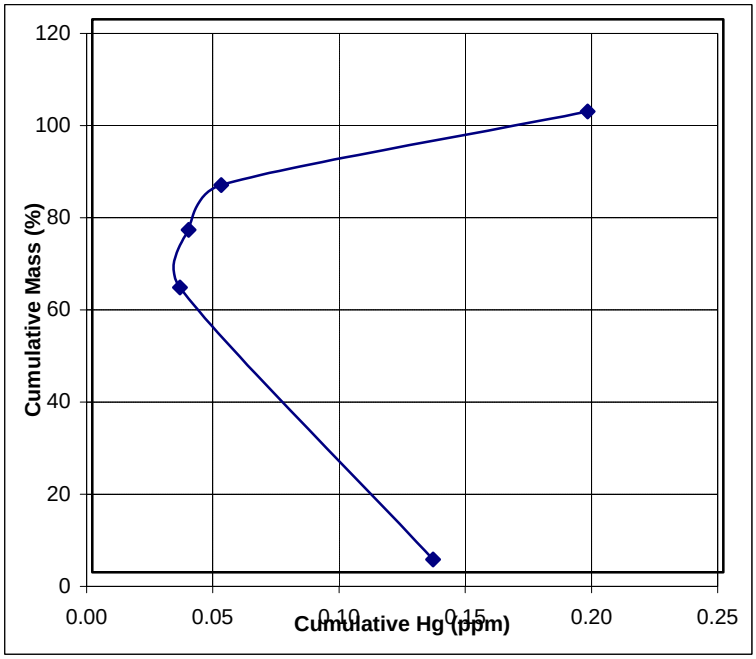
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85



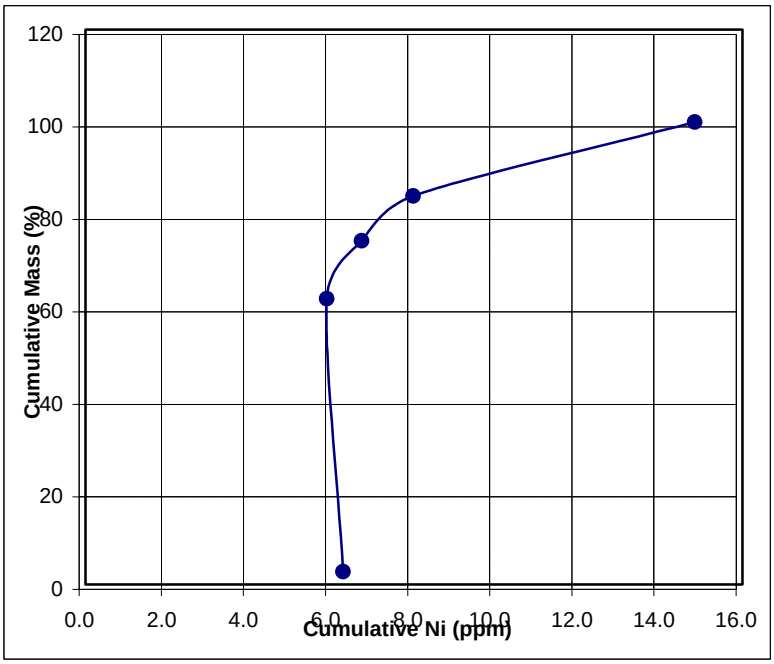


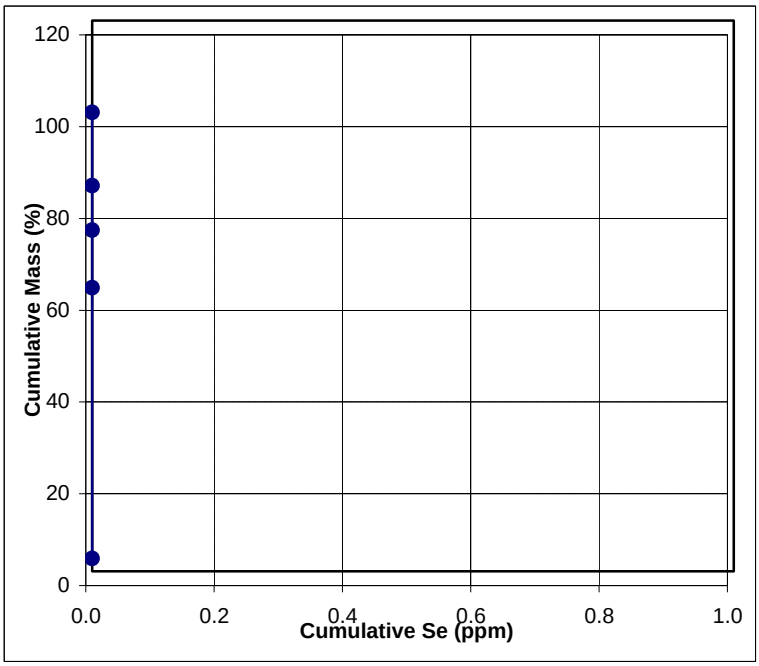
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19





Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 4.73

		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	11.37	14.95	0.20	8.38	
1.30	1.40	23.73	22.54	0.14	13.46	
1.40	1.55	28.62	44.22	0.22	18.54	
1.55	2.00	27.76	136.96	0.25	18.88	
2.00		8.52	146.33	0.88	35.74	3.92
		100.00	70.19	0.26	17.74	0.33

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	11.37	14.95	0.20	8.38	0.00
1.30	1.40	35.10	20.08	0.15	11.82	0.00
1.40	1.55	63.72	30.92	0.18	14.84	0.00
1.55	2.00	91.48	63.10	0.20	16.06	0.00
2.00		100.00	70.19	0.26	17.74	0.33

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	70.19	0.26	17.74	0.33
1.30	1.40	88.63	77.28	0.27	18.94	0.38
1.40	1.55	64.90	97.29	0.32	20.94	0.51
1.55	2.00	36.28	139.16	0.40	22.84	0.92
2.00		8.52	146.33	0.88	35.74	3.92

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.23

		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	27.14	5.83	0.09	6.41	
1.30	1.40	27.59	16.21	0.11	12.69	
1.40	1.55	15.96	37.64	0.22	18.45	
1.55	2.00	16.22	117.61	0.37	19.58	
2.00		13.09	291.40	1.40	35.45	5.83
		100.00	69.28	0.33	16.00	0.76

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	27.14	5.83	0.09	6.41	0.00
1.30	1.40	54.73	11.06	0.10	9.57	0.00
1.40	1.55	70.69	17.06	0.12	11.57	0.00
1.55	2.00	86.91	35.83	0.17	13.07	0.00
2.00		100.00	69.28	0.33	16.00	0.76

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	69.28	0.33	16.00	0.76
1.30	1.40	72.86	92.92	0.42	19.57	1.05
1.40	1.55	45.27	139.67	0.61	23.77	1.69
1.55	2.00	29.31	195.22	0.83	26.67	2.60
2.00		13.09	291.40	1.40	35.45	5.83

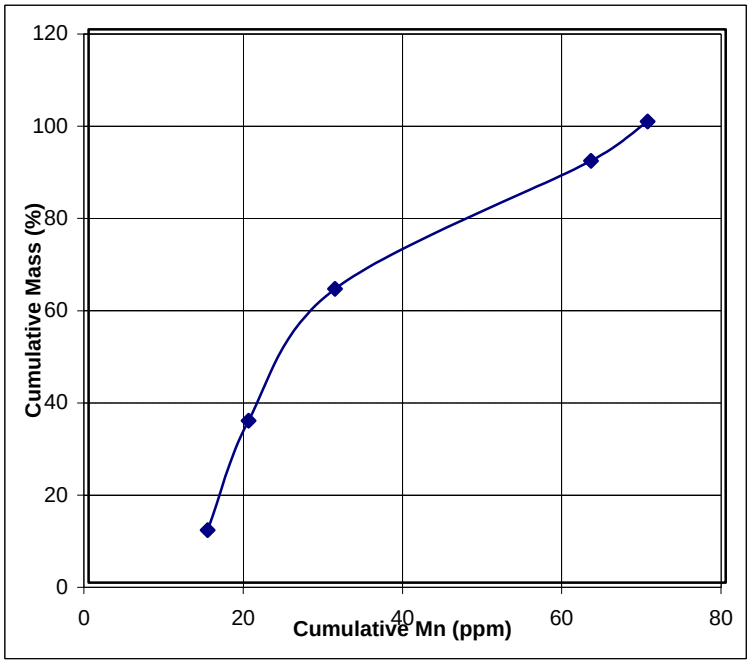
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.07

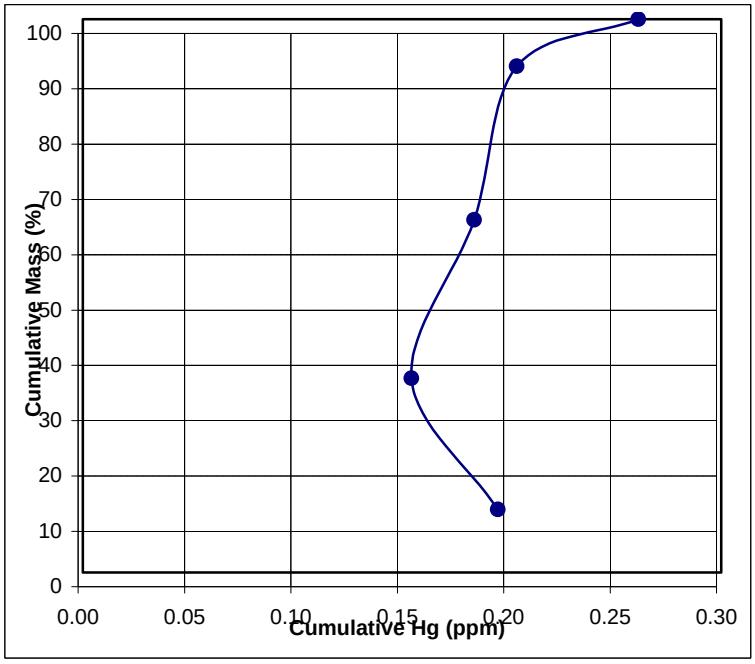
		Individual				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	2.66	9.75	0.07	6.36	
1.30	1.40	31.55	18.13	0.06	10.03	
1.40	1.55	29.53	43.37	0.12	16.12	
1.55	2.00	21.38	139.43	0.22	22.79	
2.00		14.89	305.52	1.40	46.61	6.96
		100.01	94.08	0.31	19.90	1.04

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	2.66	9.75	0.07	6.36	0.00
1.30	1.40	34.21	17.48	0.06	9.75	0.00
1.40	1.55	63.74	29.47	0.09	12.70	0.00
1.55	2.00	85.12	57.09	0.12	15.23	0.00
2.00		100.01	94.08	0.31	19.90	1.04

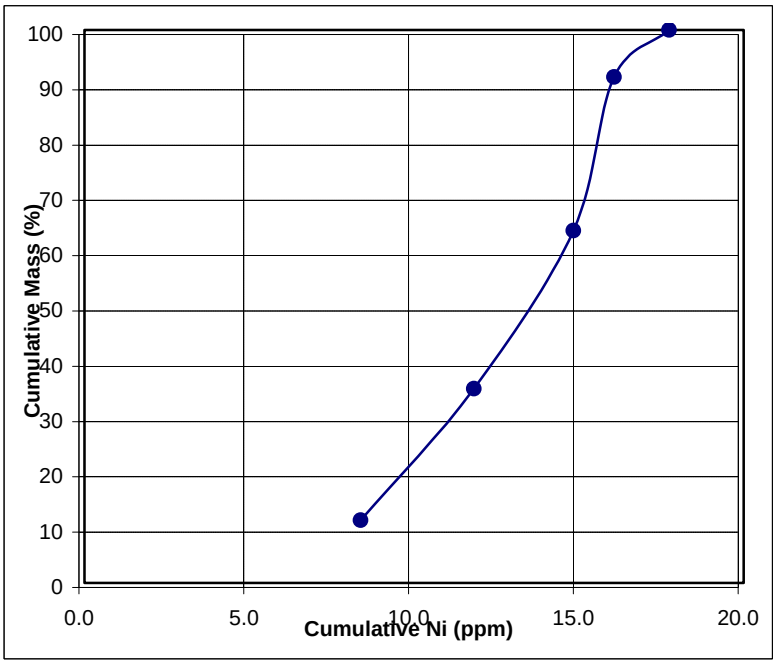
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
	1.30	100.00	94.08	0.31	19.90	1.04
1.30	1.40	97.34	96.39	0.32	20.27	1.07
1.40	1.55	65.79	133.91	0.44	25.19	1.58
1.55	2.00	36.26	207.65	0.70	32.57	2.86
2.00		14.88	305.67	1.40	46.63	6.97

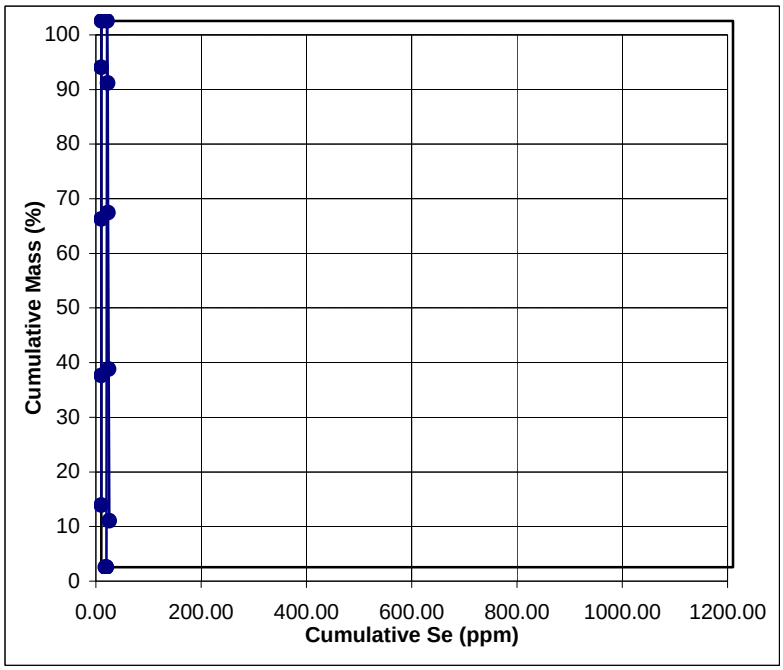
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 4.73



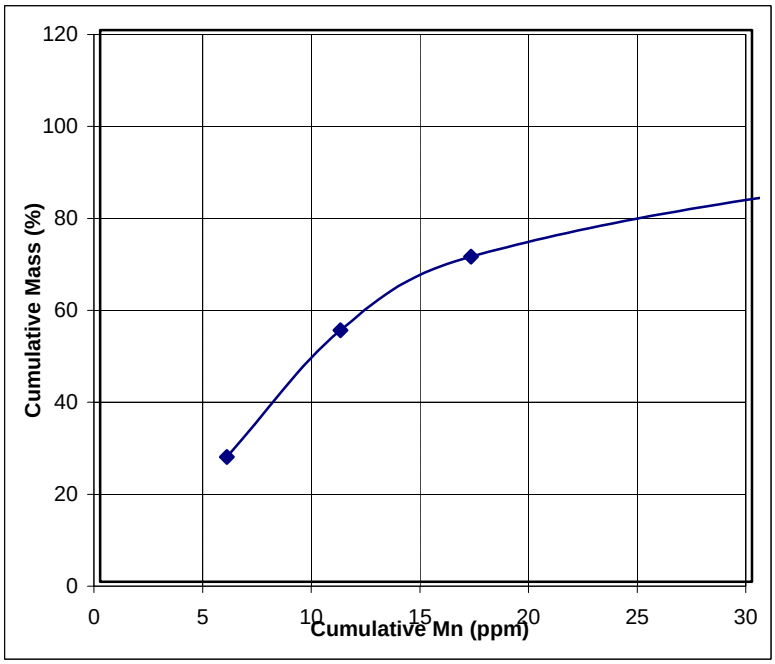


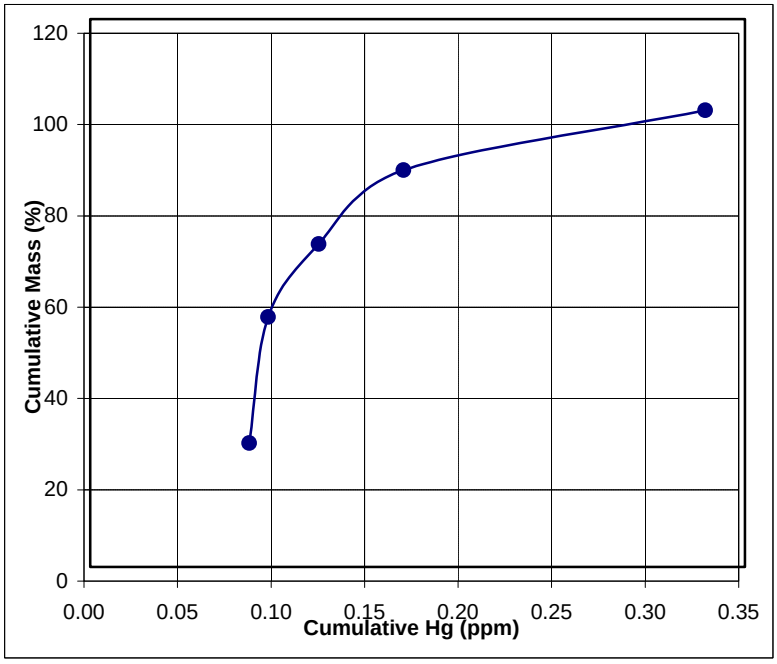
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 4.73



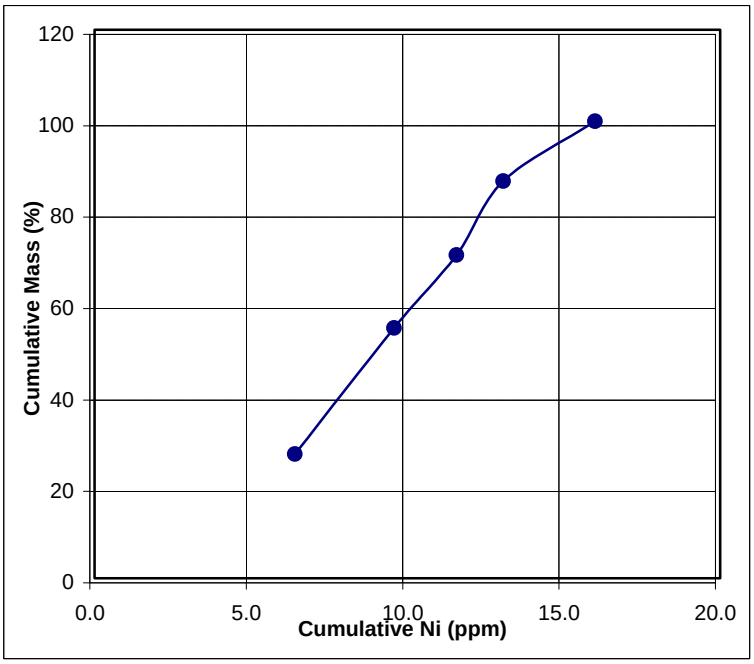


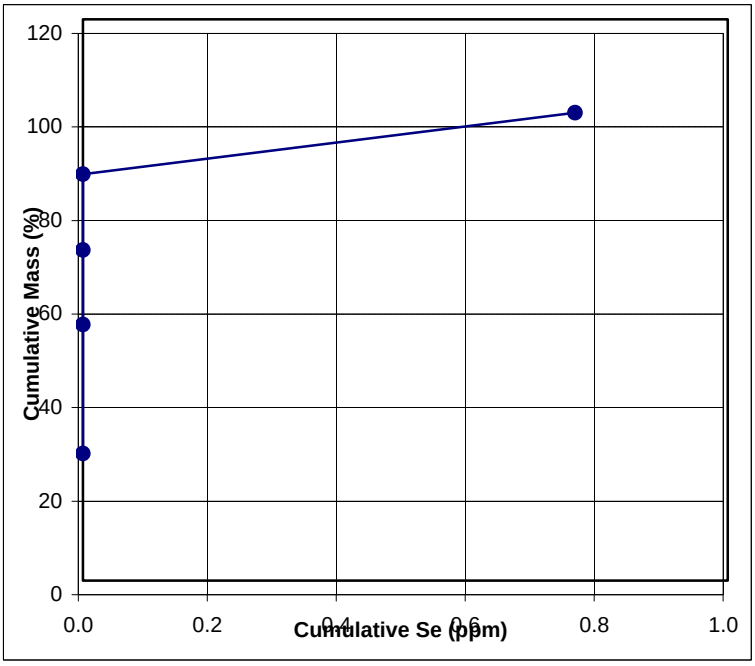
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.23



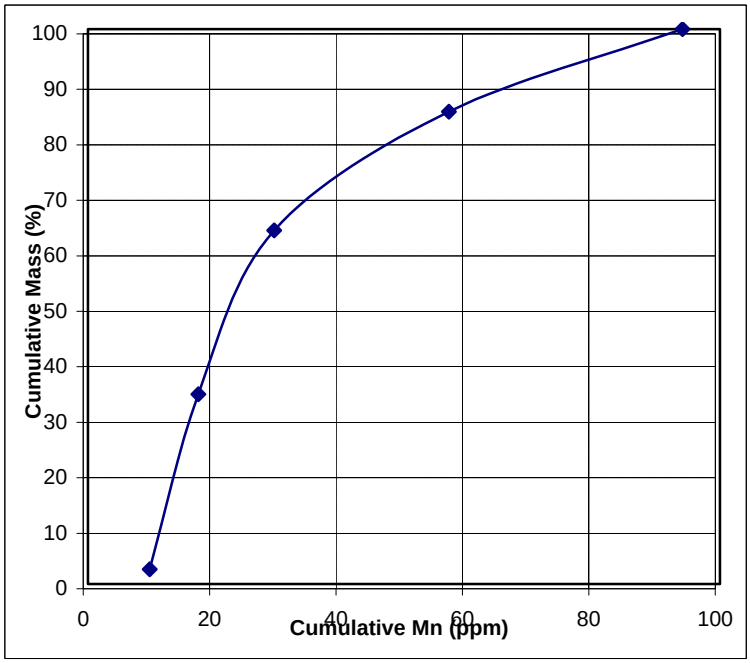


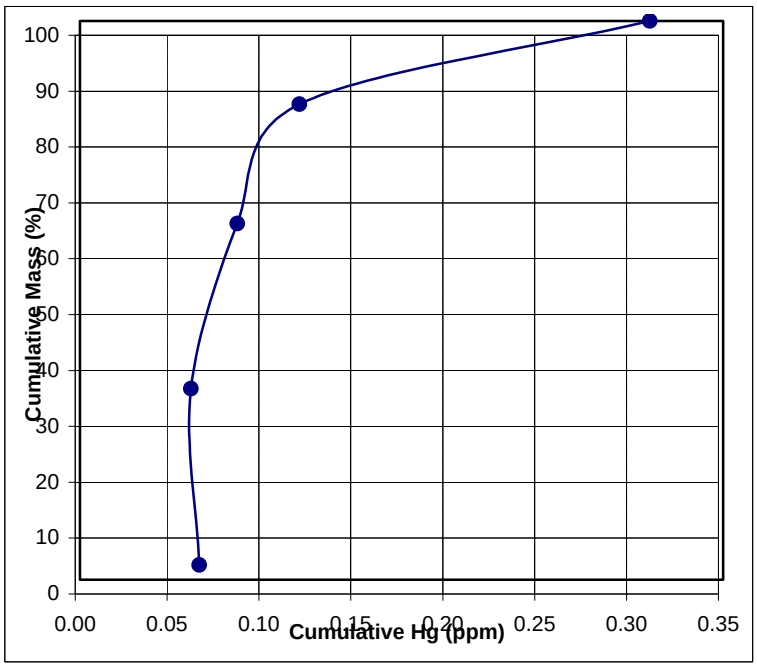
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.23



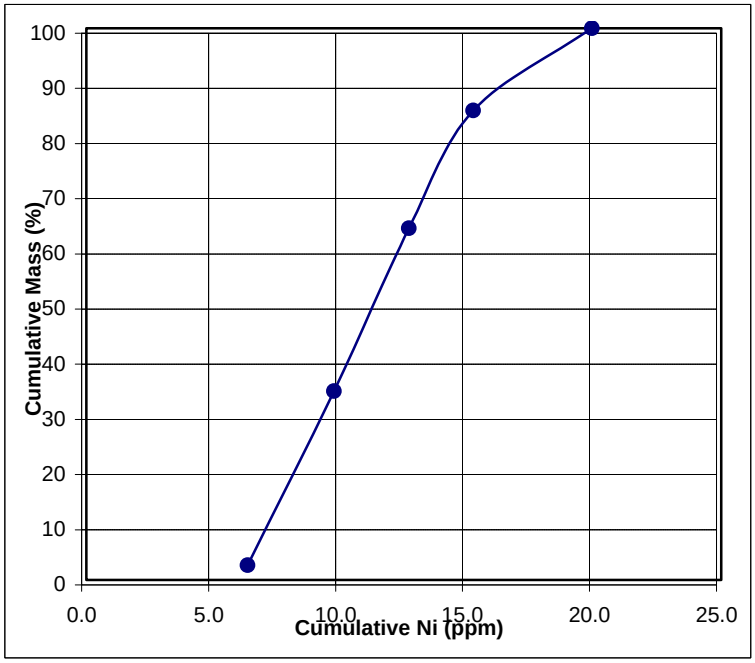


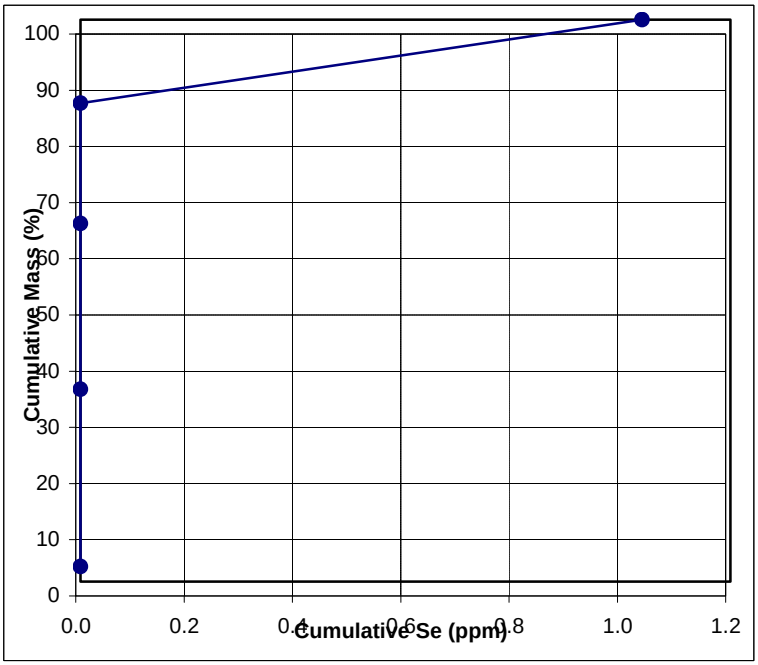
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.07





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.07





APPENDIX V

ILLINOIS NO. 6 TRACE ELEMENT WASHABILITY DATA AND CURVES

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 39.16

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.30	28.62		0.53		0.14
1.30	1.40	25.78		1.39		0.20
1.40	1.55	6.63		4.00		0.41
1.55	1.65	1.85		7.47		8.39
1.65	1.80	2.86		9.71		5.93
1.80	2.00	2.98		9.29		10.17
2.00		31.28		13.15		1.54
		100.00	0.00	5.58	0.00	1.23

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.30	28.62	0.00	0.53	0.00	0.14
1.30	1.40	54.40	0.00	0.94	0.00	0.16
1.40	1.55	61.03	0.00	1.27	0.00	0.19
1.55	1.65	62.88	0.00	1.45	0.00	0.43
1.65	1.80	65.74	0.00	1.81	0.00	0.67
1.80	2.00	68.72	0.00	2.14	0.00	1.08
2.00		100.00	0.00	5.58	0.00	1.23

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.30	100.00	0.00	5.58	0.00	1.23
1.30	1.40	71.38	0.00	7.61	0.00	1.66
1.40	1.55	45.60	0.00	11.12	0.00	2.49
1.55	1.65	38.97	0.00	12.33	0.00	2.85
1.65	1.80	37.12	0.00	12.58	0.00	2.57
1.80	2.00	34.26	0.00	12.82	0.00	2.29
2.00		31.28	0.00	13.15	0.00	1.54

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 50.82

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	68.23		0.98		0.15
1.40	1.55	11.92		2.81		0.40
1.55	1.65	2.48		4.29		1.83
1.65	2.00	4.66		7.82		8.58
2.00		12.71		11.00		4.82
		100.00	0.00	2.87	0.00	1.21

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	68.23	0.00	0.98	0.00	0.15
1.40	1.55	80.15	0.00	1.25	0.00	0.19
1.55	1.65	82.63	0.00	1.34	0.00	0.24
1.65	2.00	87.29	0.00	1.69	0.00	0.68
2.00		100.00	0.00	2.87	0.00	1.21

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.87	0.00	1.21
1.40	1.55	31.77	0.00	6.94	0.00	3.48
1.55	1.65	19.85	0.00	9.41	0.00	5.33
1.65	2.00	17.37	0.00	10.15	0.00	5.83
2.00		12.71	0.00	11.00	0.00	4.82

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	38.10		0.32		0.11
1.40	1.55	22.36		0.59		0.12
1.55	1.65	5.73		0.25		0.15
1.65	2.00	17.49		2.55		0.50
2.00		16.31		12.58		4.27
		100.00	0.00	2.77	0.00	0.86

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	38.10	0.00	0.32	0.00	0.11
1.40	1.55	60.46	0.00	0.42	0.00	0.12
1.55	1.65	66.19	0.00	0.40	0.00	0.12
1.65	2.00	83.69	0.00	0.85	0.00	0.20
2.00		100.00	0.00	2.77	0.00	0.86

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.77	0.00	0.86
1.40	1.55	61.90	0.00	4.27	0.00	1.32
1.55	1.65	39.54	0.00	6.36	0.00	2.00
1.65	2.00	33.81	0.00	7.39	0.00	2.32
2.00		16.31	0.00	12.58	0.00	4.27

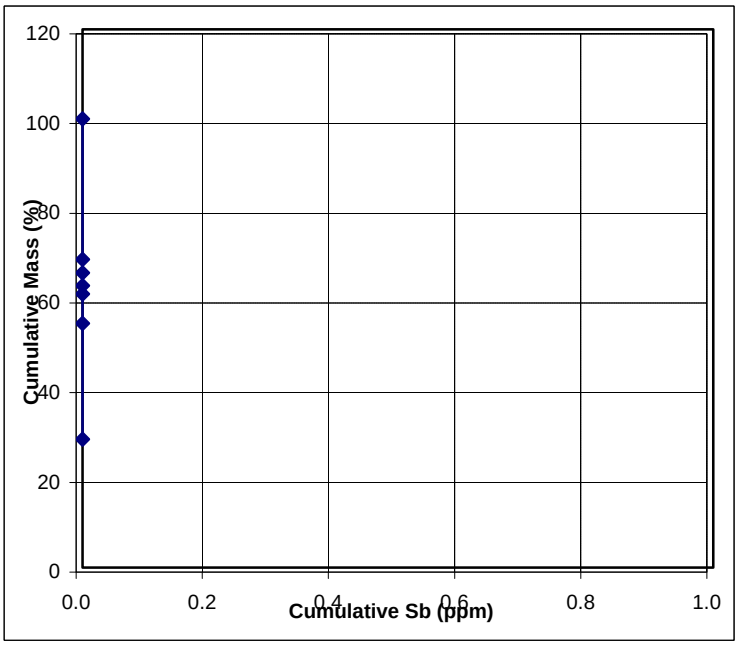
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27

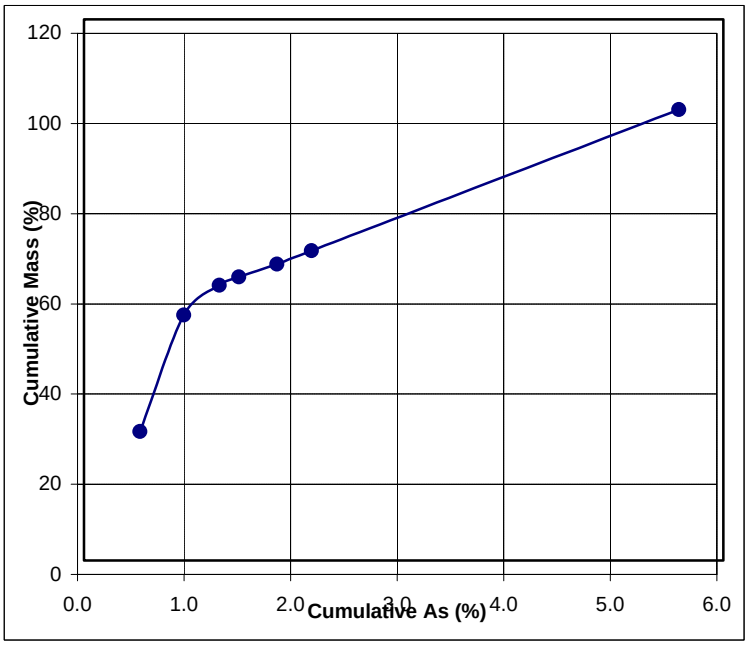
		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	2.67		1.69		0.90
1.40	1.55	22.75		0.96		0.19
1.55	1.65	7.92		2.83		0.74
1.65	2.00	51.28		1.92		0.40
2.00		15.38		18.16		4.52
		100.00	0.00	4.27	0.00	1.03

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	2.67	0.00	1.69	0.00	0.90
1.40	1.55	25.42	0.00	1.03	0.00	0.26
1.55	1.65	33.34	0.00	1.46	0.00	0.38
1.65	2.00	84.62	0.00	1.74	0.00	0.39
2.00		100.00	0.00	4.27	0.00	1.03

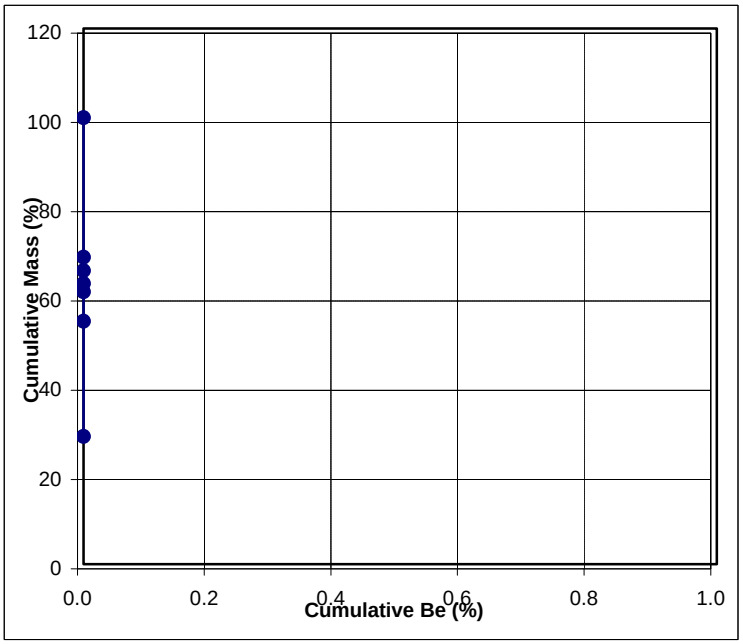
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	4.27	0.00	1.03
1.40	1.55	97.33	0.00	4.34	0.00	1.03
1.55	1.65	74.58	0.00	5.37	0.00	1.29
1.65	2.00	66.66	0.00	5.67	0.00	1.35
2.00		15.38	0.00	18.16	0.00	4.52

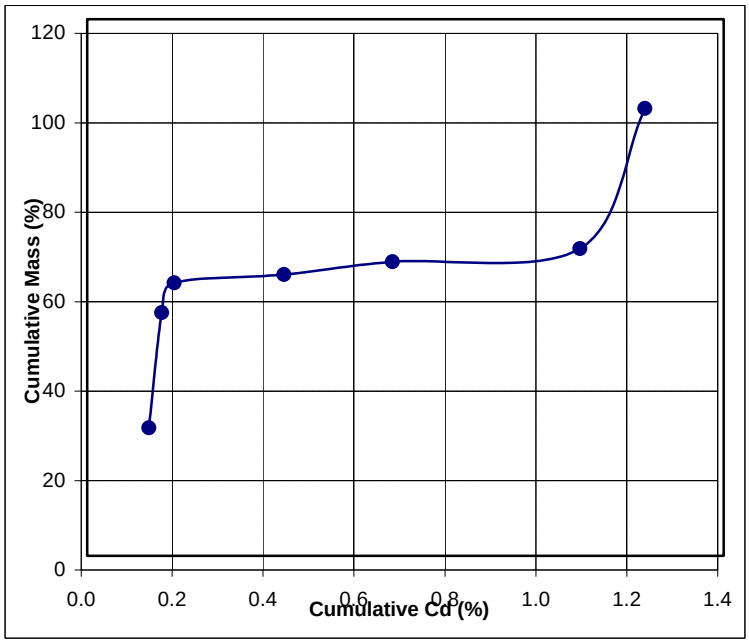
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 39.16



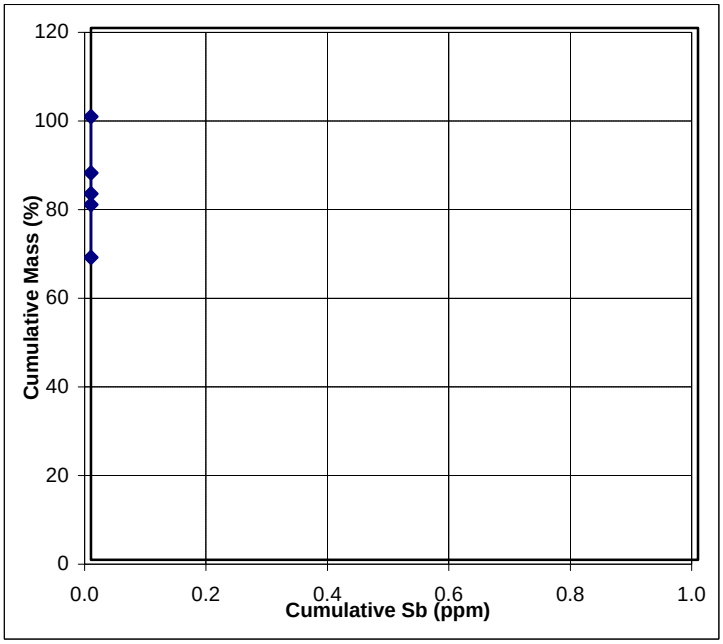


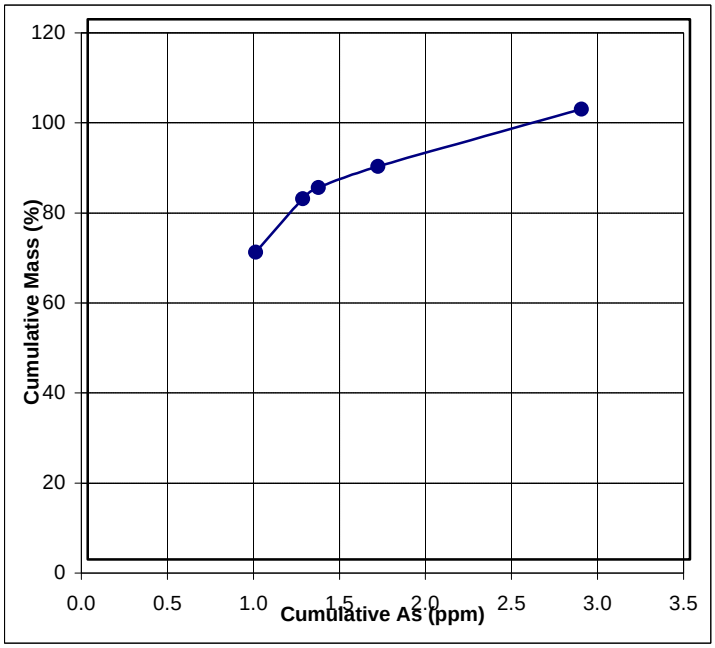
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 39.16



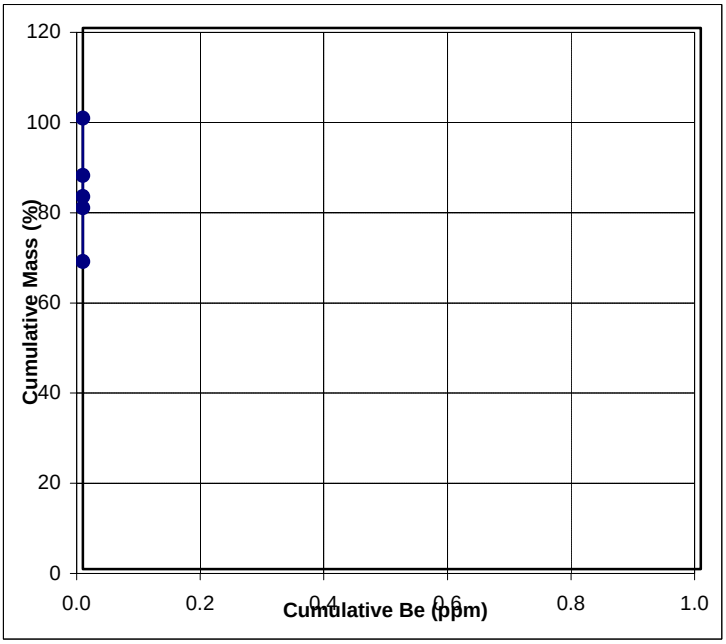


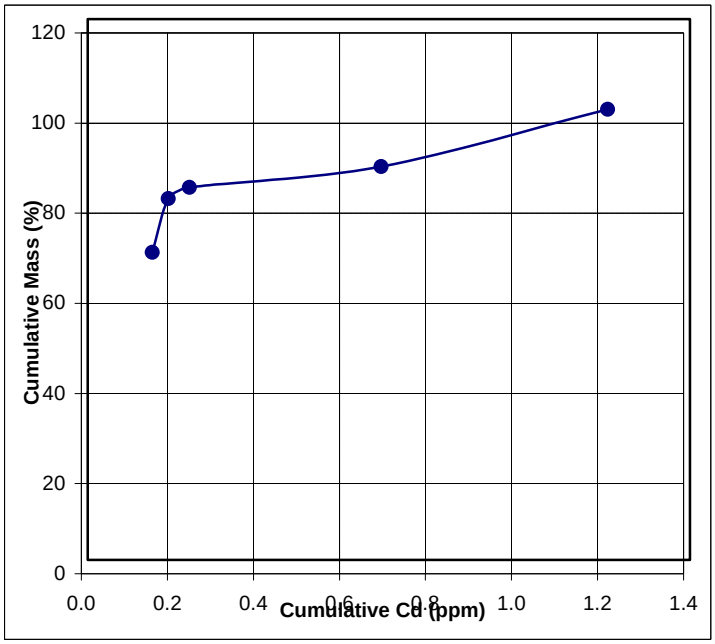
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 50.82



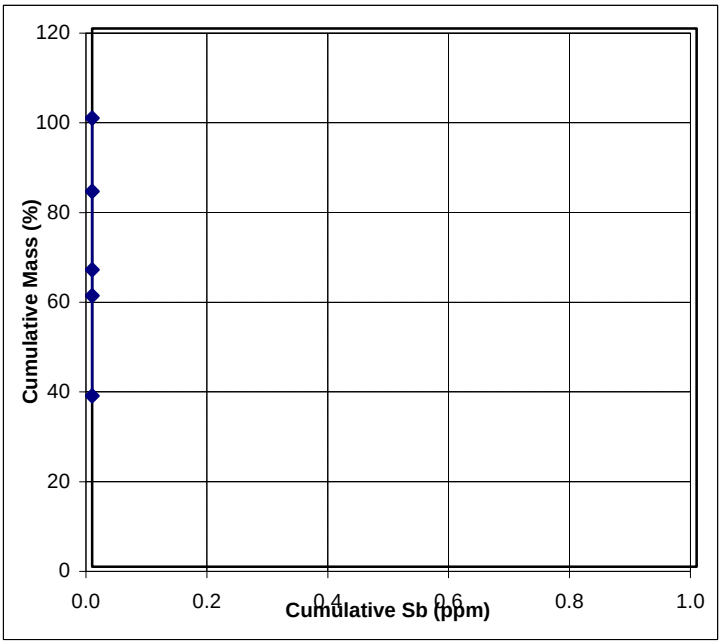


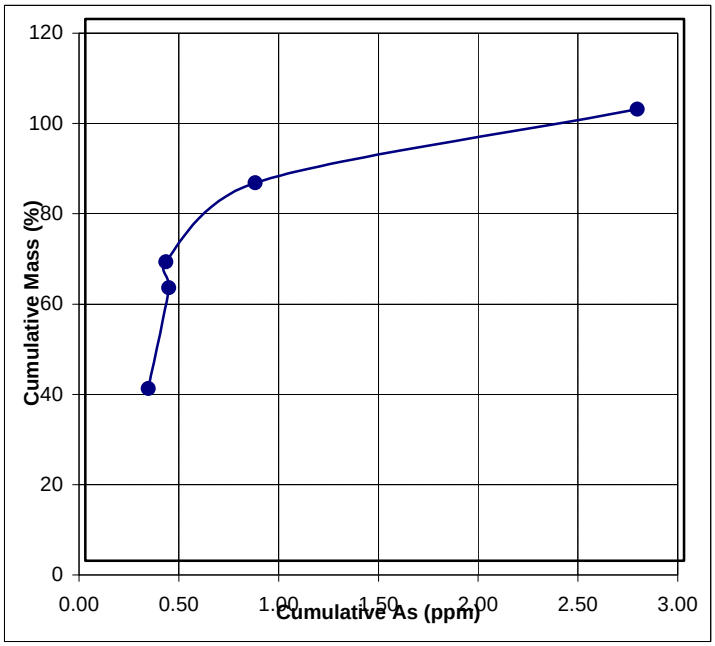
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 50.82



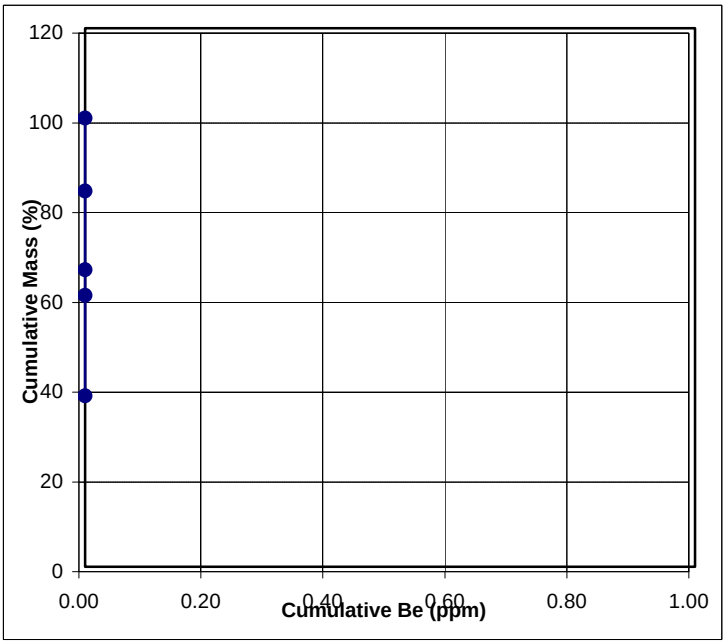


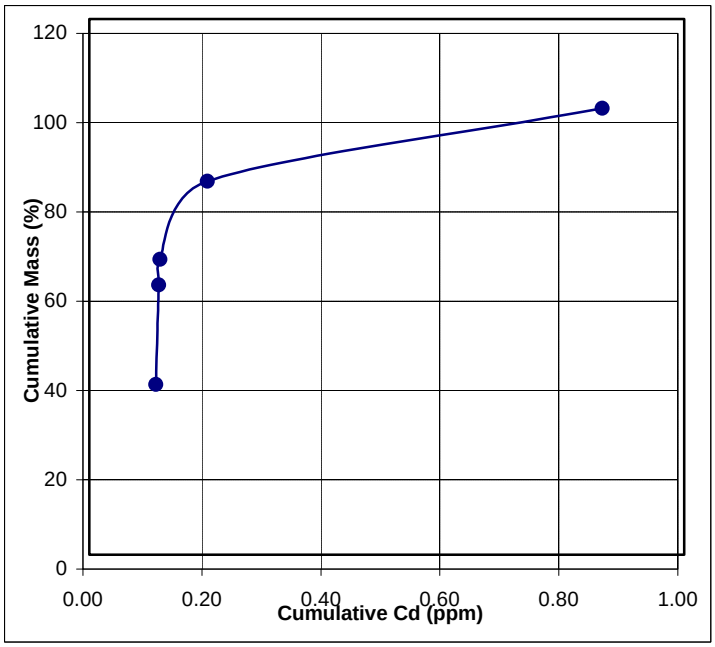
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02



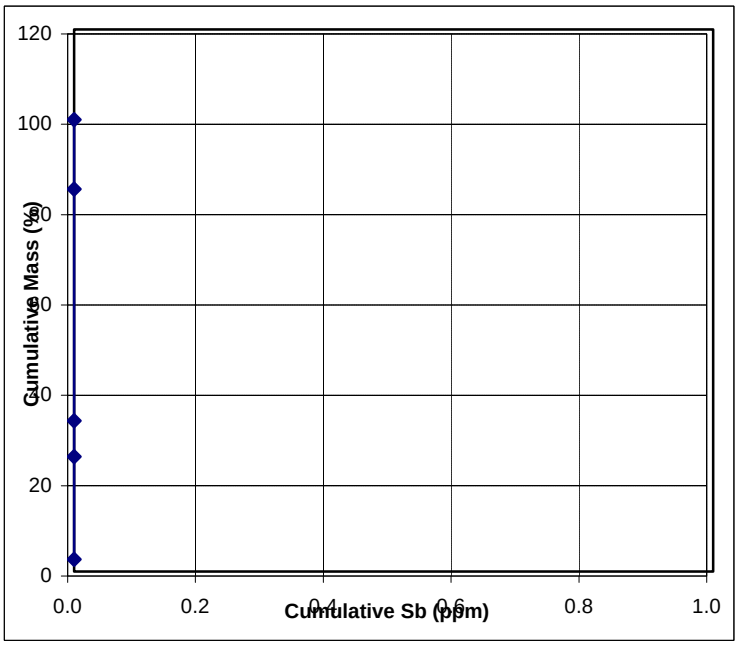


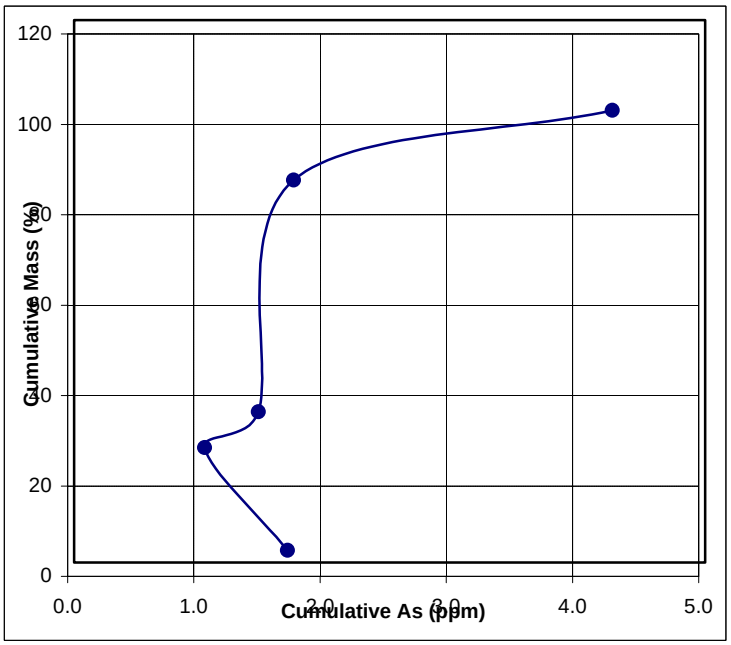
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02



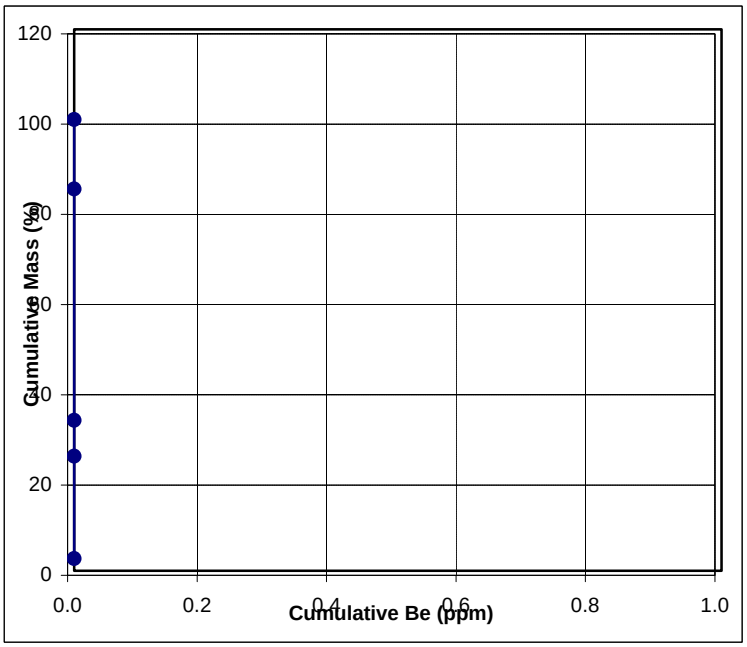


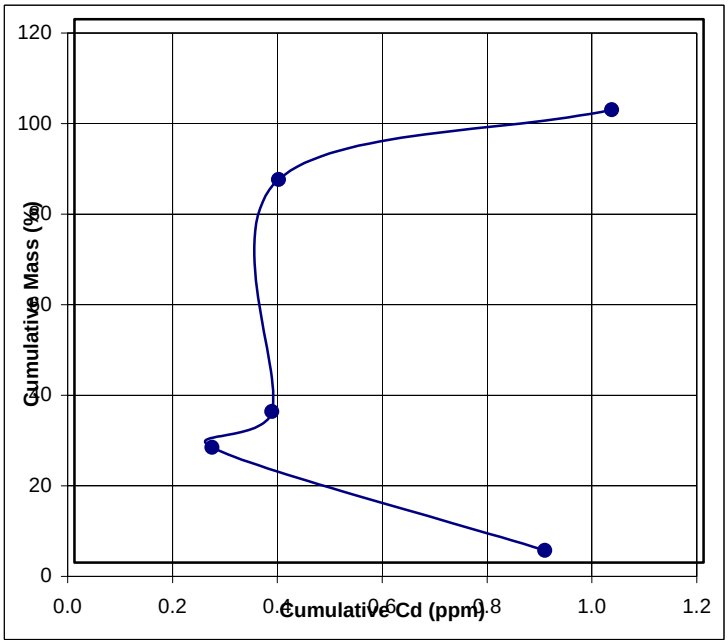
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27





Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 5.43

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	26.59		2.55		0.08
1.40	1.55	23.15		4.33		0.42
1.55	1.65	12.39		9.25		5.06
1.65	2.00	28.19		9.20		5.28
2.00		9.69		16.23		14.07
		100.00	0.00	6.99	0.00	3.60

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	26.59	0.00	2.55	0.00	0.08
1.40	1.55	49.73	0.00	3.38	0.00	0.23
1.55	1.65	62.12	0.00	4.55	0.00	1.20
1.65	2.00	90.31	0.00	6.00	0.00	2.47
2.00		100.00	0.00	6.99	0.00	3.60

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	6.99	0.00	3.60
1.40	1.55	73.41	0.00	8.60	0.00	4.87
1.55	1.65	50.27	0.00	10.57	0.00	6.92
1.65	2.00	37.88	0.00	11.00	0.00	7.53
2.00		9.69	0.00	16.23	0.00	14.07

Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	20.20		1.60		0.26
1.40	1.55	28.54		2.13		0.24
1.55	1.65	3.54		3.20		0.90
1.65	2.00	20.20		5.48		3.17
2.00		27.53		16.37		9.32
		100.00	0.00	6.66	0.00	3.36

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	20.20	0.00	1.60	0.00	0.26
1.40	1.55	48.74	0.00	1.91	0.00	0.25
1.55	1.65	52.27	0.00	2.00	0.00	0.29
1.65	2.00	72.47	0.00	2.97	0.00	1.10
2.00		100.00	0.00	6.66	0.00	3.36

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	6.66	0.00	3.36
1.40	1.55	79.80	0.00	7.94	0.00	4.14
1.55	1.65	51.26	0.00	11.17	0.00	6.32
1.65	2.00	47.73	0.00	11.76	0.00	6.72
2.00		27.53	0.00	16.37	0.00	9.32

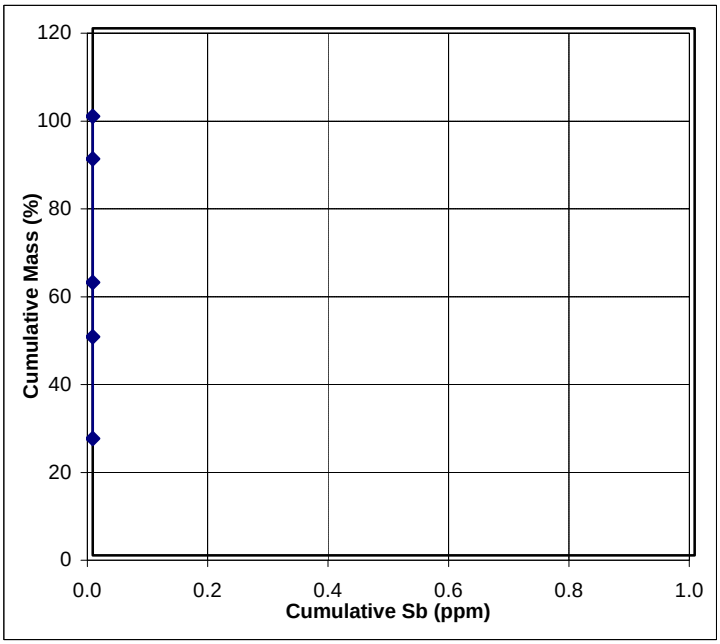
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03

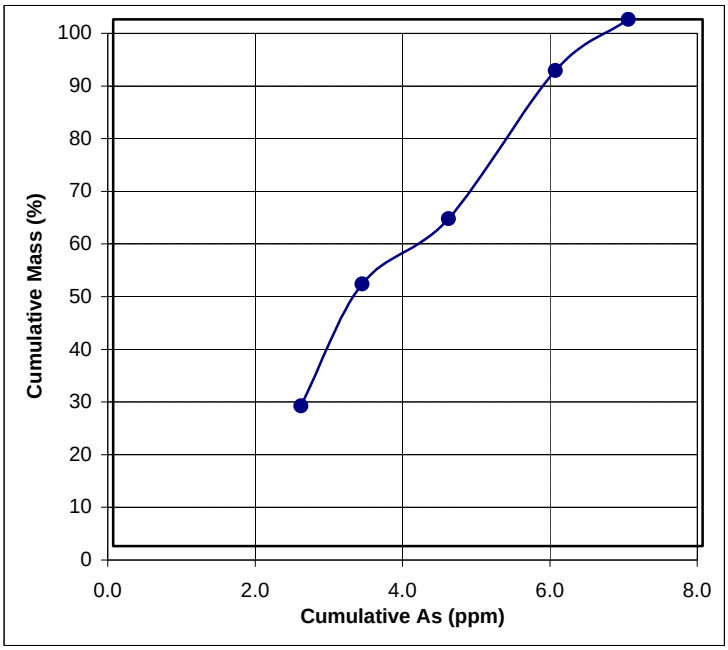
		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	15.84		2.08		0.38
1.40	1.55	29.70		1.63		0.31
1.55	1.65	2.97		2.52		0.86
1.65	2.00	25.74		4.24		1.65
2.00		25.74		16.92		4.75
		100.00	0.00	6.34	0.00	1.83

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	15.84	0.00	2.08	0.00	0.38
1.40	1.55	45.54	0.00	1.79	0.00	0.33
1.55	1.65	48.51	0.00	1.83	0.00	0.36
1.65	2.00	74.26	0.00	2.67	0.00	0.81
2.00		100.00	0.00	6.34	0.00	1.83

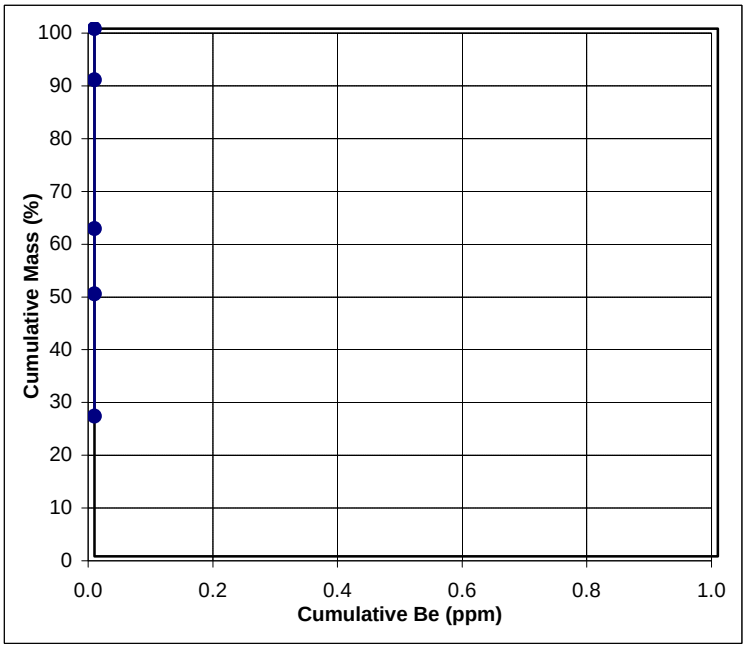
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	6.34	0.00	1.83
1.40	1.55	84.16	0.00	7.14	0.00	2.10
1.55	1.65	54.46	0.00	10.14	0.00	3.08
1.65	2.00	51.49	0.00	10.58	0.00	3.20
2.00		25.74	0.00	16.92	0.00	4.75

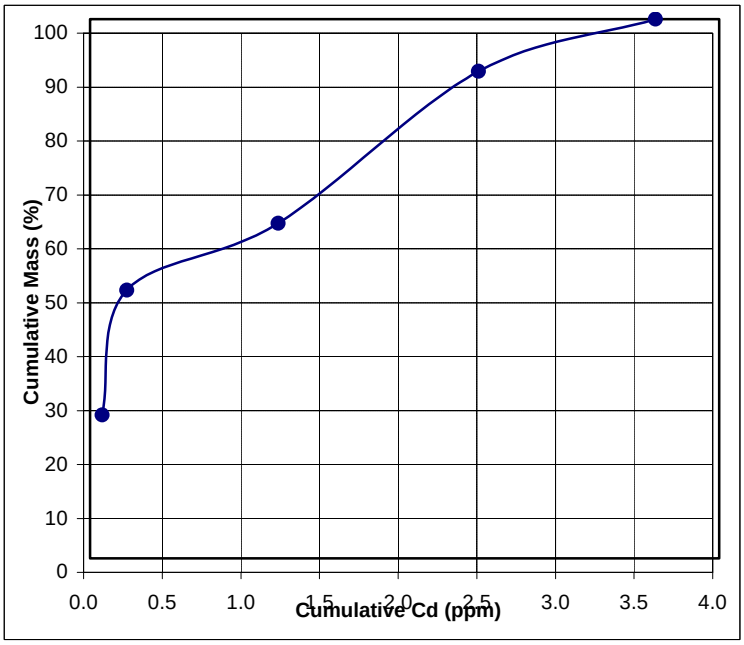
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 5.43



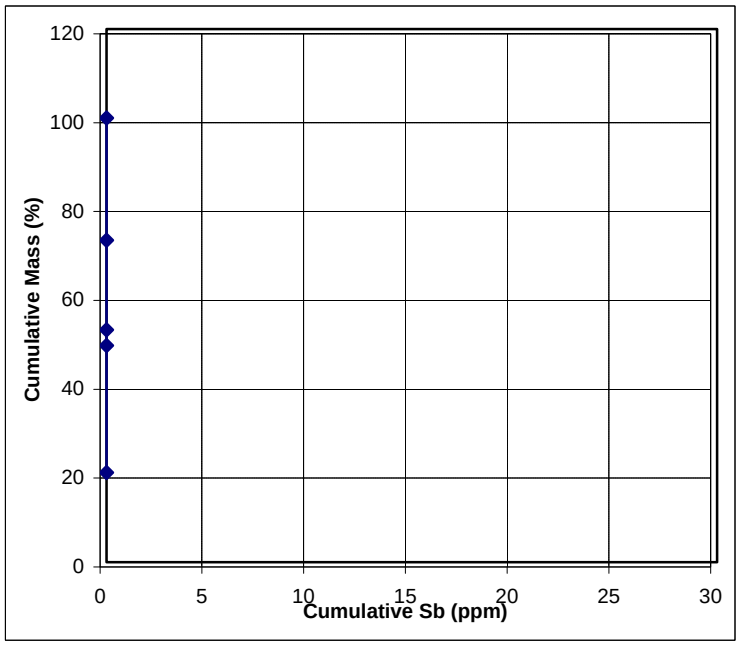


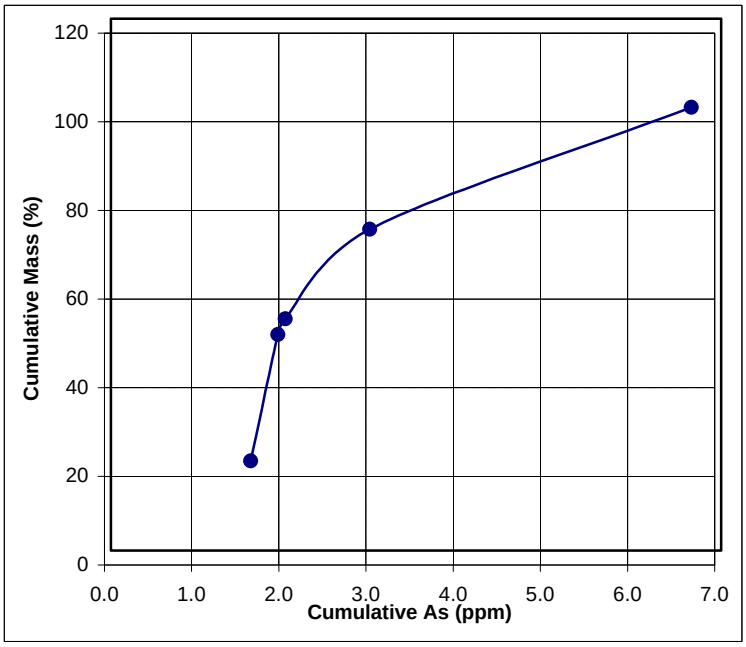
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 5.43



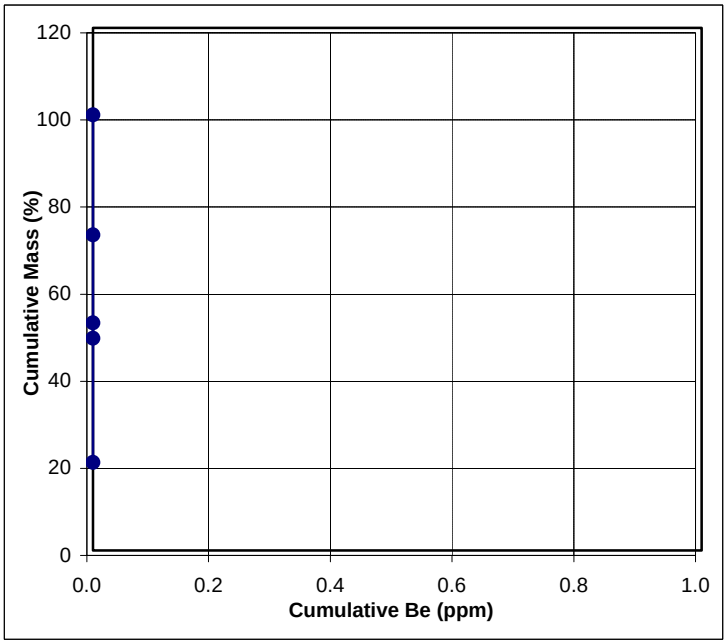


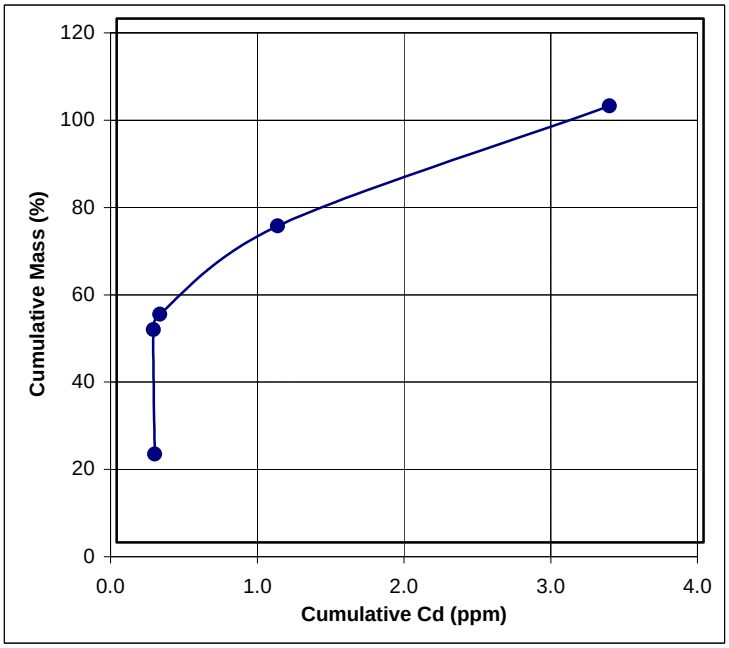
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09



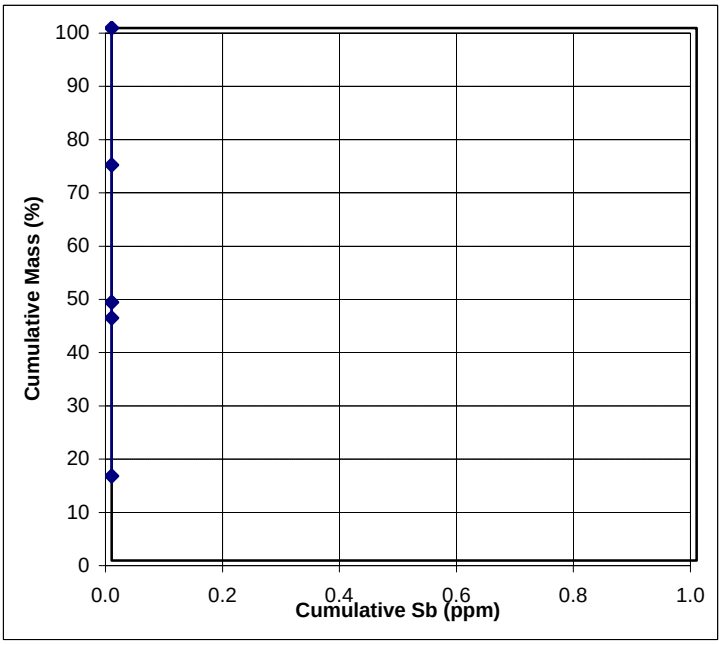


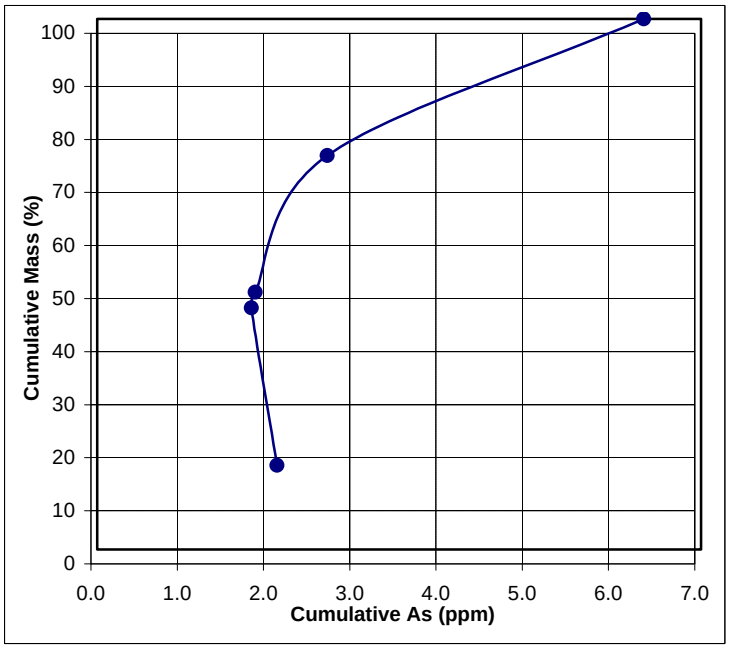
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09



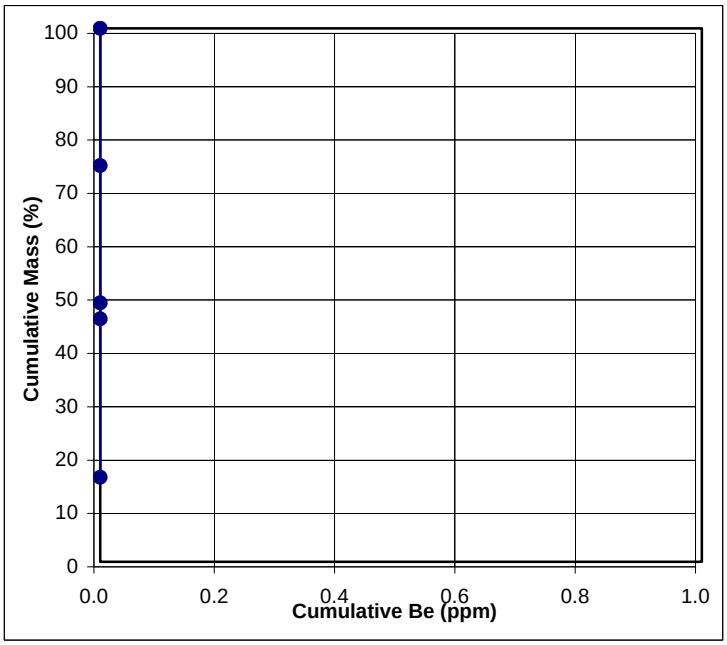


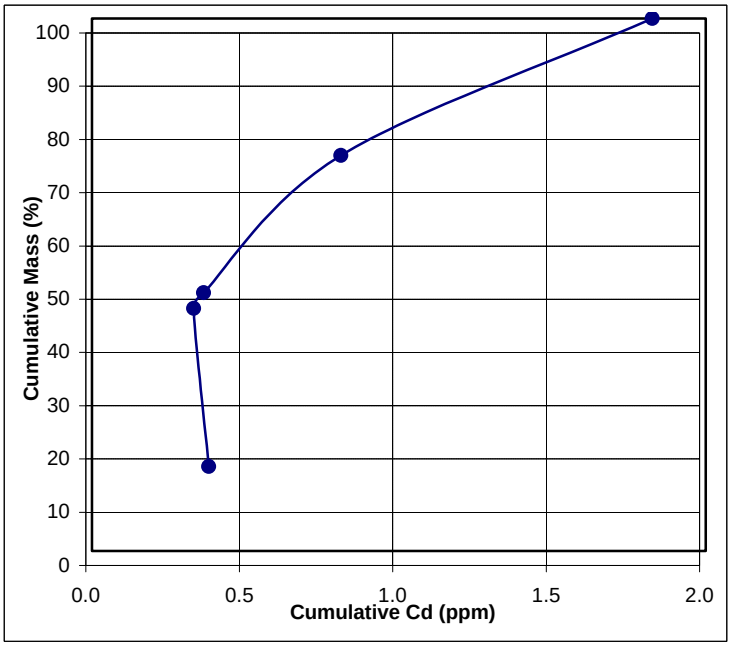
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03





APPENDIX VI

COALBURG TRACE ELEMENT WASHABILITY DATA AND CURVES

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: +50 mm
Mass (%): 18.45

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	0.26		0.00	2.80	0.05
1.40	1.55	16.75		1.50	1.41	0.14
1.55	1.65	36.20		1.99	1.72	0.25
1.65	2.00	46.54		1.85	1.76	0.25
2.00		0.26		7.53	1.91	0.22
		100.00	0.00	1.85	1.69	0.23

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	0.26	0.00	0.00	2.80	0.05
1.40	1.55	17.01	0.00	1.48	1.43	0.13
1.55	1.65	53.21	0.00	1.82	1.62	0.21
1.65	2.00	99.74	0.00	1.84	1.69	0.23
2.00		100.00	0.00	1.85	1.69	0.23

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	1.85	1.69	0.23
1.40	1.55	99.74	0.00	1.86	1.69	0.23
1.55	1.65	82.99	0.00	1.93	1.74	0.25
1.65	2.00	46.79	0.00	1.88	1.76	0.25
2.00		0.26	0.00	7.53	1.91	0.22

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 46.34

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	7.86		2.62	1.34	0.30
1.40	1.55	21.24		3.77	1.55	0.03
1.55	1.65	27.32		3.68	0.70	0.09
1.65	1.80	32.00		3.41	0.75	0.10
1.80	2.00	9.46		4.54	0.80	0.45
2.00		2.12		4.73	0.59	0.12
		100.00	0.00	3.63	0.96	0.13

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	7.86	0.00	2.62	1.34	0.30
	1.55	29.10	0.00	3.46	1.49	0.10
1.40	1.65	56.42	0.00	3.56	1.11	0.10
1.55	1.80	88.42	0.00	3.51	0.98	0.10
1.65	2.00	97.88	0.00	3.61	0.96	0.13
1.80		100.00	0.00	3.63	0.96	0.13
2.00						

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	3.63	0.96	0.13
1.40	1.55	92.14	0.00	3.72	0.92	0.12
1.55	1.65	70.90	0.00	3.70	0.74	0.14
1.65	1.80	43.58	0.00	3.72	0.76	0.17
1.80	2.00	11.58	0.00	4.57	0.76	0.39
2.00		2.12	0.00	4.73	0.59	0.12

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 29.32

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	34.83		2.09	1.31	0.08
1.40	1.55	22.25		2.63	1.17	0.11
1.55	1.65	14.81		2.28	1.30	0.07
1.65	2.00	25.05		2.85	1.78	0.12
2.00		3.06		7.08	1.32	0.11
		100.00	0.00	2.58	1.40	0.10

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	34.83	0.00	2.09	1.31	0.08
1.40	1.55	57.09	0.00	2.30	1.26	0.09
1.55	1.65	71.89	0.00	2.30	1.27	0.09
1.65	2.00	96.94	0.00	2.44	1.40	0.10
2.00		100.00	0.00	2.58	1.40	0.10

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.58	1.40	0.10
1.40	1.55	65.17	0.00	2.84	1.44	0.11
1.55	1.65	42.91	0.00	2.95	1.58	0.10
1.65	2.00	28.11	0.00	3.31	1.73	0.12
2.00		3.06	0.00	7.08	1.32	0.11

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	24.80		2.21	1.38	0.13
1.40	1.55	26.17		2.10	1.21	0.38
1.55	1.65	14.68		2.96	2.44	0.18
1.65	2.00	27.86		3.41	1.97	0.14
2.00		6.49		26.75	0.93	0.20
		100.00	0.00	4.22	1.63	0.21

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	24.80	0.00	2.21	1.38	0.13
1.40	1.55	50.96	0.00	2.15	1.29	0.26
1.55	1.65	65.65	0.00	2.33	1.55	0.24
1.65	2.00	93.51	0.00	2.66	1.67	0.21
2.00		100.00	0.00	4.22	1.63	0.21

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	4.22	1.63	0.21
1.40	1.55	75.20	0.00	4.88	1.71	0.24
1.55	1.65	49.04	0.00	6.37	1.97	0.16
1.65	2.00	34.35	0.00	7.82	1.77	0.15
2.00		6.49	0.00	26.75	0.93	0.20

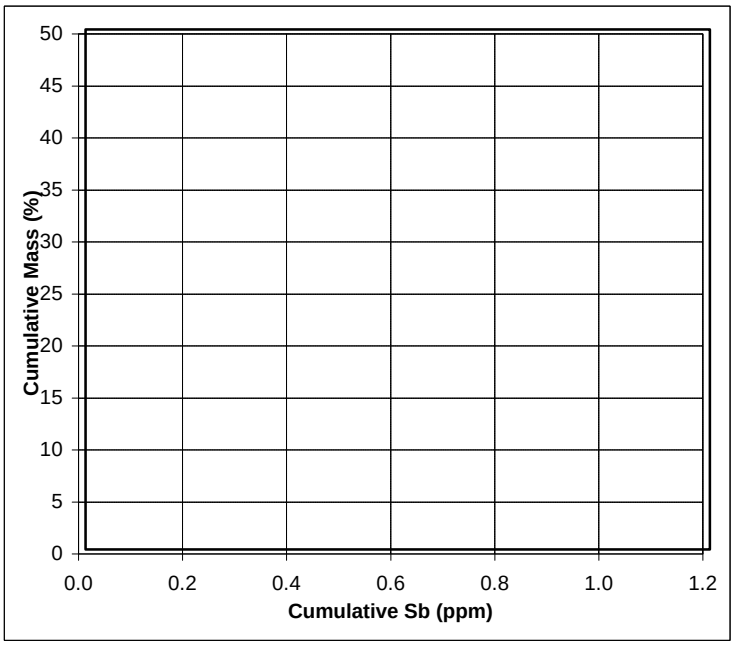
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98

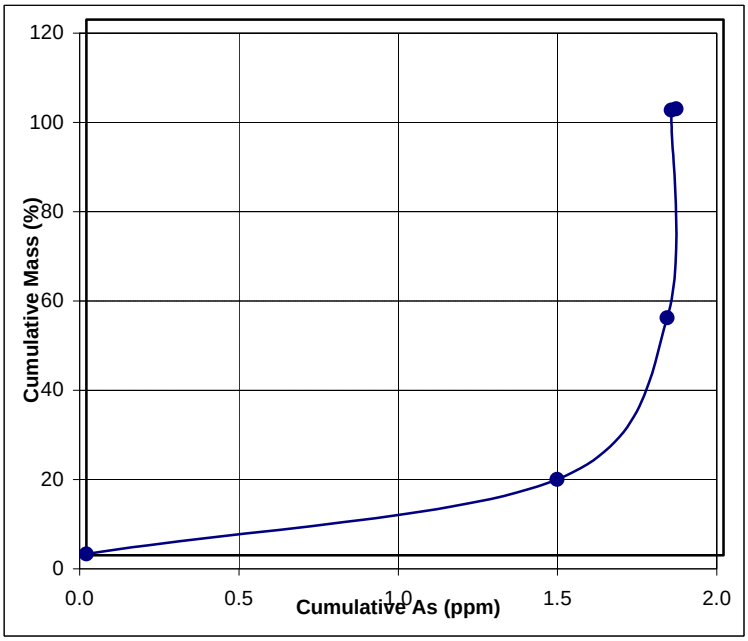
		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	3.99		2.27	1.40	0.17
1.40	1.55	8.22		2.18	1.40	0.38
1.55	1.65	36.31		0.00	0.00	0.39
1.65	2.00	49.87		0.00	0.00	0.50
2.00		1.62		49.49	0.50	1.13
		100.00	0.00	1.07	0.18	0.45

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	3.99	0.00	2.27	1.40	0.17
1.40	1.55	12.21	0.00	2.21	1.40	0.31
1.55	1.65	48.52	0.00	0.56	0.35	0.37
1.65	2.00	98.38	0.00	0.27	0.17	0.44
2.00		100.00	0.00	1.07	0.18	0.45

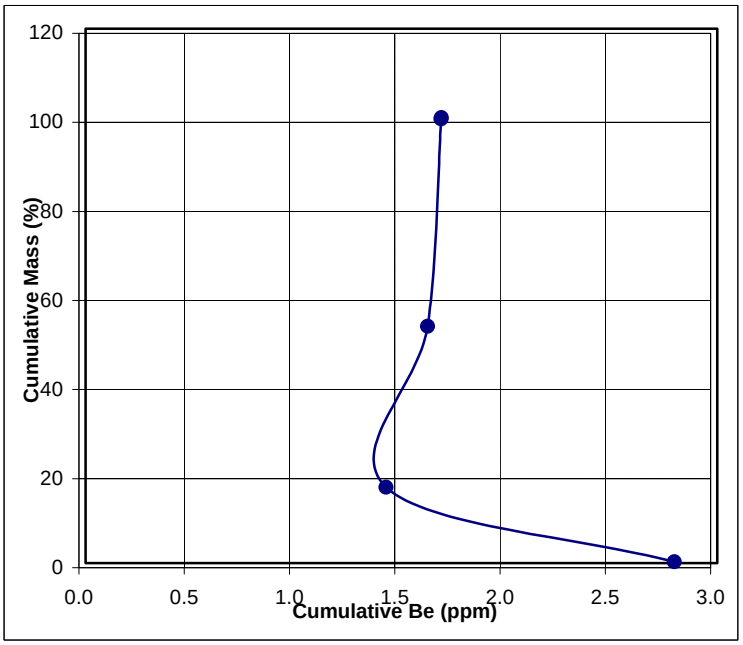
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	1.07	0.18	0.45
1.40	1.55	96.01	0.00	1.02	0.13	0.46
1.55	1.65	87.79	0.00	0.91	0.01	0.47
1.65	2.00	51.48	0.00	1.55	0.02	0.52
2.00		1.62	0.00	49.49	0.50	1.13

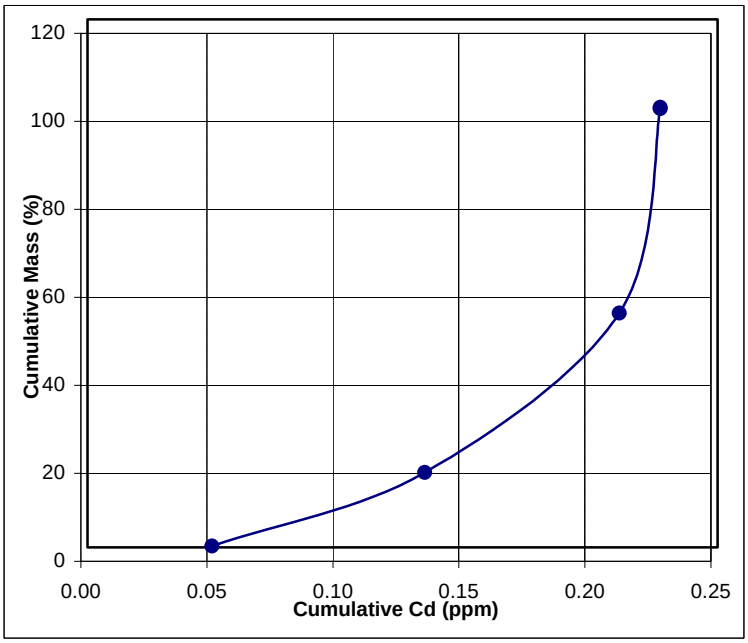
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: +50 mm
Mass (%): 18.45



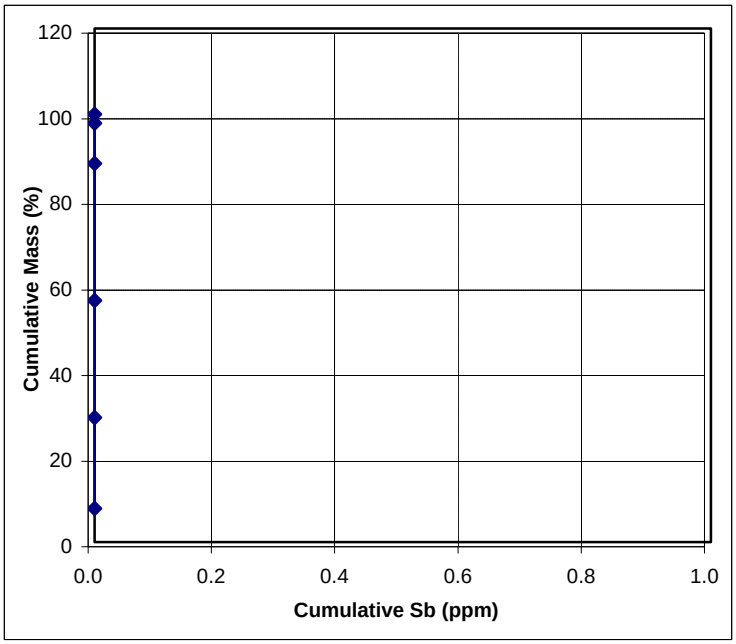


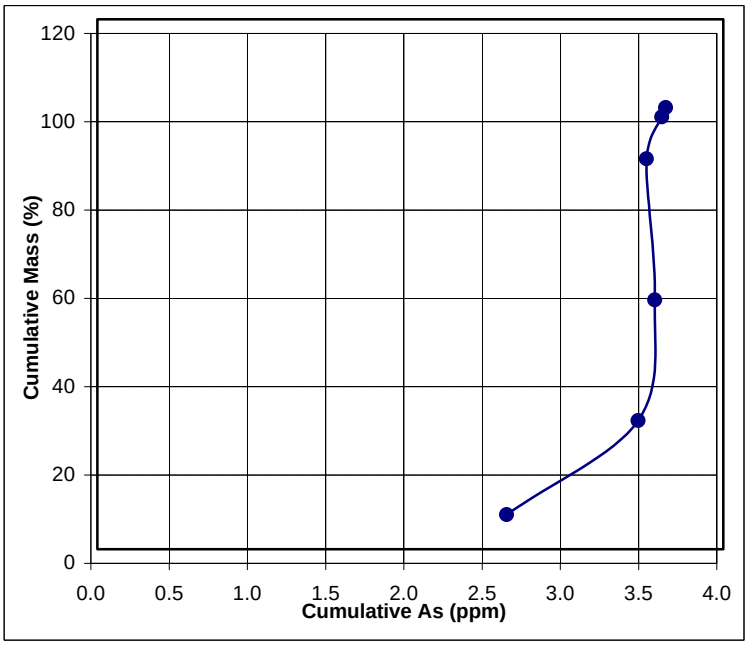
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: +50 mm
Mass (%): 18.45



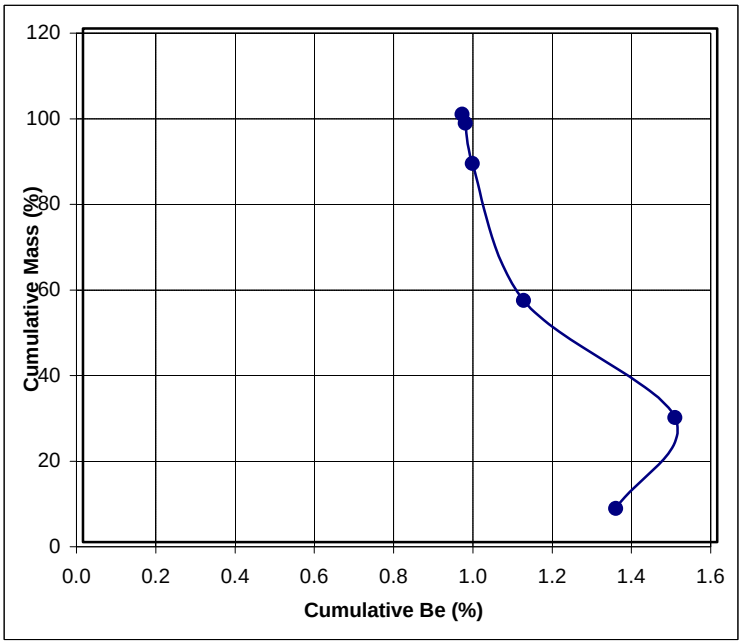


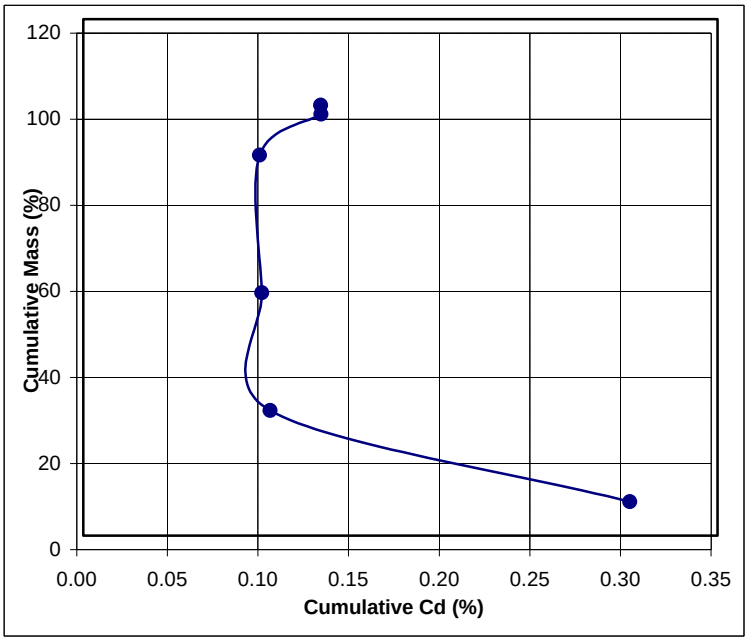
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 46.34



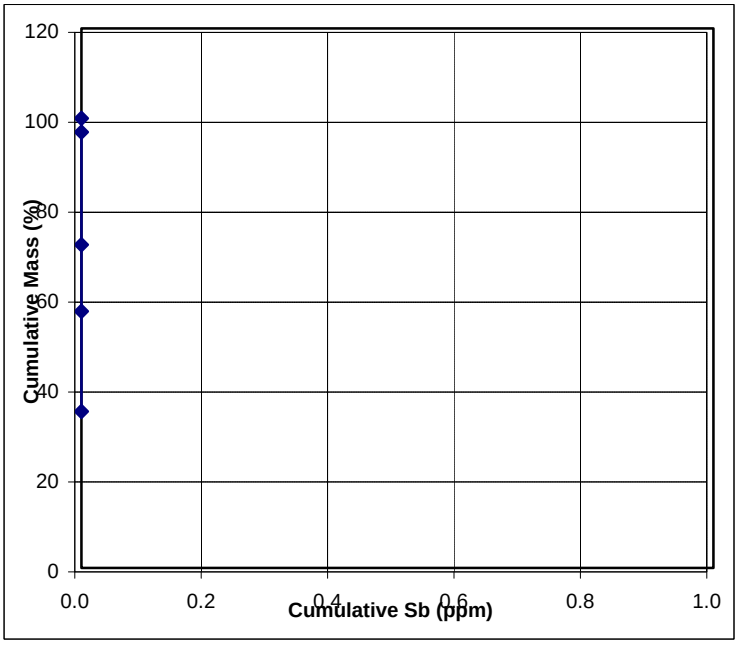


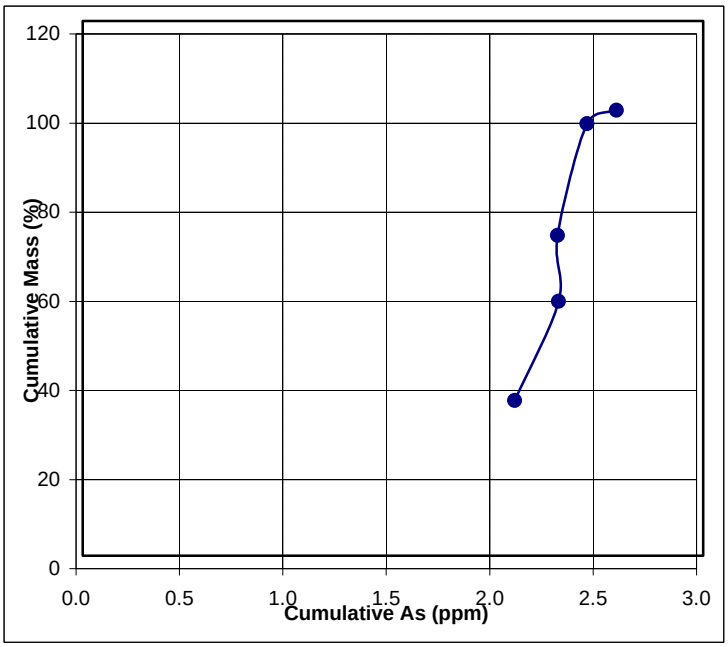
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 50 x 10 mm
Mass (%): 46.34



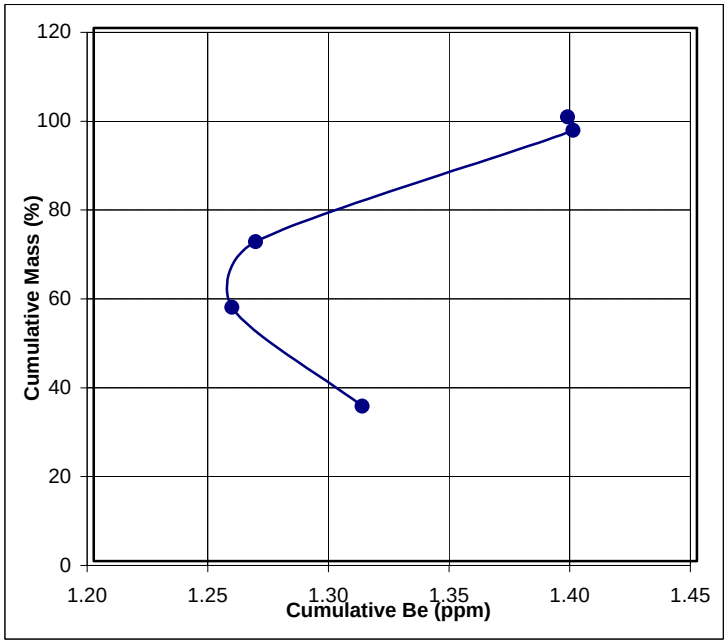


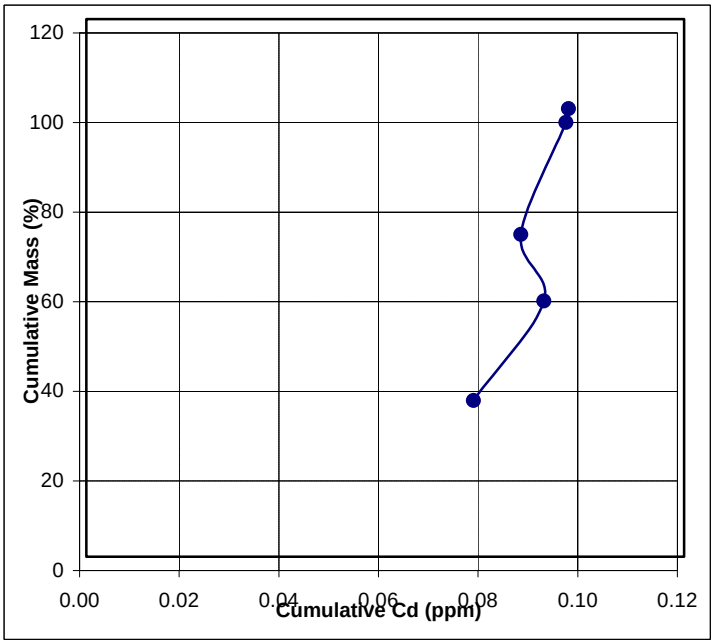
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 29.32



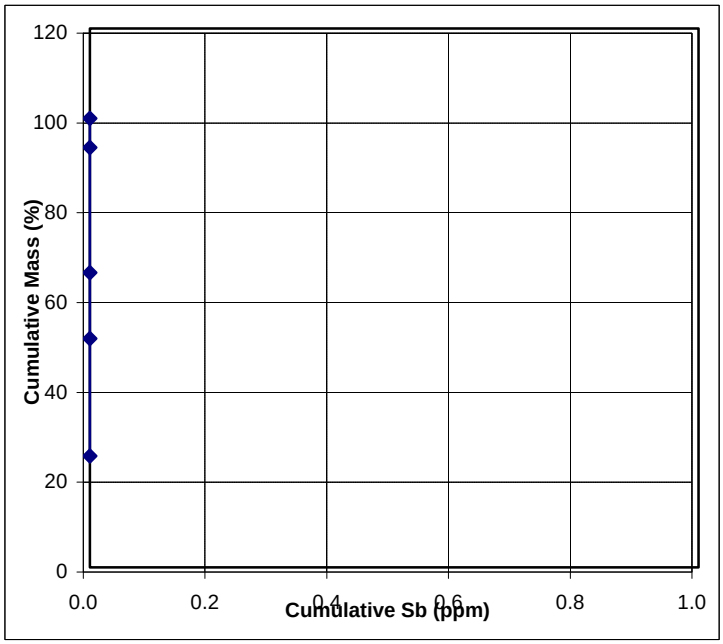


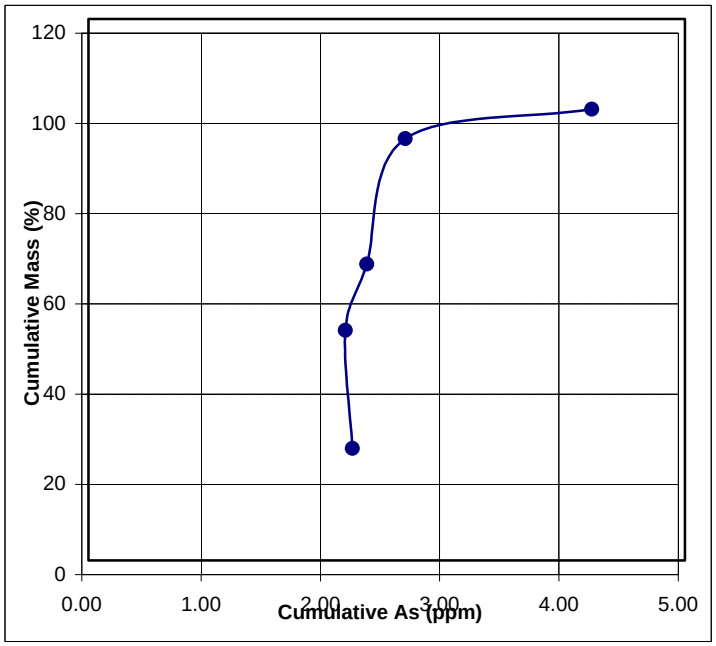
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 10 mm x 28 M
Mass (%): 29.32



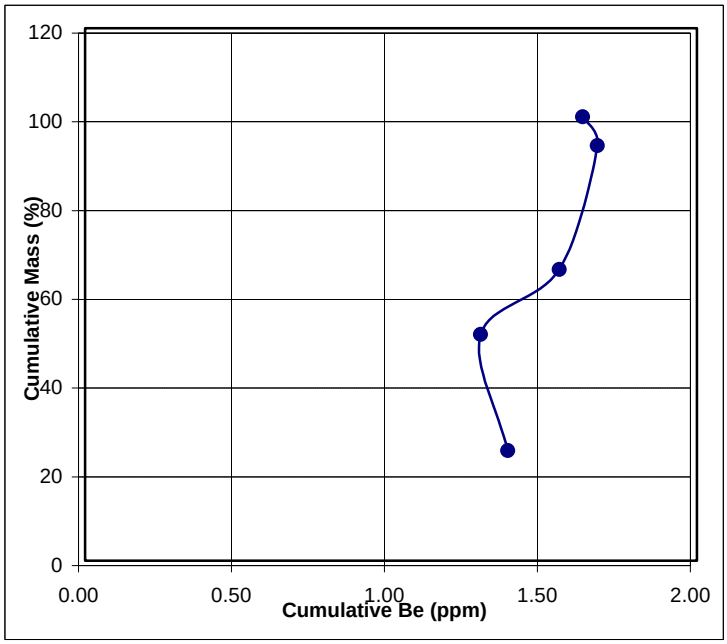


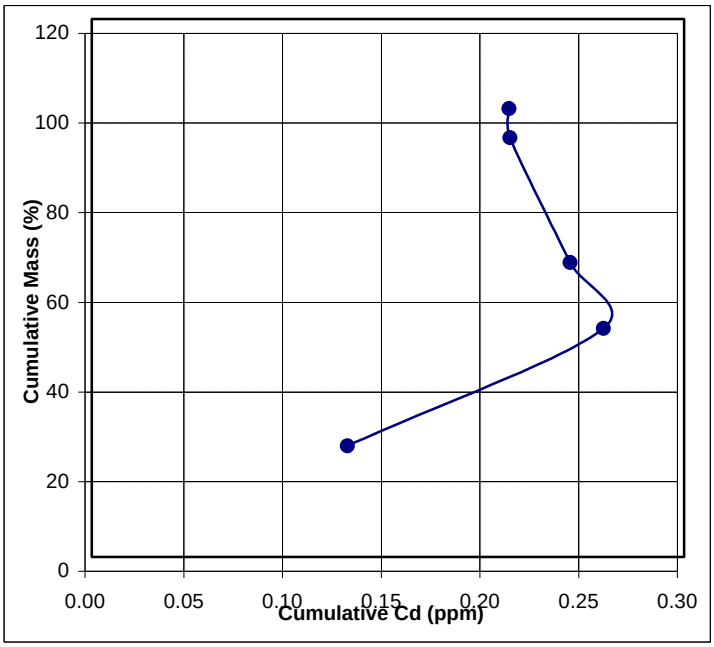
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10



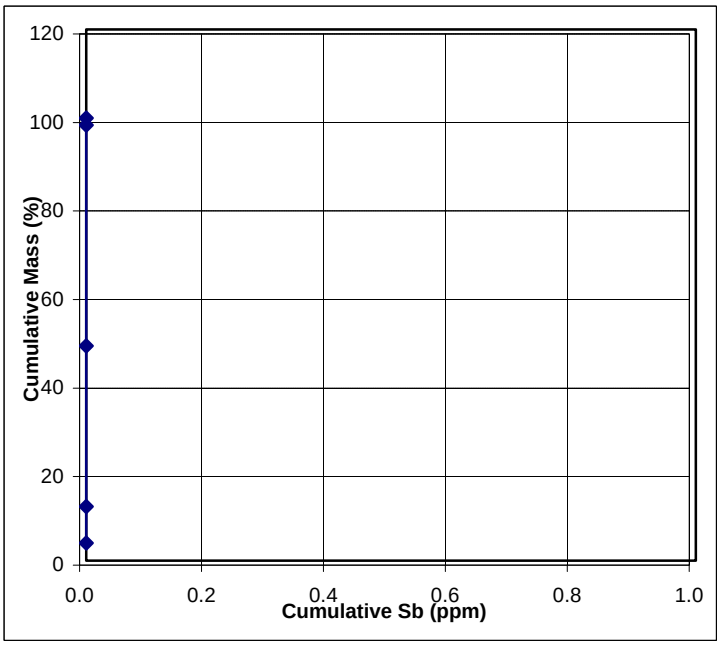


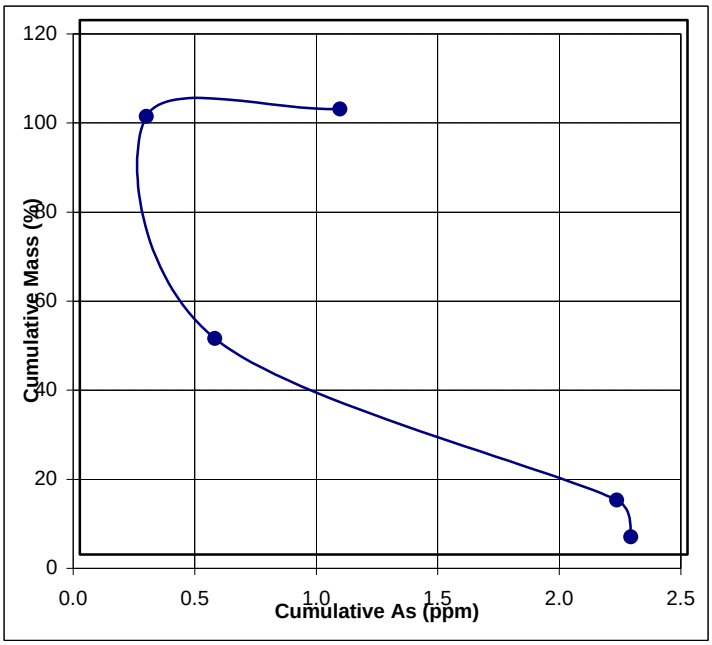
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10



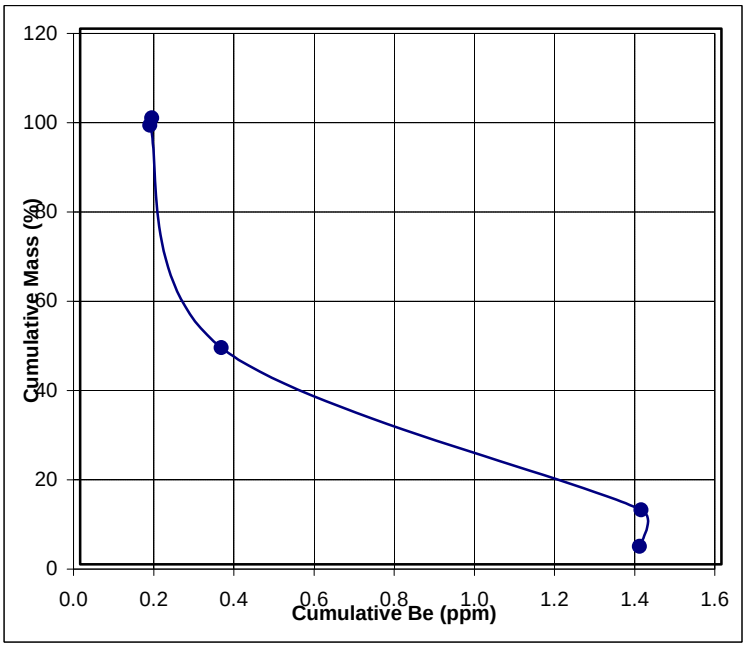


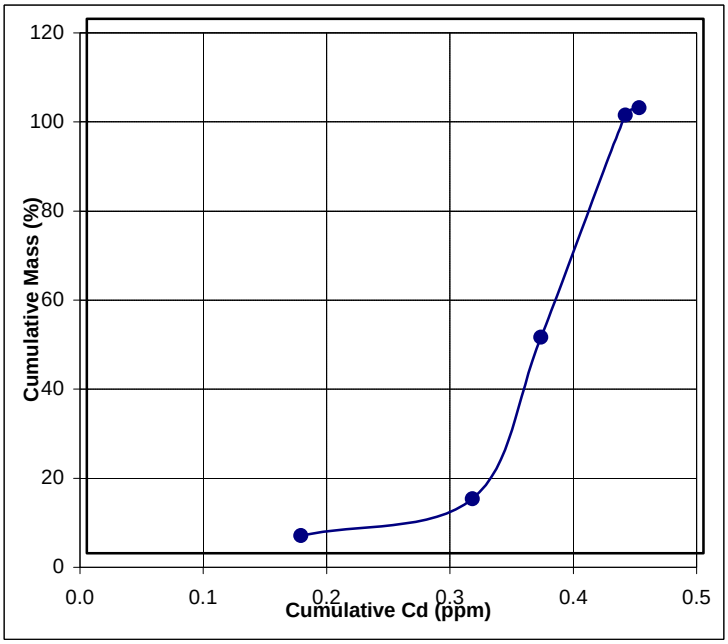
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98





Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98





Seam: Coalburg
Sample: Crushed Middlings Only
Class: 50 x 10 mm
Mass (%): 9.11

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	0.46		1.69	1.42	0.03
1.40	1.55	31.28		2.25	0.62	0.08
1.55	1.65	39.28		2.00	0.47	0.05
1.65	2.00	23.90		2.83	0.41	0.20
2.00		5.09		4.04	0.75	0.09
		100.00	0.00	2.38	0.52	0.10

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	0.46	0.00	1.69	1.42	0.03
1.40	1.55	31.74	0.00	2.24	0.63	0.08
1.55	1.65	71.01	0.00	2.11	0.54	0.06
1.65	2.00	94.91	0.00	2.29	0.51	0.10
2.00		100.00	0.00	2.38	0.52	0.10

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.38	0.52	0.10
1.40	1.55	99.54	0.00	2.38	0.52	0.10
1.55	1.65	68.26	0.00	2.44	0.47	0.10
1.65	2.00	28.99	0.00	3.05	0.47	0.18
2.00		5.09	0.00	4.04	0.75	0.09

Seam: Coalburg
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 8.31

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	8.86		1.45	1.13	0.09
1.40	1.55	19.01		2.45	1.03	0.12
1.55	1.65	21.00		2.30	1.17	0.13
1.65	2.00	48.05		3.61	0.48	0.13
2.00		3.08		4.51	0.53	0.14
		100.00	0.00	2.95	0.79	0.13

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	8.86	0.00	1.45	1.13	0.09
1.40	1.55	27.88	0.00	2.13	1.06	0.11
1.55	1.65	48.88	0.00	2.21	1.11	0.12
1.65	2.00	96.92	0.00	2.90	0.80	0.13
2.00		100.00	0.00	2.95	0.79	0.13

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.95	0.79	0.13
1.40	1.55	91.14	0.00	3.10	0.76	0.13
1.55	1.65	72.12	0.00	3.27	0.68	0.13
1.65	2.00	51.12	0.00	3.67	0.48	0.13
2.00		3.08	0.00	4.51	0.53	0.14

Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68

		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	17.49		1.96	1.03	0.12
1.40	1.55	22.62		2.08	1.10	0.17
1.55	1.65	8.18		1.93	0.85	0.23
1.65	2.00	35.43		2.42	0.95	0.17
2.00		16.28		4.47	0.45	0.20
		100.00	0.00	2.56	0.91	0.17

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	17.49	0.00	1.96	1.03	0.12
1.40	1.55	40.11	0.00	2.03	1.07	0.15
1.55	1.65	48.29	0.00	2.01	1.03	0.16
1.65	2.00	83.72	0.00	2.18	1.00	0.16
2.00		100.00	0.00	2.56	0.91	0.17

		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.56	0.91	0.17
1.40	1.55	82.51	0.00	2.68	0.88	0.18
1.55	1.65	59.89	0.00	2.91	0.80	0.18
1.65	2.00	51.71	0.00	3.07	0.79	0.18
2.00		16.28	0.00	4.47	0.45	0.20

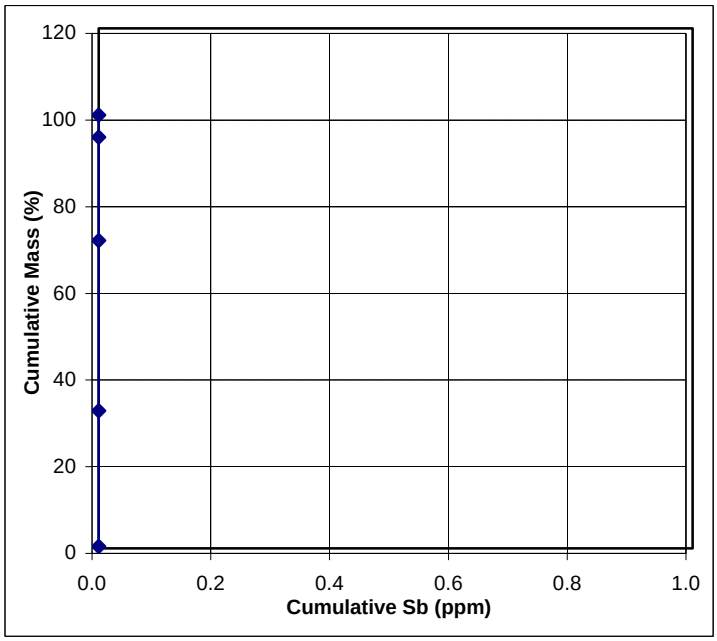
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13

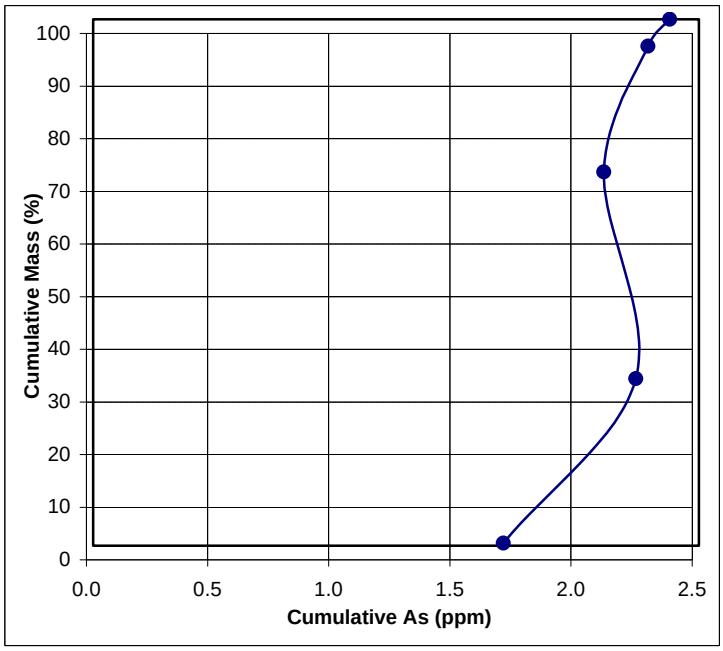
		Individual				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	5.89		1.44	1.02	0.13
1.40	1.55	27.33		1.22	1.32	0.20
1.55	1.65	10.33		1.62	0.66	0.23
1.65	2.00	46.64		1.99	0.82	0.23
2.00		9.81		6.06	0.43	0.60
		100.00	0.00	2.11	0.91	0.25

		Cumulative Float				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	5.89	0.00	1.44	1.02	0.13
1.40	1.55	33.22	0.00	1.25	1.26	0.19
1.55	1.65	43.55	0.00	1.34	1.12	0.20
1.65	2.00	90.19	0.00	1.68	0.96	0.21
2.00		100.00	0.00	2.11	0.91	0.25

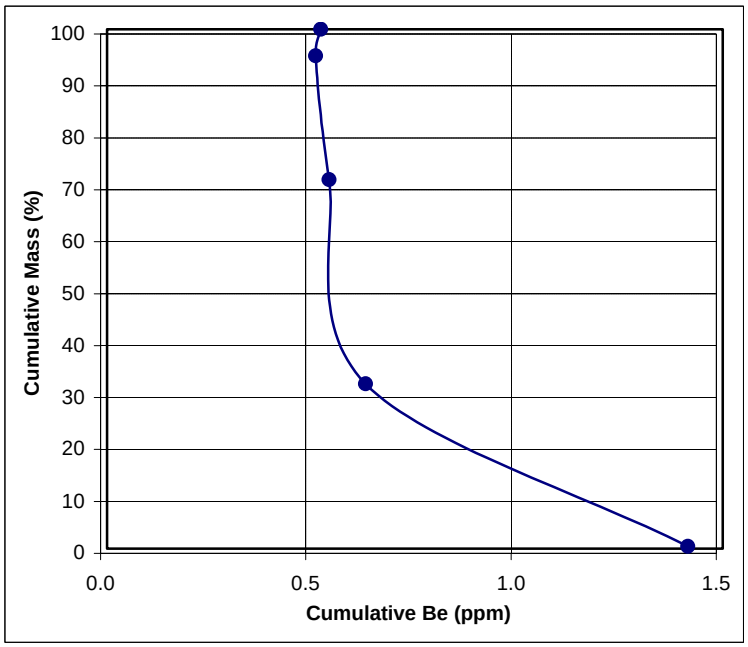
		Cumulative Sink				
Sink SG	Float SG	Mass (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)
	1.40	100.00	0.00	2.11	0.91	0.25
1.40	1.55	94.11	0.00	2.15	0.90	0.26
1.55	1.65	66.78	0.00	2.53	0.73	0.28
1.65	2.00	56.45	0.00	2.70	0.75	0.29
2.00		9.81	0.00	6.06	0.43	0.60

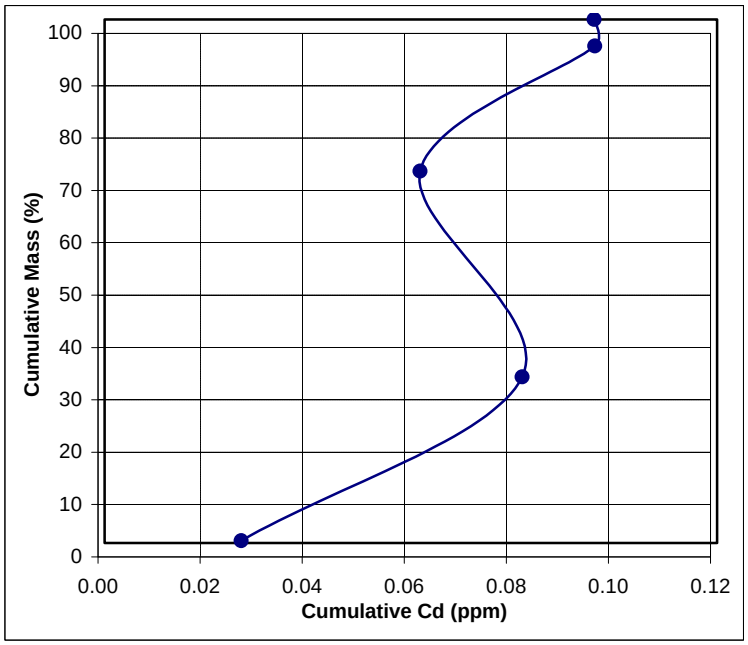
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 50 x 10 mm
Mass (%): 22.88



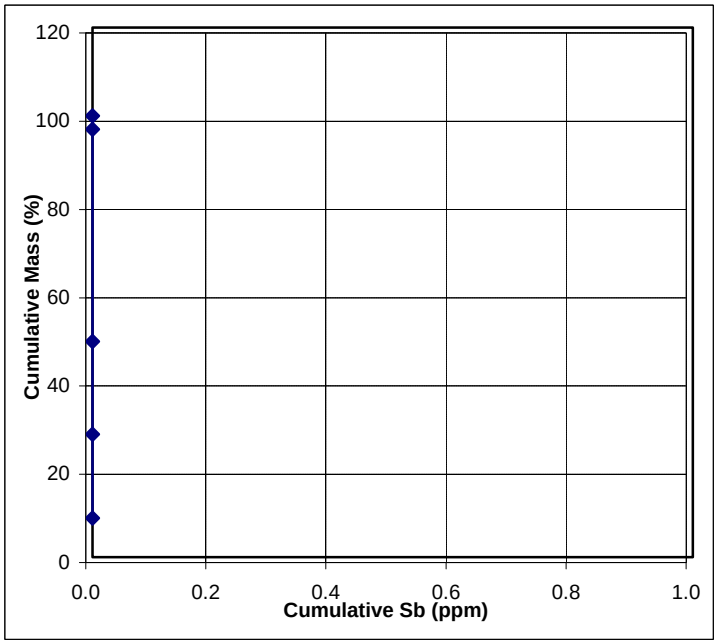


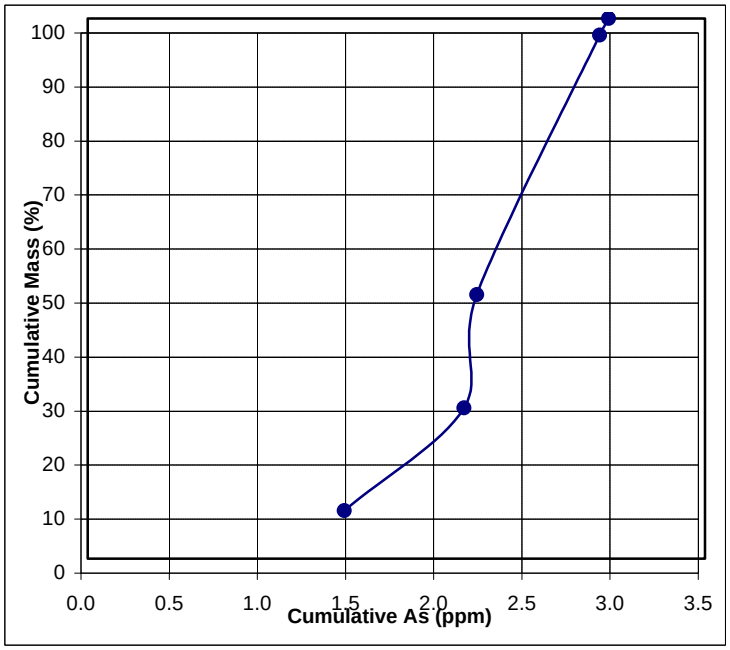
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 50 x 10 mm
Mass (%): 22.88



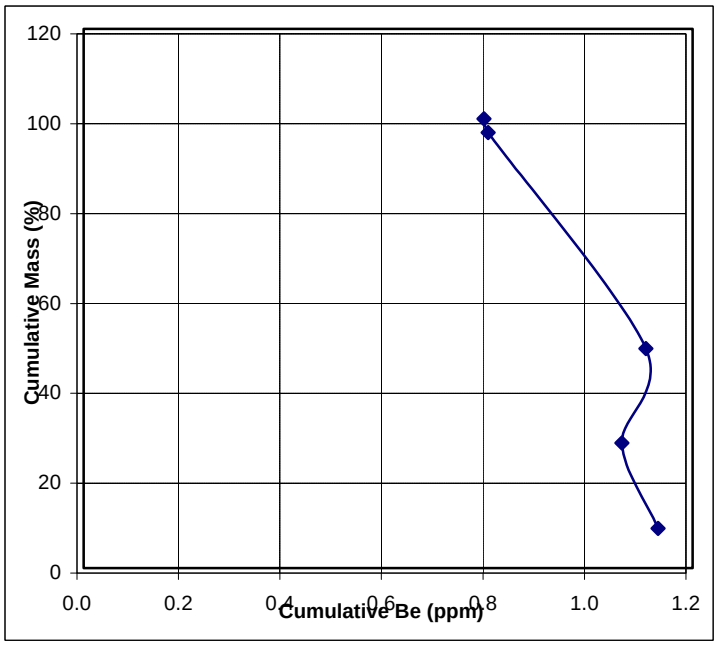


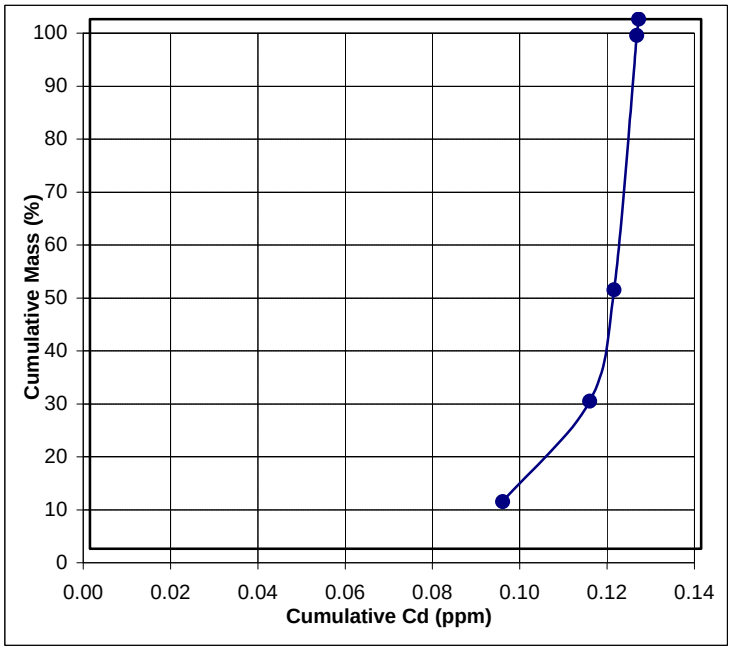
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 8.31



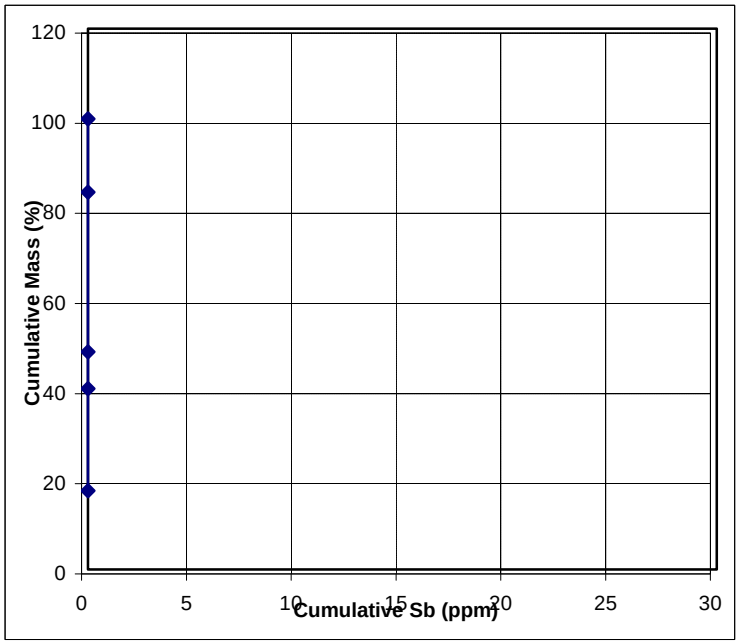


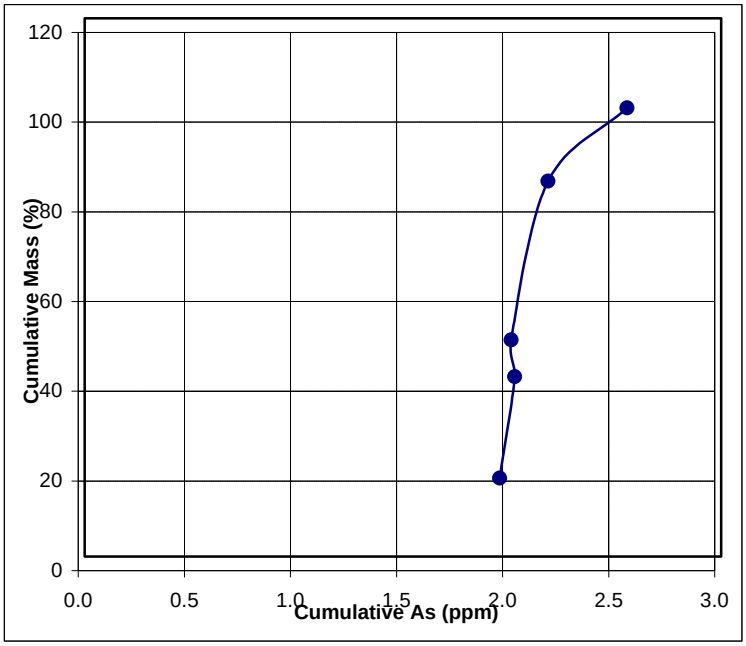
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 10 mm x 28 M
Mass (%): 8.31



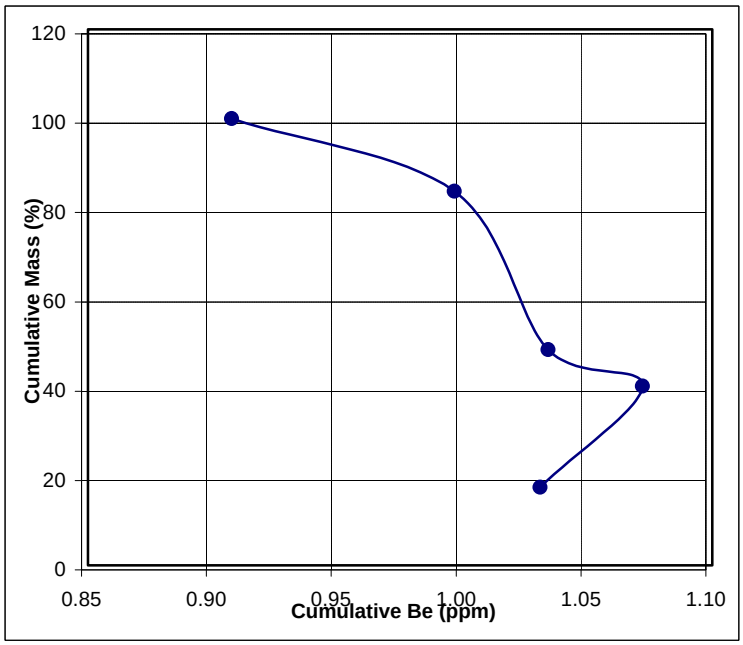


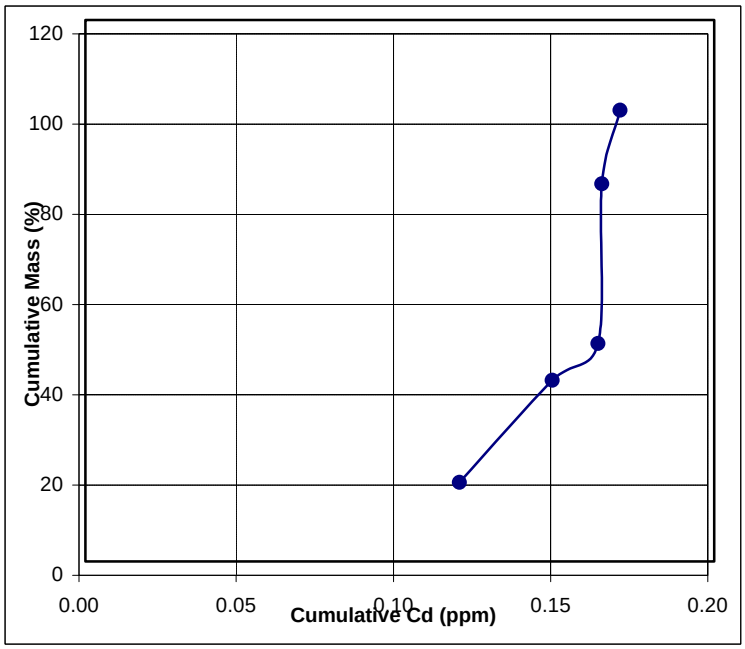
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68



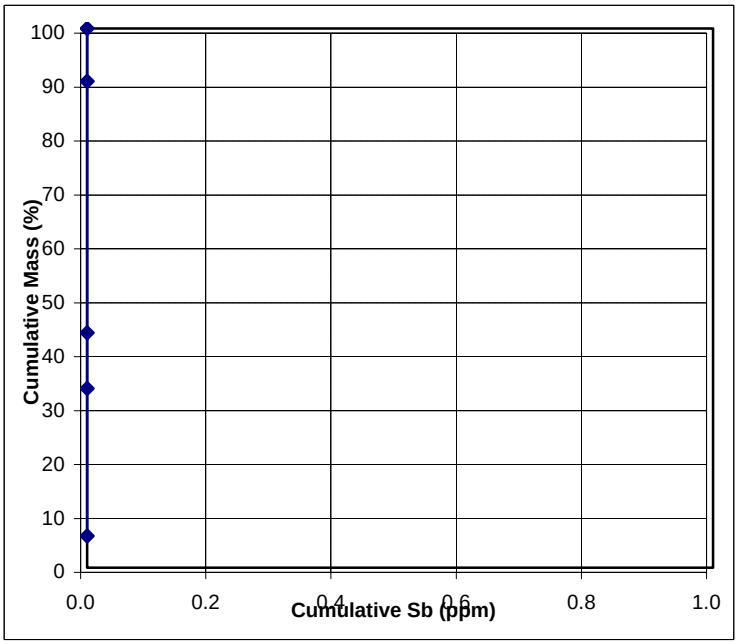


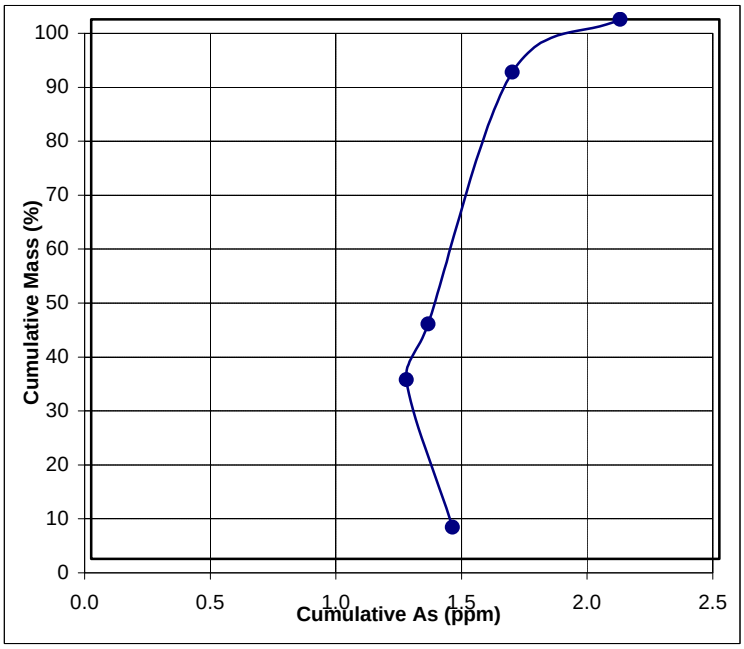
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68



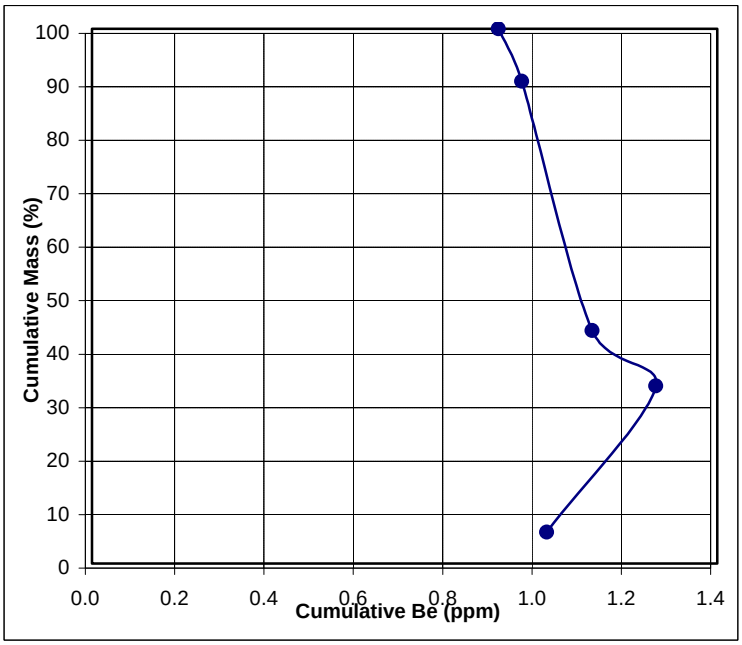


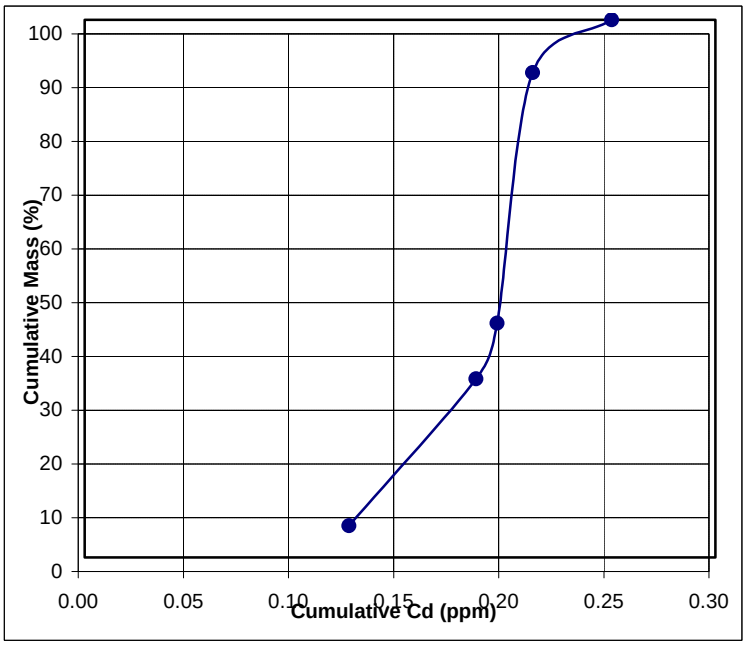
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13





Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13





APPENDIX VII

PITTSBURGH NO. 8 SIMPLE LINEAR REGRESSION ANLYSIS RESULTS

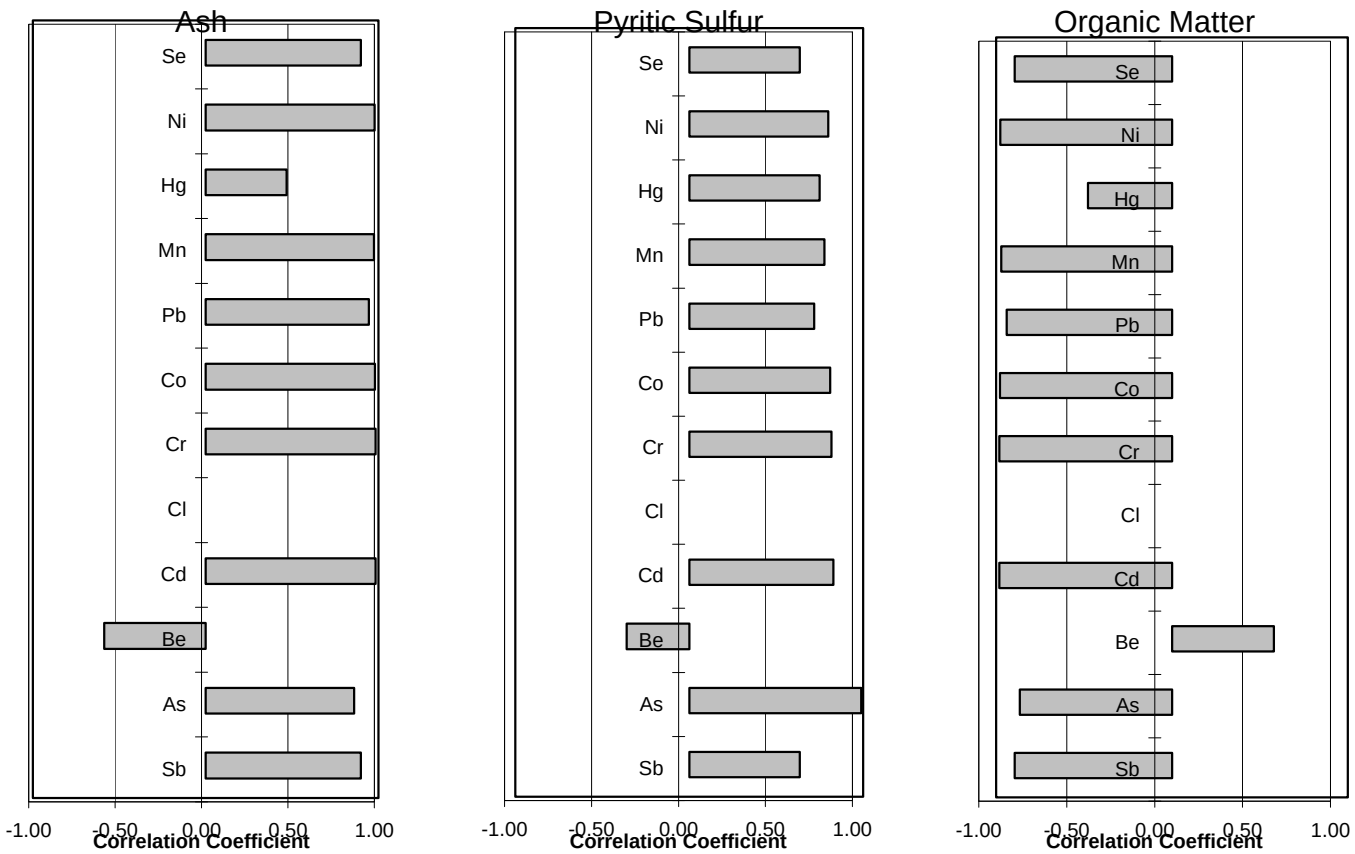
Seam: Pittsburgh No. 8 Class: 50 x 10 mm
Sample: Run-of-Mine Feed Mass (%): 56.26

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
4.52	2.01	0.54	94.01	0.00	3.52	0.70	0.05	0.00	6.91	0.92	4.02	10.05	0.07	5.60	0.00
8.03	3.22	1.64	89.56	0.00	21.38	1.25	0.09	0.00	9.43	1.84	5.47	20.36	0.12	6.76	0.00
20.43	4.74	2.46	75.33	0.00	41.17	2.41	0.09	0.00	21.27	3.43	7.99	42.96	0.24	12.84	0.00
41.88	5.67	3.40	51.65	0.00	68.53	0.20	0.18	0.00	32.04	5.28	12.82	118.09	0.19	17.75	0.00
85.82	6.40	3.95	3.79	0.62	70.36	0.00	0.41	0.00	94.59	16.64	71.33	456.53	0.19	53.41	2.85

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	0.90	0.86	-0.59	0.98	#DIV/0!	0.98	0.98	0.94	0.97	0.47	0.98	0.90
Total Sulfur	0.62	0.99	-0.30	0.81	#DIV/0!	0.81	0.80	0.70	0.76	0.79	0.79	0.62
Pyritic Sulfur	0.64	0.99	-0.36	0.83	#DIV/0!	0.82	0.81	0.72	0.78	0.75	0.80	0.64
Organic Matter	-0.89	-0.87	0.58	-0.98	#DIV/0!	-0.98	-0.98	-0.94	-0.97	-0.48	-0.98	-0.89

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed

Class: 50 x 10 mm
Mass (%): 56.26



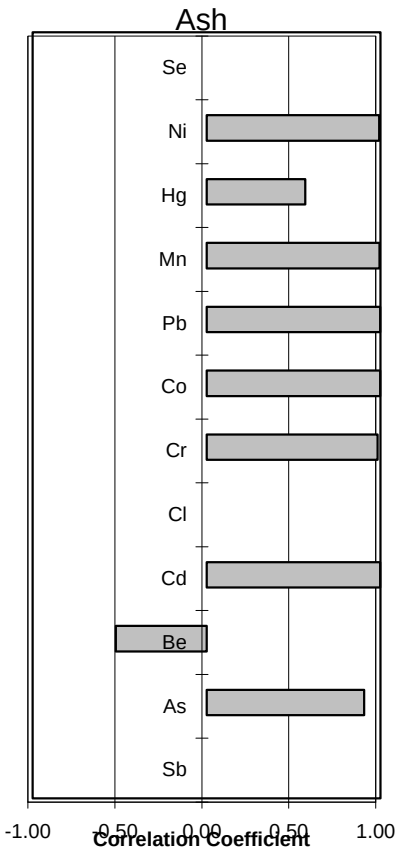
Seam: Pittsburgh No. 8 Class: 10 mm x 28 M
Sample: Run-of-Mine Feed Mass (%): 34.70

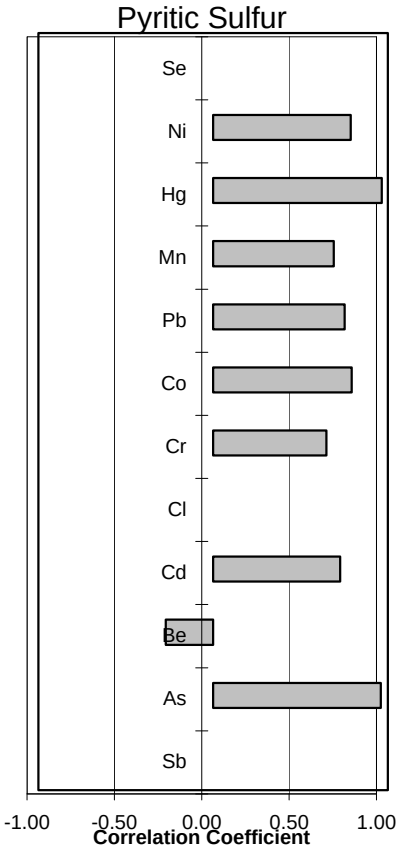
Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
3.42	1.60	0.25	95.43	0.00	7.41	0.63	0.04	0.00	7.73	1.40	1.12	7.80	0.05	3.15	0.00
7.24	2.79	1.08	90.65	0.00	13.44	1.27	0.08	0.00	10.95	2.48	3.45	14.76	0.10	7.26	0.00
17.99	6.47	4.36	77.01	0.00	54.10	2.13	0.12	0.00	19.40	5.50	6.18	44.39	0.29	15.29	0.00
37.09	8.51	6.31	55.26	0.00	74.18	0.20	0.28	0.00	26.29	8.66	10.75	141.96	0.41	20.77	0.00
84.68	7.20	5.81	4.59	0.00	96.24	0.26	0.65	0.00	84.98	17.74	24.72	409.34	0.28	44.63	0.00

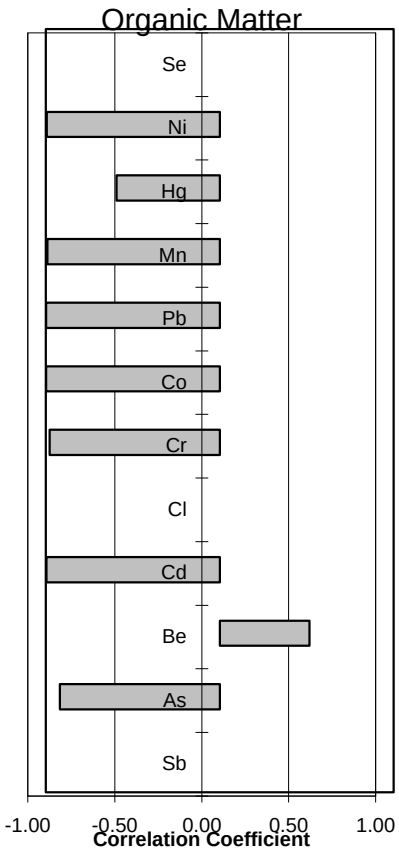
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.91	-0.52	1.00	#DIV/0!	0.98	1.00	1.00	1.00	0.57	0.99	#DIV/0!
Total Sulfur	#DIV/0!	0.92	-0.20	0.65	#DIV/0!	0.56	0.72	0.68	0.61	0.99	0.71	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.96	-0.27	0.73	#DIV/0!	0.65	0.79	0.75	0.69	0.97	0.79	#DIV/0!
Organic Matter	#DIV/0!	-0.92	0.52	-1.00	#DIV/0!	-0.98	-1.00	-1.00	-0.99	-0.59	-0.99	#DIV/0!

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed

Class: 10 mm x 28 M
Mass (%): 34.70







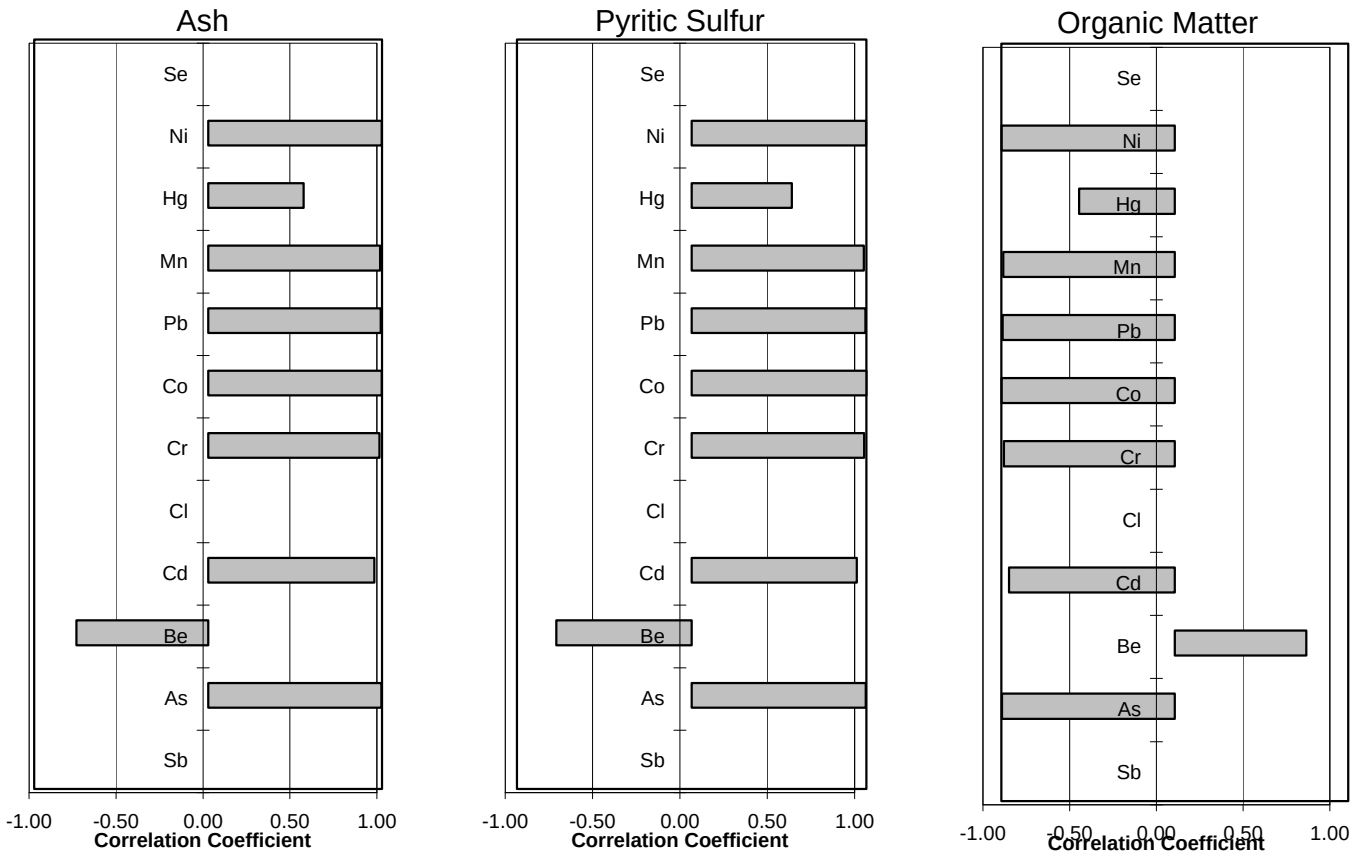
Seam: Pittsburgh No. 8 Class: 28 x 100 M
Sample: Run-of-Mine Feed Mass (%): 5.85

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
2.79	1.48	0.13	96.17	0.00	2.94	0.64	0.08	0.00	8.41	1.32	1.07	5.52	0.05	5.47	0.00
7.01	1.88	0.44	91.40	0.00	6.43	1.36	0.16	0.00	12.51	2.11	2.34	14.03	0.10	6.41	0.00
13.83	3.68	2.09	83.04	0.00	13.02	1.18	0.08	0.00	18.73	3.83	5.17	32.29	0.29	13.25	0.00
32.48	6.93	5.32	61.11	0.00	56.65	0.09	0.19	0.00	24.86	8.02	16.97	150.67	0.41	21.67	0.00
75.68	14.43	12.36	10.33	0.00	122.64	0.00	0.75	0.00	40.63	15.93	31.77	549.01	0.28	49.71	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	1.00	-0.76	0.96	#DIV/0!	0.98	1.00	0.99	0.99	0.55	1.00	#DIV/0!
Total Sulfur	#DIV/0!	1.00	-0.77	0.95	#DIV/0!	0.99	1.00	0.99	0.98	0.57	1.00	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	-0.77	0.94	#DIV/0!	0.99	1.00	0.99	0.98	0.57	1.00	#DIV/0!
Organic Matter	#DIV/0!	-1.00	0.76	-0.96	#DIV/0!	-0.99	-1.00	-0.99	-0.99	-0.55	-1.00	#DIV/0!

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed

Class: 28 x 100 M
Mass (%): 5.85



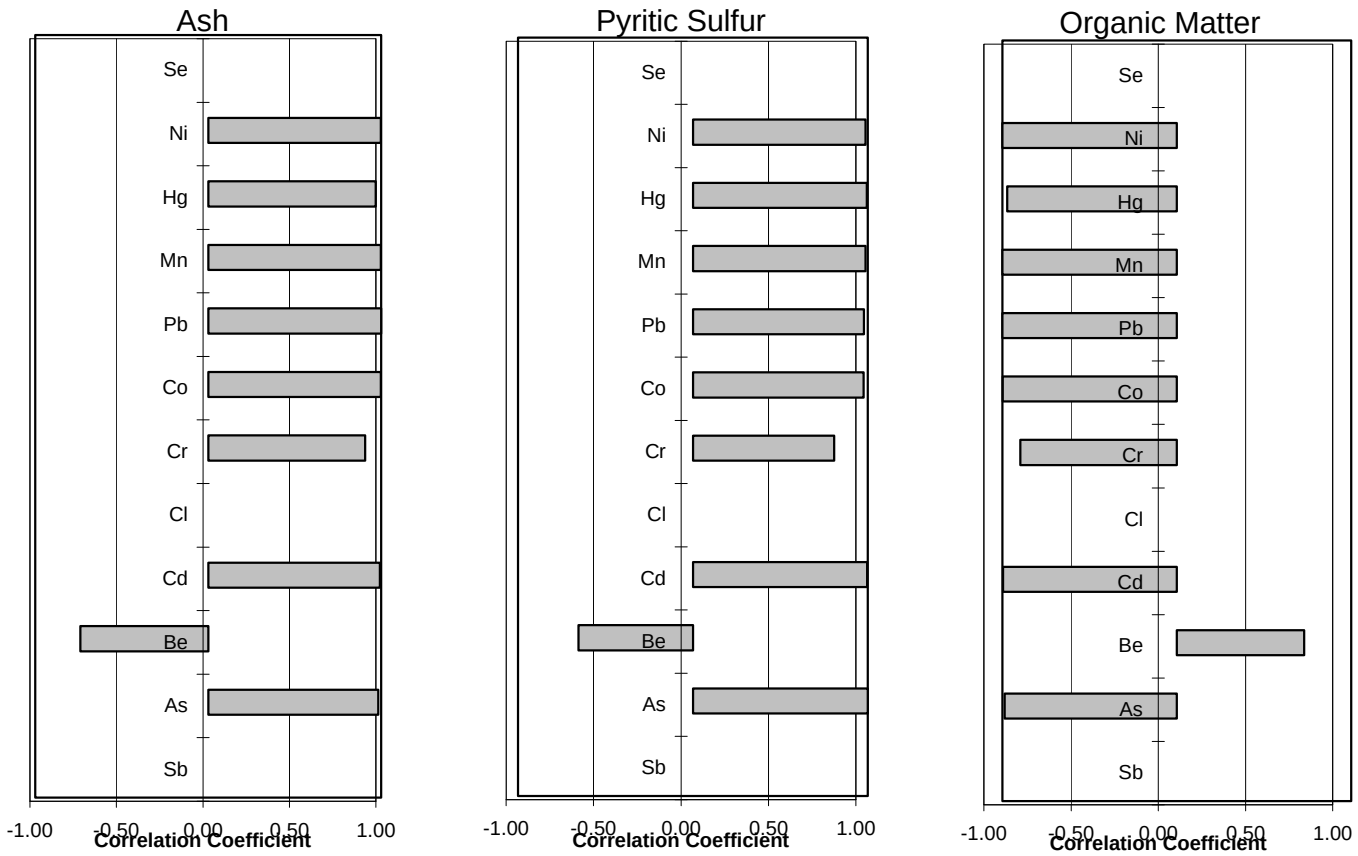
Seam: Pittsburgh No. 8 Class: 100 x 270 M
Sample: Run-of-Mine Feed Mass (%): 1.19

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
5.49	1.67	0.40	93.15	0.00	3.26	0.79	0.05	0.00	12.18	1.89	2.01	13.52	0.14	6.28	0.00
6.85	1.56	0.27	91.74	0.00	3.36	1.08	0.03	0.00	13.31	2.98	2.23	12.46	0.03	5.85	0.00
13.40	2.19	0.91	84.32	0.00	8.36	1.21	0.10	0.00	18.11	3.72	6.53	36.43	0.06	10.96	0.00
26.61	3.37	2.06	69.41	0.00	18.38	0.28	0.23	0.00	26.90	6.55	13.31	108.06	0.15	17.55	0.00
75.62	18.82	17.37	7.98	0.00	134.25	0.24	1.09	0.00	32.29	15.86	38.94	383.23	0.96	50.89	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.98	-0.74	0.99	#DIV/0!	0.91	1.00	1.00	1.00	0.97	1.00	#DIV/0!
Total Sulfur	#DIV/0!	1.00	-0.66	1.00	#DIV/0!	0.81	0.98	0.98	0.99	0.99	0.99	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	-0.65	1.00	#DIV/0!	0.81	0.98	0.98	0.99	0.99	0.99	#DIV/0!
Organic Matter	#DIV/0!	-0.99	0.73	-1.00	#DIV/0!	-0.90	-1.00	-1.00	-1.00	-0.97	-1.00	#DIV/0!

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed

Class: 100 x 270 M
Mass (%): 1.19



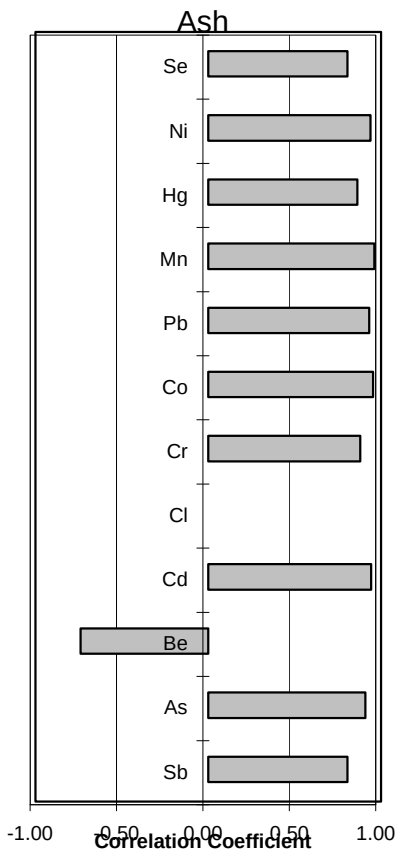
Seam: Pittsburgh No. 8 Class: 10 mm x 28 M
Sample: Crushed Middlings Only Mass (%): 4.7344

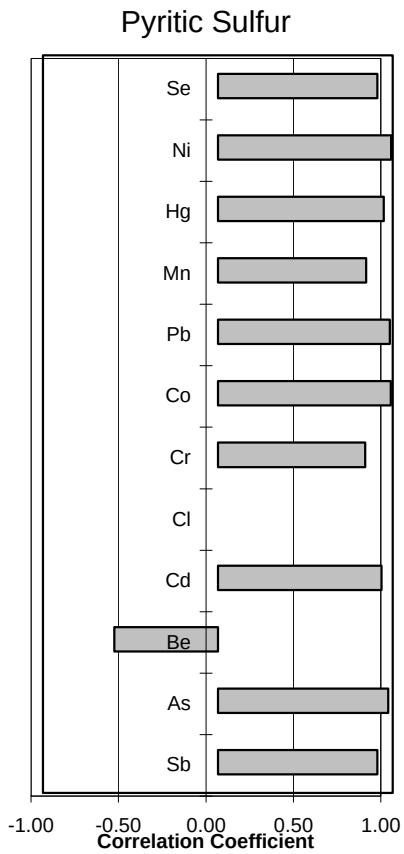
Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
6.29	2.00	0.56	92.11	0.00	9.41	1.47	0.01	0.00	12.85	1.77	4.44	14.95	0.20	8.38	0.00
10.52	3.19	1.16	86.88	0.00	12.43	2.86	0.11	0.00	20.28	3.28	7.53	22.54	0.14	13.46	0.00
22.73	5.54	3.80	72.40	0.00	41.90	2.74	0.14	0.00	28.29	4.09	9.39	44.22	0.22	18.54	0.00
42.73	6.27	4.52	50.40	0.00	69.66	0.00	0.17	0.00	29.53	5.02	12.00	136.96	0.25	18.88	0.00
63.64	12.49	10.89	24.40	0.60	296.53	0.32	0.27	0.00	33.18	9.90	29.15	146.33	0.88	35.74	3.92

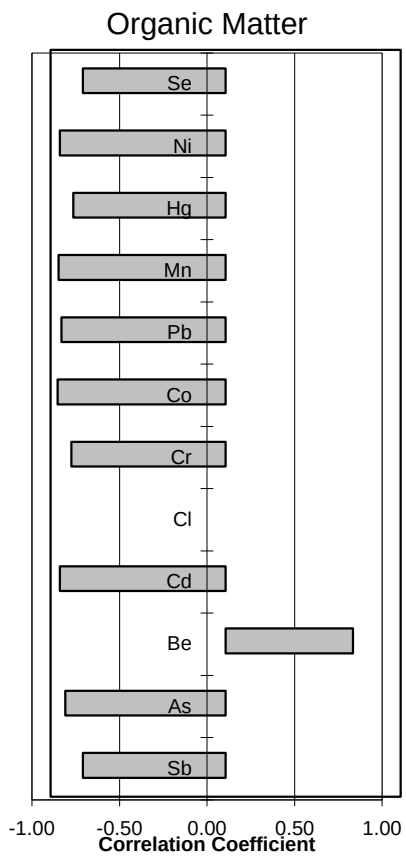
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	0.81	0.91	-0.74	0.94	#DIV/0!	0.88	0.95	0.93	0.96	0.86	0.94	0.81
Total Sulfur	0.91	0.97	-0.57	0.95	#DIV/0!	0.86	0.99	0.98	0.85	0.94	1.00	0.91
Pyritic Sulfur	0.91	0.97	-0.59	0.94	#DIV/0!	0.84	0.99	0.98	0.85	0.95	0.99	0.91
Organic Matter	-0.82	-0.92	0.73	-0.95	#DIV/0!	-0.88	-0.96	-0.94	-0.95	-0.87	-0.95	-0.82

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only

Class: 10 mm x 28 M
Mass (%): 4.7344







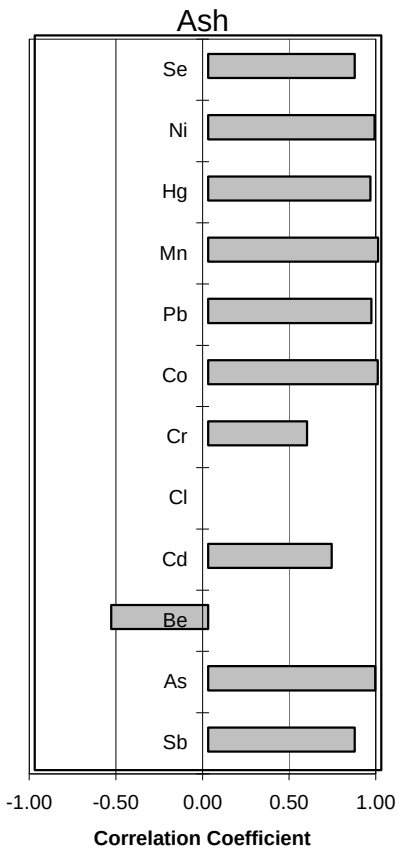
Seam: Pittsburgh No. 8 Class: 28 x 100 M
Sample: Crushed Middlings Only Mass (%): 0.23

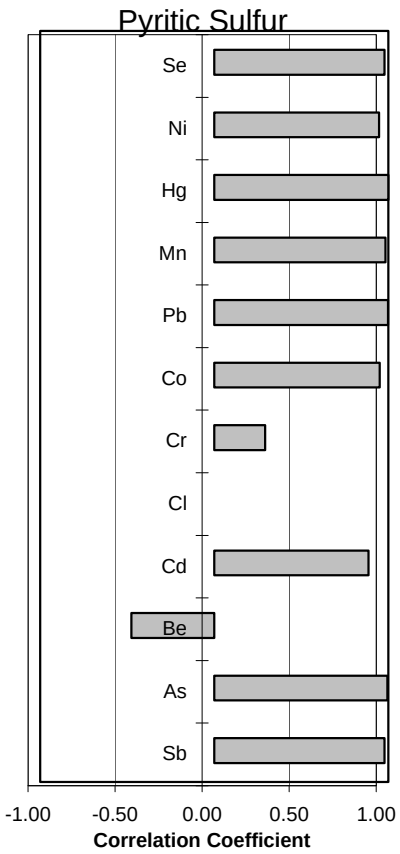
Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
2.93	1.61	0.21	95.95	0.00	3.32	0.66	0.04	0.00	11.51	1.08	3.51	5.83	0.09	6.41	0.00
8.31	2.31	1.09	89.75	0.00	11.75	2.52	0.17	0.00	18.79	2.57	6.35	16.21	0.11	12.69	0.00
18.07	3.67	2.07	78.47	0.00	33.93	3.08	0.16	0.00	25.43	4.32	10.89	37.64	0.22	18.45	0.00
38.80	5.45	3.82	55.10	0.00	77.42	0.00	0.04	0.00	30.19	5.30	14.56	117.61	0.37	19.58	0.00
65.89	20.06	16.09	17.81	0.39	242.25	0.20	0.44	0.00	23.01	9.79	48.43	291.40	1.40	35.45	5.83

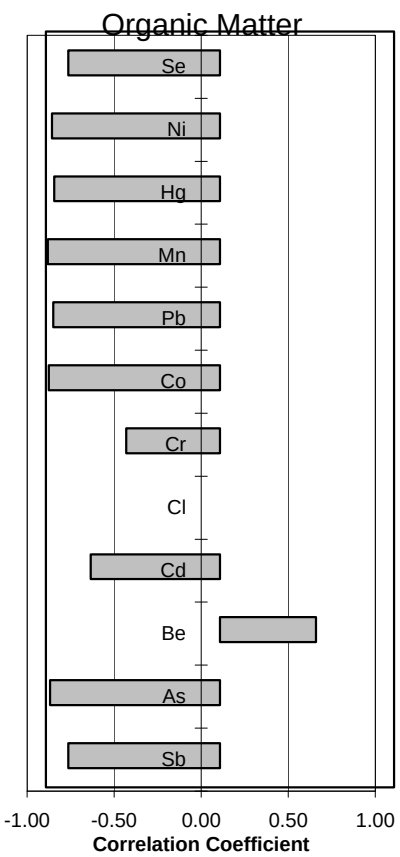
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	0.85	0.97	-0.56	0.71	#DIV/0!	0.57	0.98	0.94	0.98	0.94	0.96	0.85
Total Sulfur	0.98	0.99	-0.48	0.89	#DIV/0!	0.28	0.95	1.00	0.98	1.00	0.94	0.98
Pyritic Sulfur	0.98	1.00	-0.48	0.89	#DIV/0!	0.29	0.95	1.00	0.98	1.00	0.95	0.98
Organic Matter	-0.87	-0.98	0.55	-0.74	#DIV/0!	-0.54	-0.98	-0.96	-0.99	-0.95	-0.97	-0.87

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only

Class: 28 x 100 M
Mass (%): 0.23







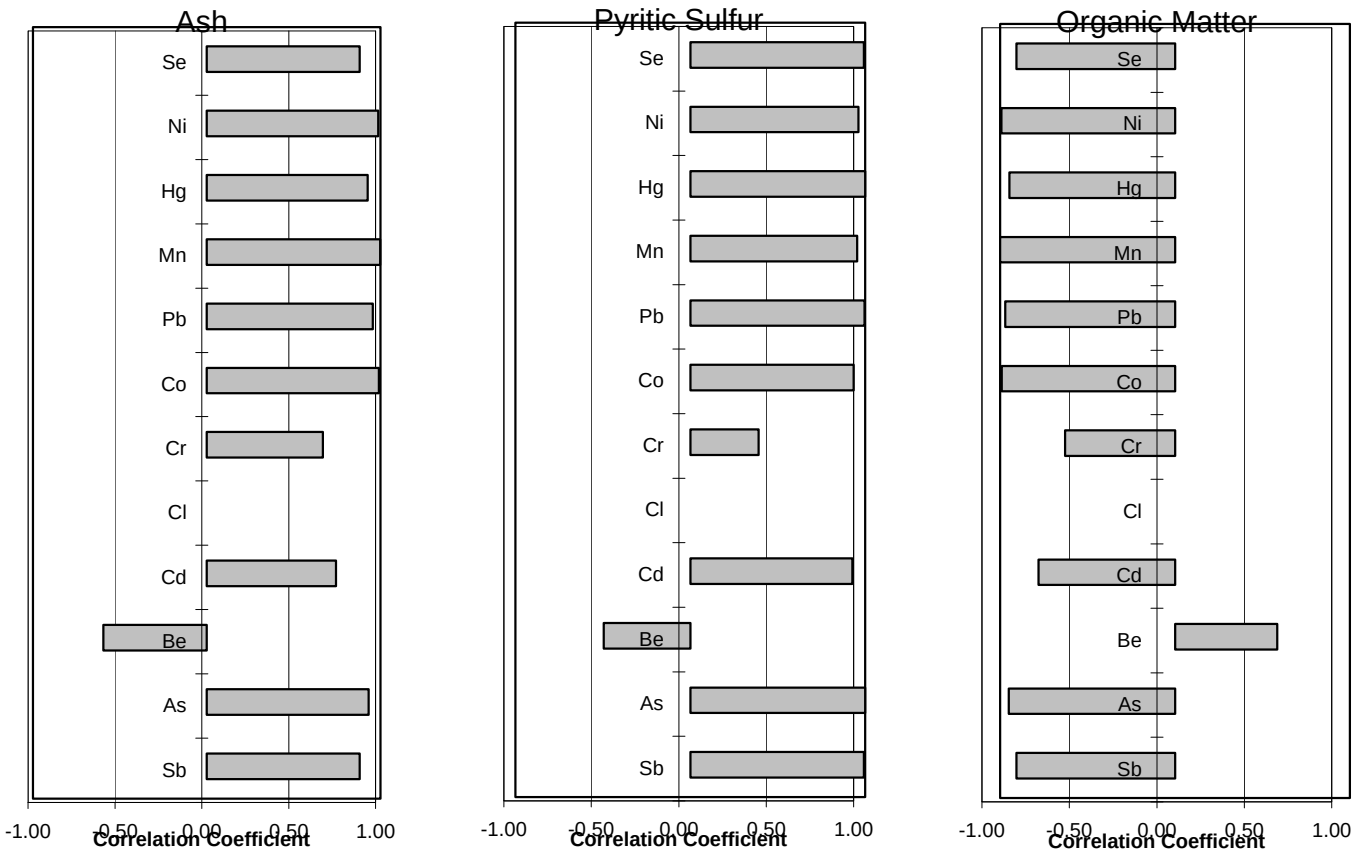
Seam: Pittsburgh No. 8 Class: 100 x 270 M
Sample: Crushed Middlings Only Mass (%): 0.07

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
4.61	1.70	0.03	94.09	0.00	2.00	0.71	0.08	0.00	10.78	1.41	4.08	9.75	0.07	6.36	0.00
6.26	1.75	0.40	92.28	0.00	5.63	1.65	0.19	0.00	16.14	2.50	6.25	18.13	0.06	10.03	0.00
15.16	2.41	1.20	82.30	0.00	13.66	2.57	0.17	0.00	24.35	4.33	13.31	43.37	0.12	16.12	0.00
37.73	3.59	2.80	57.28	0.00	39.02	0.20	0.01	0.00	31.19	6.47	21.62	139.43	0.22	22.79	0.00
70.65	22.76	19.97	11.18	1.00	274.04	0.24	0.64	0.00	25.64	11.79	85.31	305.52	1.40	46.61	6.96

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	0.88	0.93	-0.59	0.74	#DIV/0!	0.67	0.99	0.96	1.00	0.93	0.99	0.88
Total Sulfur	1.00	1.00	-0.49	0.94	#DIV/0!	0.35	0.92	0.99	0.94	1.00	0.95	1.00
Pyritic Sulfur	0.99	1.00	-0.49	0.93	#DIV/0!	0.39	0.93	1.00	0.95	1.00	0.96	0.99
Organic Matter	-0.91	-0.95	0.59	-0.78	#DIV/0!	-0.63	-0.99	-0.97	-1.00	-0.95	-0.99	-0.91

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only

Class: 100 x 270 M
Mass (%): 0.07

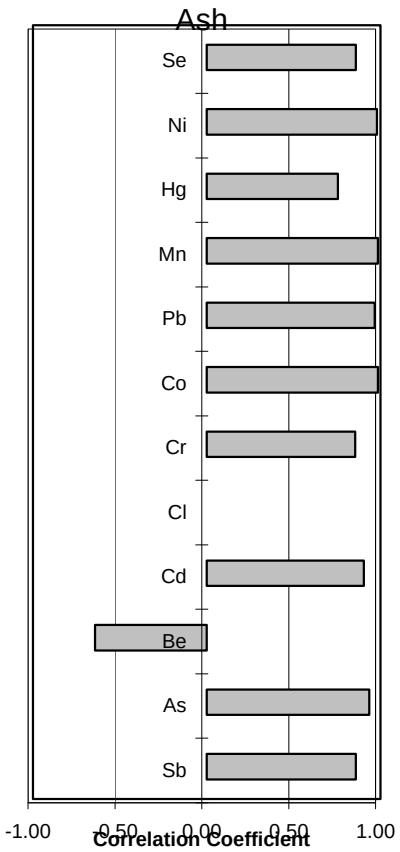


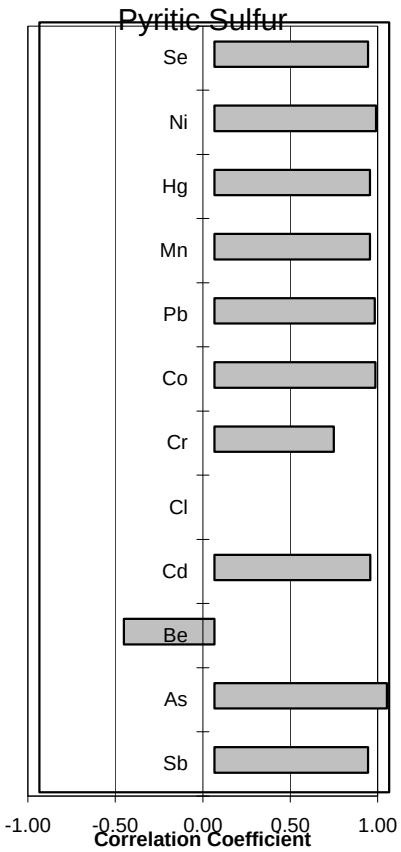
Seam: Pittsburgh No. 8 Class: Average
Sample: Mass (%): **

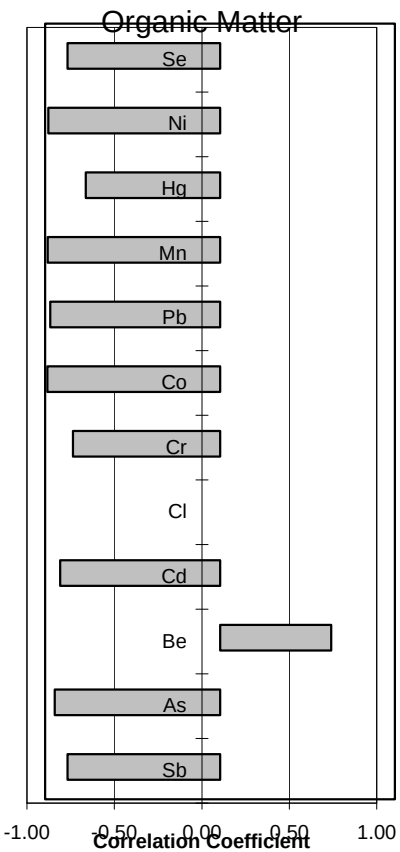
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	0.86	0.94	-0.64	0.90	#DIV/0!	0.85	0.99	0.97	0.99	0.75	0.98	0.86
Total Sulfur	0.88	0.98	-0.49	0.88	#DIV/0!	0.66	0.91	0.90	0.87	0.90	0.91	0.88
Pyritic Sulfur	0.88	0.99	-0.52	0.89	#DIV/0!	0.68	0.92	0.92	0.89	0.89	0.92	0.88
Organic Matter	-0.87	-0.94	0.64	-0.91	#DIV/0!	-0.84	-0.99	-0.97	-0.98	-0.77	-0.98	-0.87

Seam: Pittsburgh No. 8
Sample:

Class: Average
Mass (%): **







APPENDIX VIII

ILLINOIS NO. 6 SIMPLE LINEAR REGRESSION ANLYSIS RESULTS

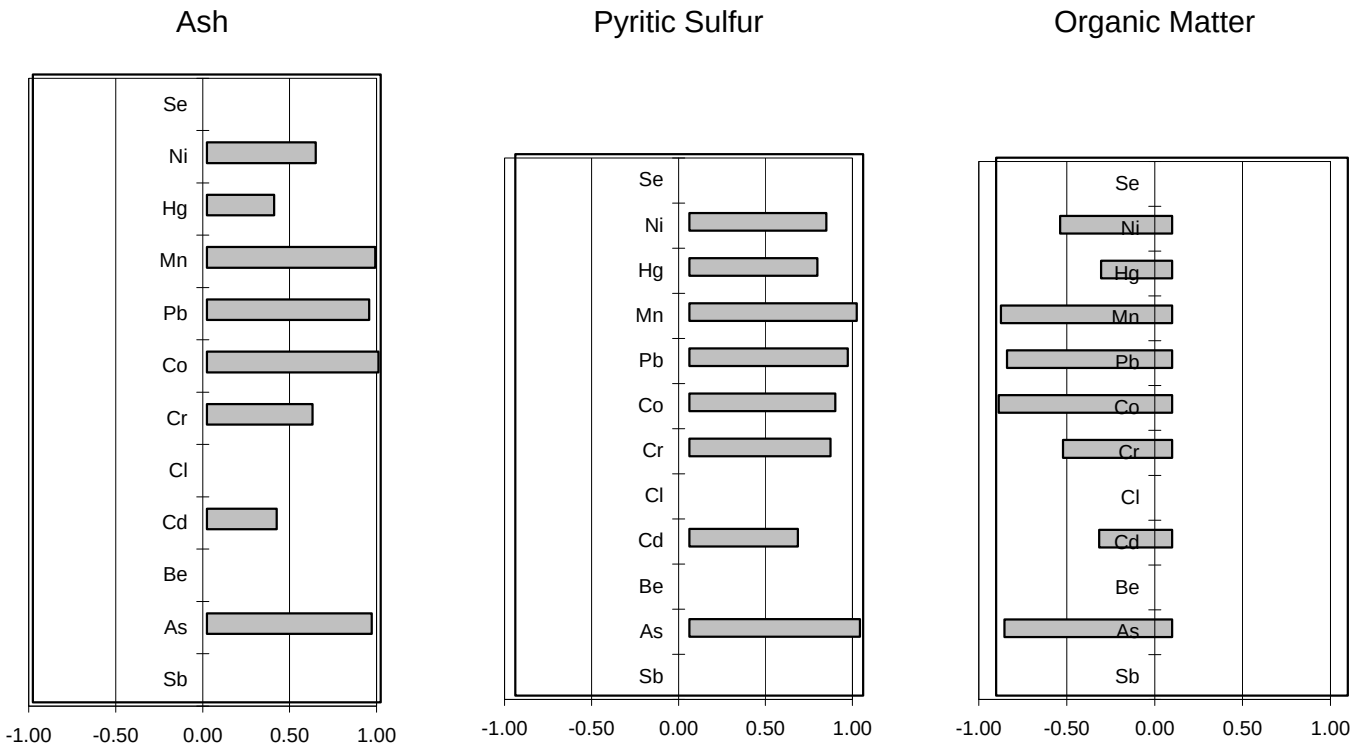
Seam: Illinois No. 6 Class: 50 x 10 mm
Sample: Run-of-Mine Feed Mass (%): 39.16

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
6.96	3.10	0.54	90.77	0.00	0.53	0.00	0.14	0.00	20.35	2.49	3.59	23.26	0.05	11.48	0.00
14.02	3.45	1.08	82.96	0.00	1.39	0.00	0.20	0.00	20.35	4.19	8.43	41.09	0.07	15.36	0.00
22.33	5.50	3.05	72.86	0.00	4.00	0.00	0.41	0.00	30.89	4.54	24.27	63.87	0.10	17.25	0.00
35.27	6.50	4.68	58.34	0.00	7.47	0.00	8.39	0.00	212.15	6.68	30.77	131.69	0.16	116.85	0.00
38.91	7.14	6.22	54.05	0.00	9.71	0.00	5.93	0.00	258.87	6.09	27.33	165.93	0.18	124.19	0.00
57.32	6.78	5.88	34.36	0.00	9.29	0.00	10.17	0.00	323.59	8.23	30.23	179.36	0.16	191.52	0.00
81.66	6.65	6.73	8.15	0.00	13.15	0.00	1.54	0.00	141.16	12.49	48.92	239.94	0.09	79.99	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.95	#DIV/0!	0.40	#DIV/0!	0.61	0.99	0.93	0.97	0.39	0.63	#DIV/0!
Total Sulfur	#DIV/0!	0.91	#DIV/0!	0.70	#DIV/0!	0.83	0.71	0.86	0.87	0.85	0.80	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.98	#DIV/0!	0.62	#DIV/0!	0.81	0.84	0.91	0.96	0.74	0.79	#DIV/0!
Organic Matter	#DIV/0!	-0.95	#DIV/0!	-0.41	#DIV/0!	-0.62	-0.98	-0.94	-0.97	-0.40	-0.64	#DIV/0!

Seam: Illinois No. 6
Sample: Run-of-Mine Feed

Class: 50 x 10 mm
Mass (%): 39.16



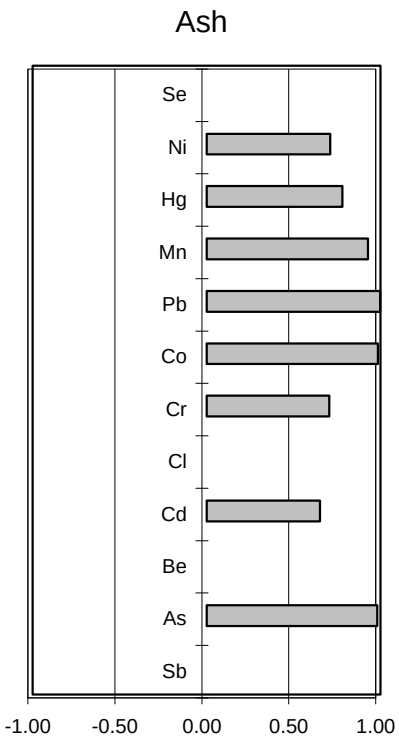
Seam: Illinois No. 6 Class: 10 mm x 28 M
Sample: Run-of-Mine Feed Mass (%): 50.816

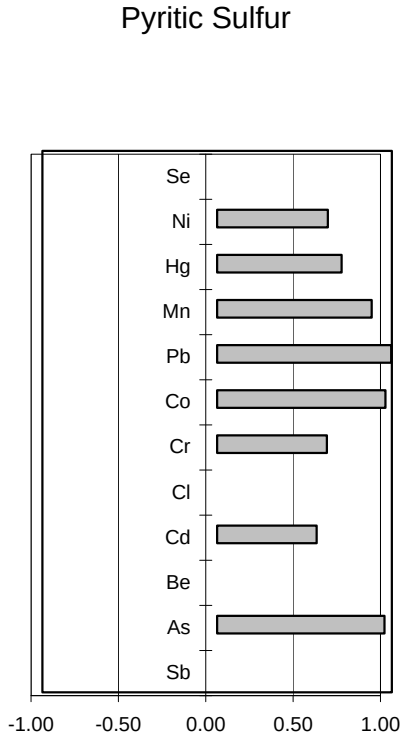
Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
10.46	2.66	0.50	87.24	0.00	0.98	0.00	0.15	0.00	19.74	3.03	4.81	28.76	0.05	15.51	0.00
22.00	2.59	1.44	74.82	0.00	2.81	0.00	0.40	0.00	32.43	5.20	10.88	69.51	0.08	23.02	0.00
29.04	2.46	2.26	67.28	0.00	4.29	0.00	1.83	0.00	63.23	5.55	15.65	120.23	0.10	38.63	0.00
46.23	3.02	3.33	48.42	0.00	7.82	0.00	8.58	0.00	221.26	7.82	22.57	303.48	0.15	105.37	0.00
81.21	6.33	7.52	8.81	0.00	11.00	0.00	4.82	0.00	146.88	10.45	41.23	339.98	0.13	73.22	0.00

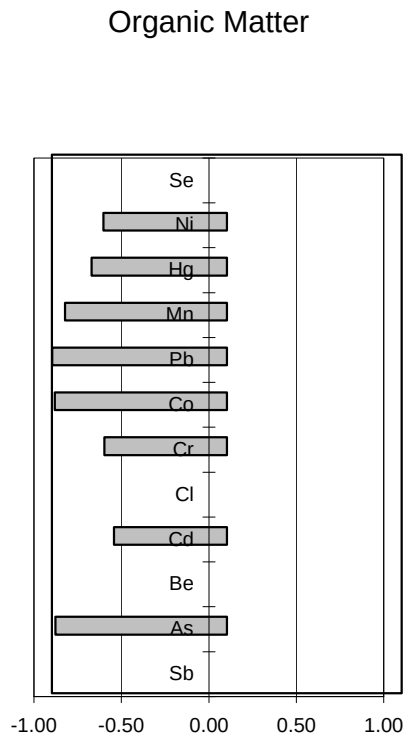
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.98	#DIV/0!	0.65	#DIV/0!	0.71	0.98	1.00	0.93	0.78	0.71	#DIV/0!
Total Sulfur	#DIV/0!	0.83	#DIV/0!	0.36	#DIV/0!	0.43	0.84	0.91	0.73	0.47	0.42	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.96	#DIV/0!	0.57	#DIV/0!	0.63	0.96	1.00	0.88	0.71	0.63	#DIV/0!
Organic Matter	#DIV/0!	-0.98	#DIV/0!	-0.65	#DIV/0!	-0.70	-0.98	-1.00	-0.93	-0.77	-0.71	#DIV/0!

Seam: Illinois No. 6
Sample: Run-of-Mine Feed

Class: 10 mm x 28 M
Mass (%): 50.816







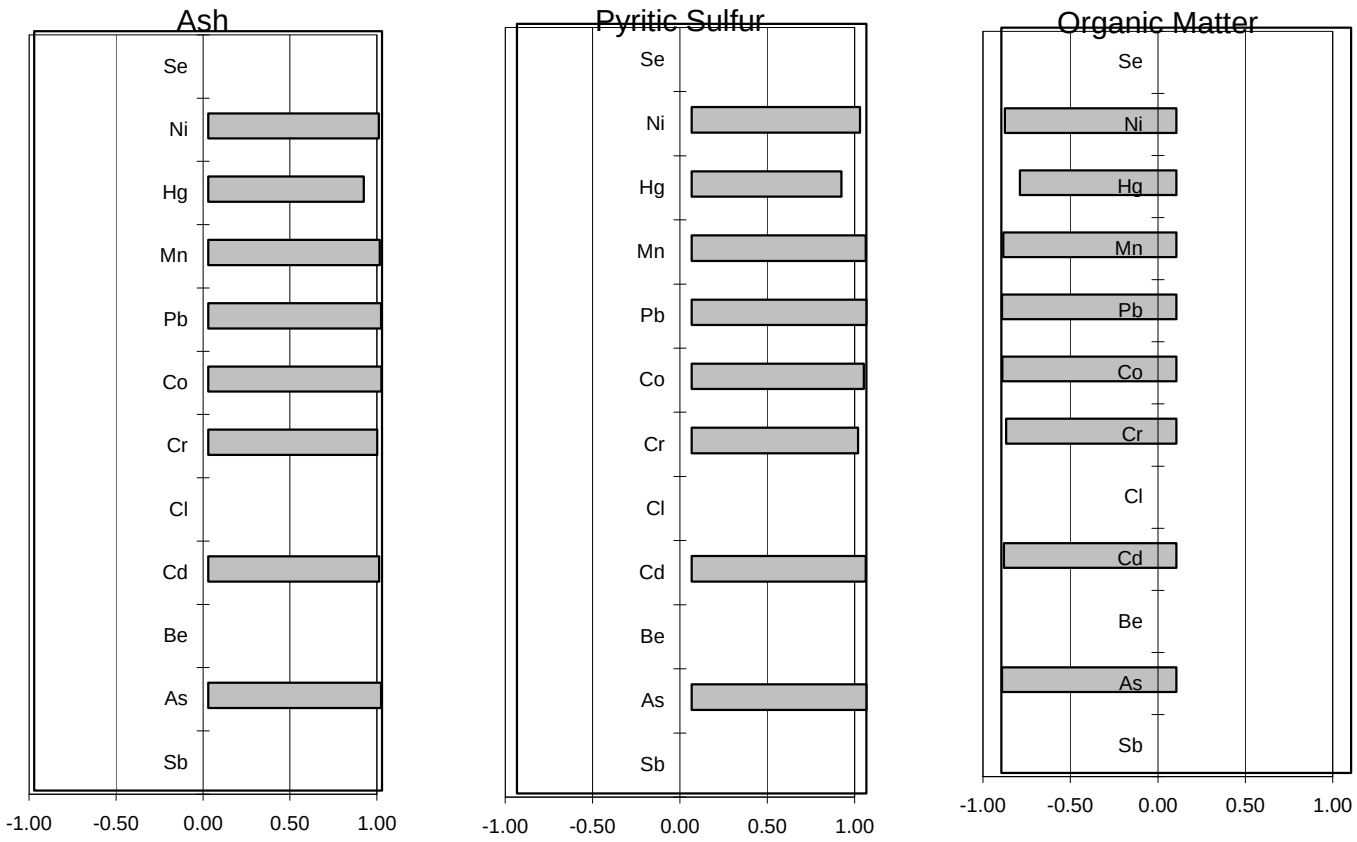
Seam: Illinois No. 6 Class: 28 x 100 M
Sample: Run-of-Mine Feed Mass (%): 5.02

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
9.05	2.80	0.34	88.68	0.00	0.32	0.00	0.11	0.00	24.51	2.56	2.86	27.34	0.03	14.05	0.00
11.61	2.71	0.47	85.97	0.00	0.59	0.00	0.12	0.00	23.37	3.15	3.41	25.24	0.06	15.06	0.00
12.48	2.56	0.45	85.12	0.00	0.25	0.00	0.15	0.00	22.93	2.96	3.39	30.44	0.05	14.41	0.00
29.14	3.14	1.28	66.80	0.00	2.55	0.00	0.50	0.00	65.86	5.80	11.47	108.01	0.14	37.72	0.00
80.84	6.49	5.18	9.12	0.00	12.58	0.00	4.27	0.00	110.73	11.31	52.26	746.46	0.17	66.18	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	1.00	#DIV/0!	0.98	#DIV/0!	0.97	1.00	1.00	0.99	0.90	0.98	#DIV/0!
Total Sulfur	#DIV/0!	1.00	#DIV/0!	1.00	#DIV/0!	0.93	0.97	1.00	1.00	0.81	0.94	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	#DIV/0!	1.00	#DIV/0!	0.95	0.98	1.00	1.00	0.86	0.96	#DIV/0!
Organic Matter	#DIV/0!	-1.00	#DIV/0!	-0.99	#DIV/0!	-0.97	-1.00	-1.00	-0.99	-0.89	-0.98	#DIV/0!

Seam: Illinois No. 6
Sample: Run-of-Mine Feed

Class: 28 x 100 M
Mass (%): 5.02



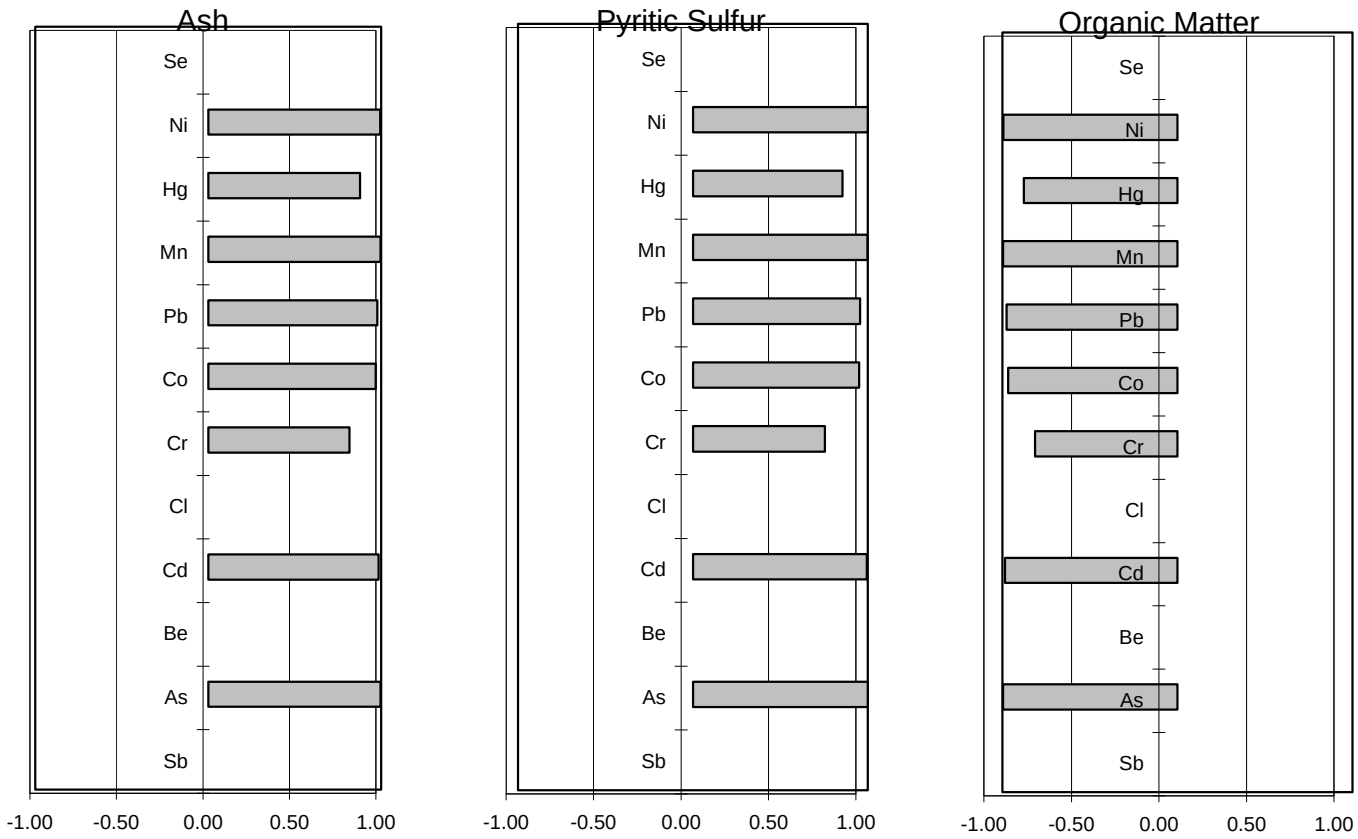
Seam: Illinois No. 6 Class: 100 x 270 M
Sample: Run-of-Mine Feed Mass (%): 1.27

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
20.77	2.65	0.89	76.11	0.00	1.69	0.00	0.90	0.00	12.18	1.89	2.01	66.89	0.11	20.45	0.00
15.47	2.52	0.49	81.91	0.00	0.96	0.00	0.19	0.00	13.31	2.98	2.23	41.25	0.07	18.09	0.00
27.21	2.89	1.07	69.02	0.00	2.83	0.00	0.74	0.00	18.11	3.72	6.53	129.33	0.15	25.96	0.00
26.02	2.50	0.78	70.52	0.00	1.92	0.00	0.40	0.00	26.90	6.55	13.31	89.01	0.09	22.14	0.00
82.50	8.99	7.63	5.95	0.00	18.16	0.00	4.52	0.00	32.29	15.86	38.94	774.09	0.20	114.64	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	1.00	#DIV/0!	0.99	#DIV/0!	0.82	0.97	0.98	1.00	0.88	0.99	#DIV/0!
Total Sulfur	#DIV/0!	1.00	#DIV/0!	0.99	#DIV/0!	0.74	0.95	0.95	1.00	0.85	1.00	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	#DIV/0!	0.99	#DIV/0!	0.75	0.95	0.96	1.00	0.86	1.00	#DIV/0!
Organic Matter	#DIV/0!	-1.00	#DIV/0!	-0.99	#DIV/0!	-0.81	-0.97	-0.98	-1.00	-0.88	-0.99	#DIV/0!

Seam: Illinois No. 6
Sample: Run-of-Mine Feed

Class: 100 x 270 M
Mass (%): 1.27



Seam: Illinois No. 6
Sample: Crushed Middlings Only

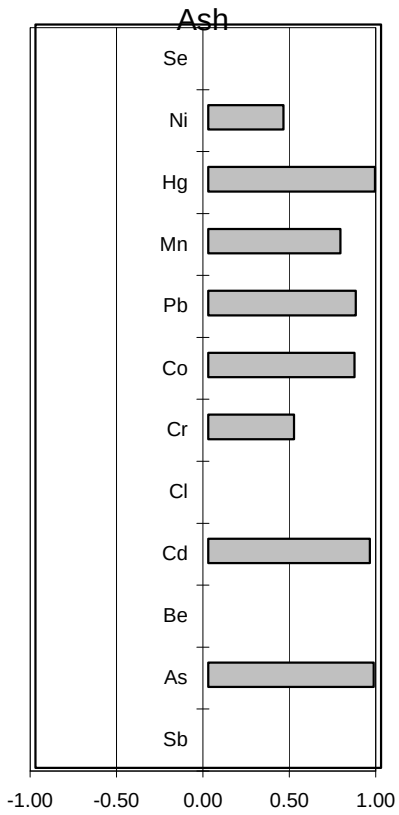
Class: 10 mm x 28 M
Mass (%): 5.43

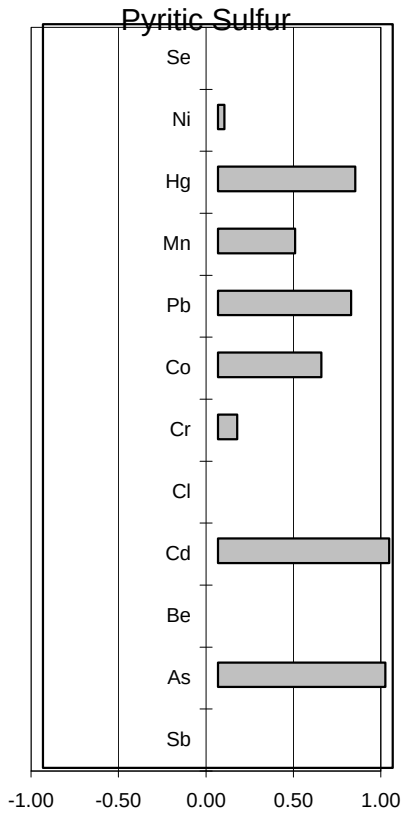
Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
11.47	3.57	1.11	85.65	0.00	2.55	0.00	0.08	0.00	36.59	3.61	8.32	27.68	0.07	21.47	0.00
23.44	5.40	2.93	71.71	0.00	4.33	0.00	0.42	0.00	42.47	4.87	19.10	45.43	0.13	74.21	0.00
35.04	6.68	4.47	58.49	0.00	9.25	0.00	5.06	0.00	222.35	7.60	38.04	94.41	0.18	120.55	0.00
52.49	6.94	5.09	39.49	0.00	9.20	0.00	5.28	0.00	439.57	8.87	31.31	209.51	0.24	202.91	0.00
69.64	12.98	13.81	17.65	0.00	16.23	0.00	14.07	0.00	123.39	7.81	40.68	125.00	0.25	64.44	0.00

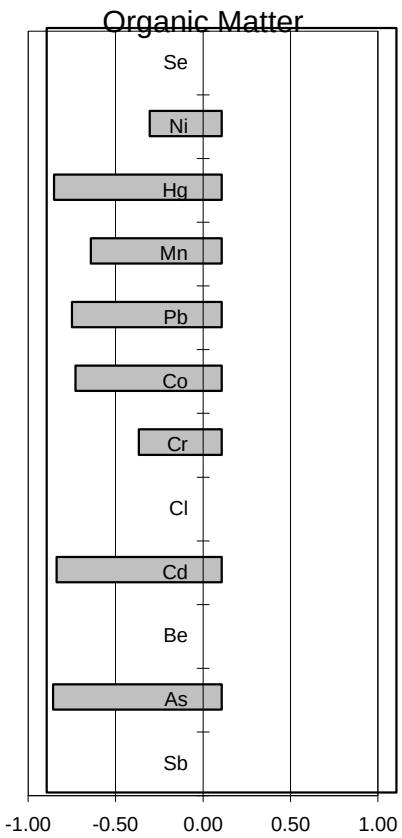
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.96	#DIV/0!	0.94	#DIV/0!	0.50	0.85	0.85	0.77	0.96	0.43	#DIV/0!
Total Sulfur	#DIV/0!	0.97	#DIV/0!	0.98	#DIV/0!	0.15	0.63	0.80	0.47	0.82	0.09	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.96	#DIV/0!	0.98	#DIV/0!	0.11	0.59	0.76	0.44	0.79	0.04	#DIV/0!
Organic Matter	#DIV/0!	-0.96	#DIV/0!	-0.94	#DIV/0!	-0.47	-0.83	-0.85	-0.75	-0.96	-0.41	#DIV/0!

Seam: Illinois No. 6
Sample: Crushed Middlings Only

Class: 10 mm x 28 M
Mass (%): 5.43







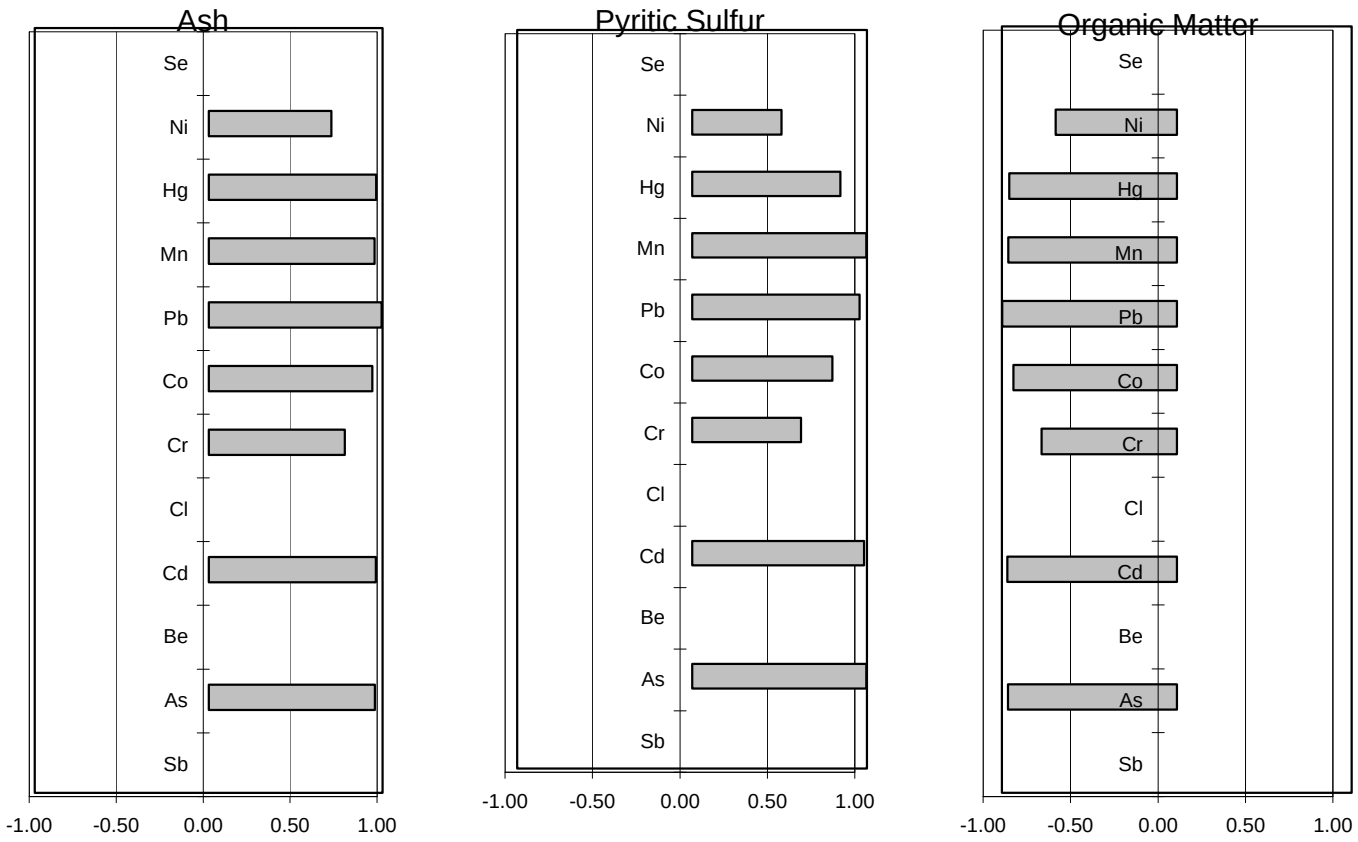
Seam: Illinois No. 6 Class: 28 x 100 M
Sample: Crushed Middlings Only Mass (%): 0.09

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
4.30	2.69	0.47	93.88	0.00	1.60	0.00	0.26	0.00	48.90	2.36	4.22	10.63	0.03	18.97	0.00
10.34	3.08	0.95	87.14	0.00	2.13	0.00	0.24	0.00	30.94	3.48	8.65	26.29	0.05	17.81	0.00
27.45	2.48	1.48	68.99	0.00	3.20	0.00	0.90	0.00	44.35	4.27	14.38	97.09	0.07	21.09	0.00
38.41	3.44	2.26	56.62	0.00	5.48	0.00	3.17	0.00	237.00	7.50	19.69	135.70	0.14	128.15	0.00
72.25	12.01	10.60	15.36	0.00	16.37	0.00	9.32	0.00	205.22	8.61	38.81	573.87	0.18	91.56	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.96	#DIV/0!	0.96	#DIV/0!	0.78	0.94	1.00	0.95	0.96	0.71	#DIV/0!
Total Sulfur	#DIV/0!	0.98	#DIV/0!	0.97	#DIV/0!	0.58	0.74	0.92	0.98	0.80	0.46	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	#DIV/0!	0.98	#DIV/0!	0.62	0.80	0.96	1.00	0.85	0.51	#DIV/0!
Organic Matter	#DIV/0!	-0.97	#DIV/0!	-0.97	#DIV/0!	-0.77	-0.93	-1.00	-0.96	-0.96	-0.69	#DIV/0!

Seam: Illinois No. 6
Sample: Crushed Middlings Only

Class: 28 x 100 M
Mass (%): 0.09



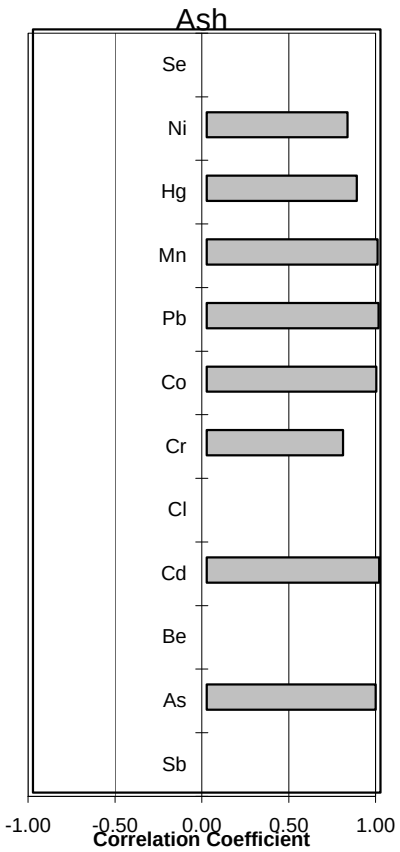
Seam: Illinois No. 6 Class: 100 x 270 M
Sample: Crushed Middlings Only Mass (%): 0.03

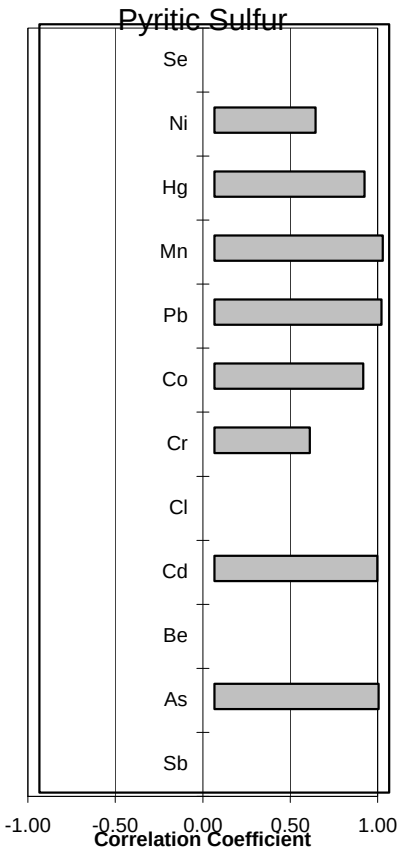
Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
7.77	2.77	0.54	90.08	0.00	2.08	0.00	0.38	0.00	44.45	2.95	5.55	36.11	0.07	17.60	0.00
8.60	2.50	0.47	89.34	0.00	1.63	0.00	0.31	0.00	32.29	3.20	6.18	27.88	0.08	17.54	0.00
23.02	2.07	4.53	74.00	0.00	2.52	0.00	0.86	0.00	42.72	3.96	13.16	110.37	0.19	22.29	0.00
31.16	3.08	1.60	64.66	0.00	4.24	0.00	1.65	0.00	156.04	6.52	17.65	138.46	0.16	83.65	0.00
74.72	12.82	11.86	12.25	0.00	16.92	0.00	4.75	0.00	151.24	9.78	59.75	643.34	0.23	84.11	0.00

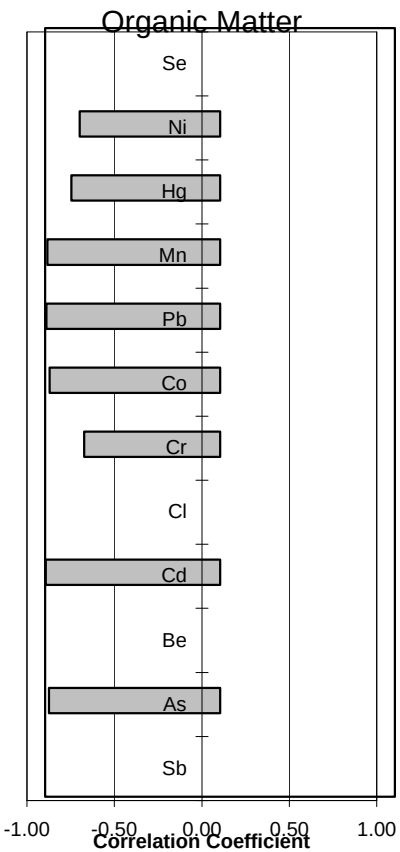
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.97	#DIV/0!	0.99	#DIV/0!	0.78	0.98	0.99	0.98	0.86	0.81	#DIV/0!
Total Sulfur	#DIV/0!	0.99	#DIV/0!	0.96	#DIV/0!	0.63	0.89	0.98	0.98	0.66	0.66	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.94	#DIV/0!	0.93	#DIV/0!	0.55	0.85	0.96	0.96	0.86	0.58	#DIV/0!
Organic Matter	#DIV/0!	-0.98	#DIV/0!	-1.00	#DIV/0!	-0.78	-0.97	-0.99	-0.99	-0.85	-0.80	#DIV/0!

Seam: Illinois No. 6
Sample: Crushed Middlings Only

Class: 100 x 270 M
Mass (%): 0.03







Seam: Illinois No. 6 Class: Average
Sample: Mass (%): **

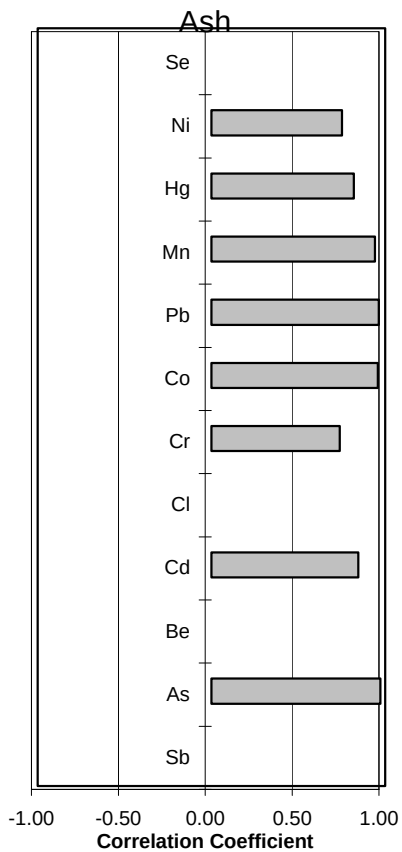
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.97	#DIV/0!	0.84	#DIV/0!	0.74	0.96	0.96	0.94	0.82	0.75	#DIV/0!
Total Sulfur	#DIV/0!	0.95	#DIV/0!	0.85	#DIV/0!	0.61	0.82	0.92	0.86	0.75	0.62	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.98	#DIV/0!	0.87	#DIV/0!	0.63	0.85	0.93	0.89	0.81	0.64	#DIV/0!
Organic Matter	#DIV/0!	-0.98	#DIV/0!	-0.85	#DIV/0!	-0.73	-0.95	-0.96	-0.94	-0.82	-0.75	#DIV/0!

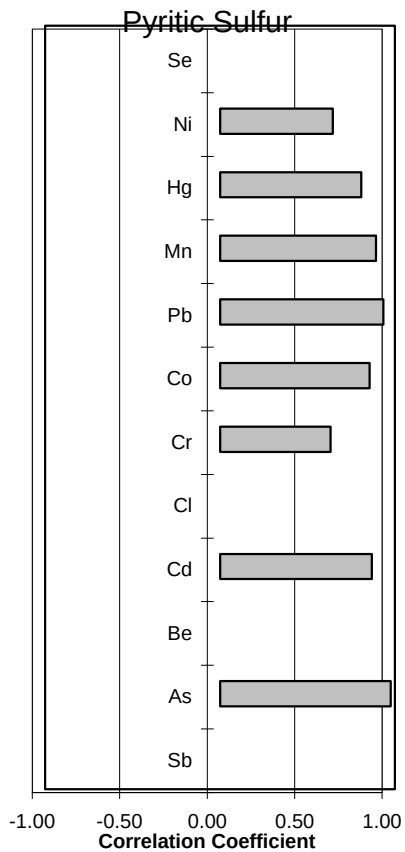
Seam: Illinois No. 6

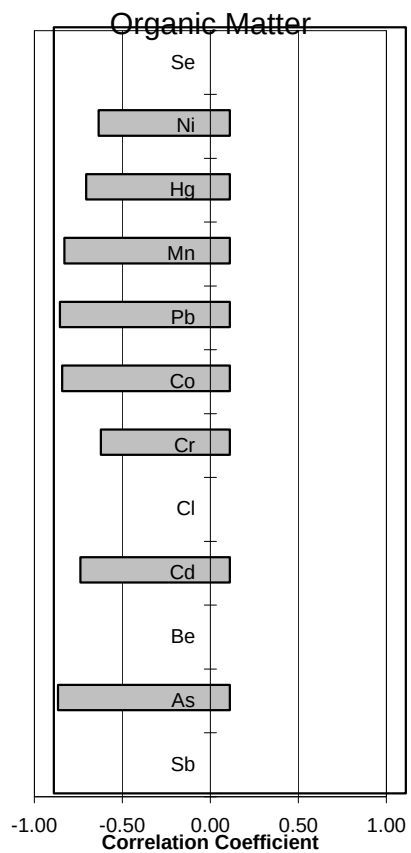
Sample:

Class: Average

Mass (%): **







APPENDIX IX

COALBURG SIMPLE LINEAR REGRESSION ANLYSIS RESULTS

Seam: Coalburg

Sample: Run-of-Mine Feed

Class: +50 mm

Mass (%): 18.447

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
11.27	0.38	0.01	87.62	0.00	0.00	2.80	0.05	0.00	15.30	0.59	4.05	5.33	0.07	2.82	0.00
32.18	0.46	0.03	65.00	0.00	1.50	1.41	0.14	0.00	50.24	5.03	12.96	13.04	0.02	12.84	0.00
39.39	0.38	0.04	57.25	0.00	1.99	1.72	0.25	0.00	60.56	4.38	16.13	15.42	0.01	13.54	0.00
46.85	0.34	0.04	49.21	0.00	1.85	1.76	0.25	0.00	71.39	3.29	18.30	17.90	0.02	12.34	0.00
64.61	0.17	0.02	30.12	0.00	7.53	1.91	0.22	0.00	78.18	0.62	26.70	22.63	0.03	5.27	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.89	-0.54	0.80	#DIV/0!	0.96	-0.03	1.00	1.00	-0.61	0.20	#DIV/0!
Total Sulfur	#DIV/0!	-0.89	-0.15	-0.36	#DIV/0!	-0.54	0.69	-0.74	-0.68	-0.05	0.49	#DIV/0!
Pyritic Sulfur	#DIV/0!	-0.07	-0.77	0.80	#DIV/0!	0.61	0.80	0.36	0.45	-0.90	0.94	#DIV/0!
Organic Matter	#DIV/0!	-0.88	0.54	-0.80	#DIV/0!	-0.96	0.03	-1.00	-1.00	0.62	-0.20	#DIV/0!

Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 50 x 10 mm
Mass (%): 46.34

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
8.40	0.64	0.03	90.58	0.00	2.62	1.34	0.30	0.00	14.82	3.90	5.59	5.21	0.01	8.28	0.00
27.57	0.49	0.04	69.95	0.00	3.77	1.55	0.03	0.00	38.99	4.38	8.67	12.71	0.01	11.65	0.00
38.17	0.40	0.05	58.55	0.00	3.68	0.70	0.09	0.00	47.43	4.02	14.23	16.96	0.02	12.51	0.00
45.78	0.34	0.04	50.37	0.00	3.41	0.75	0.10	0.00	52.87	3.44	14.91	25.96	0.03	12.94	0.00
55.93	0.22	0.03	39.47	0.00	4.54	0.80	0.45	0.00	58.28	1.59	14.80	22.77	0.02	8.50	0.00
72.53	0.12	0.07	21.60	0.00	4.73	0.59	0.12	0.00	71.55	6.06	14.27	202.86	0.03	17.15	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.90	-0.80	0.00	#DIV/0!	0.99	0.15	0.85	0.75	0.82	0.65	#DIV/0!
Total Sulfur	#DIV/0!	-0.91	0.80	-0.06	#DIV/0!	-0.98	-0.10	-0.85	-0.72	-0.81	-0.61	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.54	-0.54	-0.55	#DIV/0!	0.65	0.82	0.42	0.87	0.59	0.95	#DIV/0!
Organic Matter	#DIV/0!	-0.90	0.80	0.00	#DIV/0!	-0.99	-0.15	-0.85	-0.75	-0.83	-0.66	#DIV/0!

Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 10 mm x 28 M
Mass (%): 29.318

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
7.19	0.72	0.03	91.84	0.00	2.09	1.31	0.08	0.00	28.83	4.37	5.12	6.79	0.03	9.06	0.00
21.51	0.51	0.03	76.49	0.00	2.63	1.17	0.11	0.00	44.30	3.82	13.07	21.58	0.03	10.03	0.00
34.19	0.41	0.04	62.85	0.00	2.28	1.30	0.07	0.00	54.60	3.79	14.98	25.99	0.02	12.09	0.00
46.94	0.29	0.05	49.14	0.00	2.85	1.78	0.12	0.00	62.38	3.46	18.42	42.32	0.03	14.53	0.00
69.95	0.19	0.15	24.35	0.00	7.08	1.32	0.11	0.00	77.48	3.25	17.15	87.10	0.04	13.30	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.85	0.34	0.51	#DIV/0!	0.99	-0.96	0.84	0.97	0.53	0.85	#DIV/0!
Total Sulfur	#DIV/0!	-0.71	-0.41	-0.56	#DIV/0!	-0.99	0.99	-0.94	-0.89	-0.38	-0.91	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.99	0.01	0.37	#DIV/0!	0.82	-0.74	0.48	0.96	0.76	0.51	#DIV/0!
Organic Matter	#DIV/0!	-0.85	-0.34	-0.51	#DIV/0!	-0.99	0.96	-0.84	-0.97	-0.53	-0.85	#DIV/0!

Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 28 x 100 M
Mass (%): 3.10

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
5.41	0.76	0.03	93.74	0.00	2.21	1.38	0.13	0.00	34.47	4.36	5.80	7.34	0.02	9.42	0.00
12.38	0.58	0.07	86.31	0.00	2.10	1.21	0.38	0.00	37.30	4.39	16.72	46.46	0.06	10.87	0.00
20.06	0.46	0.08	78.08	0.00	2.96	2.44	0.18	0.00	38.59	3.82	19.51	56.26	0.07	11.39	0.00
38.49	0.32	0.08	58.25	0.00	3.41	1.97	0.14	0.00	54.07	3.96	19.43	51.56	0.04	12.74	0.00
70.15	0.38	0.47	24.02	0.00	26.75	0.93	0.20	0.00	64.41	3.91	38.16	142.87	0.05	17.67	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.90	-0.32	-0.16	#DIV/0!	0.98	-0.63	0.94	0.93	0.14	0.99	#DIV/0!
Total Sulfur	#DIV/0!	-0.42	-0.26	0.11	#DIV/0!	-0.78	0.81	-0.73	-0.66	-0.45	-0.69	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	-0.54	0.01	#DIV/0!	0.84	-0.44	0.92	0.96	0.15	0.96	#DIV/0!
Organic Matter	#DIV/0!	-0.90	0.32	0.16	#DIV/0!	-0.98	0.63	-0.94	-0.93	-0.13	-0.99	#DIV/0!

Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 100 x 270 M
Mass (%): 0.98

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
11.80	0.62	0.05	86.91	0.00	2.27	1.40	0.17	0.00	33.64	3.63	12.96	29.76	0.10	10.69	0.00
13.13	0.57	0.07	85.50	0.00	2.18	1.40	0.38	0.00	33.34	3.63	16.14	38.70	0.11	10.57	0.00
15.60	0.45	0.06	82.90	0.00	0.00	0.00	0.39	0.00	31.63	3.25	20.83	51.72	0.05	10.34	0.00
29.60	0.34	0.12	67.85	0.00	0.00	0.00	0.50	0.00	41.52	3.21	27.22	63.35	0.13	11.88	0.00
71.36	0.59	0.69	22.61	0.00	49.49	0.50	1.13	0.00	70.31	4.84	35.29	154.70	0.07	26.29	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.95	-0.32	0.98	#DIV/0!	0.99	0.85	0.93	0.99	-0.24	0.98	#DIV/0!
Total Sulfur	#DIV/0!	0.40	0.81	0.07	#DIV/0!	0.19	0.60	-0.28	0.10	-0.26	0.29	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.99	-0.18	0.97	#DIV/0!	0.99	0.93	0.85	0.98	-0.33	1.00	#DIV/0!
Organic Matter	#DIV/0!	-0.95	0.32	-0.98	#DIV/0!	-0.99	-0.85	-0.93	-0.99	0.24	-0.98	#DIV/0!

Seam: Coalburg
Sample: Crushed Middlings Only

Class: 50 x 10 mm
Mass (%): 9.1091

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (ppm)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
12.73	0.47	0.02	85.99	0	1.6929	1.4152	0.0268	0	20.91	1.7598	5.7712	9.07	0.10	5.21	0.00
29.06	0.48	0.03	68.35	0	2.2479	0.6182	0.0826	0	42.017	4.5818	10.314	15.83	0.06	11.09	0.00
38.16	0.43	0.04	58.56	0	2.0007	0.4692	0.0456	0	48.876	4.4053	12.691	20.79	0.07	12.60	0.00
50.82	0.31	0.05	44.94	0	2.8345	0.412	0.1978	0	58.438	3.6454	16.183	24.49	0.02	12.20	0.00
62.77	0.15	0.02	32.13	0	4.036	0.7538	0.0934	0	61.674	0.1801	12.592	13.61	0.03	5.79	0.00

	0.00											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.91	-0.64	0.61	#DIV/0!	0.97	-0.30	0.82	0.48	-0.91	0.14	#DIV/0!
Total Sulfur	#DIV/0!	-0.96	0.25	-0.45	#DIV/0!	-0.77	0.68	-0.54	-0.12	0.75	0.29	#DIV/0!
Pyritic Sulfur	#DIV/0!	-0.13	-0.76	0.67	#DIV/0!	0.43	0.69	0.76	0.96	-0.45	0.89	#DIV/0!
Organic Matter	#DIV/0!	-0.90	0.64	-0.61	#DIV/0!	-0.97	0.30	-0.82	-0.48	0.91	-0.14	#DIV/0!

Seam: Coalburg
Sample: Crushed Middlings Only

Class: 10 mm x 28 M
Mass (%): 8.31

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
10.76	0.68	0.03	88.01	0.00	1.45	1.13	0.09	0.00	46.35	4.34	7.13	7.63	0.00	9.88	0.00
25.63	0.51	0.03	72.04	0.00	2.45	1.03	0.12	0.00	46.92	5.03	11.99	14.18	0.03	11.72	0.00
36.32	0.41	0.04	60.54	0.00	2.30	1.17	0.13	0.00	51.64	4.96	15.22	16.23	0.01	14.88	0.00
50.47	0.29	0.04	45.33	0.00	3.61	0.48	0.13	0.00	56.73	2.70	16.49	35.18	0.01	11.81	0.00
67.93	1.69	0.15	25.71	0.00	4.51	0.53	0.14	0.00	65.88	1.63	15.26	41.88	0.03	9.90	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.97	-0.83	0.89	#DIV/0!	0.97	-0.83	0.84	0.97	0.52	-0.05	#DIV/0!
Total Sulfur	#DIV/0!	0.59	-0.40	0.32	#DIV/0!	0.71	-0.67	0.06	0.53	0.52	-0.59	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.80	-0.60	0.58	#DIV/0!	0.90	-0.80	0.38	0.76	0.56	-0.41	#DIV/0!
Organic Matter	#DIV/0!	-0.97	0.83	-0.89	#DIV/0!	-0.97	0.83	-0.83	-0.97	-0.52	0.05	#DIV/0!

Seam: Coalburg
Sample: Crushed Middlings Only

Class: 28 x 100 M
Mass (%): 0.68

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
8.60	0.73	0.02	90.31	0.00	1.96	1.03	0.12	0.00	45.21	4.12	7.49	8.16	0.01	10.05	0.00
18.82	0.58	0.04	79.36	0.00	2.08	1.10	0.17	0.00	45.21	4.56	12.37	16.11	0.02	11.35	0.00
23.15	0.48	0.05	74.73	0.00	1.93	0.85	0.23	0.00	43.97	3.90	14.74	17.20	0.04	10.99	0.00
44.72	0.33	0.05	51.52	0.00	2.42	0.95	0.17	0.00	54.38	3.91	17.80	16.69	0.03	12.90	0.00
66.42	0.26	0.44	28.13	0.00	4.47	0.45	0.20	0.00	76.55	4.31	18.39	87.52	0.05	20.05	0.00

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.90	-0.85	0.40	#DIV/0!	0.93	-0.01	0.89	0.86	0.82	0.94	#DIV/0!
Total Sulfur	#DIV/0!	-0.73	0.74	-0.58	#DIV/0!	-0.77	0.16	-0.99	-0.70	-0.87	-0.79	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.99	-0.94	0.34	#DIV/0!	0.96	0.27	0.59	1.00	0.75	0.98	#DIV/0!
Organic Matter	#DIV/0!	-0.90	0.85	-0.39	#DIV/0!	-0.94	0.01	-0.89	-0.86	-0.82	-0.94	#DIV/0!

Seam: Coalburg
Sample: Crushed Middlings Only

Class: 100 x 270 M
Mass (%): 0.13

Ash (%)	Sulfur (%)	Pyritic (%)	OM (%)	Sb (%)	As (ppm)	Be (ppm)	Cd (ppm)	Cl (ppm)	Cr (ppm)	Co (ppm)	Pb (ppm)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
9.49	0.69	0.04	89.37	0.00	1.44	1.02	0.13	0.00	43.83	4.02	8.20	8.96	0.04	9.73	0.00
12.11	0.60	0.05	86.59	0.00	1.22	1.32	0.20	0.00	41.41	4.18	10.88	11.86	0.03	10.12	0.00
17.09	0.48	0.05	81.28	0.00	1.62	0.66	0.23	0.00	37.19	3.57	15.73	18.89	0.04	9.19	0.00
40.62	0.36	0.09	55.94	0.00	1.99	0.82	0.23	0.00	49.73	3.95	20.29	27.72	0.05	12.30	0.00
67.12	0.39	0.59	27.30	0.00	6.06	0.43	0.60	0.00	67.73	4.69	23.83	97.95	0.09	21.90	0.00

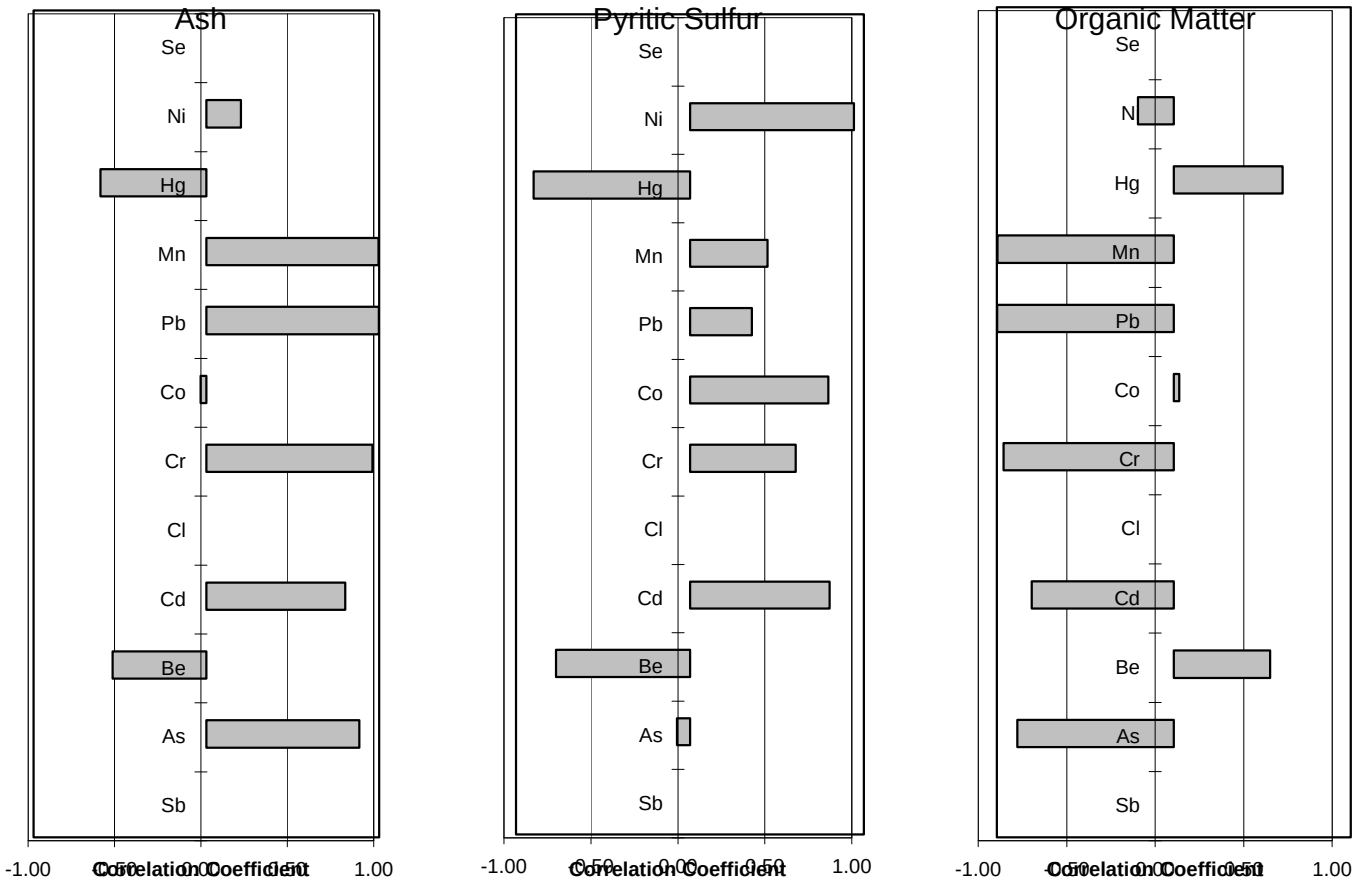
	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.92	-0.77	0.91	#DIV/0!	0.94	0.68	0.93	0.94	0.95	0.94	#DIV/0!
Total Sulfur	#DIV/0!	-0.56	0.71	-0.62	#DIV/0!	-0.55	-0.17	-0.96	-0.62	-0.62	-0.58	#DIV/0!
Pyritic Sulfur	#DIV/0!	1.00	-0.71	0.98	#DIV/0!	0.94	0.83	0.75	0.99	0.97	0.99	#DIV/0!
Organic Matter	#DIV/0!	-0.92	0.77	-0.91	#DIV/0!	-0.94	-0.69	-0.93	-0.94	-0.95	-0.94	#DIV/0!

Seam: Coalburg Class: Averages

	Correlation Coefficient											
	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash	#DIV/0!	0.91	-0.52	0.55	#DIV/0!	0.97	-0.12	0.89	0.88	0.22	0.63	#DIV/0!
Total Sulfur	#DIV/0!	-0.47	0.23	-0.24	#DIV/0!	-0.50	0.33	-0.66	-0.42	-0.24	-0.34	#DIV/0!
Pyritic Sulfur	#DIV/0!	0.68	-0.56	0.46	#DIV/0!	0.79	0.26	0.61	0.88	0.23	0.76	#DIV/0!
Organic Matter	#DIV/0!	-0.91	0.52	-0.55	#DIV/0!	-0.97	0.12	-0.89	-0.88	-0.22	-0.63	#DIV/0!

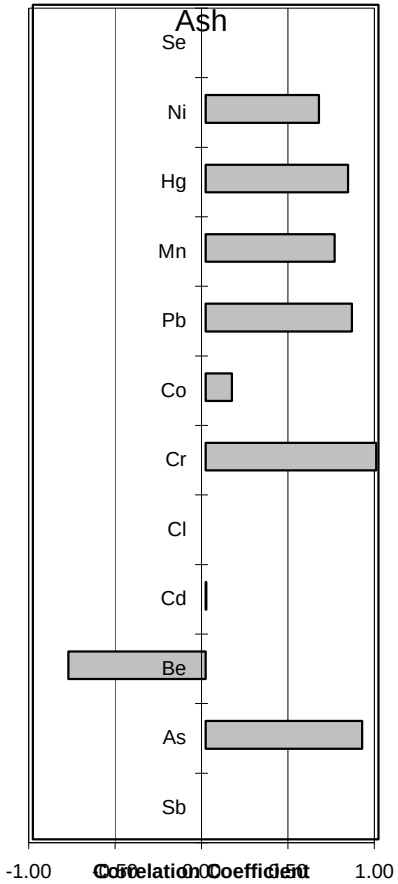
Seam: Coalburg
Sample: Run-of-Mine Feed

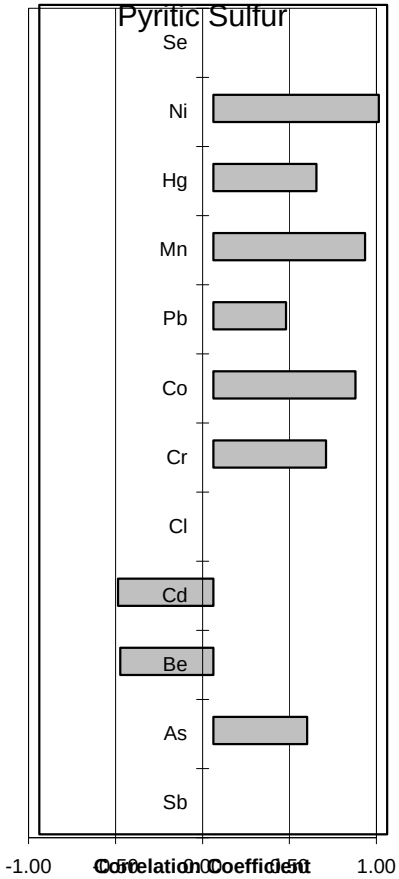
Class: +50 mm
Mass (%): 18.45

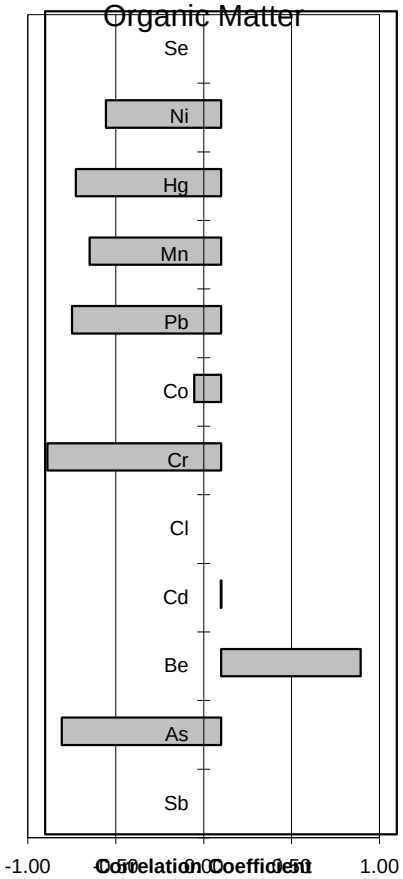


Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 50 x 10 mm
Mass (%): 46.337

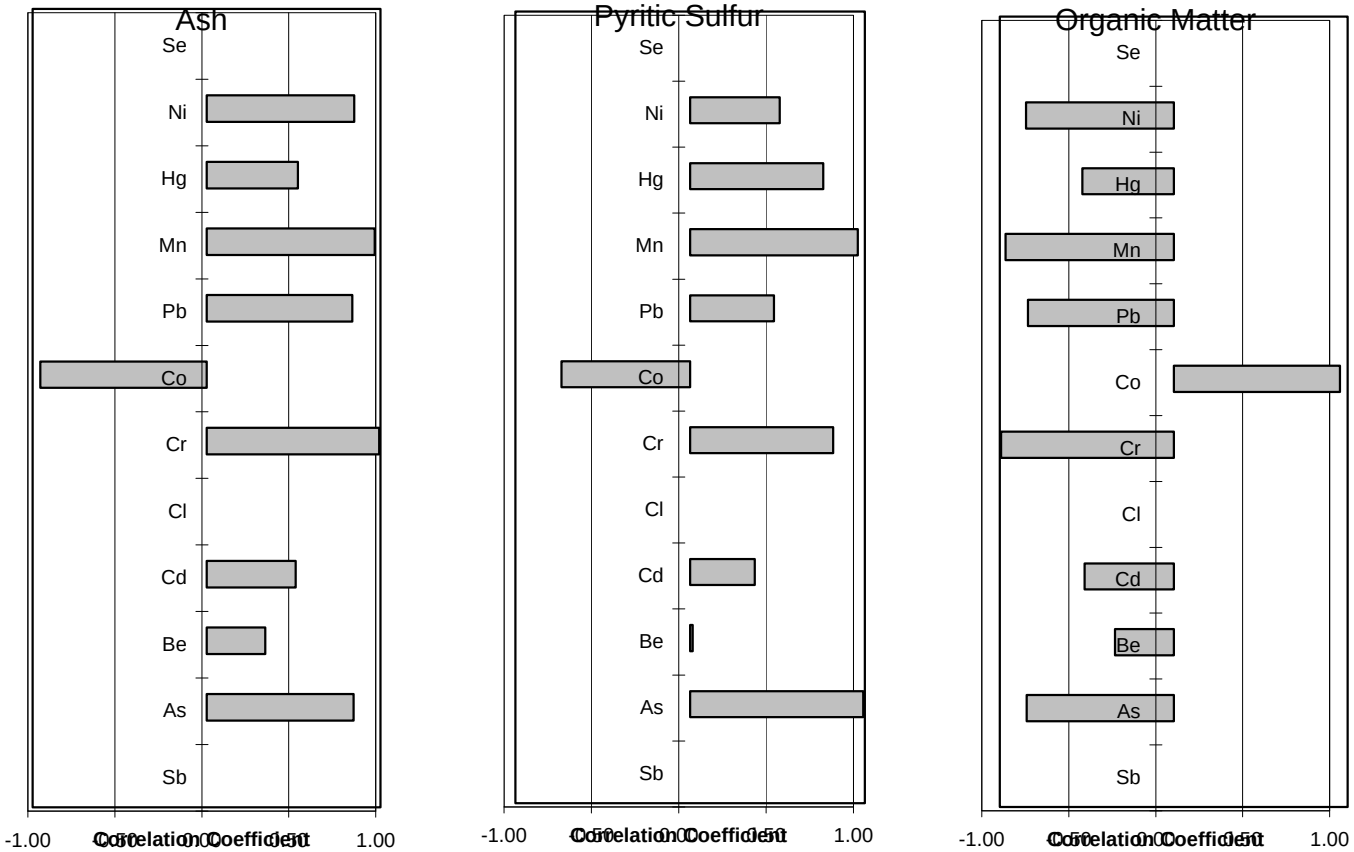






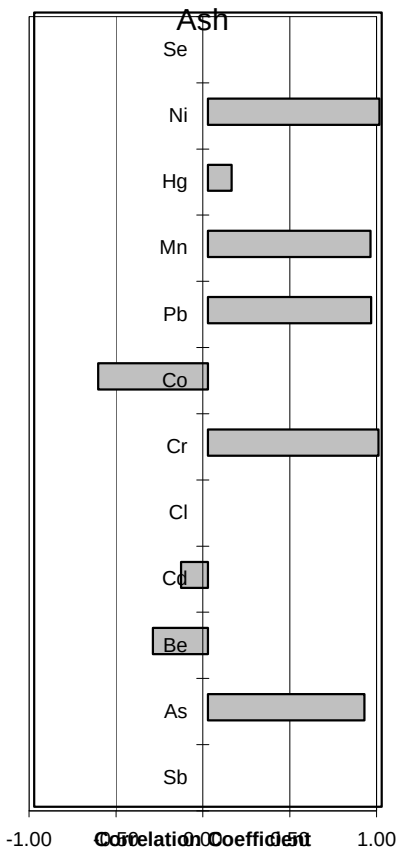
Seam: Coalburg
Sample: Run-of-Mine Feed

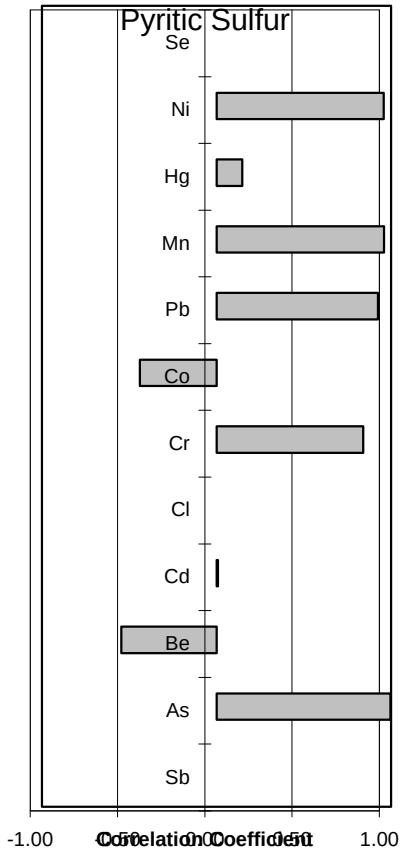
Class: 10 mm x 28 M
Mass (%): 29.318

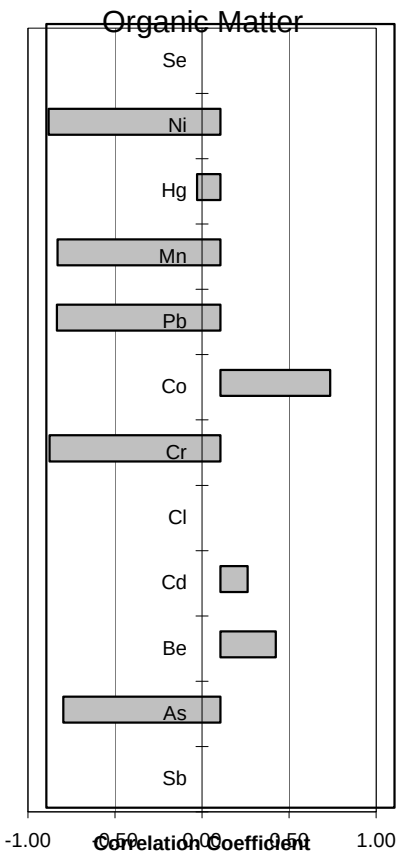


Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 28 x 100 M
Mass (%): 3.10

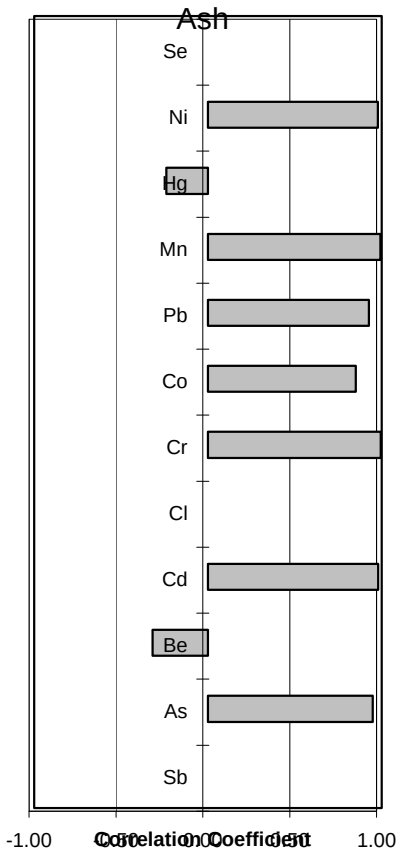


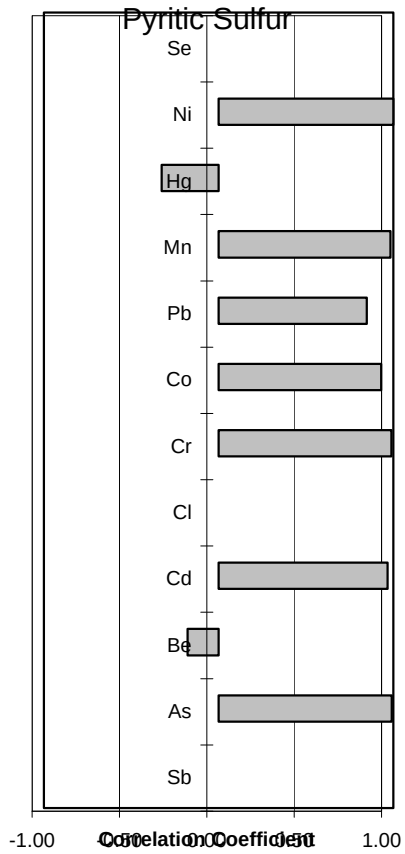


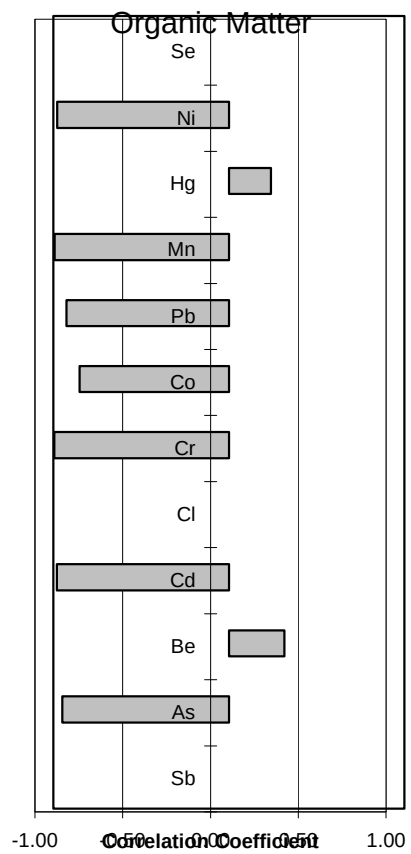


Seam: Coalburg
Sample: Run-of-Mine Feed

Class: 100 x 270 M
Mass (%): 0.98

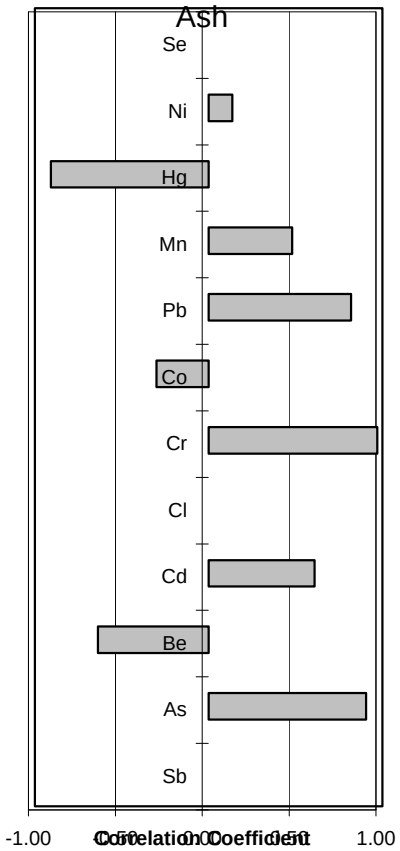


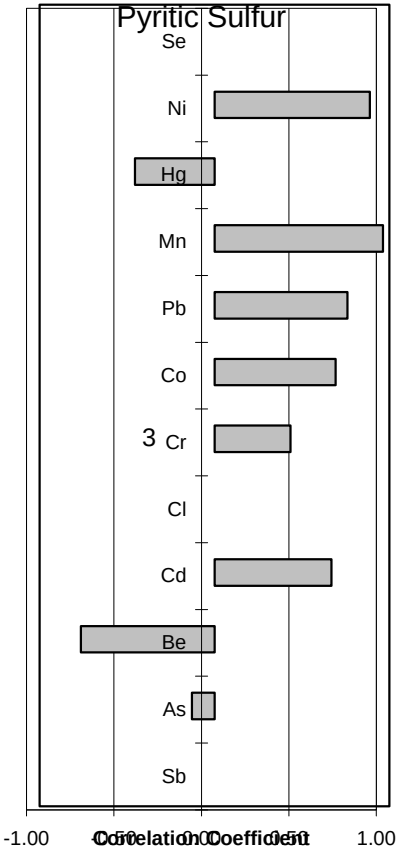


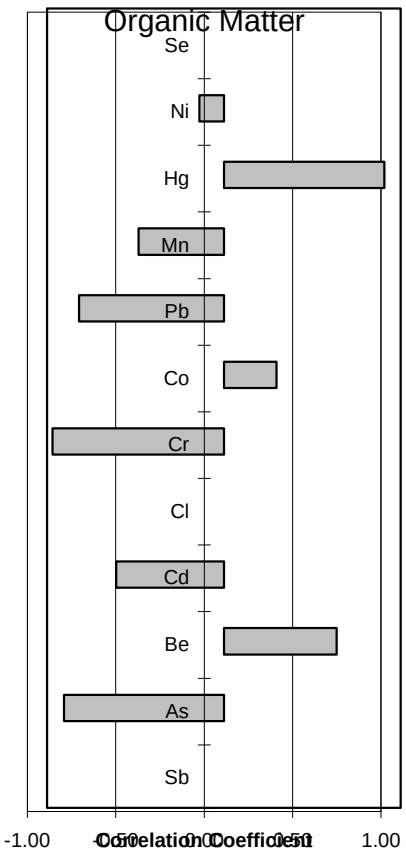


Seam: Coalburg
Sample: Crushed Middlings Only

Class: 50 x 10 mm
Mass (%): 9.11

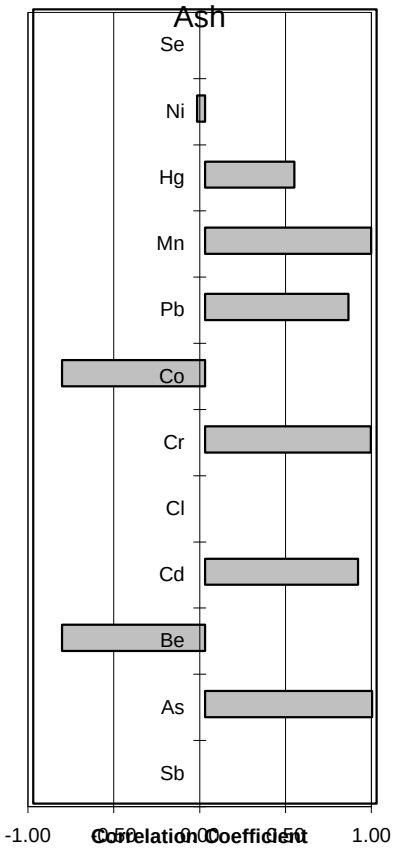


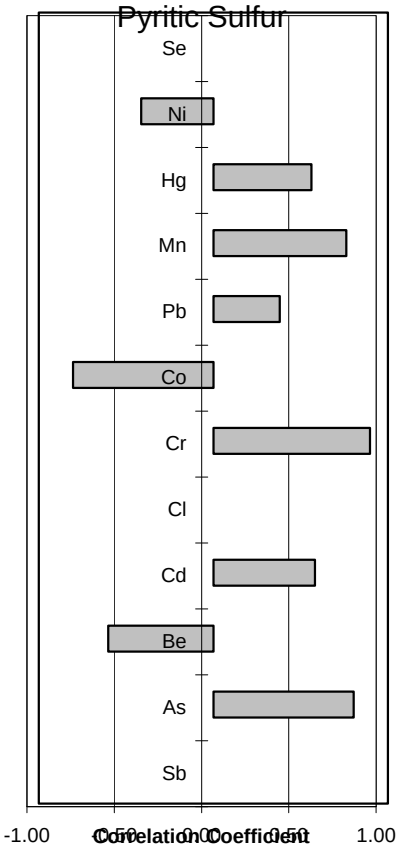


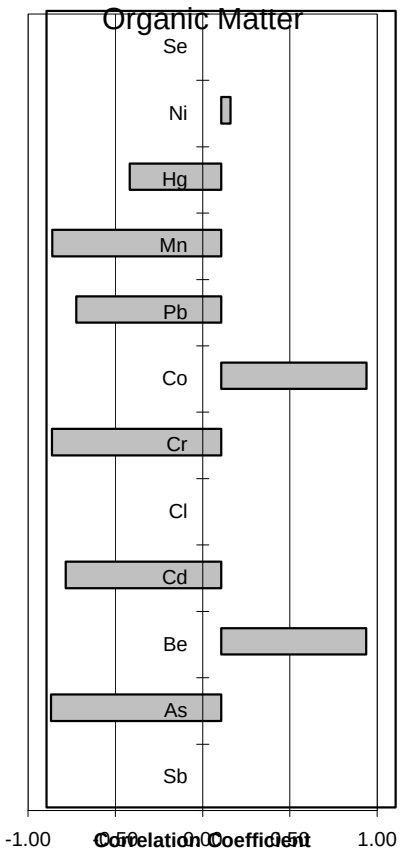


Seam: Coalburg
Sample: Crushed Middlings Only

Class: 10 mm x 28 M
Mass (%): 8.31

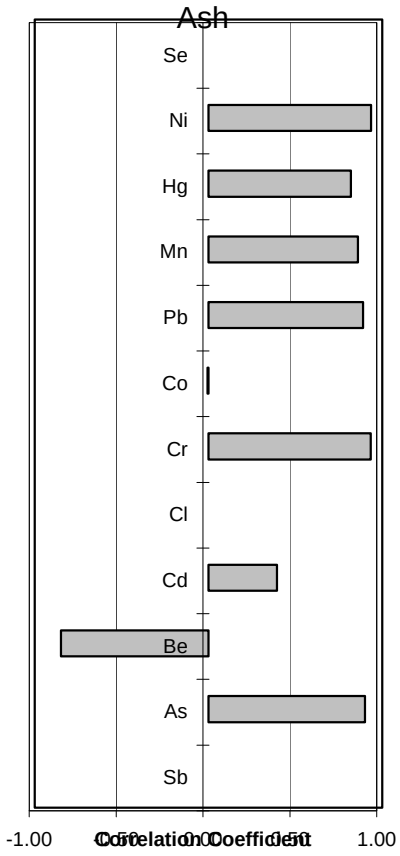


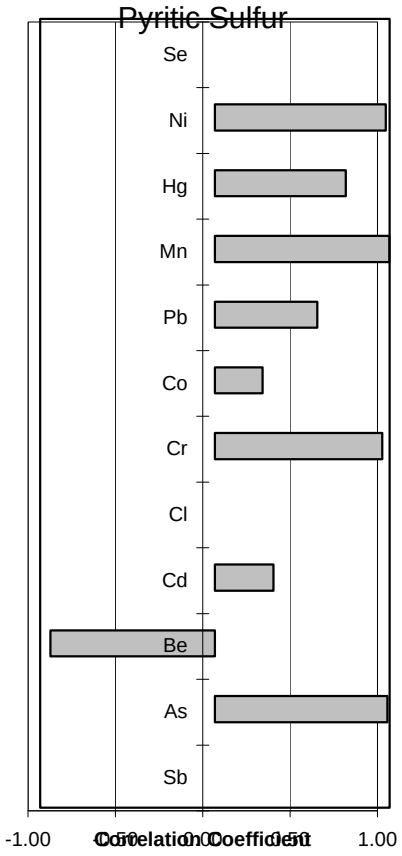


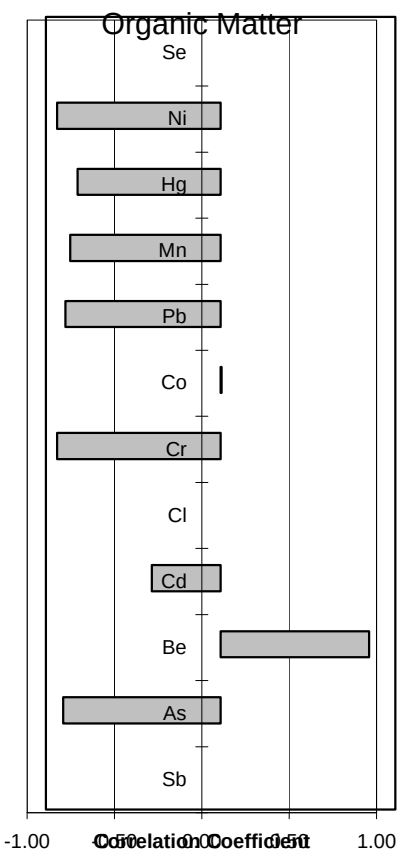


Seam: Coalburg
Sample: Crushed Middlings Only

Class: 28 x 100 M
Mass (%): 0.68

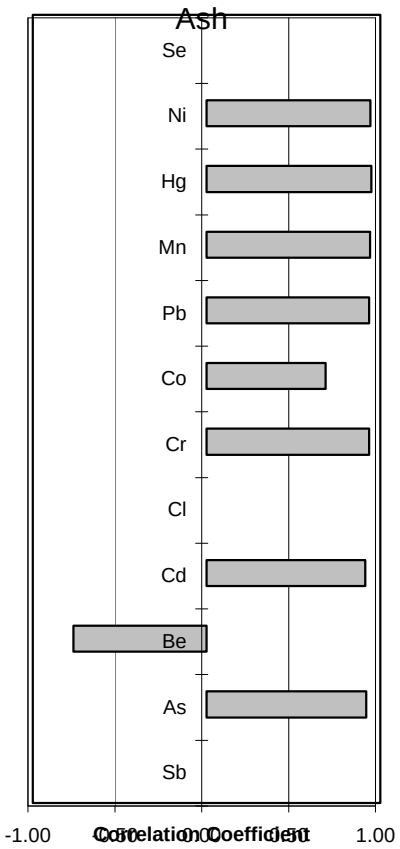


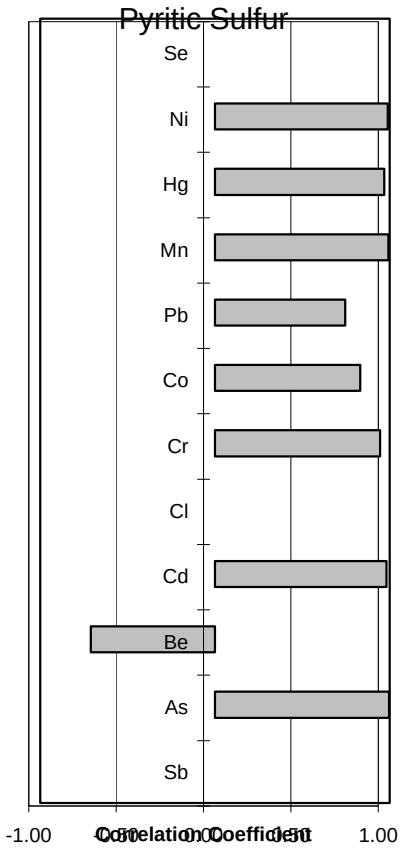


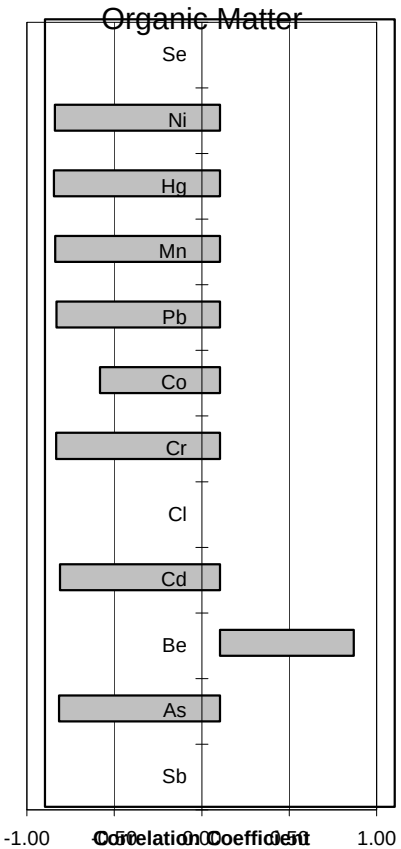


Seam: Coalburg
Sample: Crushed Middlings Only

Class: 100 x 270 M
Mass (%): 0.13

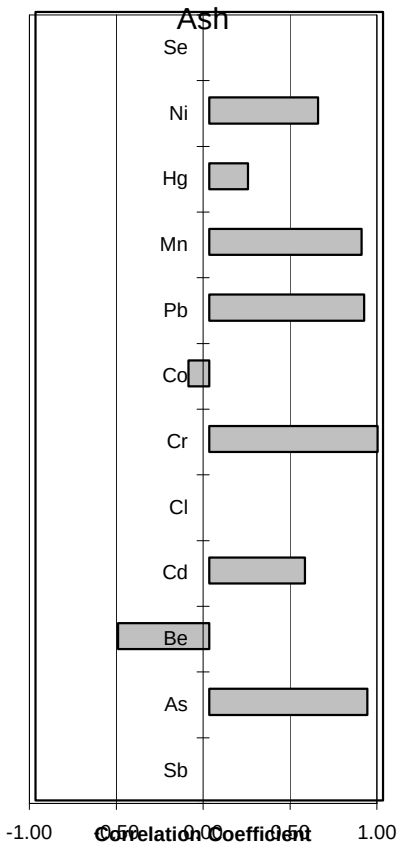


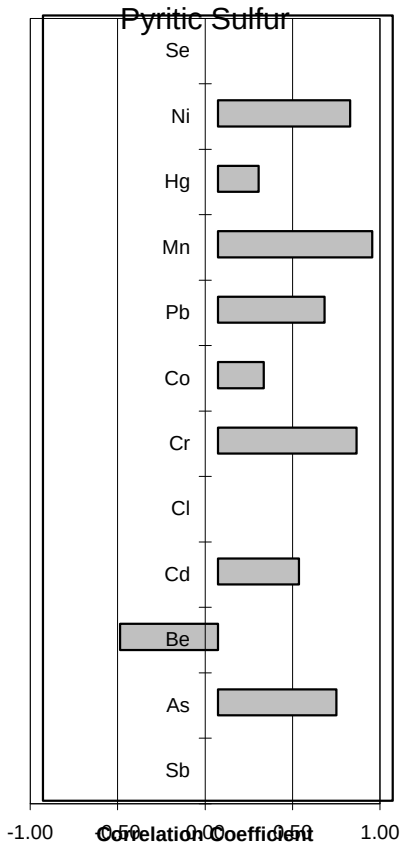


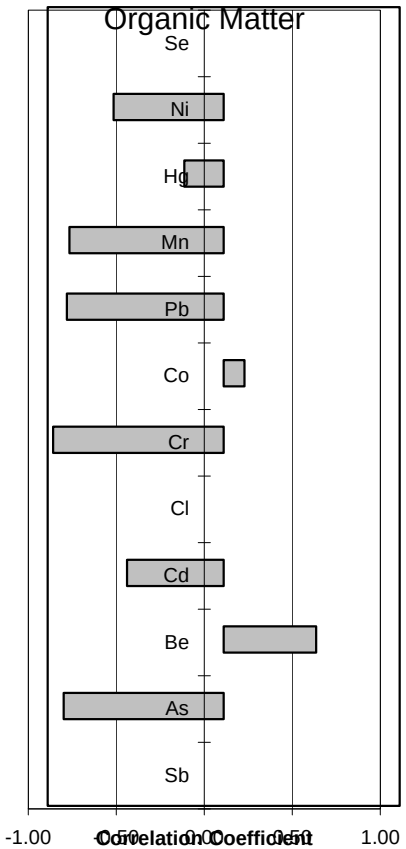


Seam: Coalburg

Class: Averages







APPENDIX X

PITTSBURGH NO. 8 RELEASE ANALYSIS DATA AND RECOVERY-GRADE CURVES

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	12.75	3.53	1.83	0.52	14683
Concentration 02	31.93	4.32	2.31	0.85	14549
Concentration 03	13.87	5.19	4.24	2.22	14403
Concentration 04	1.82	5.60	8.96	5.11	14334
Tails	39.63	15.55	5.07	4.94	12655
	100.00	8.81	3.73	2.70	13792

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	12.75	3.53	1.83	0.52	14683
Concentration 02	44.68	4.09	2.17	0.76	14587
Concentration 03	58.55	4.35	2.66	1.10	14544
Concentration 04	60.37	4.39	2.85	1.22	14537
Tails	100.00	8.81	3.73	2.70	13792

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	8.81	3.73	2.70	13792
Concentration 02	87.25	9.59	4.01	3.01	13661
Concentration 03	55.32	12.63	4.99	4.26	13149
Concentration 04	41.45	15.11	5.24	4.95	12729
Tails	39.63	15.55	5.07	4.94	12655

Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	27.06	3.96	2.19	0.82	14610
Concentration 02	42.89	5.36	2.70	1.12	14374
Concentration 03	8.55	6.33	6.63	4.86	14210
Concentration 04	1.67	7.01	18.32	15.76	14096
Tails	19.83	22.58	14.42	13.04	11470
	100.00	8.51	5.48	3.97	13843

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	27.06	3.96	2.19	0.82	14610
Concentration 02	69.95	4.82	2.50	1.00	14465
Concentration 03	78.50	4.98	2.95	1.42	14438
Concentration 04	80.17	5.03	3.27	1.72	14430
Tails	100.00	8.51	5.48	3.97	13843

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	8.51	5.48	3.97	13843
Concentration 02	72.94	10.19	6.70	5.13	13559
Concentration 03	30.05	17.09	12.42	10.86	12396
Concentration 04	21.50	21.37	14.72	13.25	11674
Tails	19.83	22.58	14.42	13.04	11470

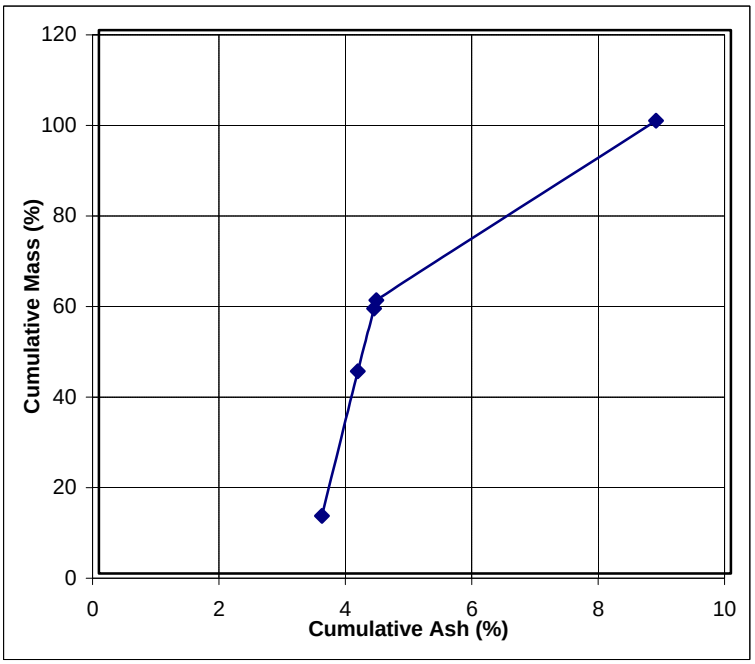
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 2.00

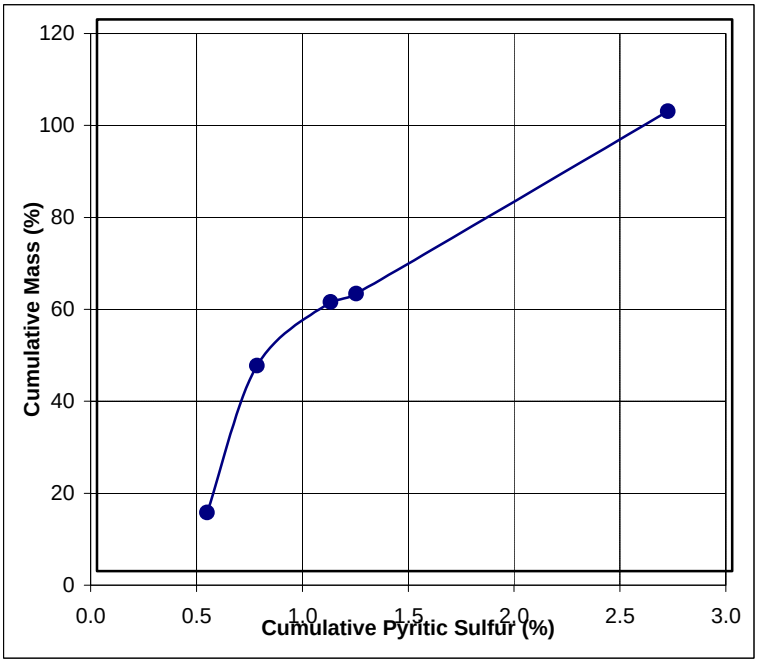
	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	3.15	3.42	1.37	0.38	14701
Concentration 02	15.17	3.35	1.41	0.24	14713
Concentration 03	26.64	4.50	1.96	0.70	14519
Concentration 04	2.59	5.38	6.14	6.13	14371
Tails	52.45	50.36	2.05	1.87	6785
	100.00	28.37	2.01	1.37	10494

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	3.15	3.42	1.37	0.38	14701
Concentration 02	18.32	3.36	1.40	0.26	14711
Concentration 03	44.96	4.04	1.73	0.52	14597
Concentration 04	47.55	4.11	1.97	0.83	14585
Tails	100.00	28.37	2.01	1.37	10494

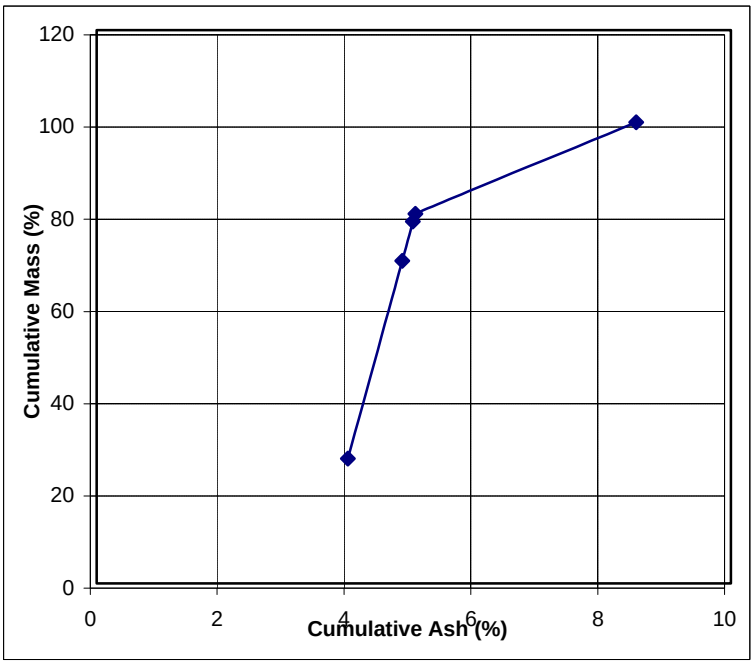
	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	28.37	2.01	1.37	10494
Concentration 02	96.85	29.18	2.03	1.41	10357
Concentration 03	81.68	33.98	2.15	1.62	9548
Concentration 04	55.04	48.24	2.24	2.07	7142
Tails	52.45	50.36	2.05	1.87	6785

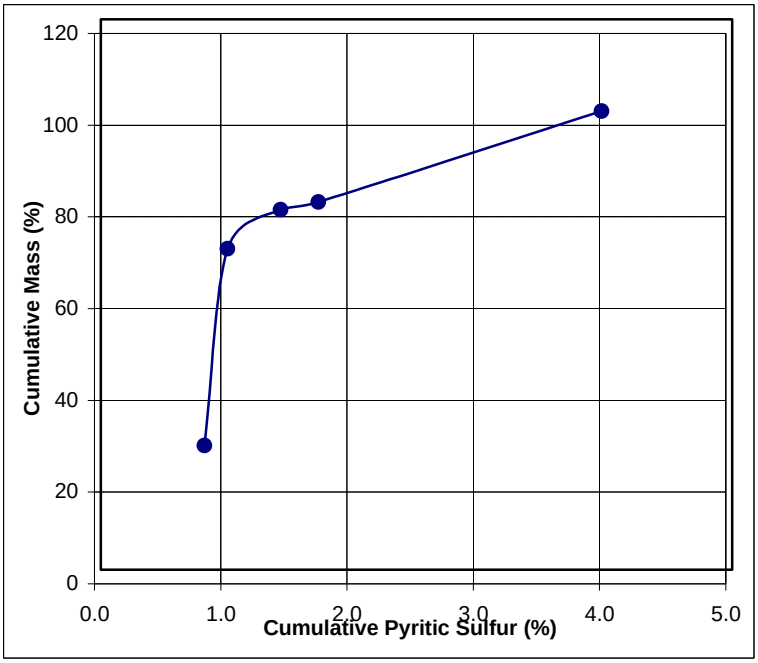
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85



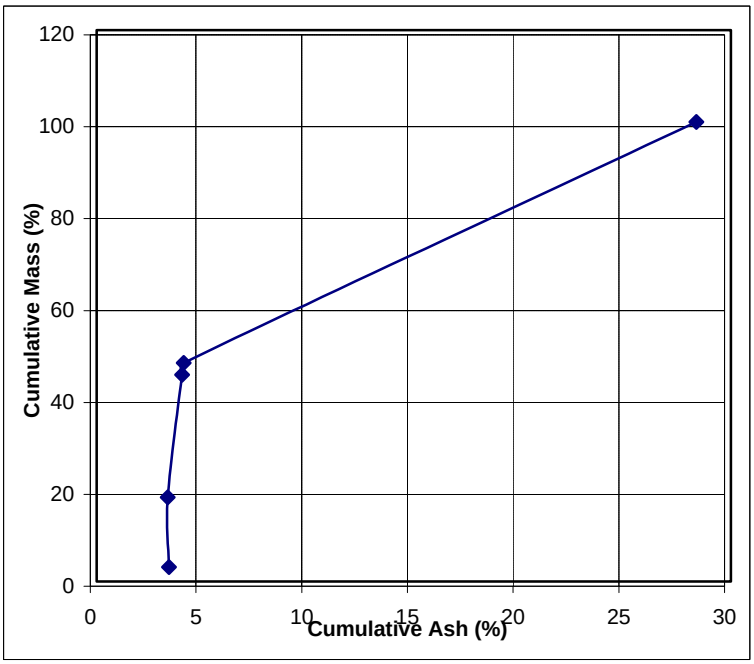


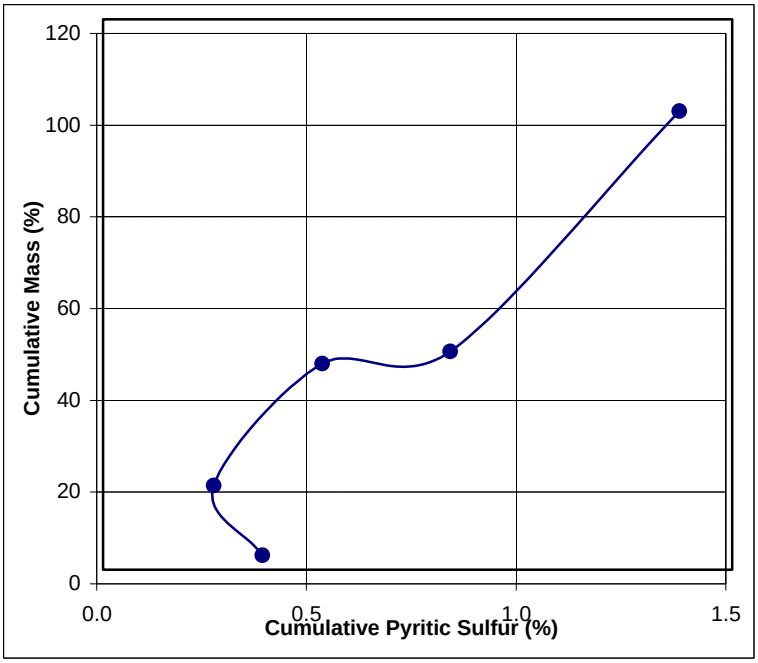
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19





Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 2.00





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.40

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	16.78	8.14	3.19	1.92	13905
Concentration 02	41.38	10.68	3.78	2.49	13477
Concentration 03	14.94	12.56	4.88	3.74	13160
Concentration 04	5.98	13.71	5.59	4.90	12966
Tails	20.92	21.76	8.35	8.77	11608
	100.00	13.03	4.91	4.04	13080

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	16.78	8.14	3.19	1.92	13905
Concentration 02	58.16	9.95	3.61	2.33	13600
Concentration 03	73.10	10.48	3.87	2.61	13510
Concentration 04	79.08	10.73	4.00	2.79	13469
Tails	100.00	13.03	4.91	4.04	13080

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	13.03	4.91	4.04	13080
Concentration 02	83.22	14.02	5.26	4.47	12913
Concentration 03	41.84	17.32	6.72	6.42	12356
Concentration 04	26.90	19.97	7.74	7.91	11910
Tails	20.92	21.76	8.35	8.77	11608

Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.12

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	17.15	8.86	2.73	1.47	13784
Concentration 02	39.25	10.12	3.18	1.84	13571
Concentration 03	15.29	11.57	4.02	2.93	13327
Concentration 04	6.81	13.43	8.21	7.06	13013
Tails	21.49	27.17	10.57	10.79	10696
	100.00	14.02	5.16	4.22	12914

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	17.15	8.86	2.73	1.47	13784
Concentration 02	56.40	9.74	3.04	1.73	13636
Concentration 03	71.69	10.13	3.25	1.98	13570
Concentration 04	78.51	10.41	3.68	2.42	13522
Tails	100.00	14.02	5.16	4.22	12914

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	14.02	5.16	4.22	12914
Concentration 02	82.85	15.08	5.67	4.79	12734
Concentration 03	43.60	19.55	7.90	7.45	11981
Concentration 04	28.31	23.86	10.00	9.89	11254
Tails	21.49	27.17	10.57	10.79	10696

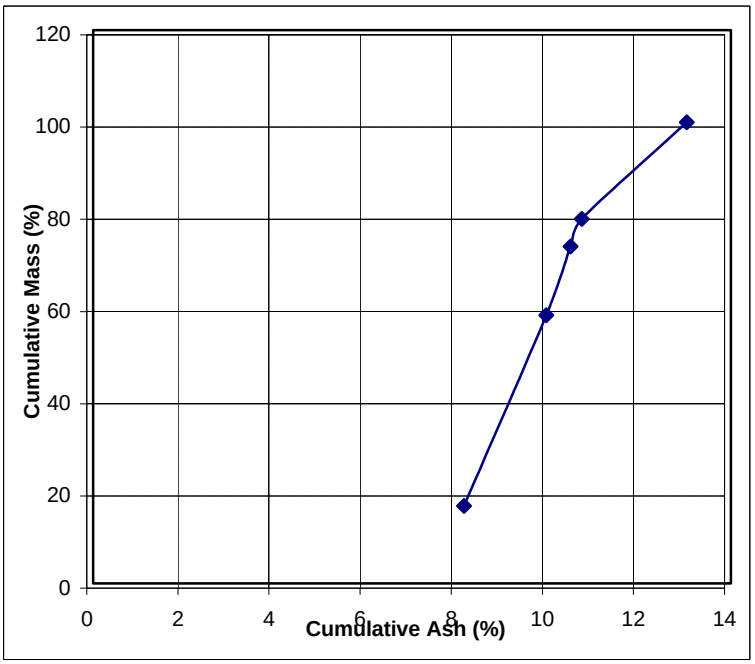
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.12

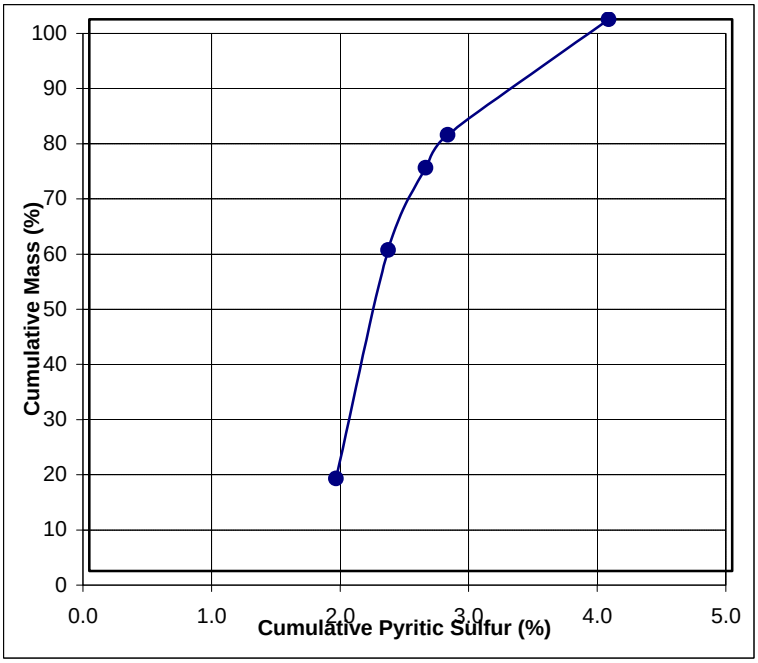
	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	9.74	8.83	2.29	1.01	13789
Concentration 02	28.35	11.03	2.77	1.52	13418
Concentration 03	10.52	12.22	3.34	2.11	13217
Concentration 04	7.73	13.69	4.11	2.81	12969
Tails	43.66	41.19	4.93	4.19	8331
	100.00	24.31	3.83	2.80	11177

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	9.74	8.83	2.29	1.01	13789
Concentration 02	38.09	10.47	2.65	1.39	13513
Concentration 03	48.61	10.85	2.80	1.55	13449
Concentration 04	56.34	11.24	2.98	1.72	13383
Tails	100.00	24.31	3.83	2.80	11177

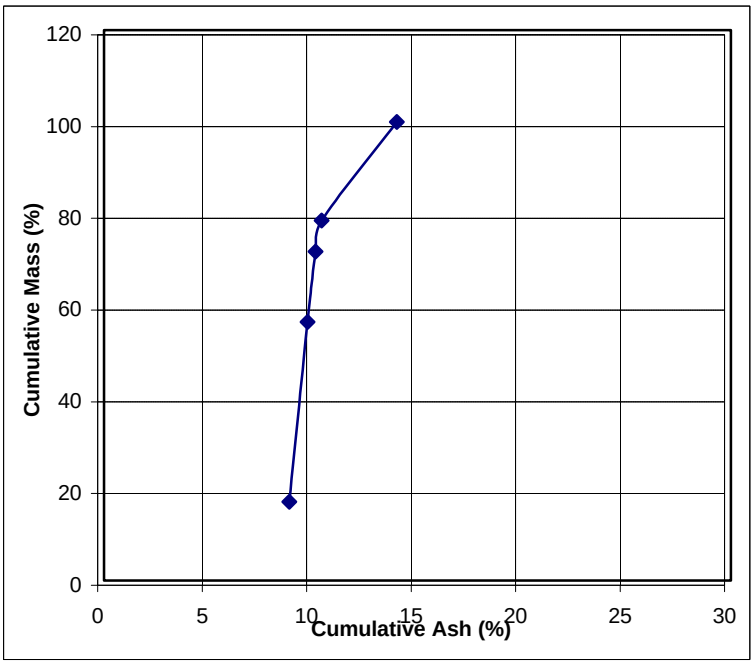
	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	24.31	3.83	2.80	11177
Concentration 02	90.26	25.99	4.00	2.99	10896
Concentration 03	61.91	32.83	4.56	3.66	9741
Concentration 04	51.39	37.05	4.81	3.98	9029
Tails	43.66	41.19	4.93	4.19	8331

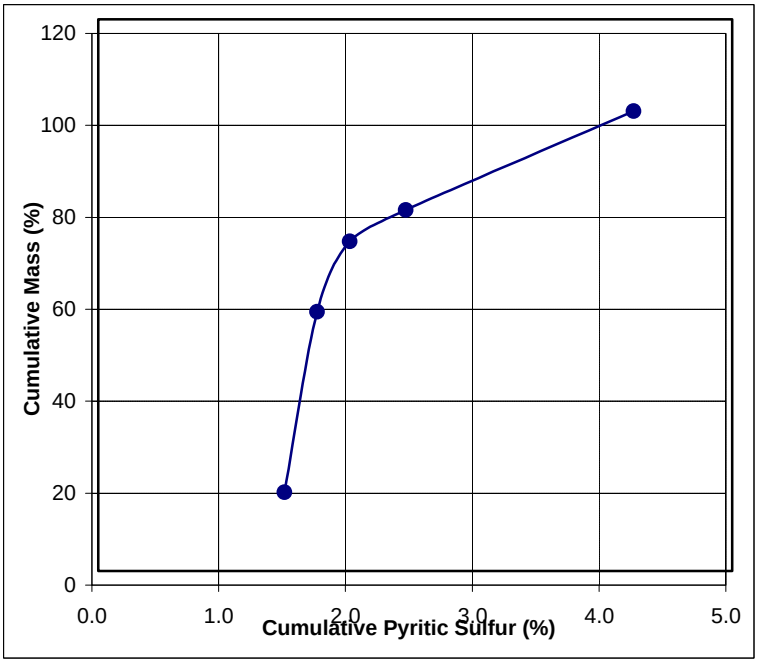
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.40



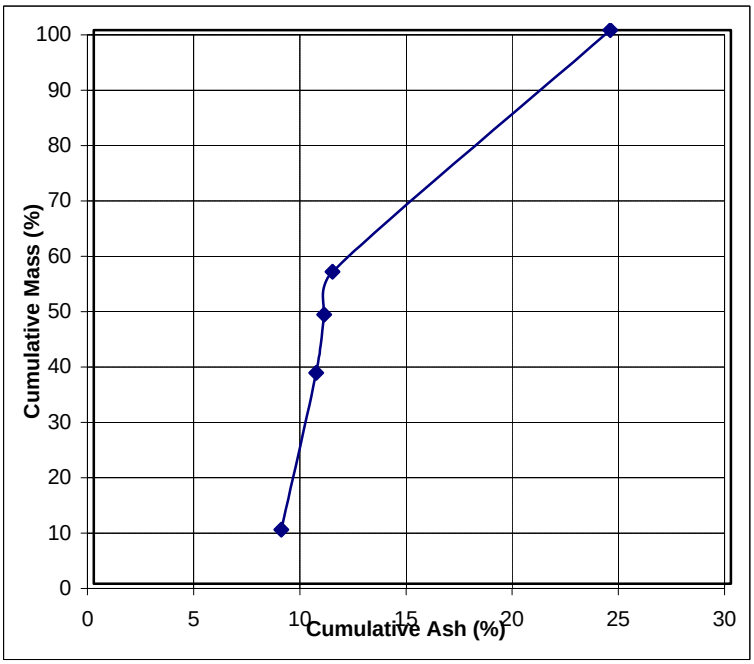


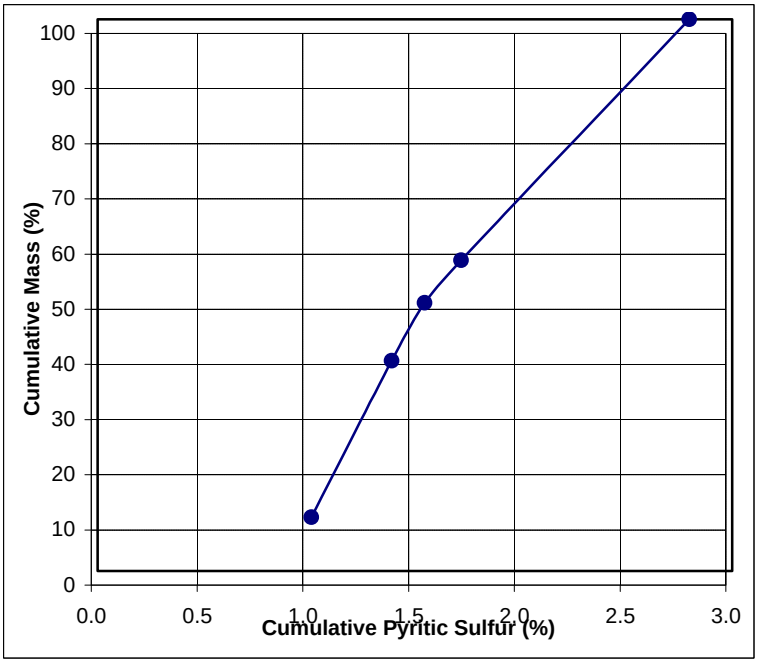
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.12





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.12





APPENDIX XI

ILLINOIS NO. 6 RELEASE ANALYSIS DATA AND RECOVERY- CURVES

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	24.87	8.49	1.83	1.28	13404
Concentration 02	48.19	8.74	3.18	1.12	13362
Concentration 03	6.22	10.83	6.48	1.18	13018
Concentration 04	0.52	14.99			12331
Tails	20.21	84.04	11.31	2.83	932
	100.00	24.06	4.68	1.50	10834

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	24.87	8.49	1.83	1.28	13404
Concentration 02	73.06	8.66	2.72	1.17	13376
Concentration 03	79.27	8.83	3.02	1.17	13348
Concentration 04	79.79	8.87	3.00	1.17	13341
Tails	100.00	24.06	4.68	1.50	10834

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	24.06	4.68	1.50	10834
Concentration 02	75.13	29.21	5.62	1.58	9983
Concentration 03	26.94	65.82	9.98	2.39	3940
Concentration 04	20.73	82.31	11.03	2.76	1217
Tails	20.21	84.04	11.31	2.83	932

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	24.42	9.41	1.83	1.30	13252
Concentration 02	30.13	9.77	2.79	1.32	13192
Concentration 03	12.99	10.94	6.76	1.57	12999
Concentration 04	0.78	19.75			11544
Tails	31.69	90.76	7.20	2.69	-177
	100.00	35.58	4.45	1.77	8932

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	24.42	9.41	1.83	1.30	13252
Concentration 02	54.55	9.61	2.36	1.31	13219
Concentration 03	67.53	9.87	3.21	1.36	13176
Concentration 04	68.31	9.98	3.17	1.35	13158
Tails	100.00	35.58	4.45	1.77	8932

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	35.58	4.45	1.77	8932
Concentration 02	75.58	44.03	5.29	1.92	7537
Concentration 03	45.45	66.74	6.95	2.32	3788
Concentration 04	32.47	89.06	7.02	2.63	104
Tails	31.69	90.76	7.20	2.69	-177

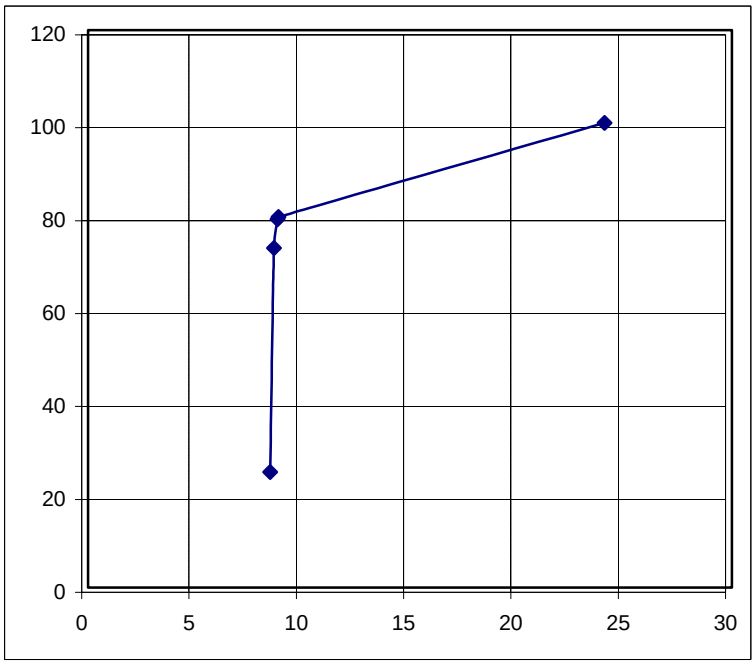
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 3.73

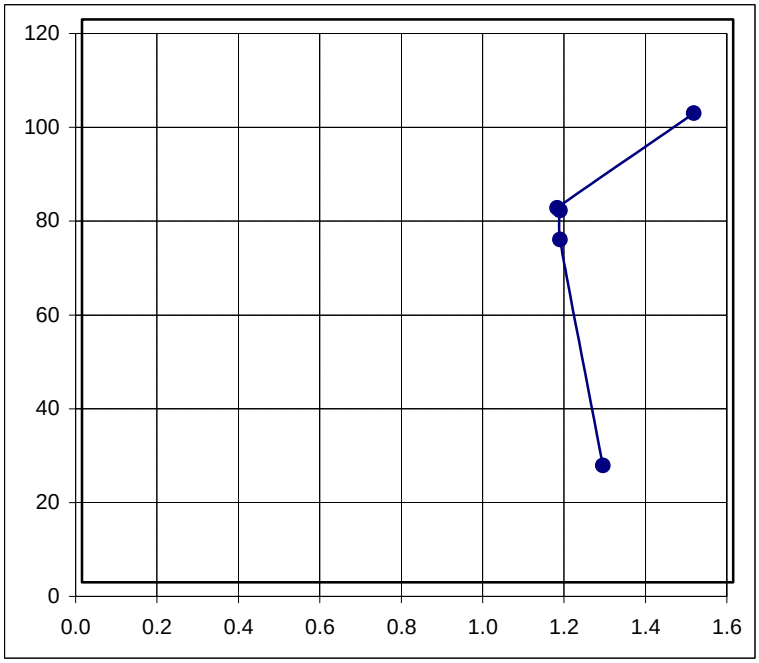
	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	9.11	5.42	2.19	0.29	13910
Concentration 02	8.38	6.16	2.41	0.46	13788
Concentration 03	1.95	11.77	3.05	1.21	12863
Concentration 04	2.16	21.20	3.38	1.65	11305
Tails	78.40	79.87	1.14	1.17	1621
	100.00	64.31	1.43	1.04	4189

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	9.11	5.42	2.19	0.29	13910
Concentration 02	17.49	5.77	2.29	0.37	13852
Concentration 03	19.44	6.38	2.37	0.46	13753
Concentration 04	21.60	7.86	2.47	0.57	13508
Tails	100.00	64.31	1.43	1.04	4189

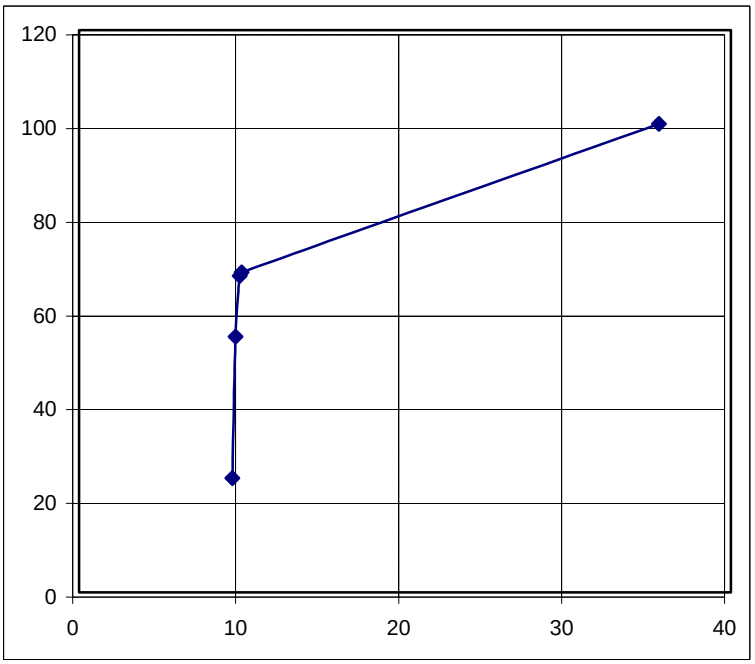
	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	64.31	1.43	1.04	4189
Concentration 02	90.89	70.22	1.35	1.12	3214
Concentration 03	82.51	76.72	1.25	1.18	2140
Concentration 04	80.56	78.30	1.20	1.18	1881
Tails	78.40	79.87	1.14	1.17	1621

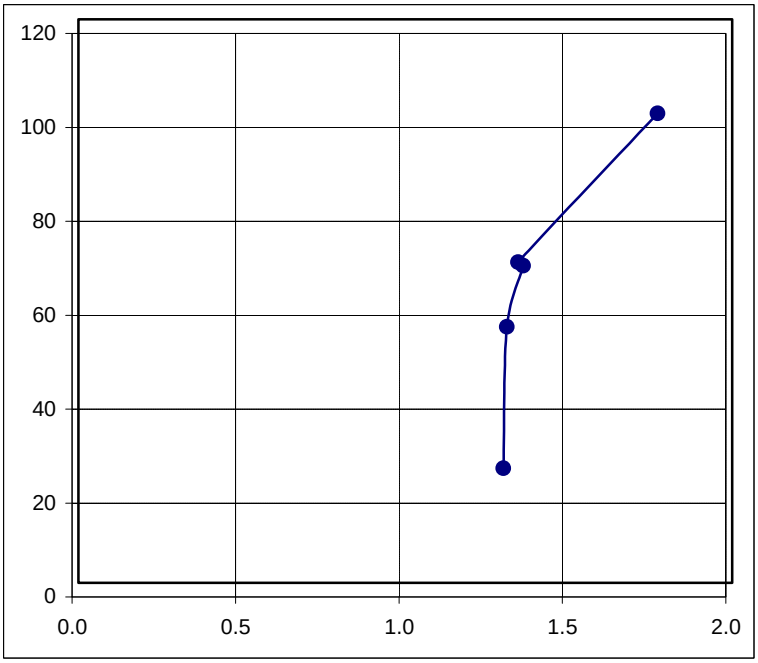
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02



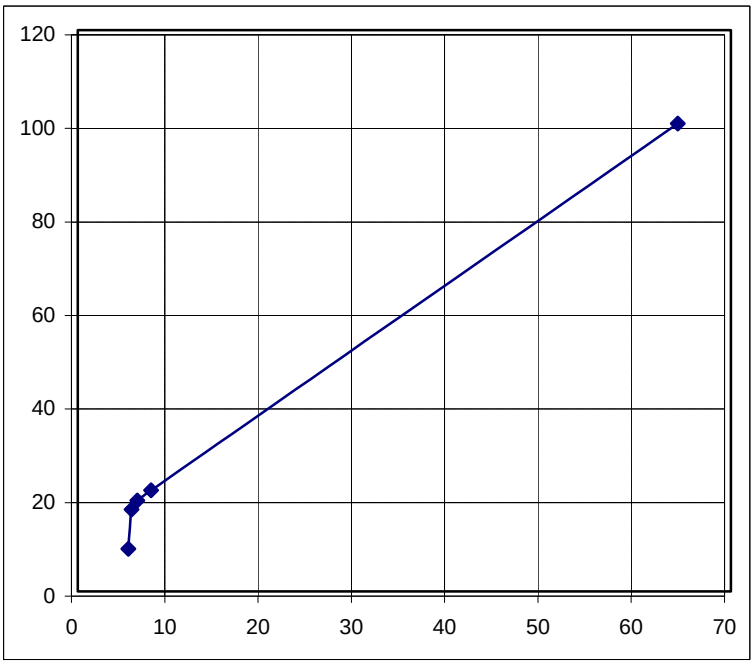


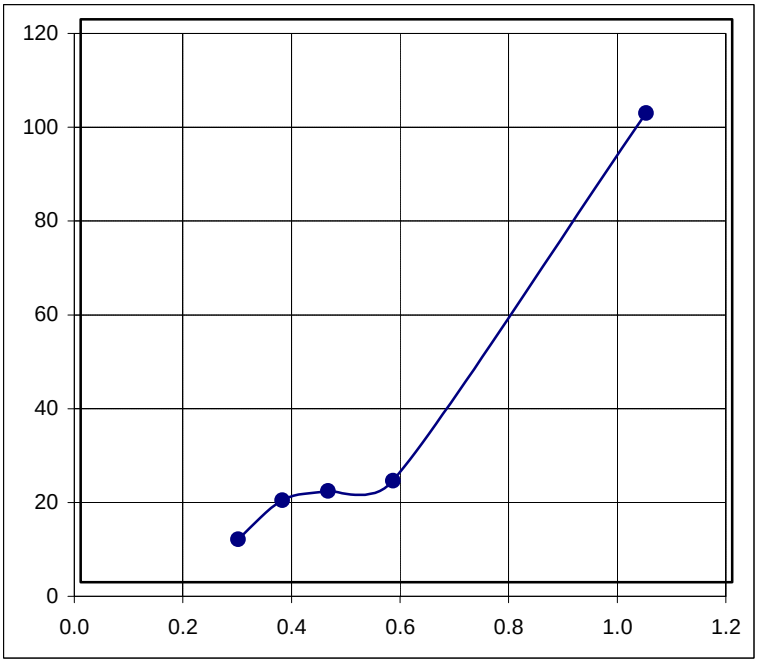
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27





Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 3.73





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	18.05	9.69	3.81	1.56	13205
Concentration 02	27.07	14.70	4.90	2.69	12379
Concentration 03	18.22	21.25	5.47	3.18	11297
Concentration 04	9.77	27.78	7.01	4.49	10220
Tails	26.90	77.02	7.93	7.85	2092
	100.00	33.03	5.83	4.14	9353

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	18.05	9.69	3.81	1.56	13205
Concentration 02	45.12	12.69	4.46	2.24	12710
Concentration 03	63.34	15.15	4.75	2.51	12303
Concentration 04	73.10	16.84	5.06	2.77	12025
Tails	100.00	33.03	5.83	4.14	9353

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	33.03	5.83	4.14	9353
Concentration 02	81.95	38.17	6.27	4.71	8505
Concentration 03	54.88	49.74	6.95	5.70	6594
Concentration 04	36.66	63.90	7.69	6.96	4257
Tails	26.90	77.02	7.93	7.85	2092

Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	34.85	14.94	4.05	2.24	12339
Concentration 02	31.09	19.59	4.56	2.53	11572
Concentration 03	7.13	27.56	5.95	4.09	10256
Concentration 04	1.98	37.52	7.53	6.03	8612
Tails	24.95	82.86	8.41	6.93	1128
	100.00	34.68	5.50	3.71	9081

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	34.85	14.94	4.05	2.24	12339
Concentration 02	65.94	17.13	4.29	2.38	11977
Concentration 03	73.07	18.15	4.45	2.54	11809
Concentration 04	75.05	18.66	4.53	2.64	11725
Tails	100.00	34.68	5.50	3.71	9081

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	34.68	5.50	3.71	9081
Concentration 02	65.15	45.23	6.28	4.49	7338
Concentration 03	34.06	68.65	7.85	6.28	3473
Concentration 04	26.93	79.52	8.35	6.86	1678
Tails	24.95	82.86	8.41	6.93	1128

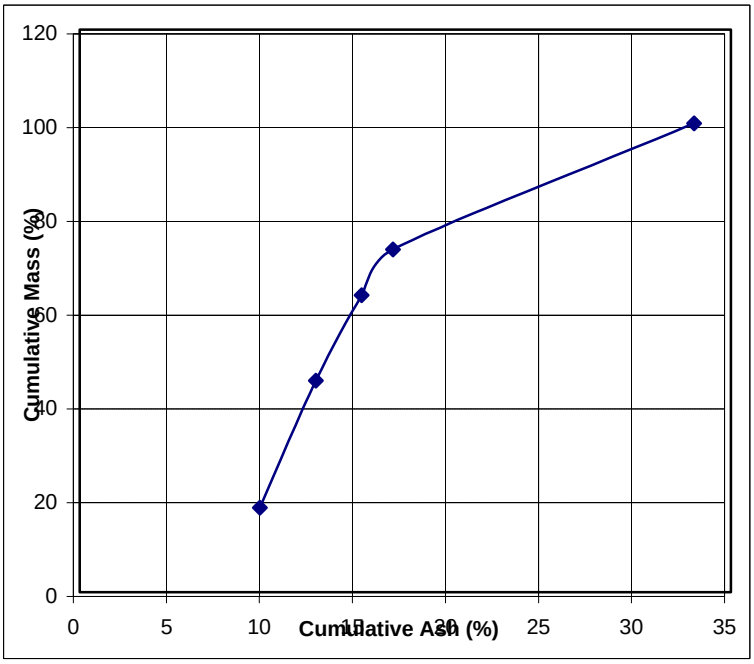
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.07

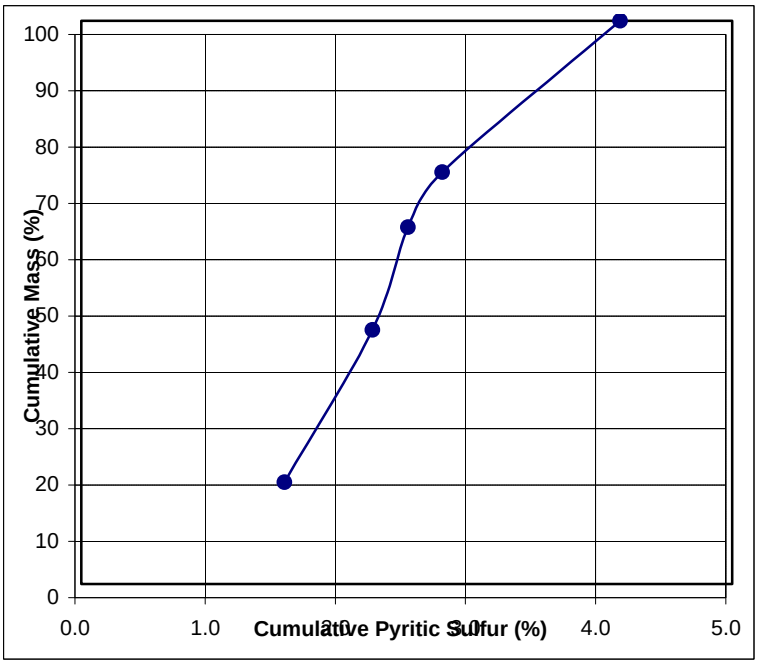
	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	7.47	11.75	4.12	0.86	12865
Concentration 02	11.76	14.53	3.50	1.10	12406
Concentration 03	3.73	21.98	2.83	1.64	11176
Concentration 04	2.62	41.96	2.48	2.75	7878
Tails	74.42	84.45	1.52	1.22	864
	100.00	67.36	2.03	1.23	3686

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	7.47	11.75	4.12	0.86	12865
Concentration 02	19.22	13.45	3.74	1.01	12584
Concentration 03	22.96	14.84	3.60	1.11	12355
Concentration 04	25.58	17.62	3.48	1.28	11896
Tails	100.00	67.36	2.03	1.23	3686

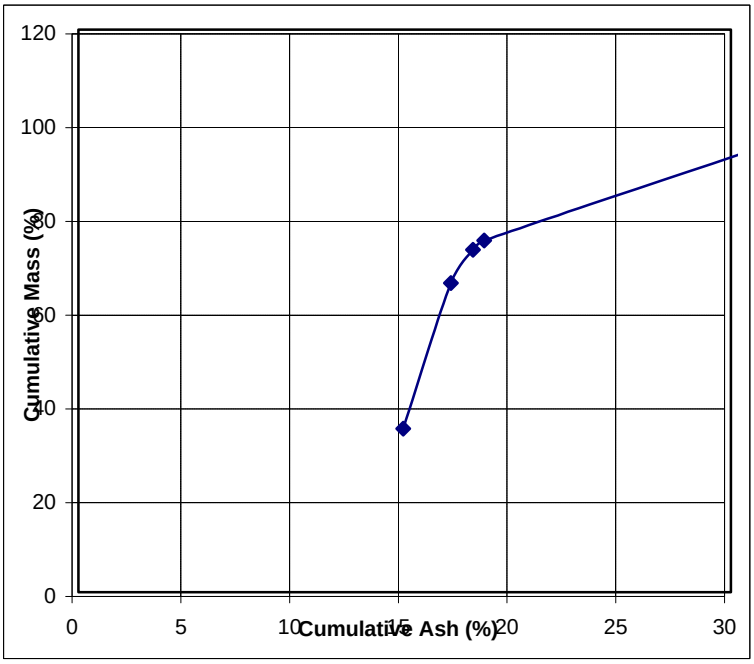
	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	67.36	2.03	1.23	3686
Concentration 02	92.53	71.84	1.86	1.27	2946
Concentration 03	80.78	80.19	1.62	1.29	1569
Concentration 04	77.04	83.01	1.56	1.27	1103
Tails	74.42	84.45	1.52	1.22	864

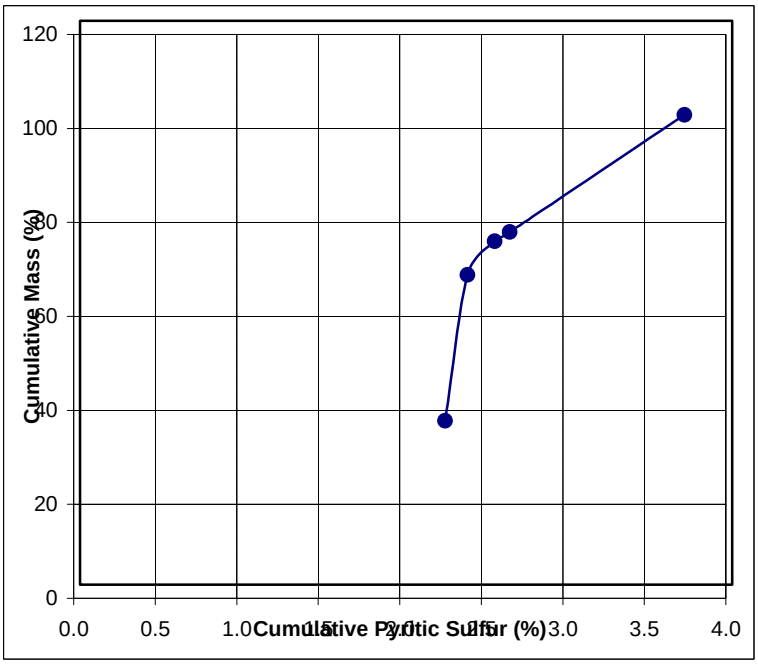
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09



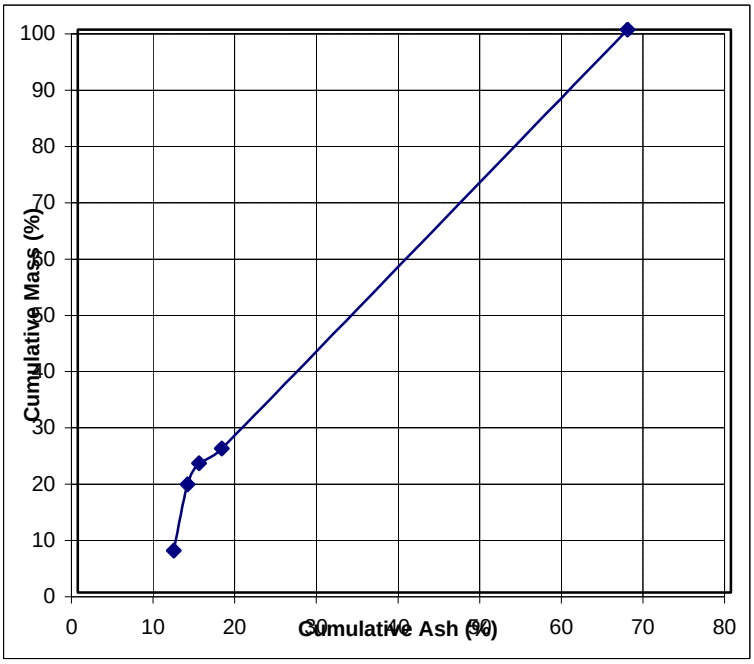


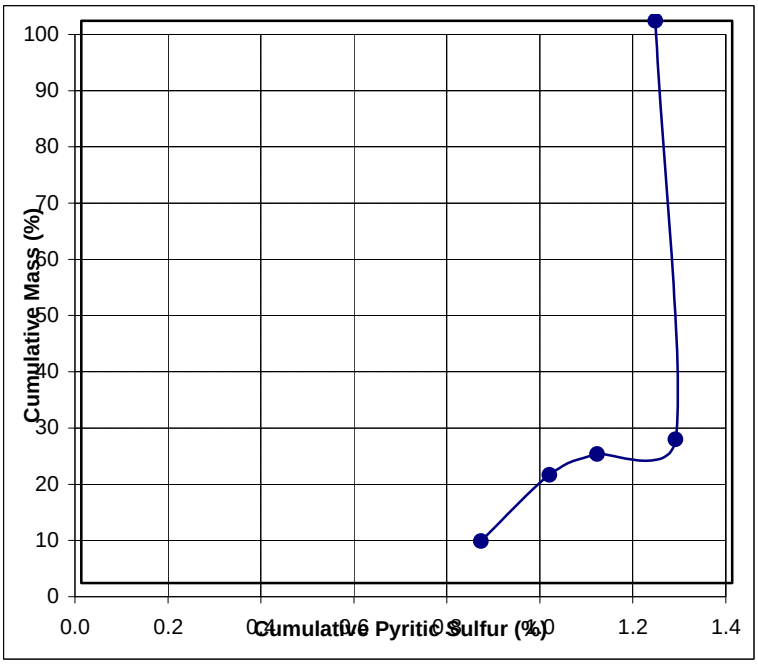
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.07





APPENDIX XII

COALBURG RELEASE ANALYSIS DATA AND RECOVERY-GRADE CURVES

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	19.95	14.85	0.64	0.04	12681
Concentration 02	25.06	15.31	0.63	0.03	12604
Concentration 03	3.58	15.41	0.08	0.03	12587
Concentration 04	0.26	15.45	0.08	0.02	12580
Tails	51.15	23.88	0.34	0.14	11175
	100.00	19.61	0.46	0.09	11888

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	19.95	14.85	0.64	0.04	12681
Concentration 02	45.01	15.11	0.63	0.03	12638
Concentration 03	48.59	15.13	0.59	0.03	12634
Concentration 04	48.85	15.13	0.59	0.03	12634
Tails	100.00	19.61	0.46	0.09	11888

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	19.61	0.46	0.09	11888
Concentration 02	80.05	20.79	0.42	0.10	11690
Concentration 03	54.99	23.29	0.32	0.13	11274
Concentration 04	51.41	23.84	0.34	0.14	11182
Tails	51.15	23.88	0.34	0.14	11175

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	16.97	10.37	0.60	0.03	13427
Concentration 02	11.83	10.75	0.49	0.03	13364
Concentration 03	1.80	10.85	0.58	0.07	13347
Concentration 04	0.26	10.89	0.56	0.42	13341
Tails	69.15	24.42	0.30	0.10	11085
	100.00	20.14	0.38	0.08	11799

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	16.97	10.37	0.60	0.03	13427
Concentration 02	28.79	10.53	0.55	0.03	13401
Concentration 03	30.59	10.55	0.56	0.03	13398
Concentration 04	30.85	10.55	0.56	0.04	13398
Tails	100.00	20.14	0.38	0.08	11799

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	20.14	0.38	0.08	11799
Concentration 02	83.03	22.14	0.33	0.09	11466
Concentration 03	71.21	24.03	0.31	0.10	11150
Concentration 04	69.41	24.37	0.30	0.10	11094
Tails	69.15	24.42	0.30	0.10	11085

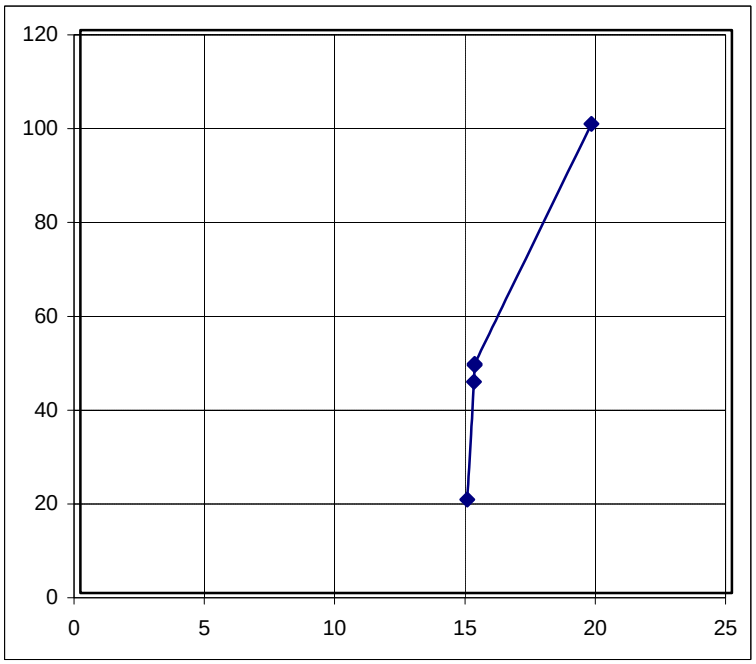
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 1.82

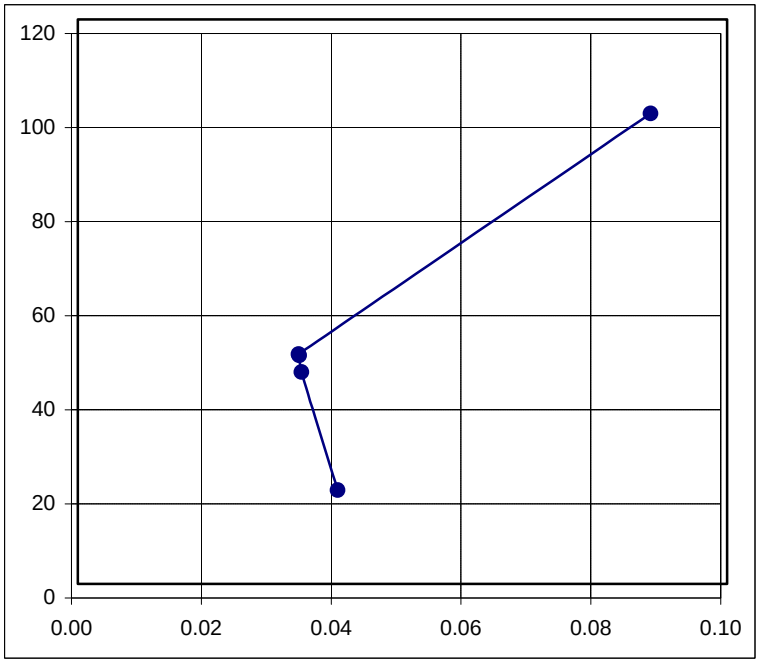
	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	13.05	9.26	0.55	0.03	13612
Concentration 02	9.20	9.65	0.53	0.04	13548
Concentration 03	5.97	12.95	0.50	0.11	12997
Concentration 04	8.88	22.38	0.45	0.06	11425
Tails	62.89	75.20	0.15	0.15	2620
	100.00	52.15	0.28	0.11	6462

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	13.05	9.26	0.55	0.03	13612
Concentration 02	22.25	9.42	0.54	0.03	13585
Concentration 03	28.22	10.17	0.53	0.05	13461
Concentration 04	37.11	13.09	0.51	0.05	12973
Tails	100.00	52.15	0.28	0.11	6462

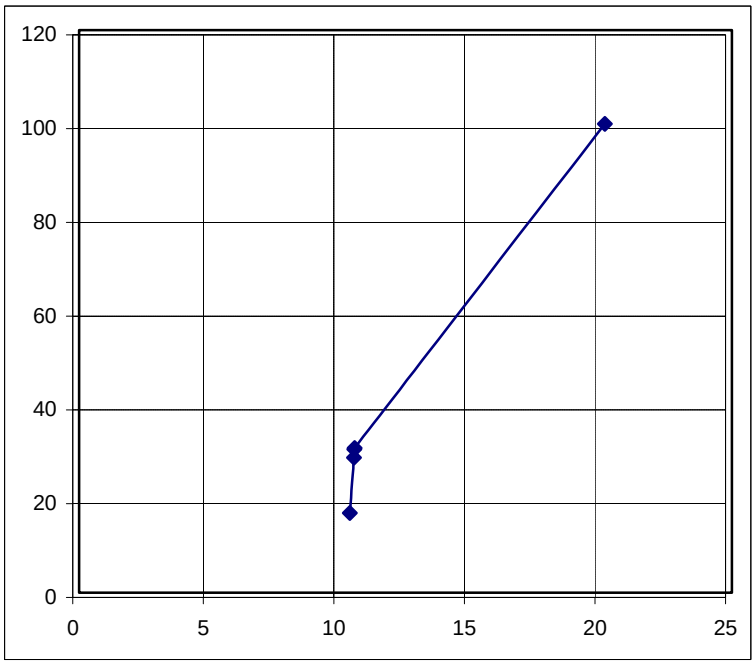
	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	52.15	0.28	0.11	6462
Concentration 02	86.95	58.59	0.24	0.13	5389
Concentration 03	77.75	64.38	0.21	0.14	4424
Concentration 04	71.78	68.66	0.18	0.14	3710
Tails	62.89	75.20	0.15	0.15	2620

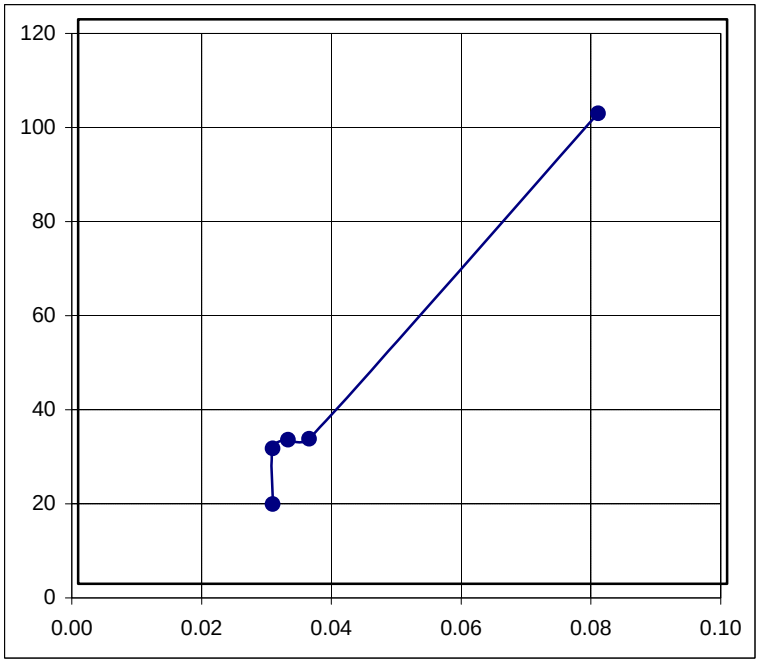
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10



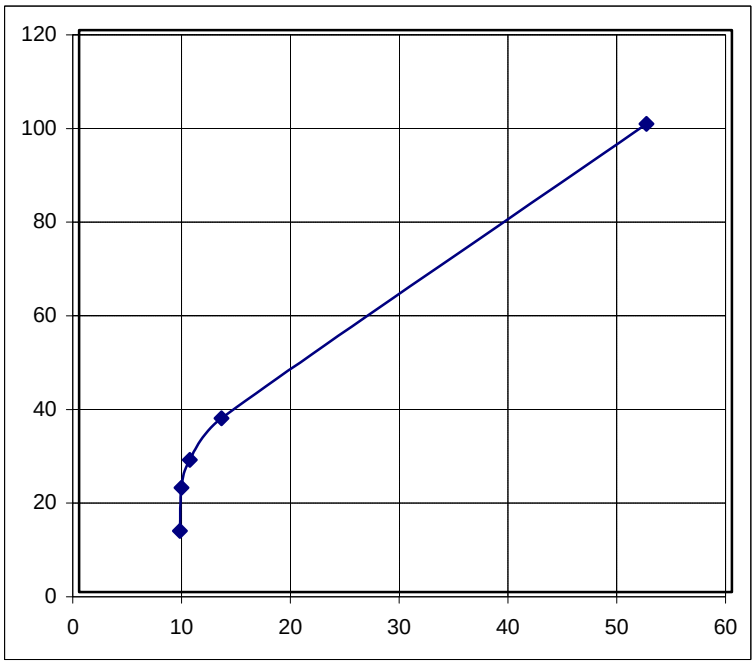


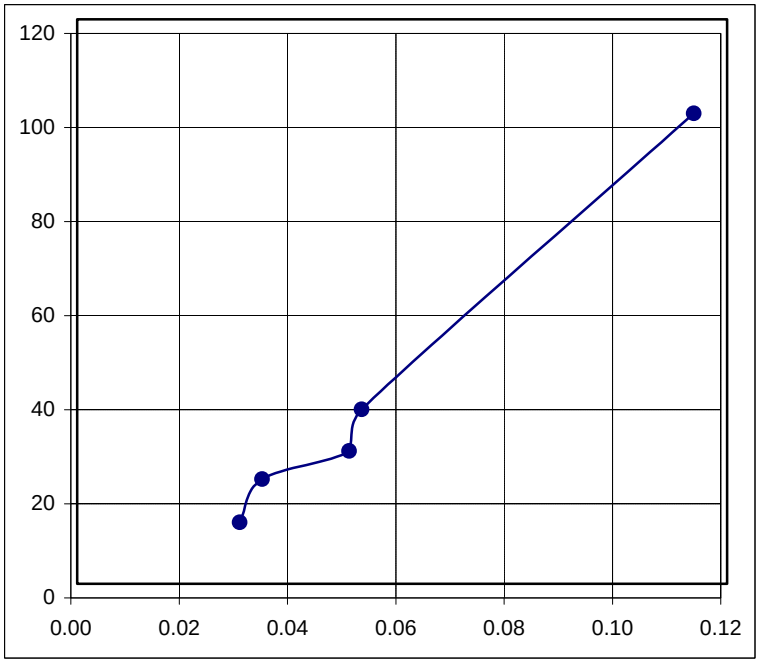
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98





Seam: Coalburg
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 1.82





Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	69.00	30.74	0.49	0.04	10031
Concentration 02	20.47	35.91	0.44	0.06	9169
Concentration 03	2.81	39.26	0.45	0.18	8611
Concentration 04	0.68	40.89	0.60	0.24	8339
Tails	7.05	72.22	0.32	0.32	3118
	100.00	35.03	0.47	0.07	9316

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	69.00	30.74	0.49	0.04	10031
Concentration 02	89.47	31.93	0.48	0.04	9834
Concentration 03	92.28	32.15	0.48	0.05	9797
Concentration 04	92.95	32.21	0.48	0.05	9786
Tails	100.00	35.03	0.47	0.07	9316

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	35.03	0.47	0.07	9316
Concentration 02	31.00	44.58	0.42	0.13	7725
Concentration 03	10.53	61.42	0.37	0.28	4917
Concentration 04	7.72	69.48	0.35	0.31	3574
Tails	7.05	72.22	0.32	0.32	3118

Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13

	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	34.89	22.31	0.56	0.03	11437
Concentration 02	52.76	29.51	0.48	0.05	10237
Concentration 03	5.80	46.61	0.43	0.09	7386
Concentration 04	1.46	53.87	0.46	0.24	6176
Tails	5.09	70.27	0.49	0.44	3443
	100.00	30.42	0.50	0.07	10085

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	34.89	22.31	0.56	0.03	11437
Concentration 02	87.65	26.64	0.51	0.04	10715
Concentration 03	93.45	27.88	0.51	0.05	10508
Concentration 04	94.91	28.28	0.51	0.05	10441
Tails	100.00	30.42	0.50	0.07	10085

	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	30.42	0.50	0.07	10085
Concentration 02	65.11	34.76	0.47	0.09	9361
Concentration 03	12.35	57.22	0.46	0.25	5618
Concentration 04	6.55	66.61	0.48	0.40	4052
Tails	5.09	70.27	0.49	0.44	3443

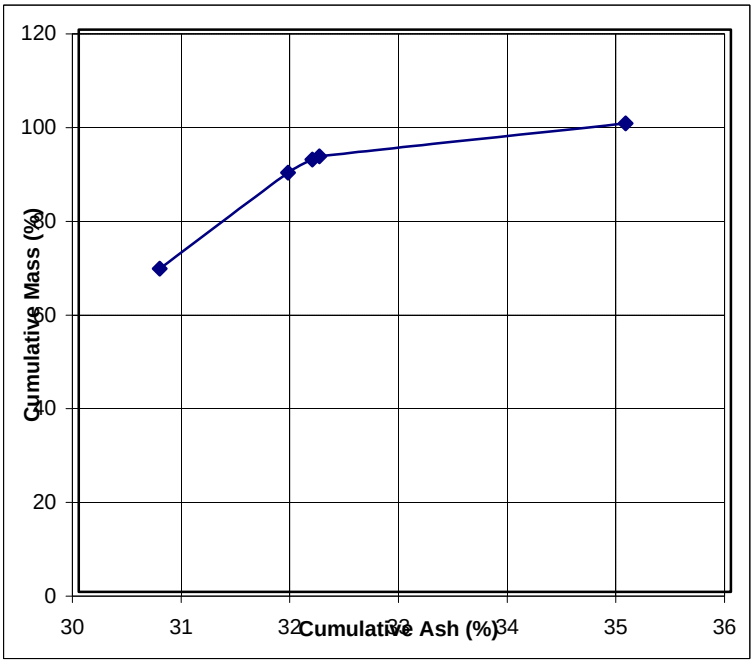
Seam: Coalburg
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.21

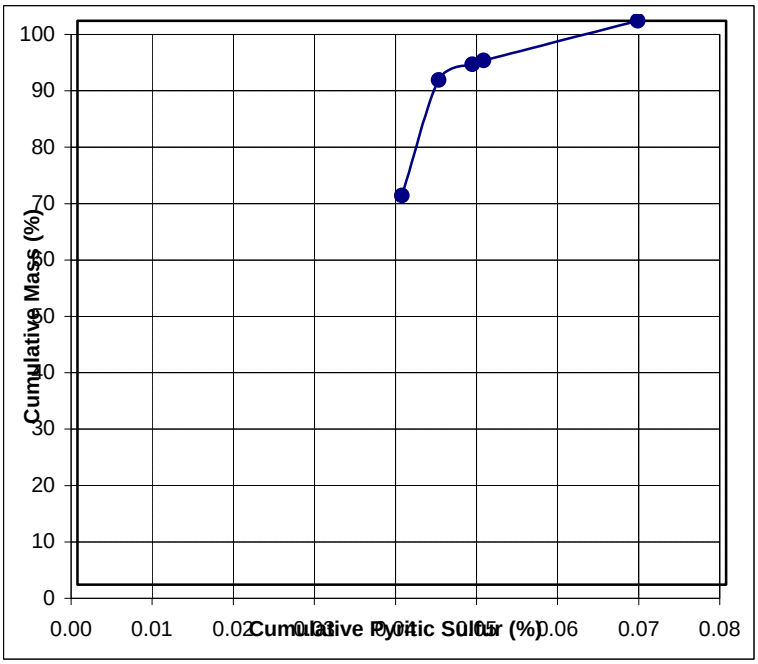
	Individual				
	Mass (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	21.10	19.41	0.51	0.03	11920
Concentration 02	21.42	24.80	0.45	0.04	11021
Concentration 03	11.44	44.07	0.33	0.05	7810
Concentration 04	8.26	56.66	0.26	0.10	5711
Tails	37.78	77.48	0.13	0.10	2240
	100.00	48.40	0.31	0.07	7088

	Cumulative Float				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	21.10	19.41	0.51	0.03	11920
Concentration 02	42.53	22.13	0.48	0.04	11467
Concentration 03	53.97	26.78	0.45	0.04	10692
Concentration 04	62.22	30.74	0.42	0.05	10031
Tails	100.00	48.40	0.31	0.07	7088

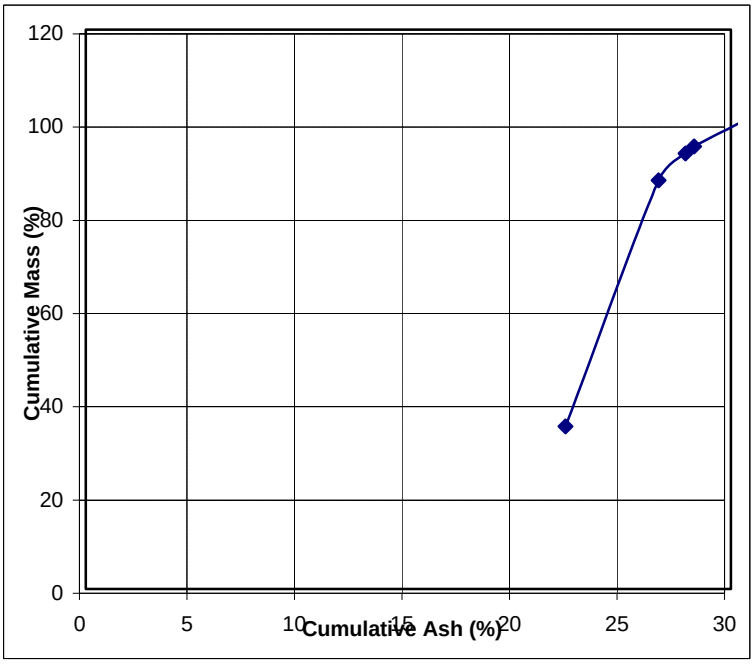
	Cumulative Sink				
	Weight (%)	Ash (%)	Sulfur (%)	Pyritic (%)	Heat (Btu/lb)
Concentration 01	100.00	48.40	0.31	0.07	7088
Concentration 02	78.90	56.15	0.26	0.08	5796
Concentration 03	57.47	67.84	0.19	0.09	3848
Concentration 04	46.03	73.74	0.15	0.10	2863
Tails	37.78	77.48	0.13	0.10	2240

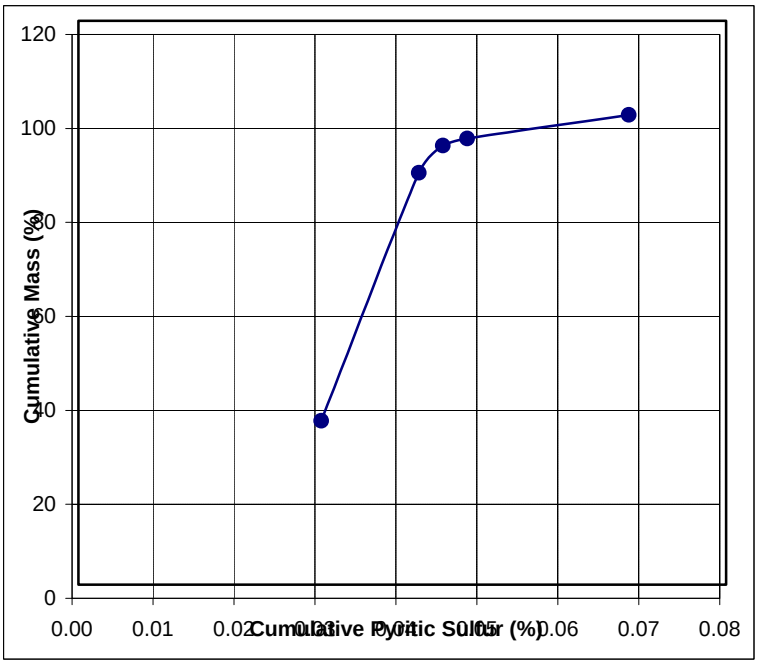
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68



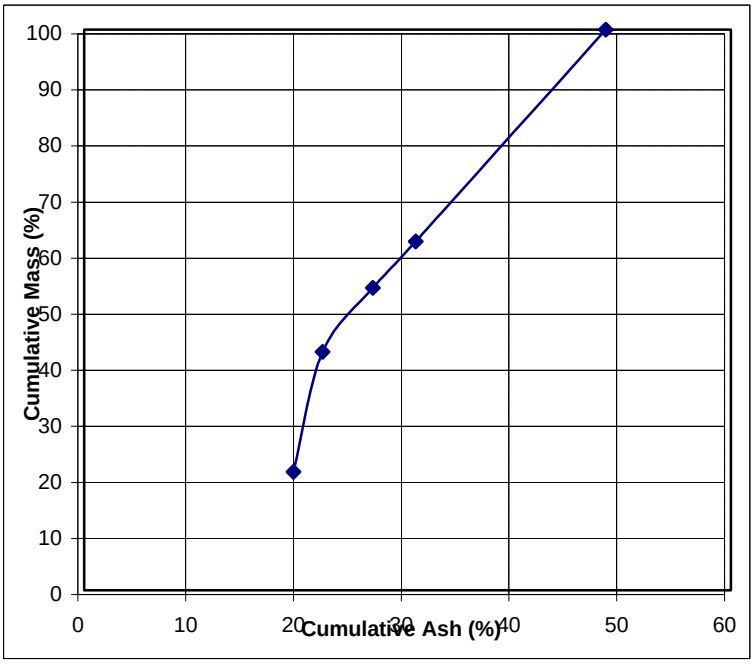


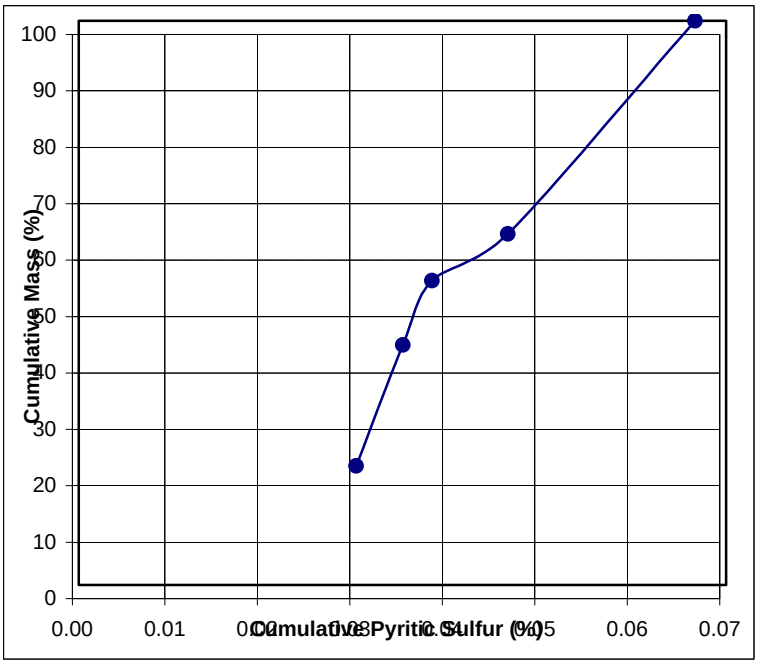
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13





Seam: Coalburg
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.21





APPENDIX XIII

PITTSBURGH NO. 8 RELEASE ANALYSIS TRACE ELEMENT DATA AND CURVES

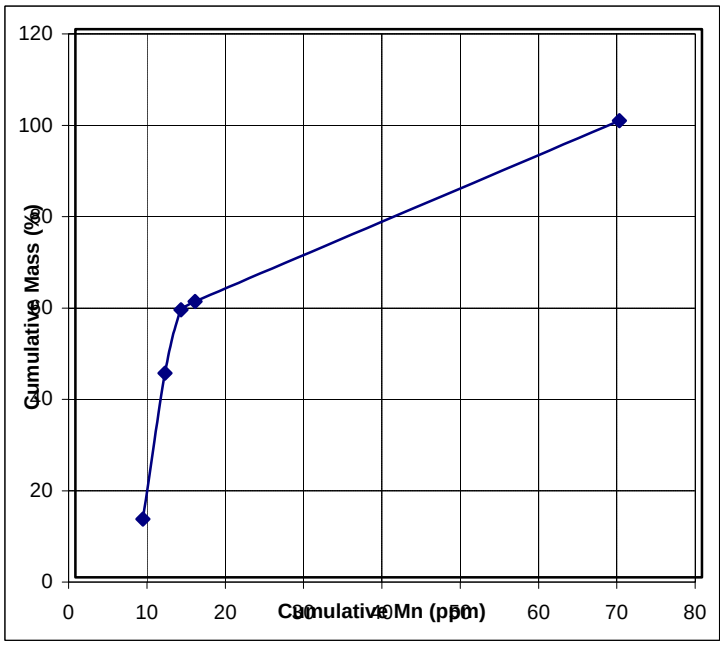
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85

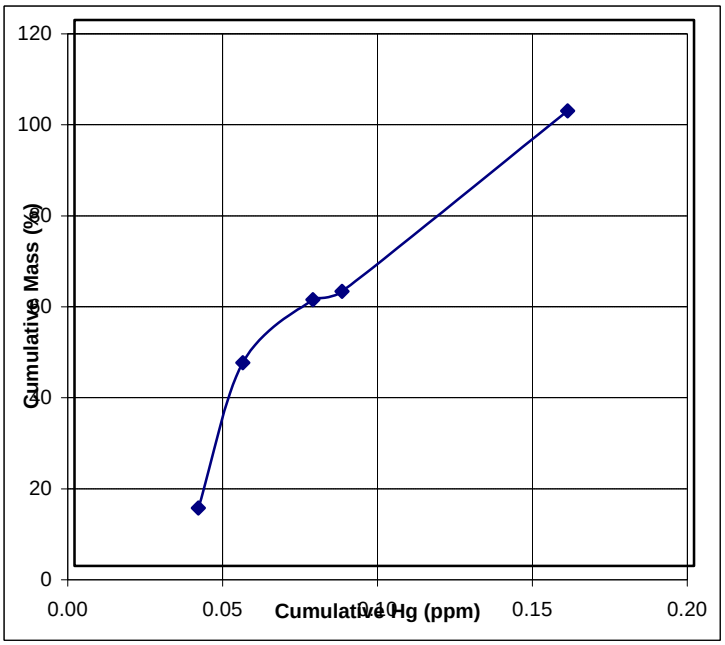
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	12.75	8.63	0.04	7.30	
Concentration 02	31.93	12.59	0.06	9.01	
Concentration 03	13.87	20.08	0.15	10.76	
Concentration 04	1.82	72.84	0.39	23.69	
Tails	39.63	151.93	0.27	24.93	
	100.00	69.44	0.16	15.61	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	12.75	8.63	0.04	7.30	0.00
Concentration 02	44.68	11.46	0.05	8.52	0.00
Concentration 03	58.55	13.50	0.08	9.05	0.00
Concentration 04	60.37	15.29	0.09	9.49	0.00
Tails	100.00	69.44	0.16	15.61	0.00

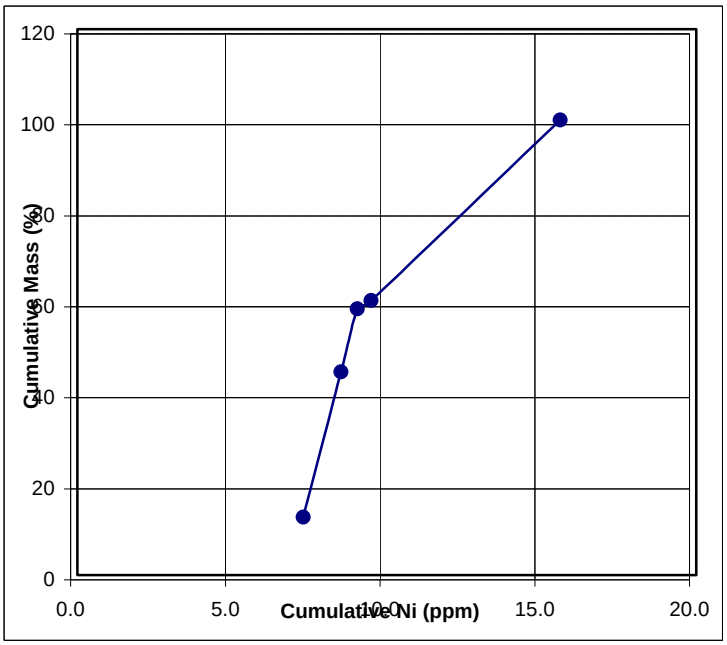
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	69.44	0.16	15.61	0.00
Concentration 02	87.25	78.32	0.18	16.82	0.00
Concentration 03	55.32	116.27	0.24	21.33	0.00
Concentration 04	41.45	148.45	0.28	24.87	0.00
Tails	39.63	151.93	0.27	24.93	0.00

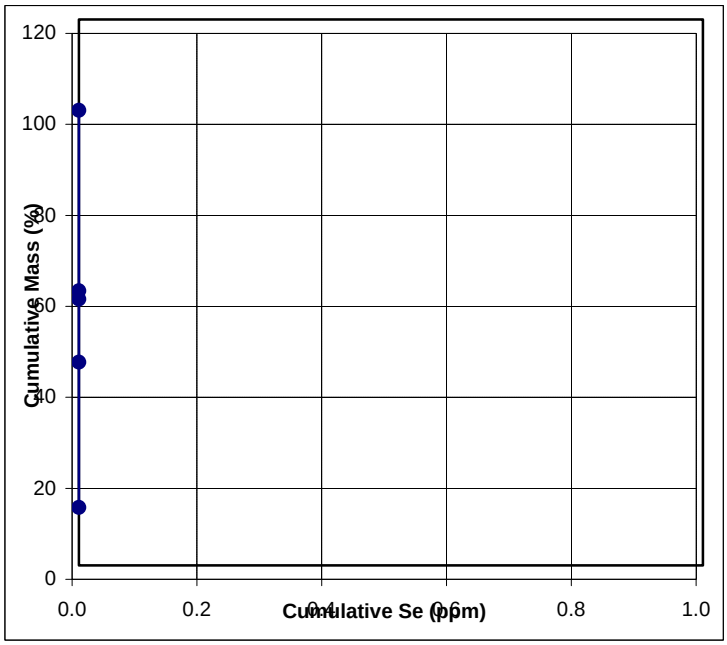
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85





Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.85





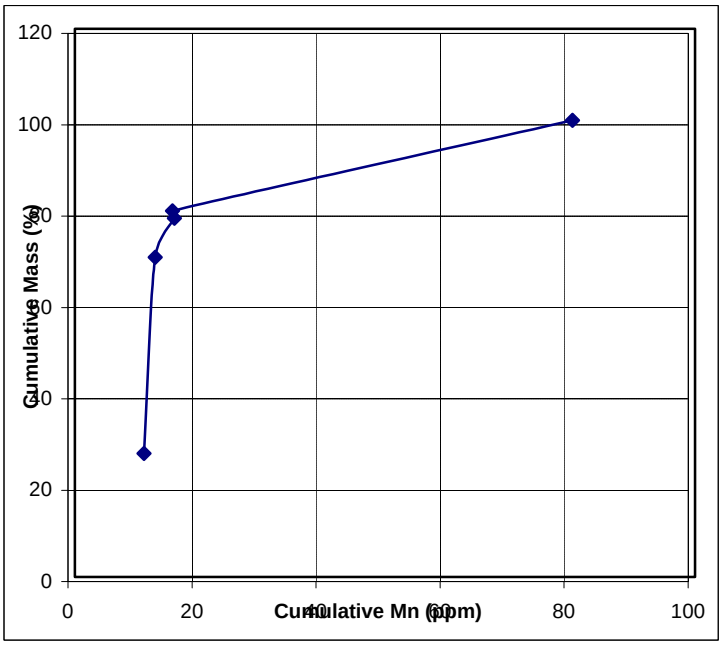
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19

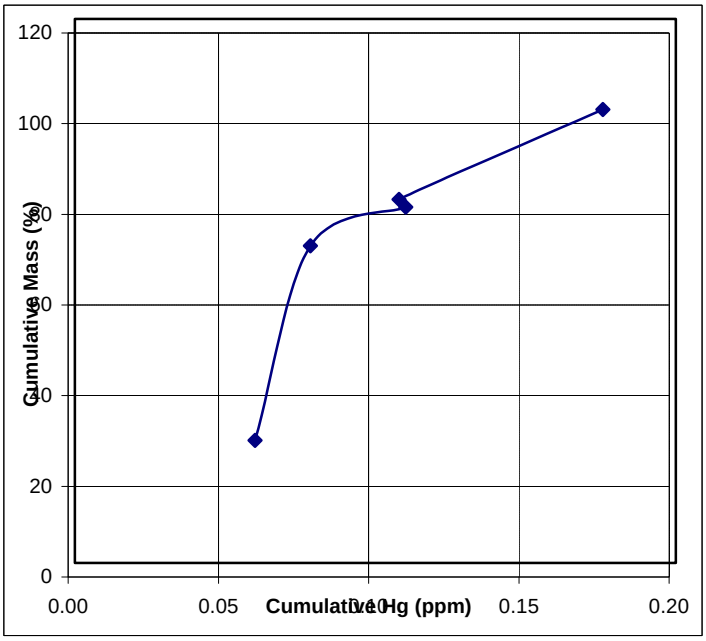
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	27.06	11.13	0.06	7.16	
Concentration 02	42.89	14.08	0.09	7.60	
Concentration 03	8.55	41.54	0.37	15.89	
Concentration 04	1.67				
Tails	19.83	341.08	0.45	57.35	
	100.00	80.24	0.18	17.93	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	27.06	11.13	0.06	7.16	0.00
Concentration 02	69.95	12.94	0.08	7.43	0.00
Concentration 03	78.50	16.06	0.11	8.35	0.00
Concentration 04	80.17	15.72	0.11	8.18	0.00
Tails	100.00	80.24	0.18	17.93	0.00

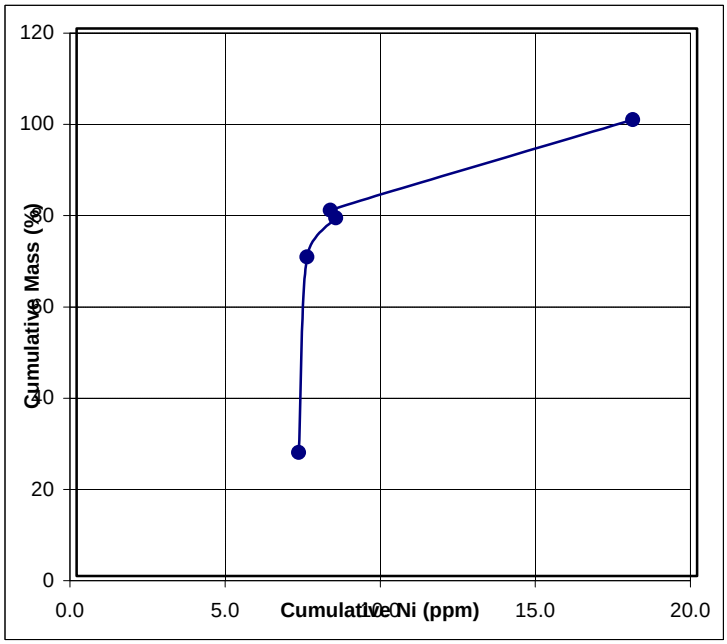
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	80.24	0.18	17.93	0.00
Concentration 02	72.94	105.88	0.22	21.92	0.00
Concentration 03	30.05	236.90	0.40	42.37	0.00
Concentration 04	21.50	314.59	0.42	52.90	0.00
Tails	19.83	341.08	0.45	57.35	0.00

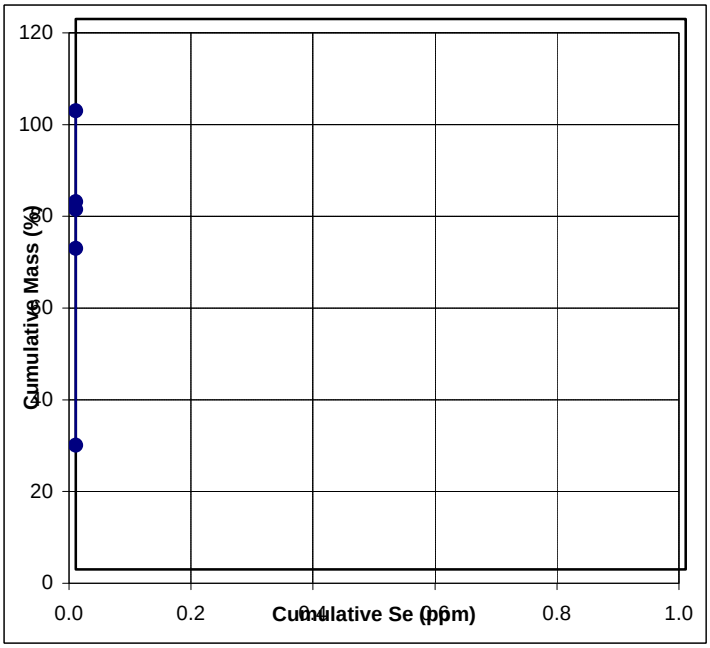
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19





Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.19





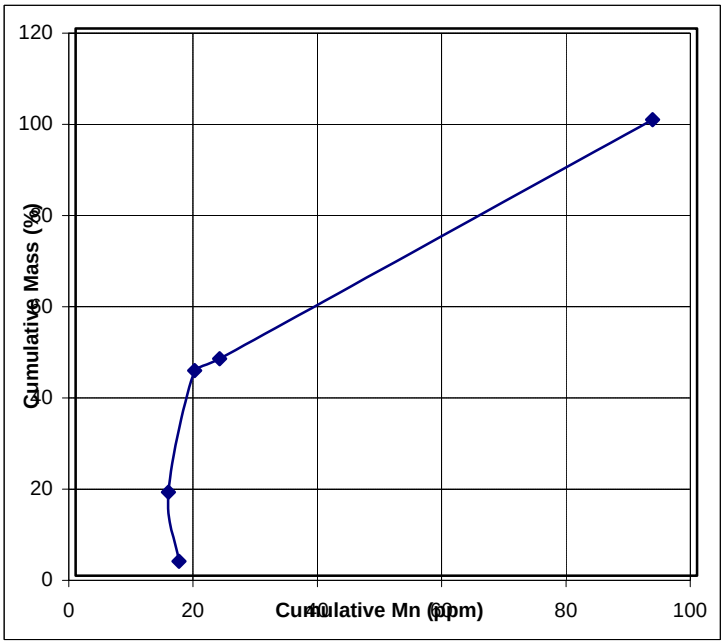
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 2.00

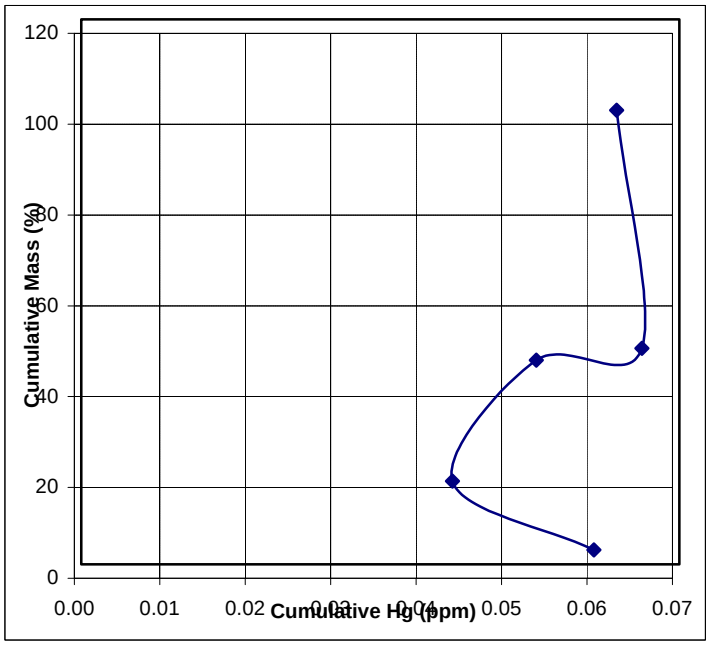
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	3.15	16.63	0.06	10.39	
Concentration 02	15.17	14.55	0.04	9.11	
Concentration 03	26.64	22.06	0.06	13.91	
Concentration 04	2.59	93.42	0.28	28.60	
Tails	52.45	155.96	0.06	60.00	
	100.00	92.83	0.06	37.63	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	3.15	16.63	0.06	10.39	0.00
Concentration 02	18.32	14.91	0.04	9.33	0.00
Concentration 03	44.96	19.15	0.05	12.04	0.00
Concentration 04	47.55	23.19	0.07	12.95	0.00
Tails	100.00	92.83	0.06	37.63	0.00

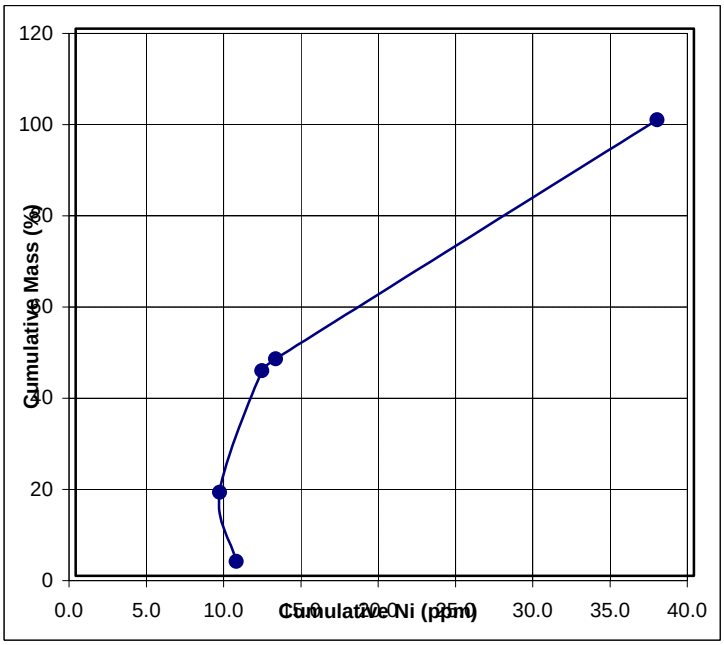
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	92.83	0.06	37.63	0.00
Concentration 02	96.85	95.31	0.06	38.51	0.00
Concentration 03	81.68	110.31	0.07	43.97	0.00
Concentration 04	55.04	153.02	0.07	58.52	0.00
Tails	52.45	155.96	0.06	60.00	0.00

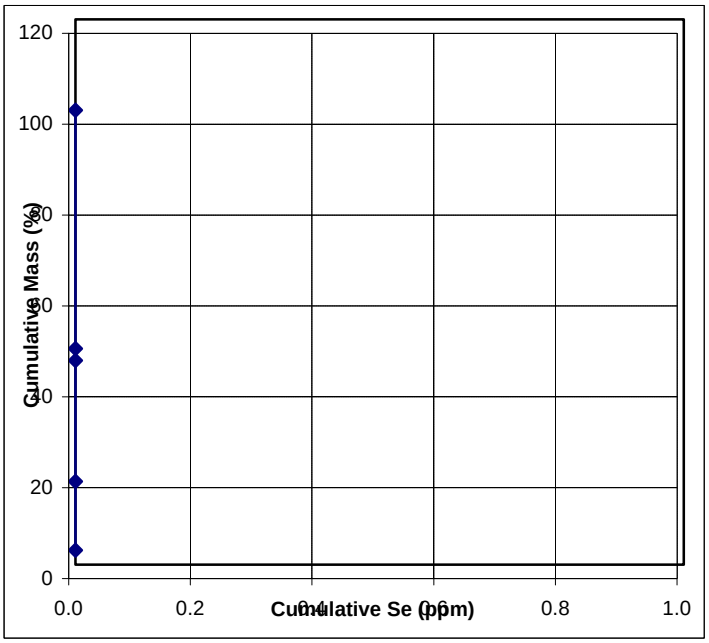
Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 2.00





Seam: Pittsburgh No. 8
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 2.00





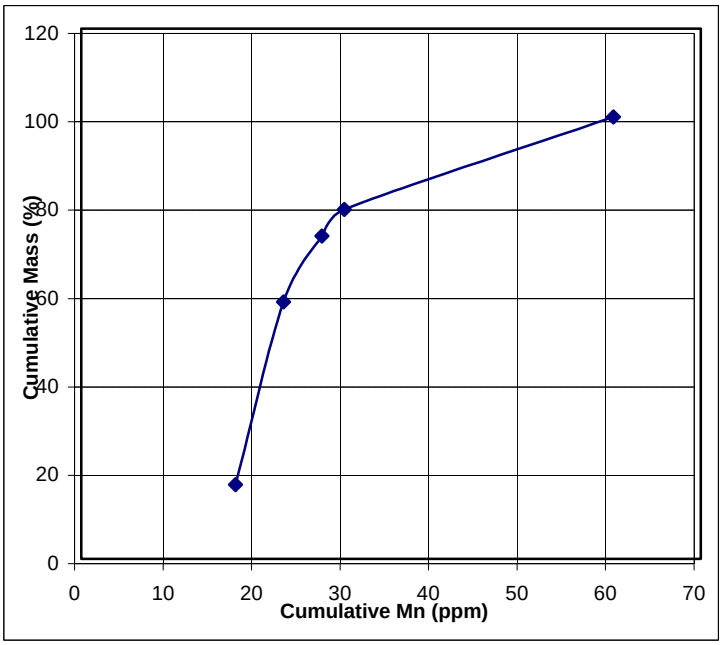
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.40

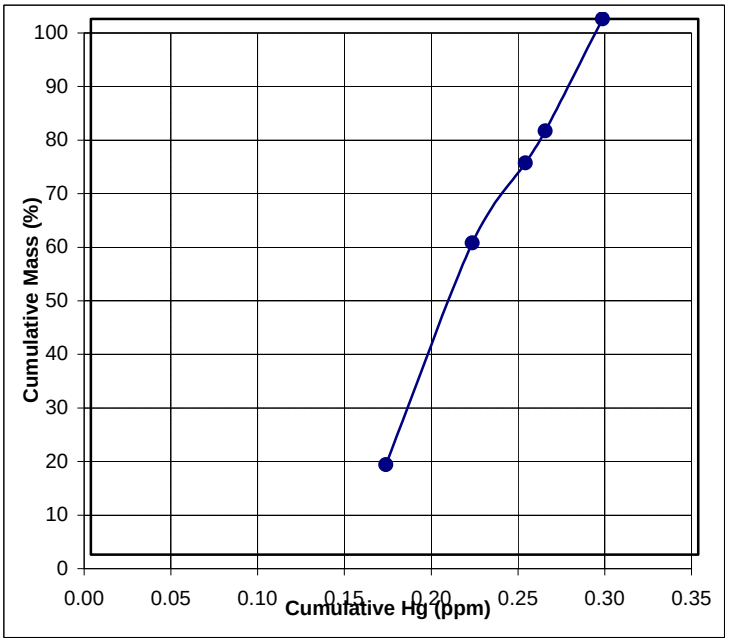
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	16.78	17.42	0.17	10.98	
Concentration 02	41.38	25.04	0.24	12.66	
Concentration 03	14.94	44.11	0.37	17.68	
Concentration 04	5.98	60.49	0.40	17.79	
Tails	20.92	175.10	0.42	28.57	
	100.00	60.12	0.29	16.76	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	16.78	17.42	0.17	10.98	0.00
Concentration 02	58.16	22.84	0.22	12.18	0.00
Concentration 03	73.10	27.19	0.25	13.30	0.00
Concentration 04	79.08	29.70	0.26	13.64	0.00
Tails	100.00	60.12	0.29	16.76	0.00

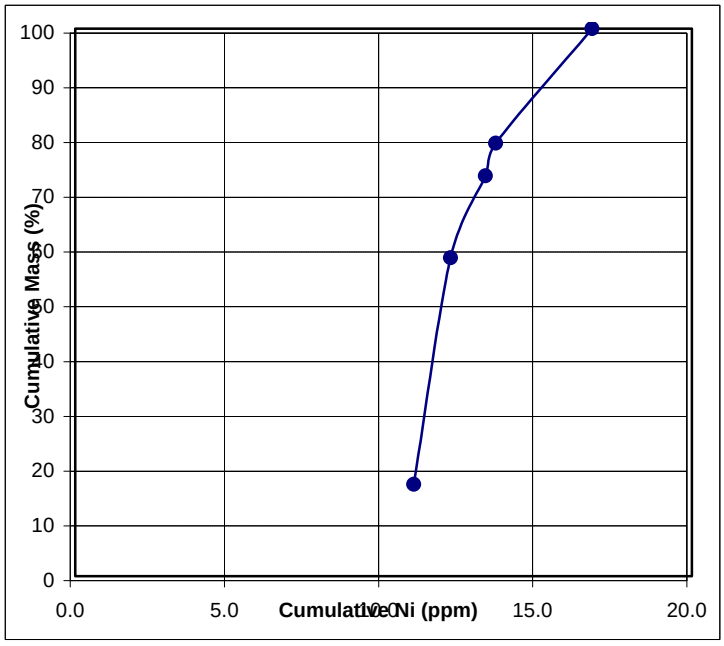
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	60.12	0.29	16.76	0.00
Concentration 02	83.22	68.73	0.32	17.93	0.00
Concentration 03	41.84	111.94	0.40	23.14	0.00
Concentration 04	26.90	149.62	0.42	26.17	0.00
Tails	20.92	175.10	0.42	28.57	0.00

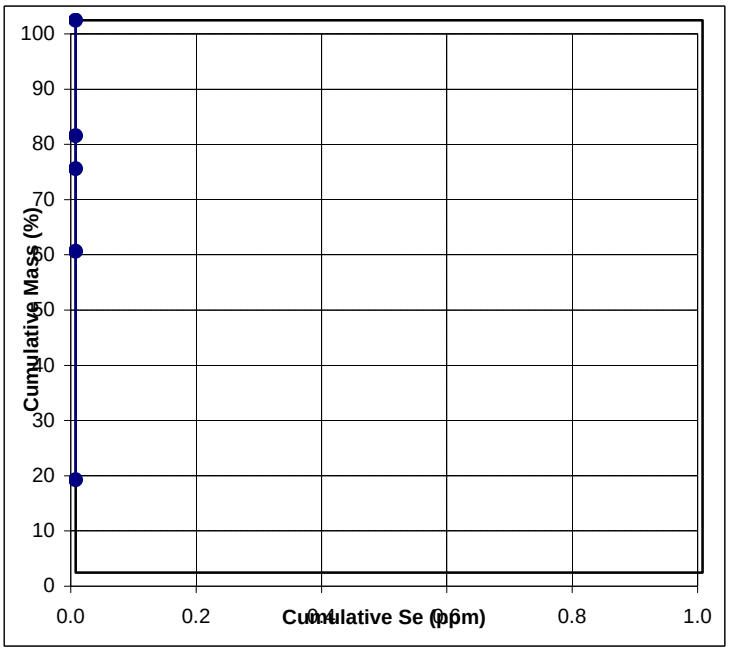
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.40





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.40





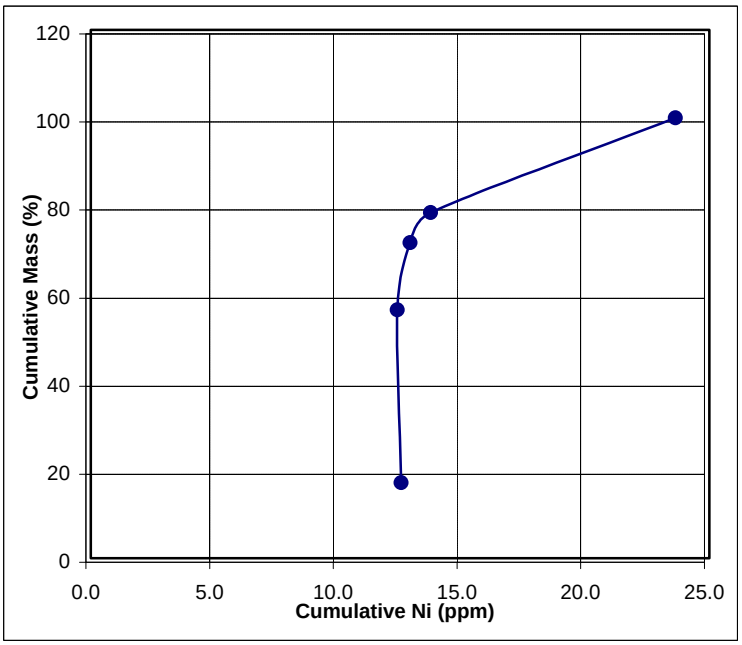
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.12

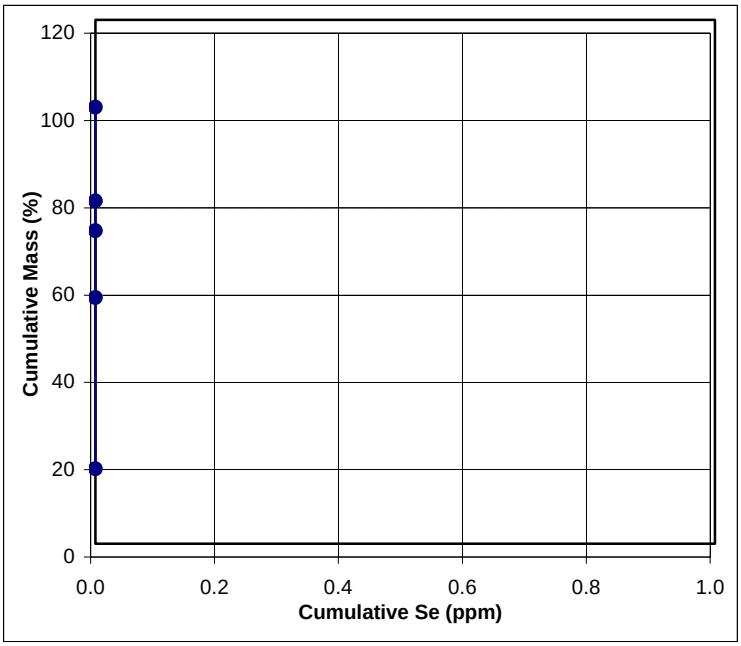
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	17.15	28.16	0.15	12.55	
Concentration 02	39.25	31.40	0.16	12.32	
Concentration 03	15.29	47.66	0.26	14.81	
Concentration 04	6.81	93.31	0.52	22.49	
Tails	21.49	262.89	0.49	59.74	
	100.00	87.30	0.27	23.63	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	17.15	28.16	0.15	12.55	0.00
Concentration 02	56.40	30.41	0.16	12.39	0.00
Concentration 03	71.69	34.09	0.18	12.91	0.00
Concentration 04	78.51	39.23	0.21	13.74	0.00
Tails	100.00	87.30	0.27	23.63	0.00

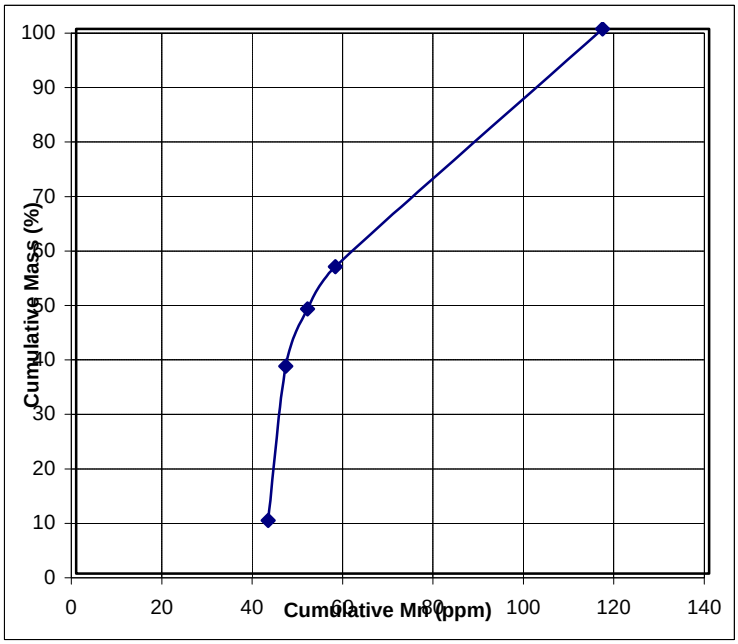
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	87.30	0.27	23.63	0.00
Concentration 02	82.85	99.54	0.29	25.92	0.00
Concentration 03	43.60	160.88	0.41	38.16	0.00
Concentration 04	28.31	222.05	0.50	50.77	0.00
Tails	21.49	262.87	0.49	59.74	0.00

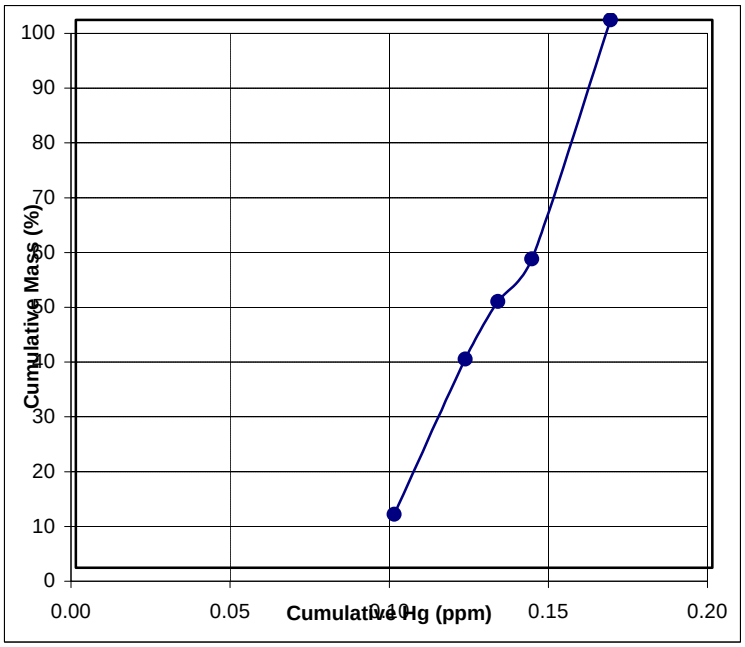
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.12





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.12





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.12

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	9.74	42.46	0.10	12.95	
Concentration 02	28.35	47.72	0.13	14.71	
Concentration 03	10.52	68.52	0.17	18.05	
Concentration 04	7.73	96.08	0.21	22.22	
Tails	43.66	192.66	0.20	66.54	
	100.00	116.41	0.17	38.10	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	9.74	42.46	0.10	12.95	0.00
Concentration 02	38.09	46.37	0.12	14.26	0.00
Concentration 03	48.61	51.16	0.13	15.08	0.00
Concentration 04	56.34	57.33	0.14	16.06	0.00
Tails	100.00	116.41	0.17	38.10	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	116.41	0.17	38.10	0.00
Concentration 02	90.26	124.39	0.18	40.81	0.00
Concentration 03	61.91	159.51	0.20	52.76	0.00
Concentration 04	51.39	178.13	0.20	59.87	0.00
Tails	43.66	192.66	0.20	66.54	0.00

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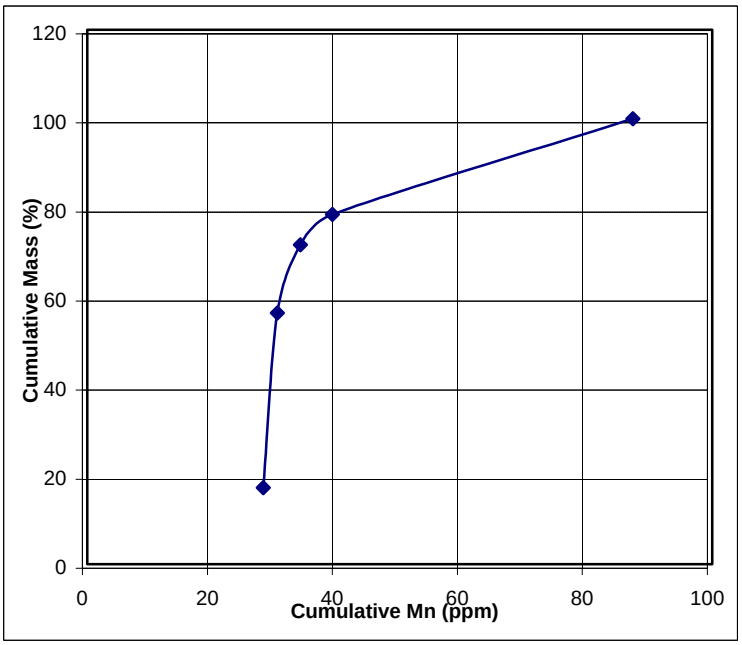
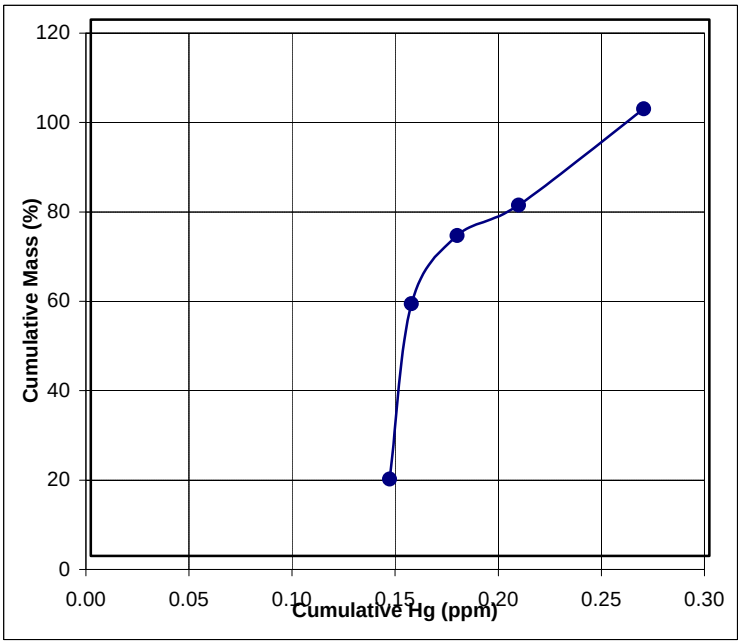
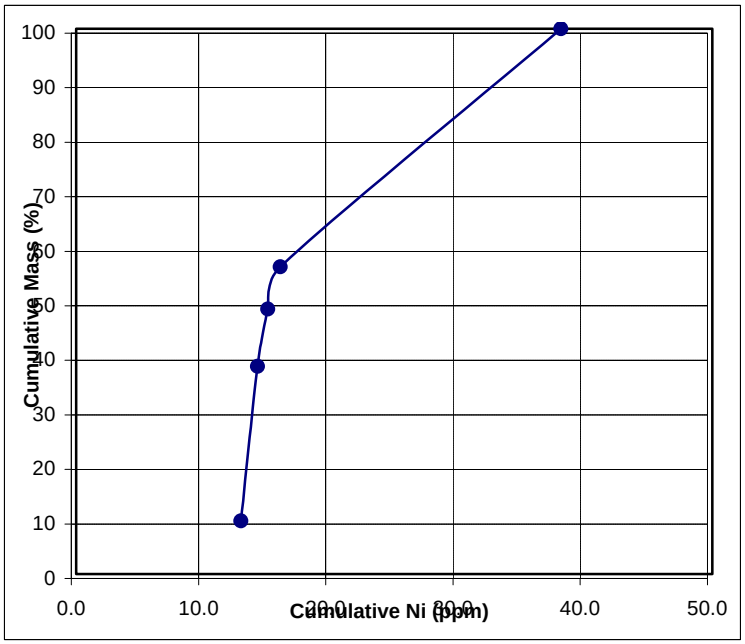
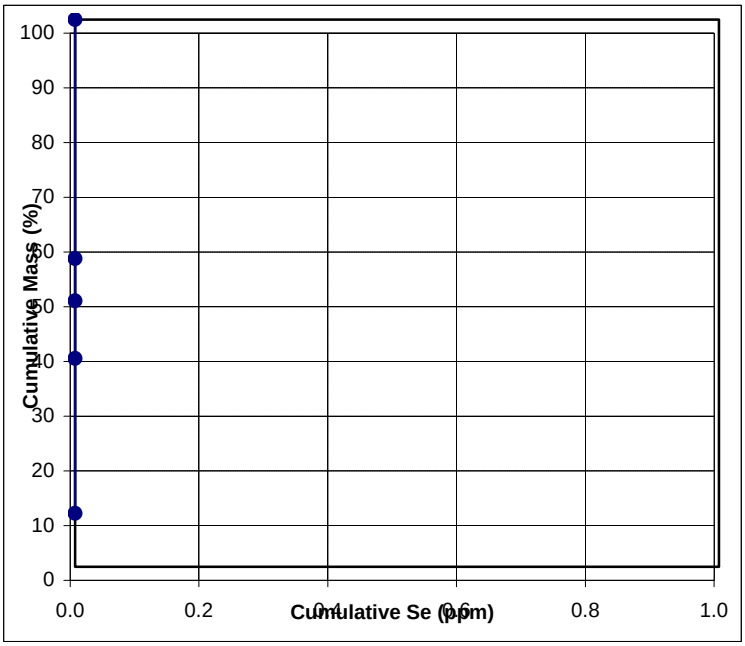
Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.12





Seam: Pittsburgh No. 8
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.12





APPENDIX XIV

ILLINOIS NO. 6 RELEASE ANALYSIS TRACE ELEMENT DATA AND CURVES

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	24.87	34.85	0.07	20.28	
Concentration 02	48.19	41.44	0.06	19.84	
Concentration 03	6.22	57.72	0.08	22.97	
Concentration 04	0.52				
Tails	20.21	461.37	0.07	56.12	
	100.00	125.46	0.07	27.37	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	24.87	34.85	0.07	20.28	0.00
Concentration 02	73.06	39.20	0.06	19.99	0.00
Concentration 03	79.27	40.65	0.06	20.22	0.00
Concentration 04	79.79	40.39	0.06	20.09	0.00
Tails	100.00	125.46	0.07	27.37	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	125.46	0.07	27.37	0.00
Concentration 02	75.13	155.45	0.06	29.72	0.00
Concentration 03	26.94	359.34	0.07	47.39	0.00
Concentration 04	20.73	449.83	0.07	54.71	0.00
Tails	20.21	461.37	0.07	56.12	0.00

Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	24.42	53.17	0.10	23.10	
Concentration 02	30.13		0.09		
Concentration 03	12.99	63.94	0.11	26.45	
Concentration 04	0.78				
Tails	31.69	442.22	0.08	57.12	
	100.00	161.42	0.09	27.17	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	24.42	53.17	0.10	23.10	0.00
Concentration 02	54.55	23.80	0.09	10.34	0.00
Concentration 03	67.53	31.52	0.10	13.44	0.00
Concentration 04	68.31	31.16	0.10	13.28	0.00
Tails	100.00	161.42	0.09	27.17	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	161.42	0.09	27.17	0.00
Concentration 02	75.58	196.39	0.09	28.49	0.00
Concentration 03	45.45	326.56	0.09	47.38	0.00
Concentration 04	32.47	431.61	0.08	55.75	0.00
Tails	31.69	442.22	0.08	57.12	0.00

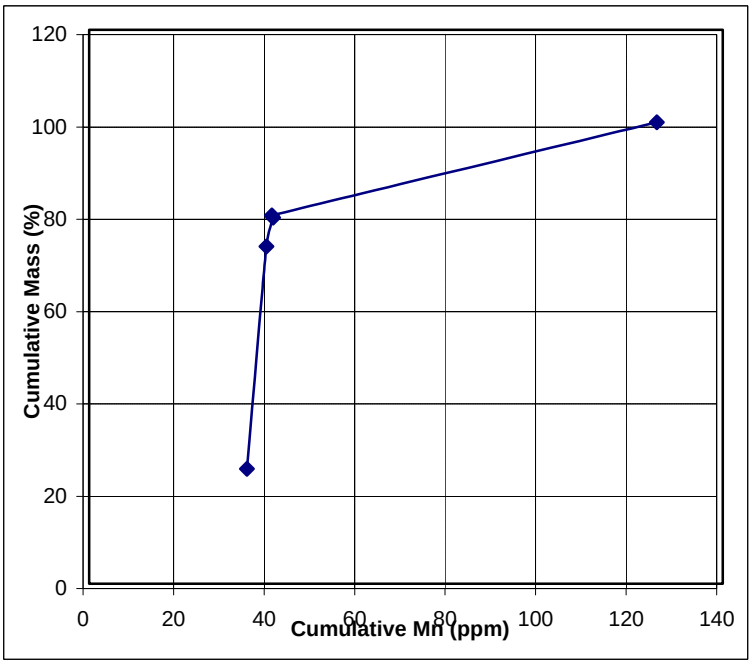
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 3.73

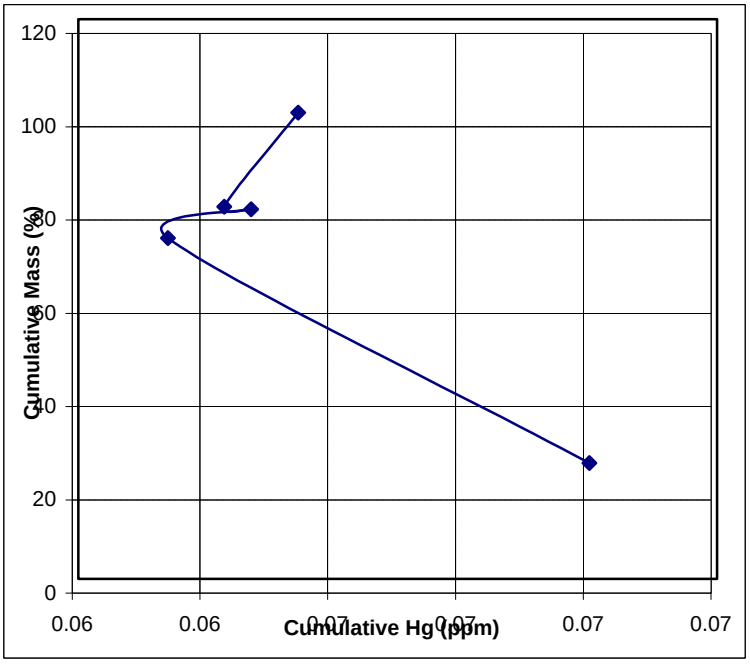
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	9.11	32.70	0.07	16.64	
Concentration 02	8.38	36.58	0.07	16.94	
Concentration 03	1.95	62.60	0.12	24.71	
Concentration 04	2.16	93.99	0.15	38.75	
Tails	78.40	172.26	0.06	43.75	
	100.00	144.35	0.06	38.56	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	9.11	32.70	0.07	16.64	0.00
Concentration 02	17.49	34.56	0.07	16.78	0.00
Concentration 03	19.44	37.37	0.08	17.58	0.00
Concentration 04	21.60	43.03	0.08	19.69	0.00
Tails	100.00	144.35	0.06	38.56	0.00

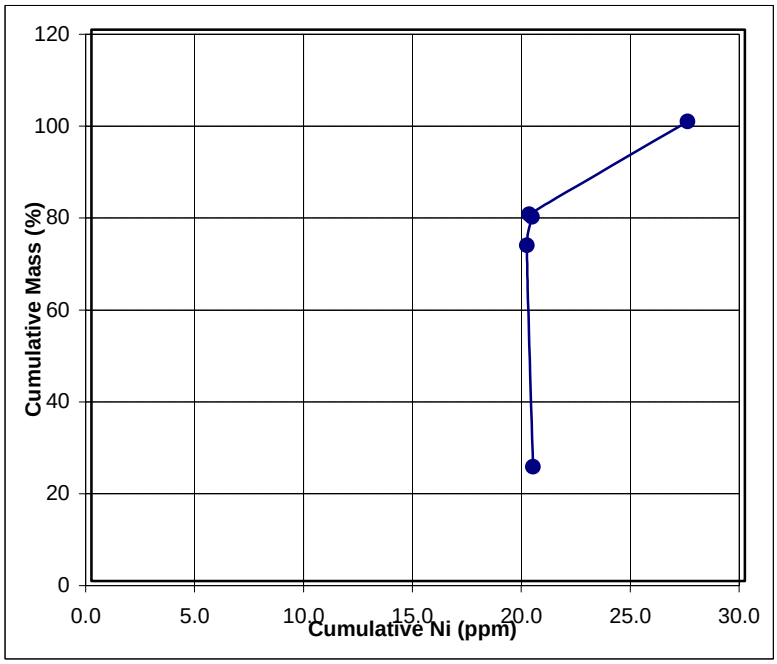
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	144.35	0.06	38.56	0.00
Concentration 02	90.89	155.55	0.06	40.75	0.00
Concentration 03	82.51	167.62	0.06	43.17	0.00
Concentration 04	80.56	170.17	0.06	43.62	0.00
Tails	78.40	172.26	0.06	43.75	0.00

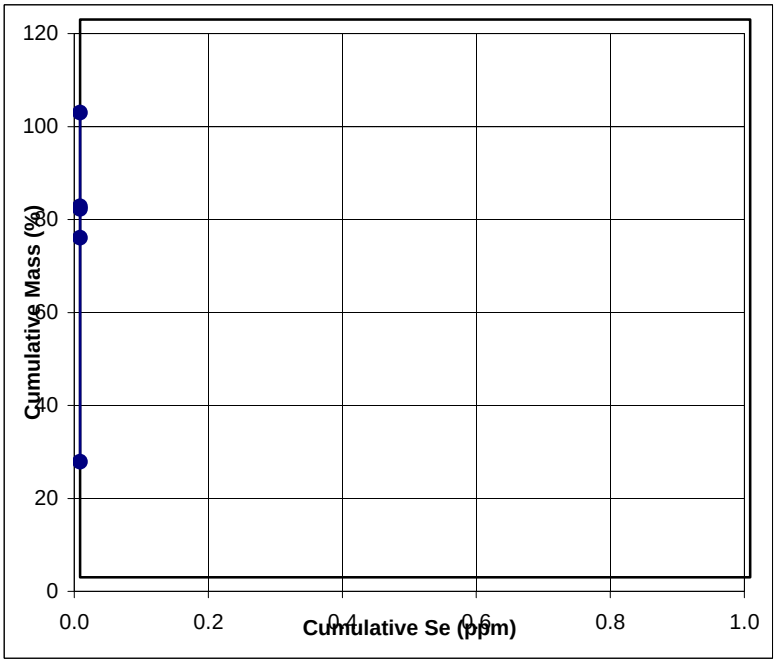
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02



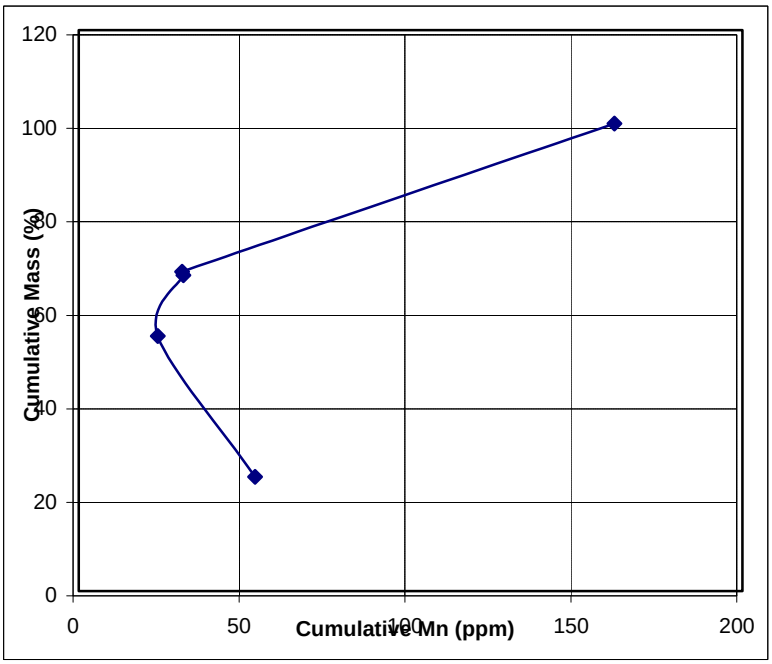


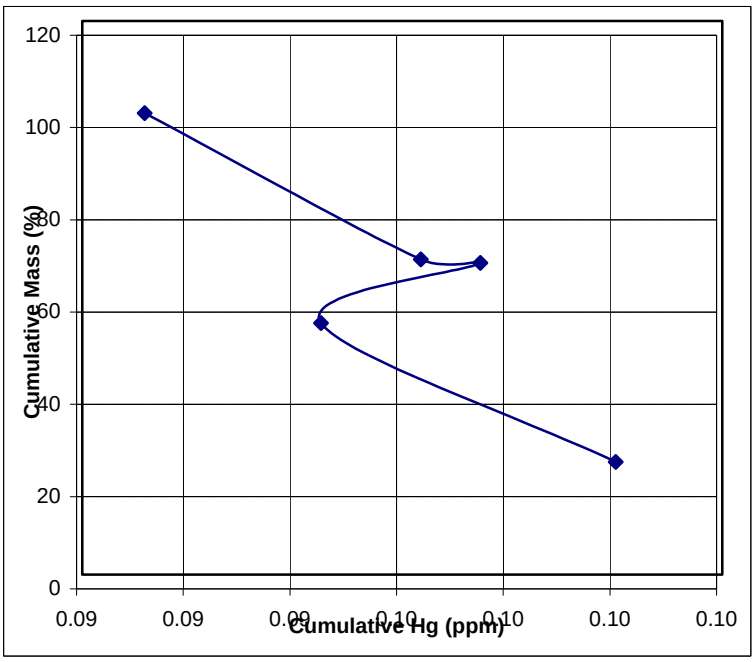
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 5.02



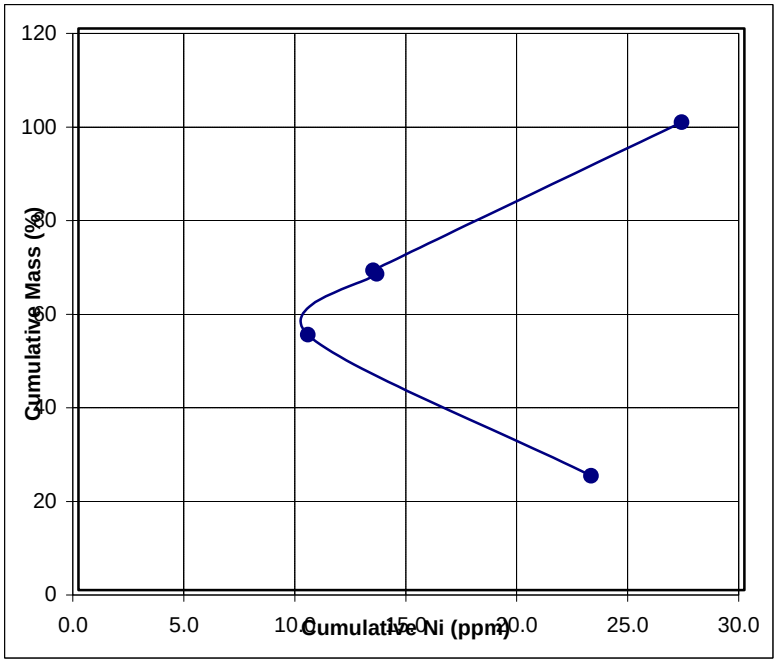


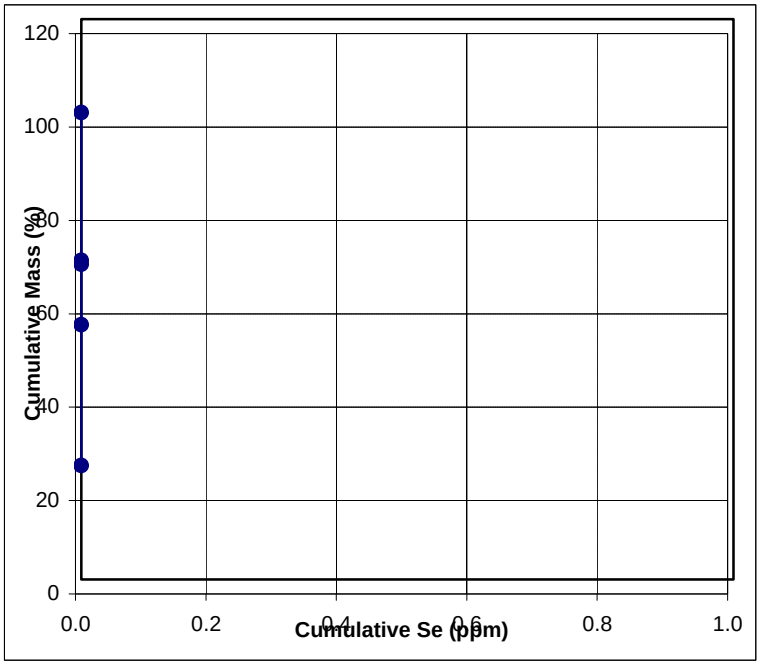
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27



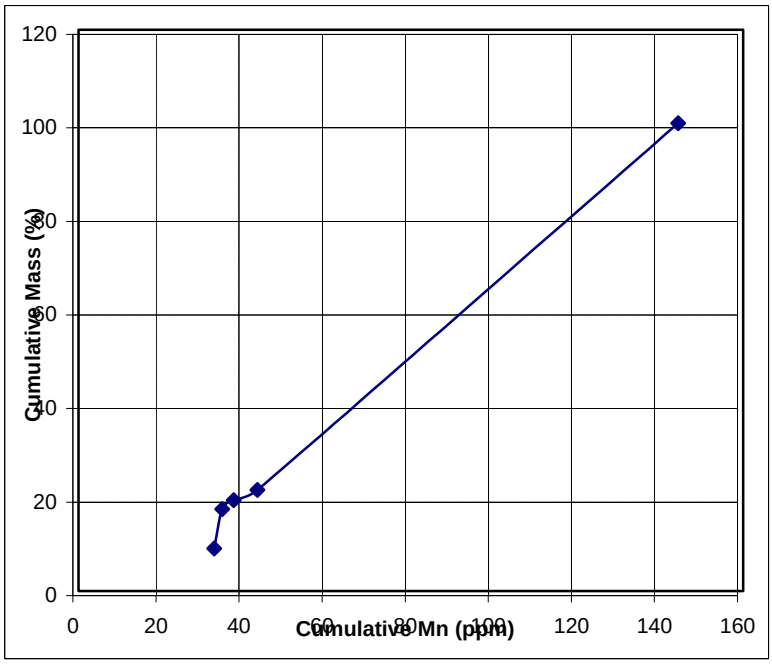


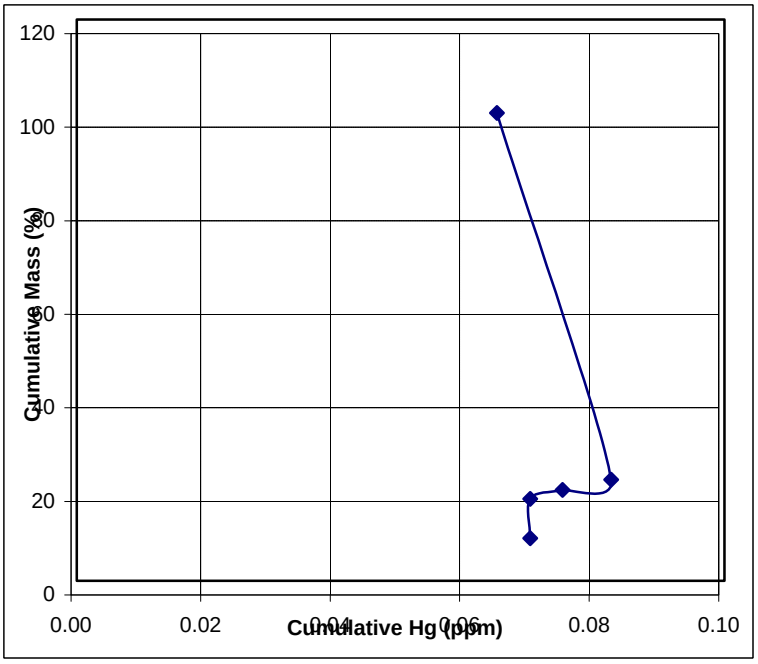
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 1.27



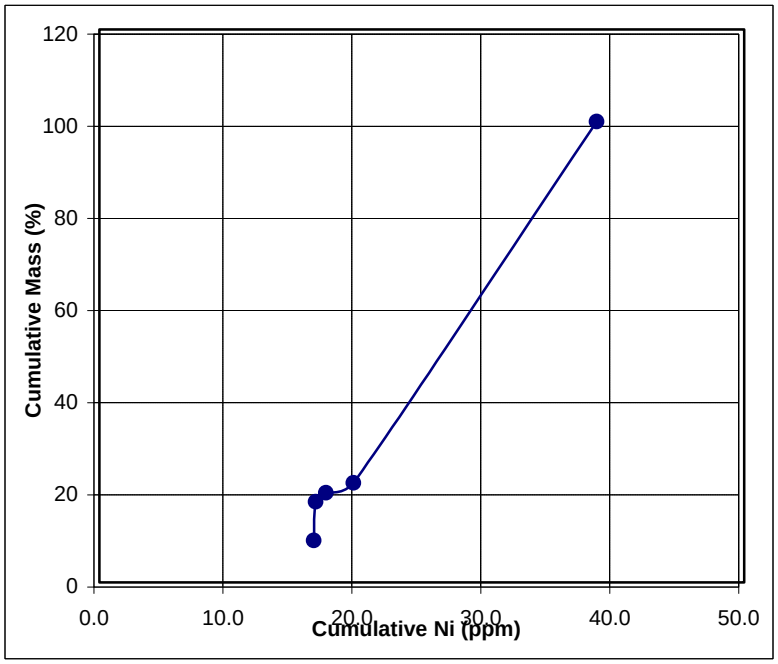


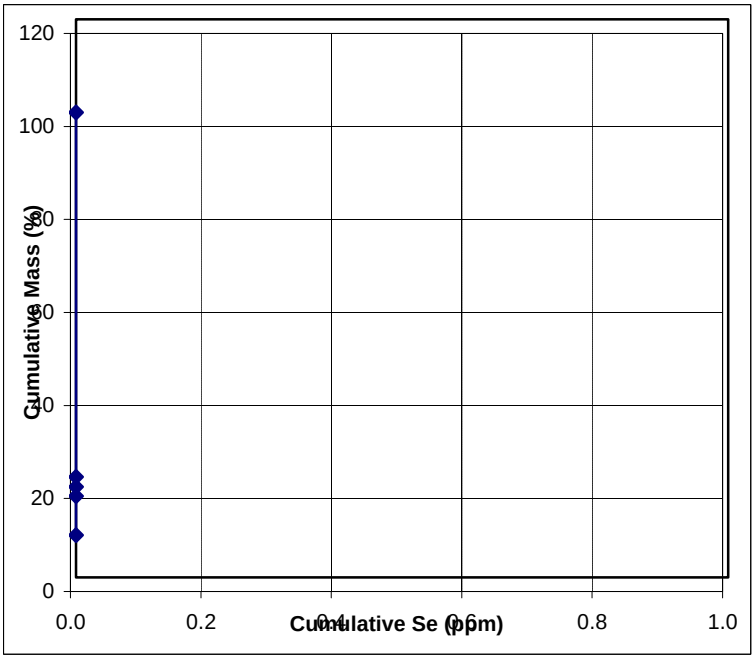
Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 3.73





Seam: Illinois No. 6
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 3.73





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	18.05	29.54	0.10	19.83	
Concentration 02	27.07	51.10	0.12	35.39	
Concentration 03	18.22	66.09	0.12	54.58	
Concentration 04	9.77	116.26	0.17	74.84	
Tails	26.90	585.21	0.23	117.03	
	100.00	199.98	0.15	61.89	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	18.05	29.54	0.10	19.83	0.00
Concentration 02	45.12	42.48	0.11	29.16	0.00
Concentration 03	63.34	49.27	0.11	36.48	0.00
Concentration 04	73.10	58.22	0.12	41.60	0.00
Tails	100.00	199.98	0.15	61.89	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	199.98	0.15	61.89	0.00
Concentration 02	81.95	237.51	0.16	71.15	0.00
Concentration 03	54.88	329.45	0.18	88.79	0.00
Concentration 04	36.66	460.31	0.21	105.79	0.00
Tails	26.90	585.21	0.23	117.03	0.00

Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	34.85	73.44	0.17	38.56	
Concentration 02	31.09	87.81	0.19	52.88	
Concentration 03	7.13	114.71	0.25	72.83	
Concentration 04	1.98				
Tails	24.95	583.45	0.19	79.10	
	100.00	206.64	0.18	54.80	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	34.85	73.44	0.17	38.56	0.00
Concentration 02	65.94	80.21	0.18	45.31	0.00
Concentration 03	73.07	83.58	0.19	47.99	0.00
Concentration 04	75.05	81.37	0.18	46.73	0.00
Tails	100.00	206.64	0.18	54.80	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	206.64	0.18	54.80	0.00
Concentration 02	65.15	277.90	0.19	63.49	0.00
Concentration 03	34.06	451.42	0.19	73.19	0.00
Concentration 04	26.93	540.55	0.18	73.28	0.00
Tails	24.95	583.45	0.19	79.10	0.00

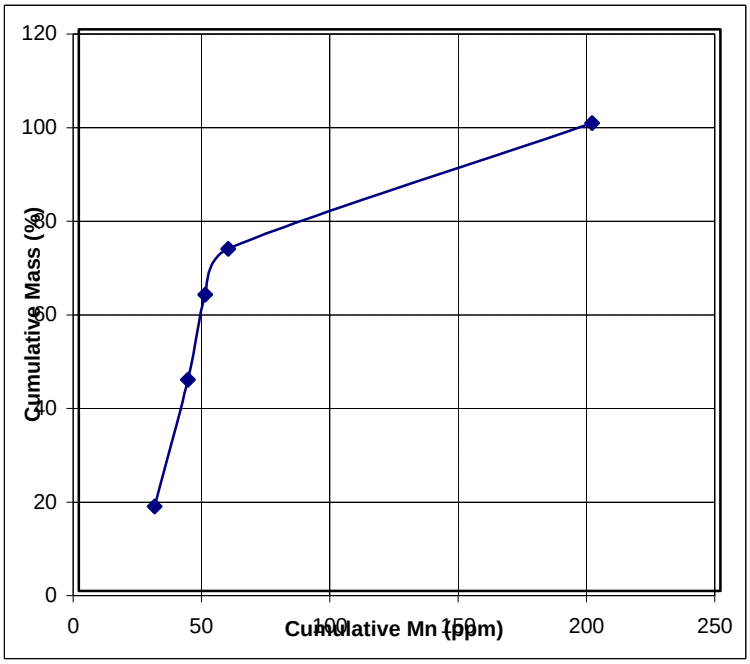
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.07

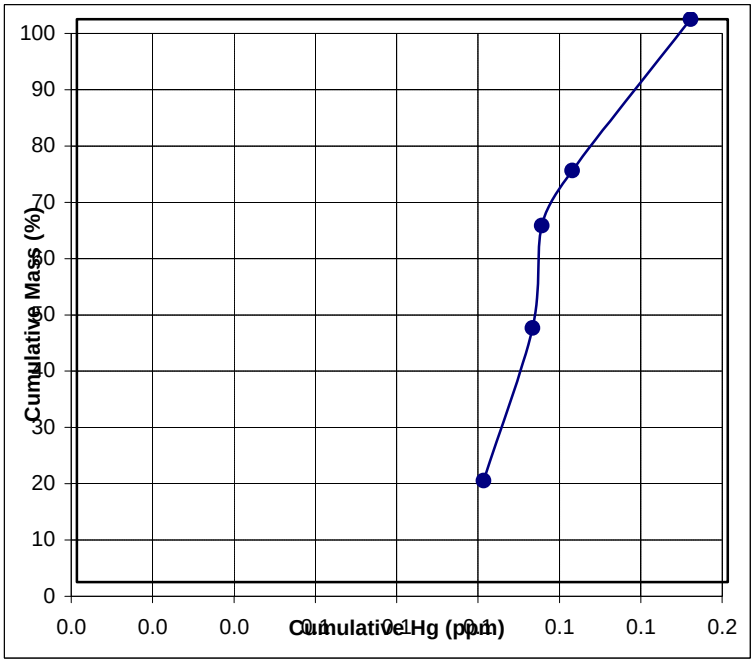
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	7.47	80.07	0.17	31.60	
Concentration 02	11.76	86.74		42.19	
Concentration 03	3.73	107.14	0.20	64.00	
Concentration 04	2.62	190.16	0.35	105.32	
Tails	74.42	204.02	0.06	68.51	
	100.00	177.00	0.07	63.46	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	7.47	80.07	0.17	31.60	0.00
Concentration 02	19.22	84.15	0.07	38.07	0.00
Concentration 03	22.96	87.89	0.09	42.29	0.00
Concentration 04	25.58	98.38	0.11	48.75	0.00
Tails	100.00	177.00	0.07	63.46	0.00

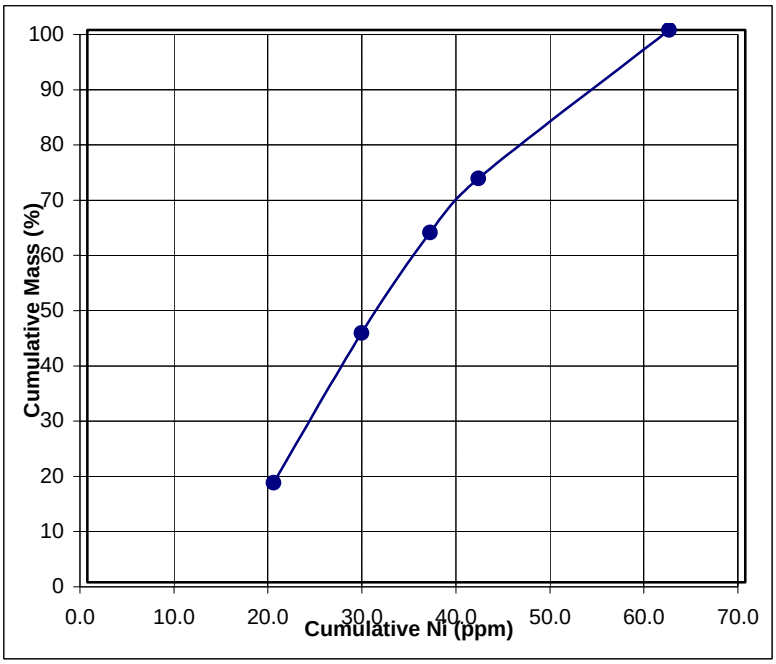
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	177.00	0.07	63.46	0.00
Concentration 02	92.53	184.82	0.07	66.03	0.00
Concentration 03	80.78	199.10	0.08	69.50	0.00
Concentration 04	77.04	203.55	0.07	69.77	0.00
Tails	74.42	204.02	0.06	68.51	0.00

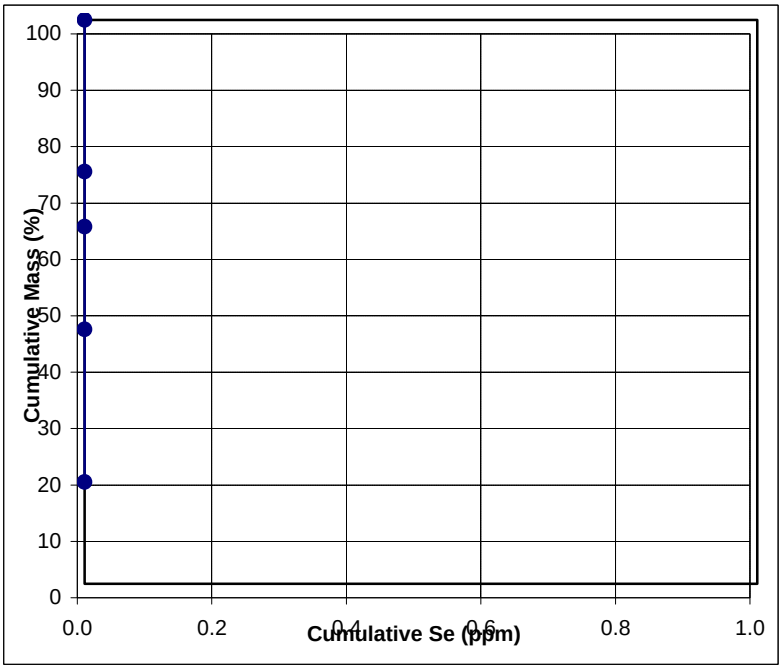
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09



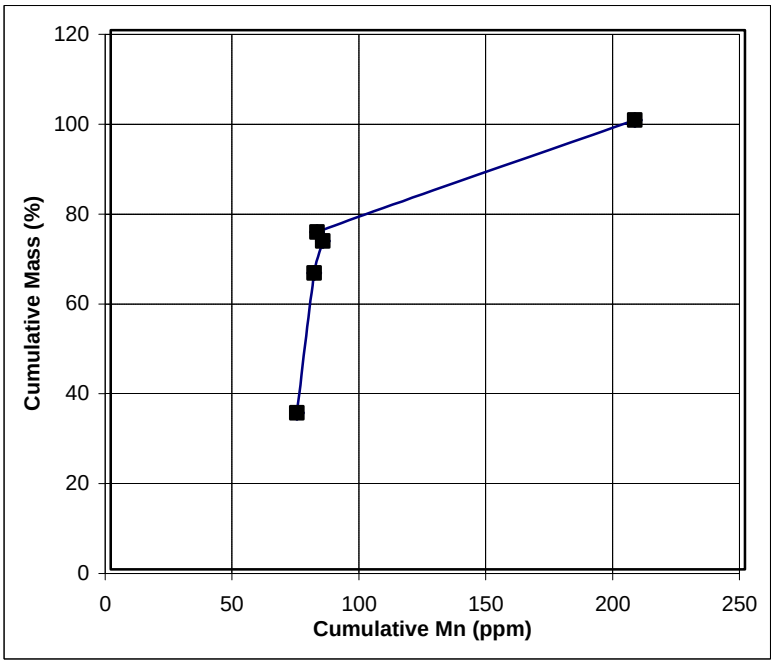


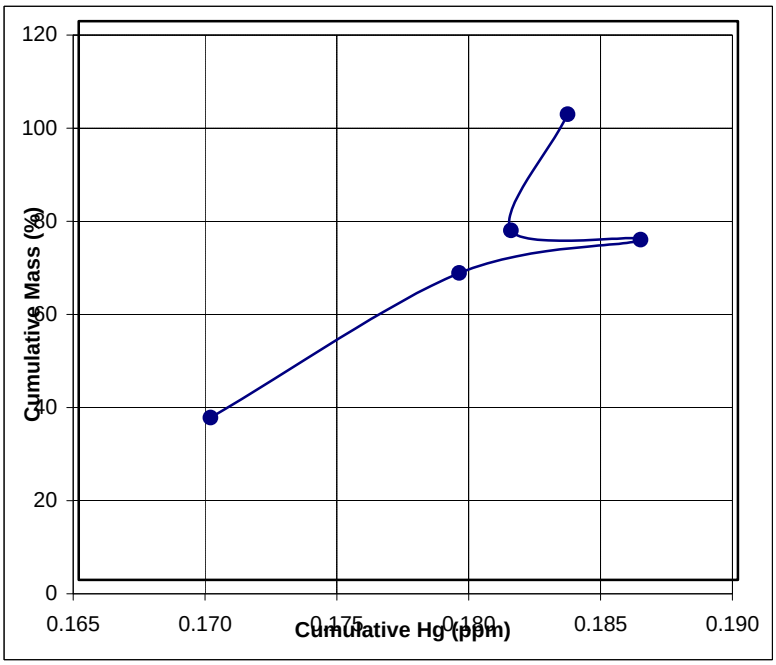
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.09



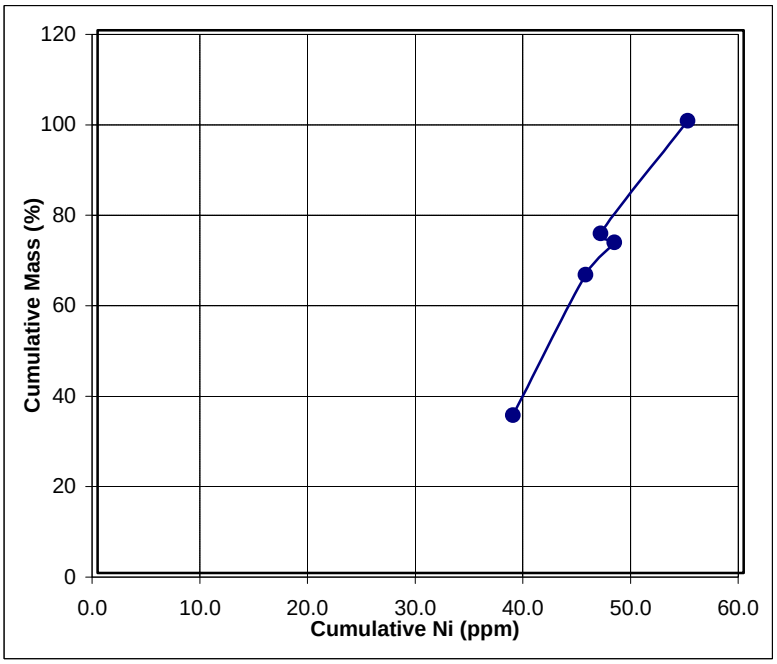


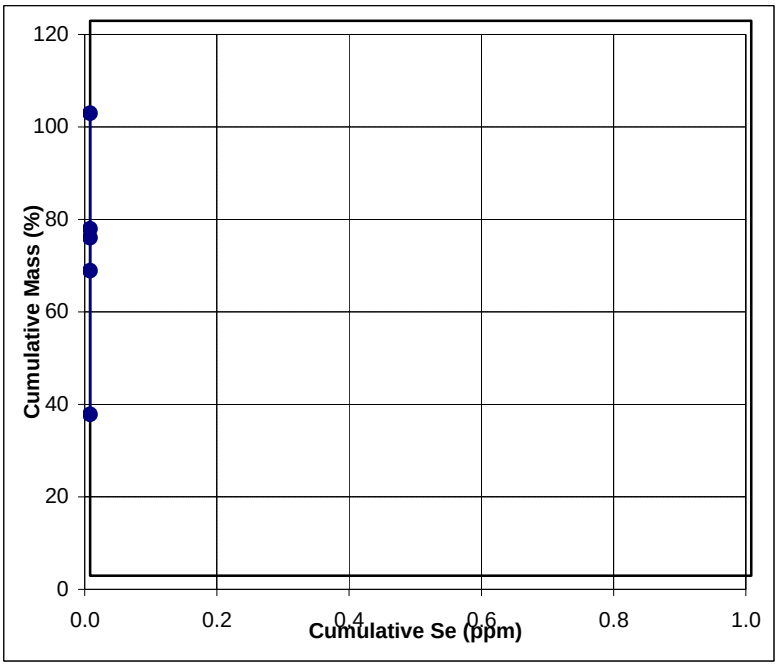
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03



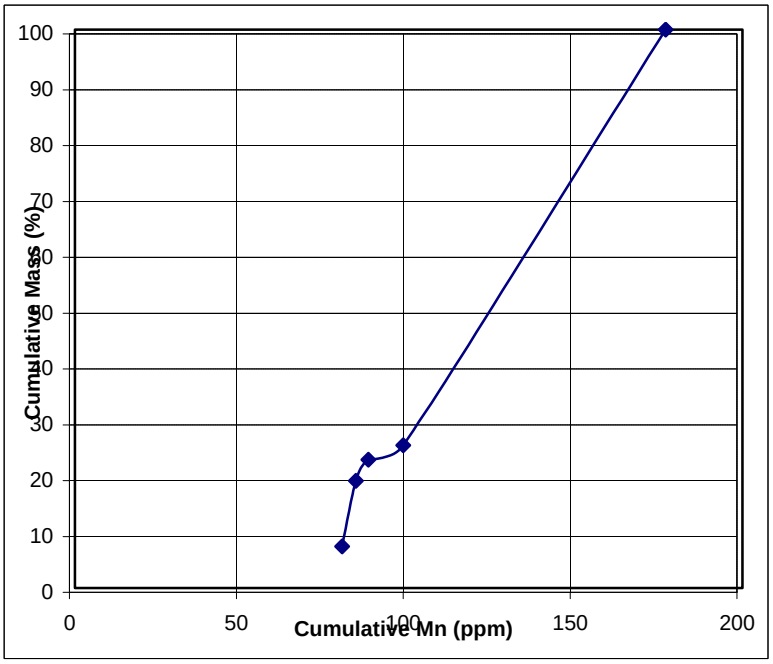


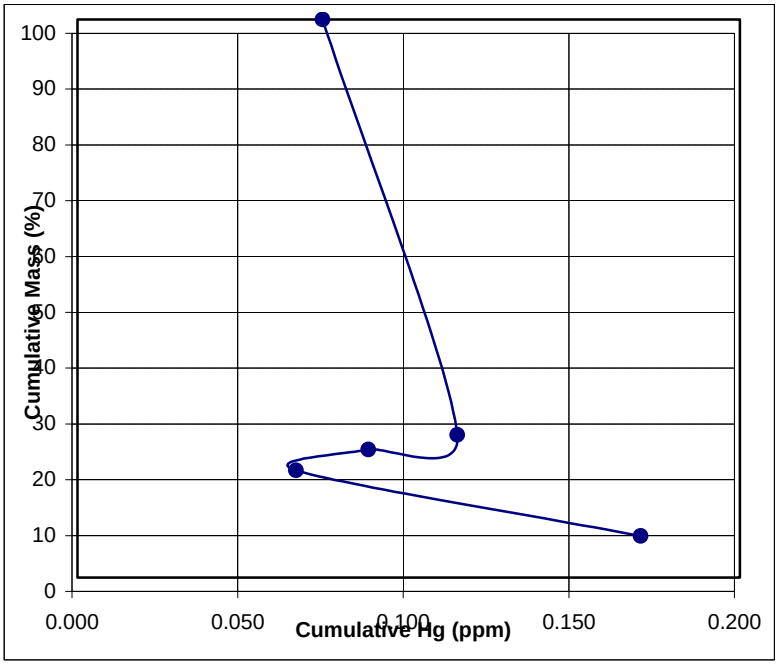
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.03



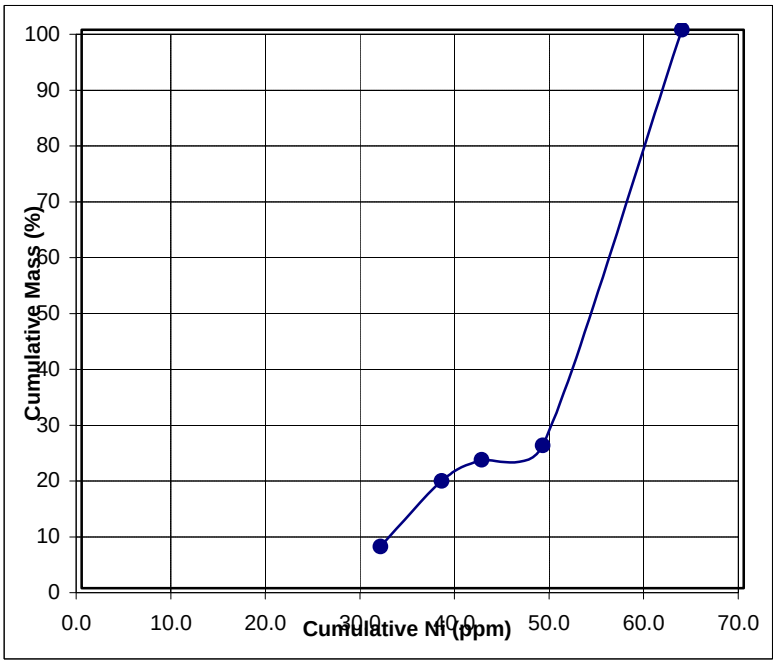


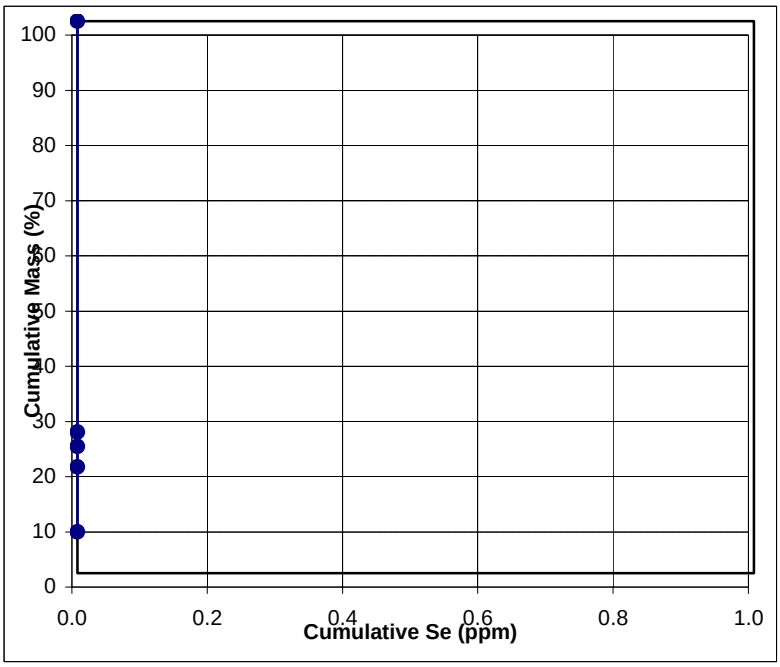
Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.07





Seam: Illinois No. 6
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.07





APPENDIX XV

COALBURG RELEASE ANALYSIS TRACE ELEMENT DATA AND CURVES

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	19.95	20.66	0.02	11.25	
Concentration 02	25.06	22.54	0.07	12.28	
Concentration 03	3.58	52.85	0.10	48.73	
Concentration 04	0.26				
Tails	51.15	185.49	0.09	30.13	
	100.00	106.54	0.07	22.48	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	19.95	20.66	0.02	11.25	0.00
Concentration 02	45.01	21.71	0.05	11.82	0.00
Concentration 03	48.59	24.00	0.05	14.54	0.00
Concentration 04	48.85	23.88	0.05	14.47	0.00
Tails	100.00	106.54	0.07	22.48	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	106.54	0.07	22.48	0.00
Concentration 02	80.05	127.94	0.08	25.28	0.00
Concentration 03	54.99	175.99	0.09	31.20	0.00
Concentration 04	51.41	184.56	0.09	29.98	0.00
Tails	51.15	185.49	0.09	30.13	0.00

Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	16.97	11.04	0.06	10.09	
Concentration 02	11.83	15.26	0.07	11.67	
Concentration 03	1.80	28.36	0.08	17.26	
Concentration 04	0.26				
Tails	69.15	195.60	0.11	37.11	
	100.00	139.45	0.10	29.07	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	16.97	11.04	0.06	10.09	0.00
Concentration 02	28.79	12.78	0.06	10.74	0.00
Concentration 03	30.59	13.69	0.06	11.13	0.00
Concentration 04	30.85	13.58	0.06	11.03	0.00
Tails	100.00	139.45	0.10	29.07	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	139.45	0.10	29.07	0.00
Concentration 02	83.03	165.69	0.10	32.94	0.00
Concentration 03	71.21	190.67	0.11	36.48	0.00
Concentration 04	69.41	194.88	0.11	36.97	0.00
Tails	69.15	195.60	0.11	37.11	0.00

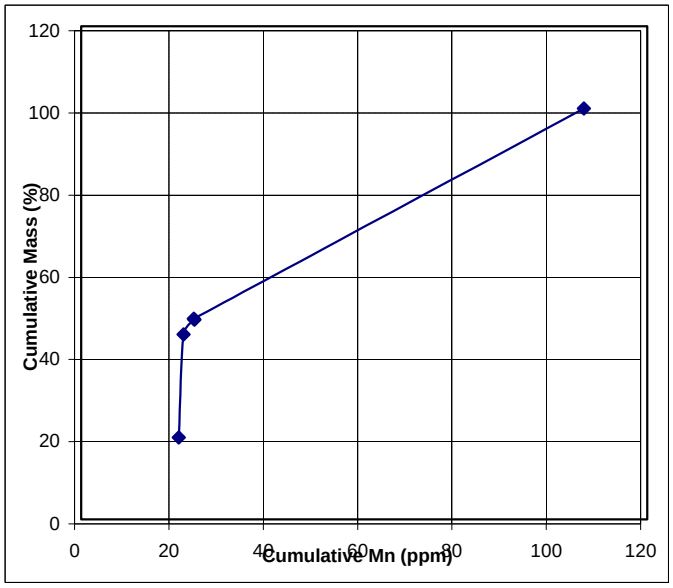
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 1.82

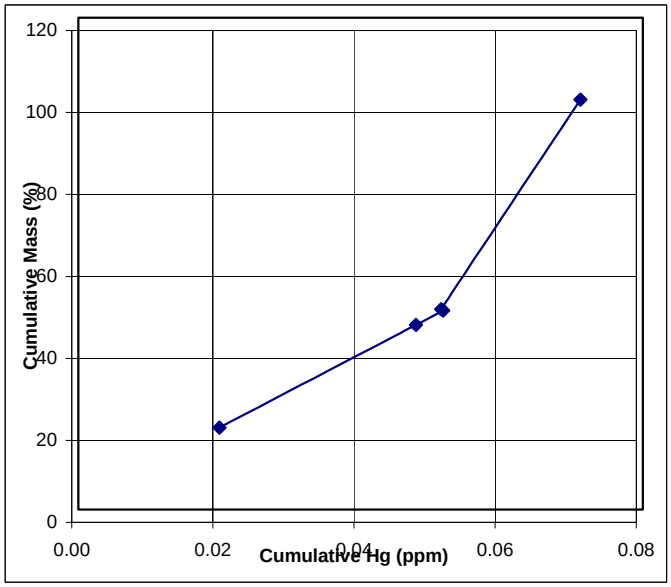
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	13.05	12.15	0.07	10.84	
Concentration 02	9.20	16.12	0.08	12.23	
Concentration 03	5.97	25.05	0.07	15.99	
Concentration 04	8.88	37.69	0.10	20.82	
Tails	62.89	48.97	0.10	27.82	
	100.00	38.71	0.09	22.84	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	13.05	12.15	0.07	10.84	0.00
Concentration 02	22.25	13.79	0.07	11.42	0.00
Concentration 03	28.22	16.17	0.07	12.39	0.00
Concentration 04	37.11	21.33	0.08	14.40	0.00
Tails	100.00	38.71	0.09	22.84	0.00

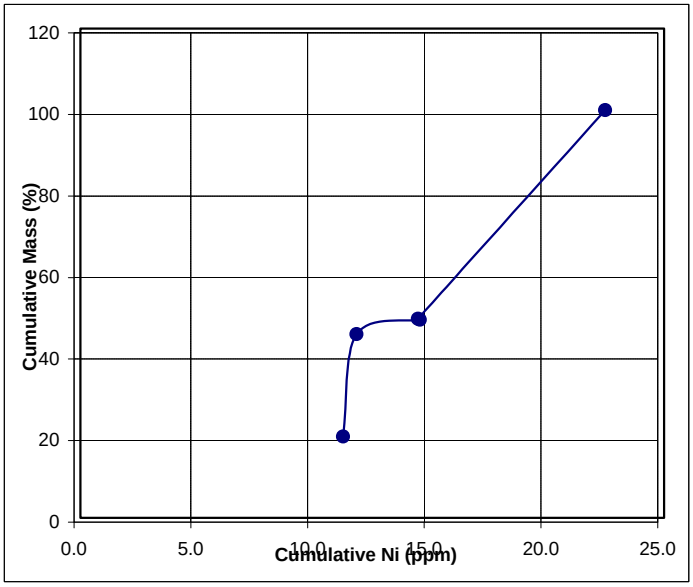
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	38.71	0.09	22.84	0.00
Concentration 02	86.95	42.70	0.10	24.64	0.00
Concentration 03	77.75	45.84	0.10	26.11	0.00
Concentration 04	71.78	47.57	0.10	26.96	0.00
Tails	62.89	48.97	0.10	27.82	0.00

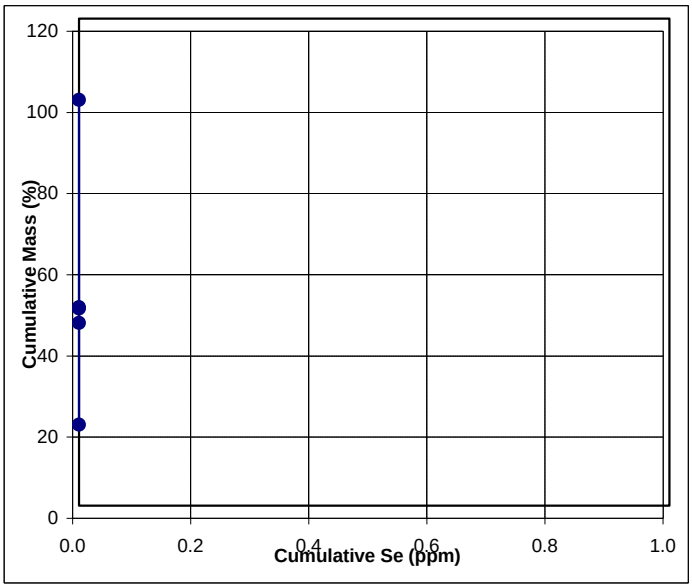
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10



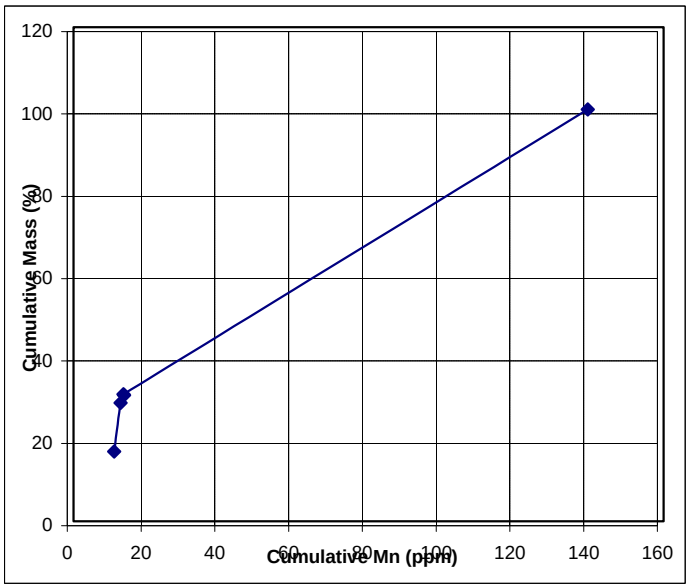


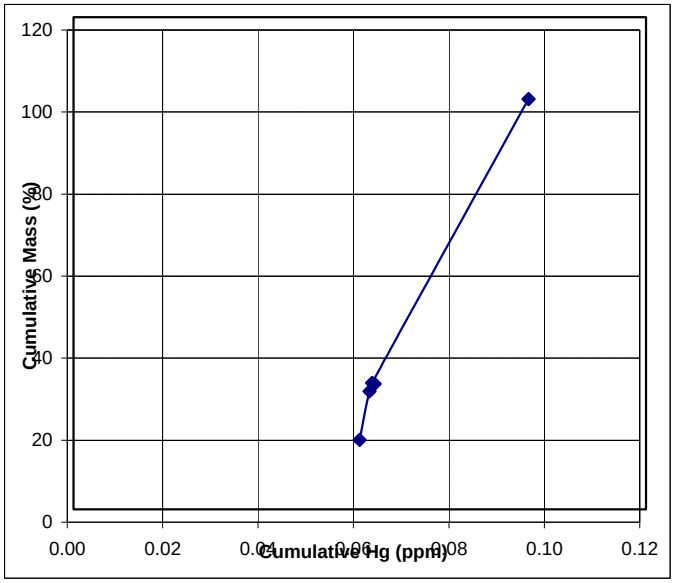
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 28 x 100 M
Mass (%): 3.10



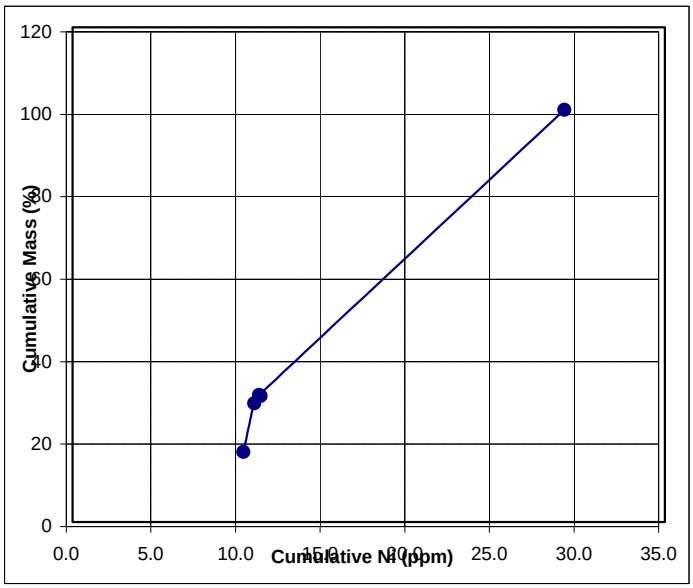


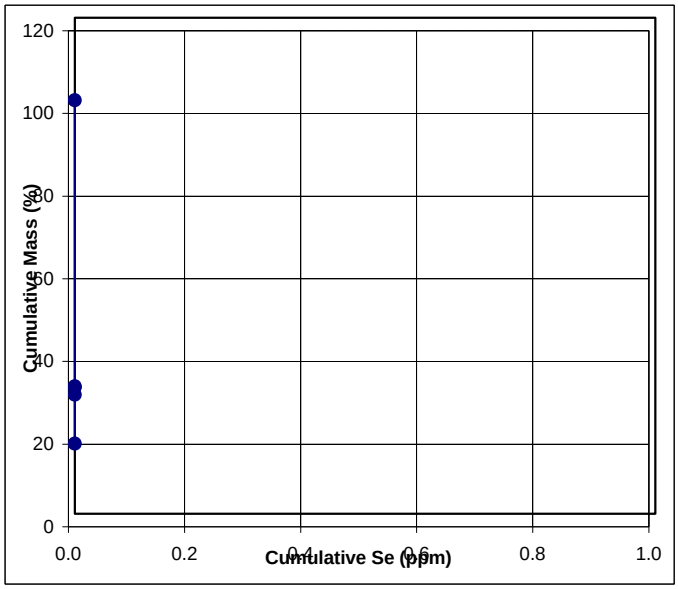
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98



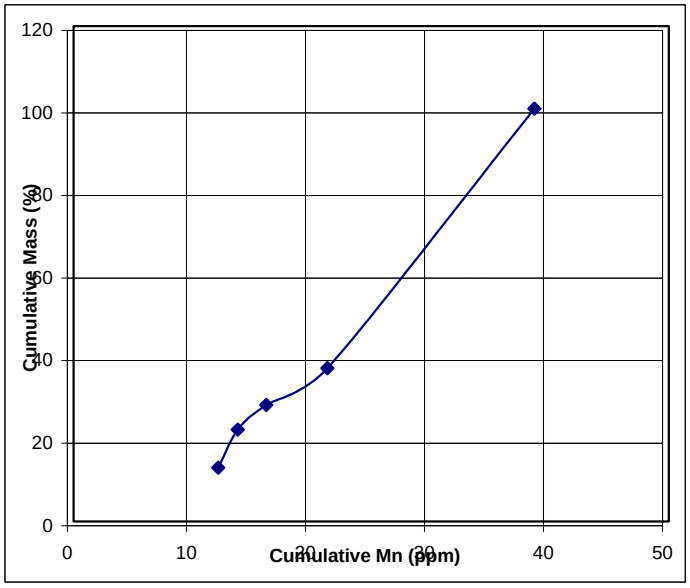


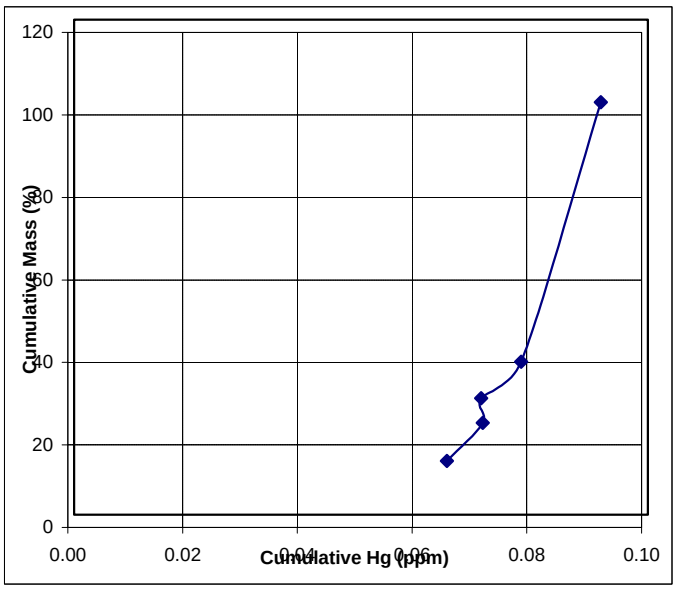
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: 100 x 270 M
Mass (%): 0.98



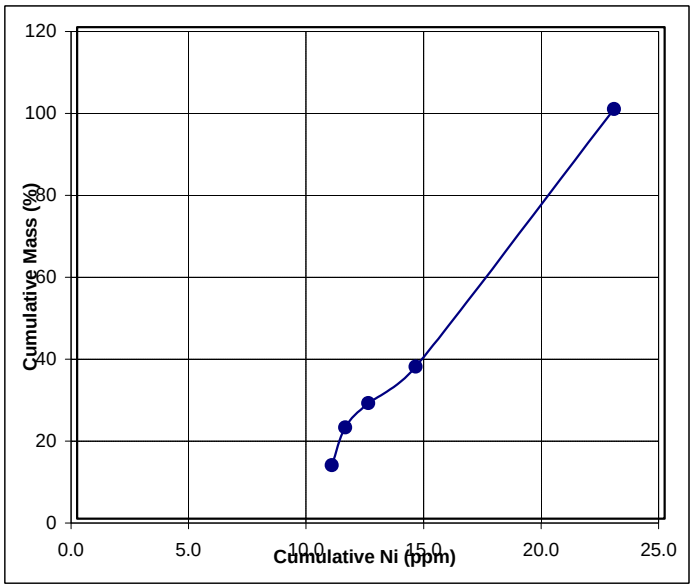


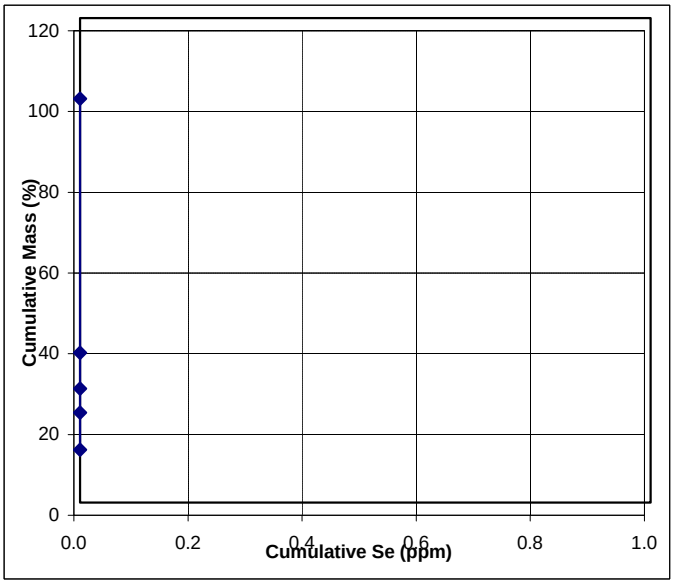
Seam: Coalburg
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 1.82





Seam: Coalburg
Sample: Run-of-Mine Feed
Class: -270 M
Mass (%): 1.82





Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	69.00	34.85	0.07	20.28	
Concentration 02	20.47	41.44	0.06	19.84	
Concentration 03	2.81	57.72	0.08	22.97	
Concentration 04	0.68				
Tails	7.05	461.37	0.07	56.12	
	100.00	66.66	0.07	22.65	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	69.00	34.85	0.07	20.28	0.00
Concentration 02	89.47	36.36	0.07	20.18	0.00
Concentration 03	92.28	37.01	0.07	20.26	0.00
Concentration 04	92.95	36.74	0.07	20.12	0.00
Tails	100.00	66.66	0.07	22.65	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	66.66	0.07	22.65	0.00
Concentration 02	31.00	137.45	0.06	27.94	0.00
Concentration 03	10.53	324.18	0.07	43.68	0.00
Concentration 04	7.72	421.00	0.06	51.21	0.00
Tails	7.05	461.37	0.07	56.12	0.00

Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13

	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	34.89	53.17	0.10	23.10	
Concentration 02	52.76		0.09		
Concentration 03	5.80	63.94	0.11	26.45	
Concentration 04	1.46				
Tails	5.09	442.22	0.08	57.12	
	100.00	44.77	0.09	12.50	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	34.89	53.17	0.10	23.10	0.00
Concentration 02	87.65	21.16	0.09	9.19	0.00
Concentration 03	93.45	23.82	0.09	10.27	0.00
Concentration 04	94.91	23.45	0.09	10.11	0.00
Tails	100.00	44.77	0.09	12.50	0.00

	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	44.77	0.09	12.50	0.00
Concentration 02	65.11	40.27	0.09	6.82	0.00
Concentration 03	12.35	212.24	0.08	35.96	0.00
Concentration 04	6.55	343.60	0.06	44.38	0.00
Tails	5.09	442.22	0.08	57.12	0.00

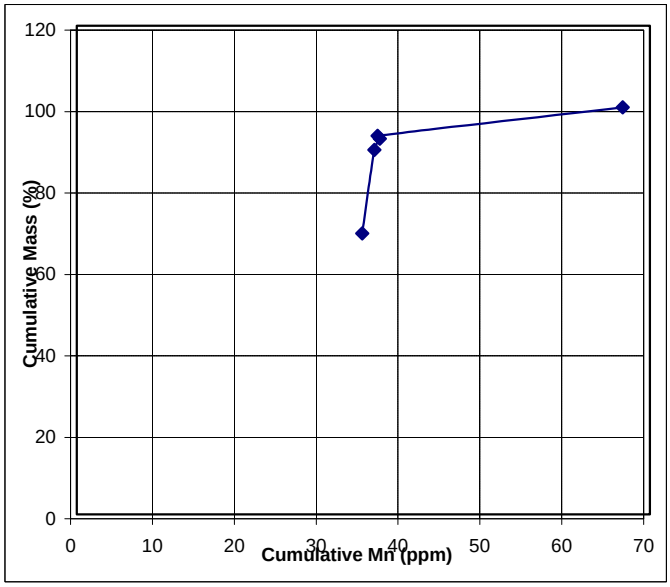
Seam: Coalburg
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.21

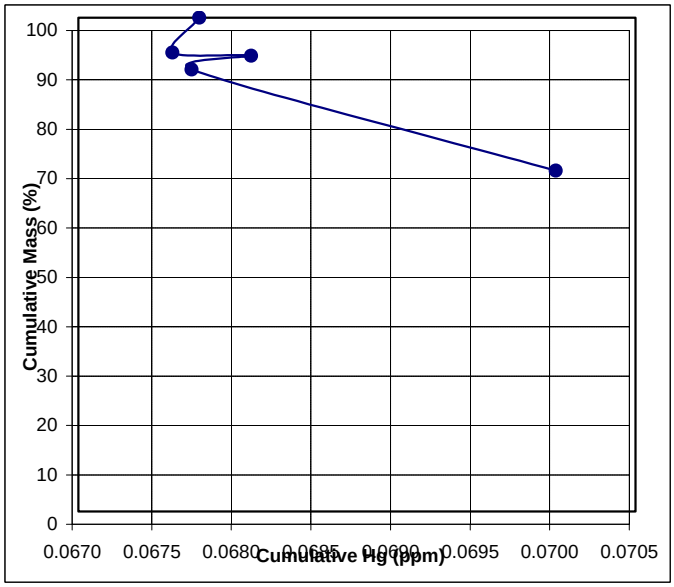
	Individual				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	21.10	32.70	0.07	16.64	
Concentration 02	21.42	36.58	0.07	16.94	
Concentration 03	11.44	62.60	0.12	24.71	
Concentration 04	8.26	93.99	0.15	38.75	
Tails	37.78	172.26	0.06	43.75	
	100.00	94.73	0.08	29.69	0.00

	Cumulative Float				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	21.10	32.70	0.07	16.64	0.00
Concentration 02	42.53	34.65	0.07	16.79	0.00
Concentration 03	53.97	40.58	0.08	18.47	0.00
Concentration 04	62.22	47.67	0.09	21.16	0.00
Tails	100.00	94.73	0.08	29.69	0.00

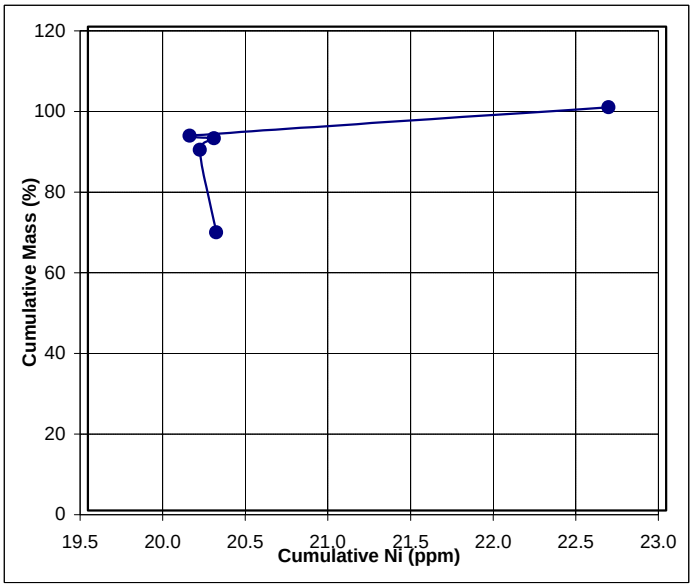
	Cumulative Sink				
	Mass (%)	Mn (ppm)	Hg (ppm)	Ni (ppm)	Se (ppm)
Concentration 01	100.00	94.73	0.08	29.69	0.00
Concentration 02	78.90	111.33	0.08	33.19	0.00
Concentration 03	57.47	139.19	0.08	39.24	0.00
Concentration 04	46.03	158.22	0.08	42.86	0.00
Tails	37.78	172.26	0.06	43.75	0.00

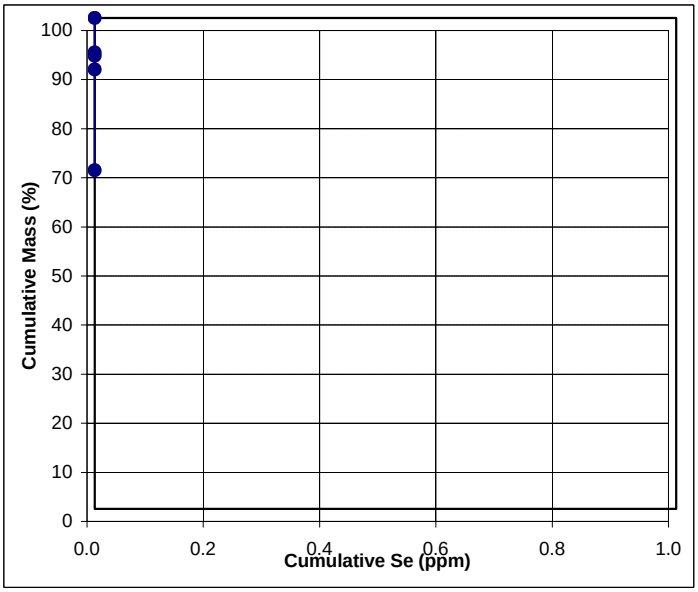
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68



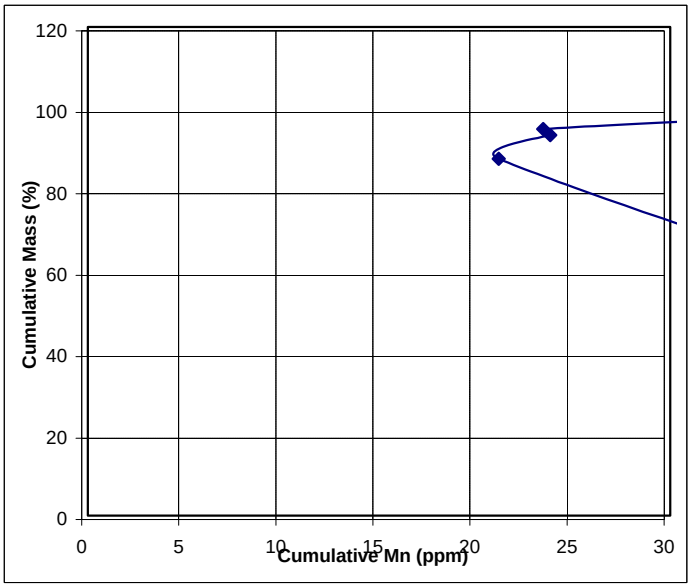


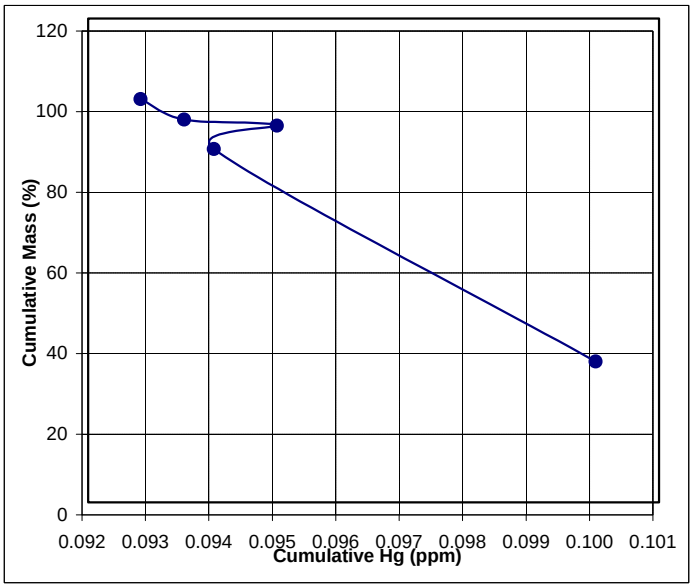
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 28 x 100 M
Mass (%): 0.68



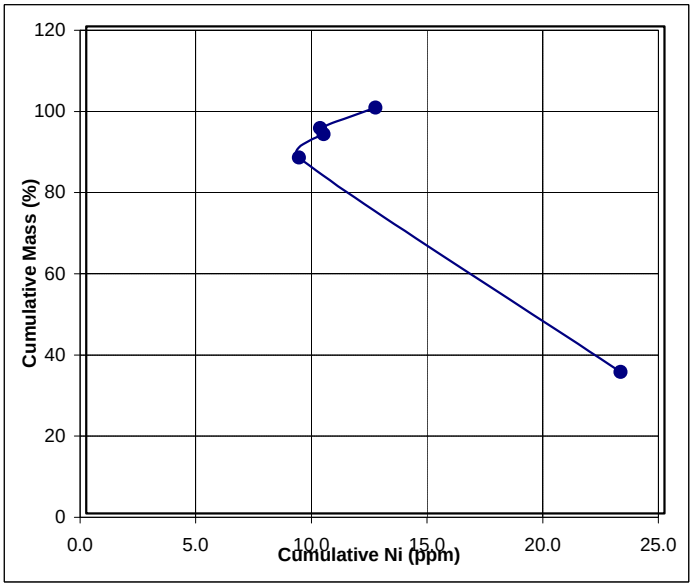


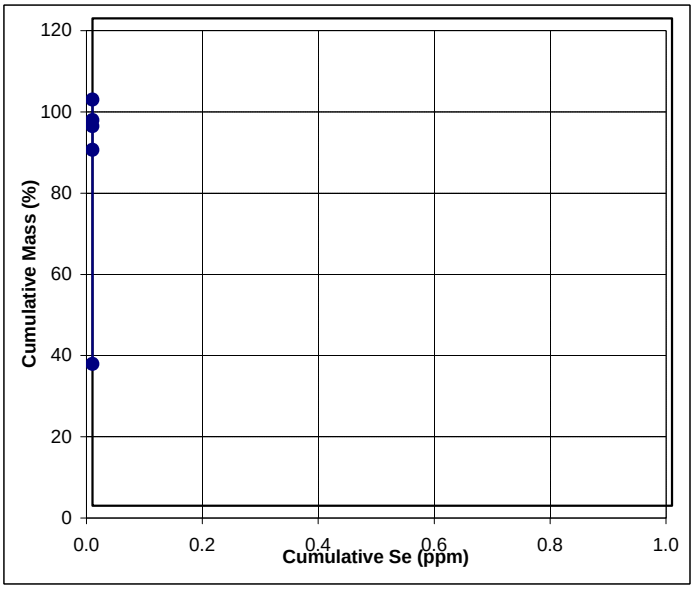
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13



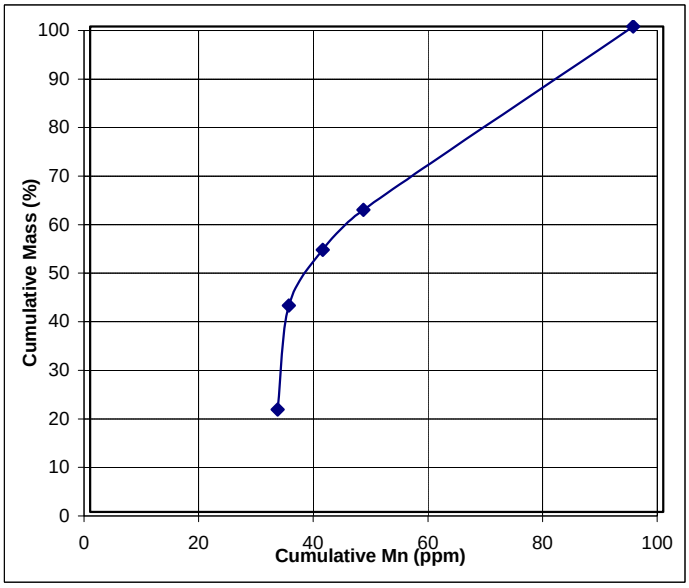


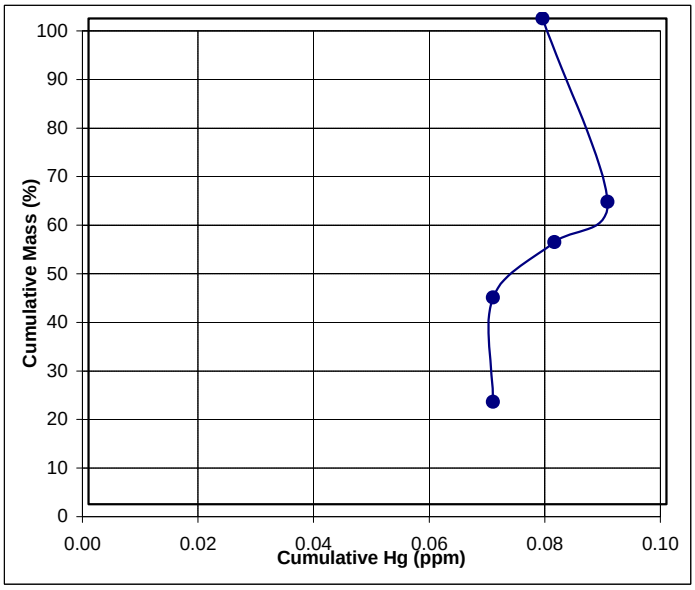
Seam: Coalburg
Sample: Crushed Middlings Only
Class: 100 x 270 M
Mass (%): 0.13



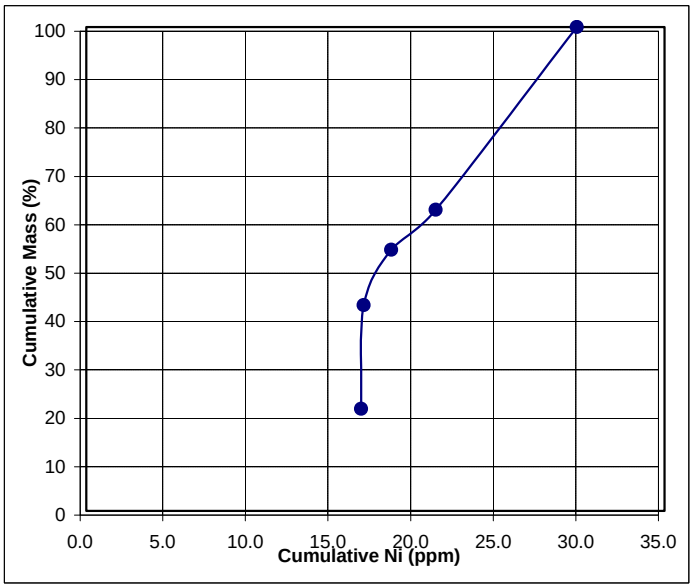


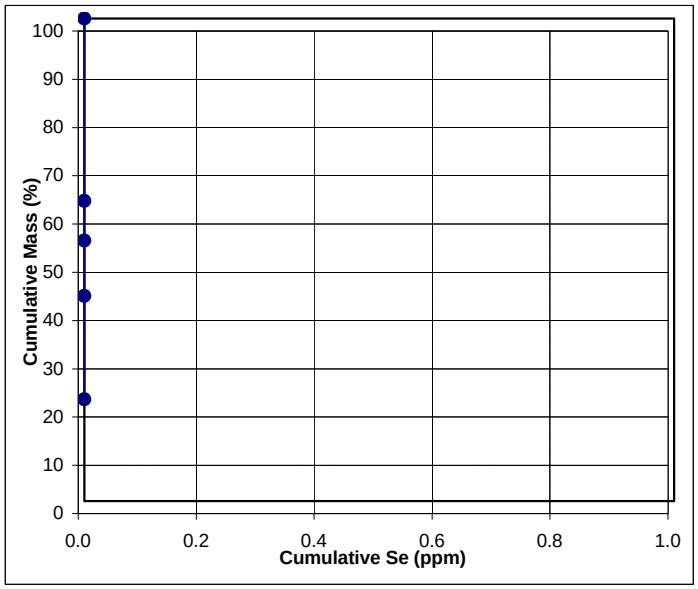
Seam: Coalburg
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.21





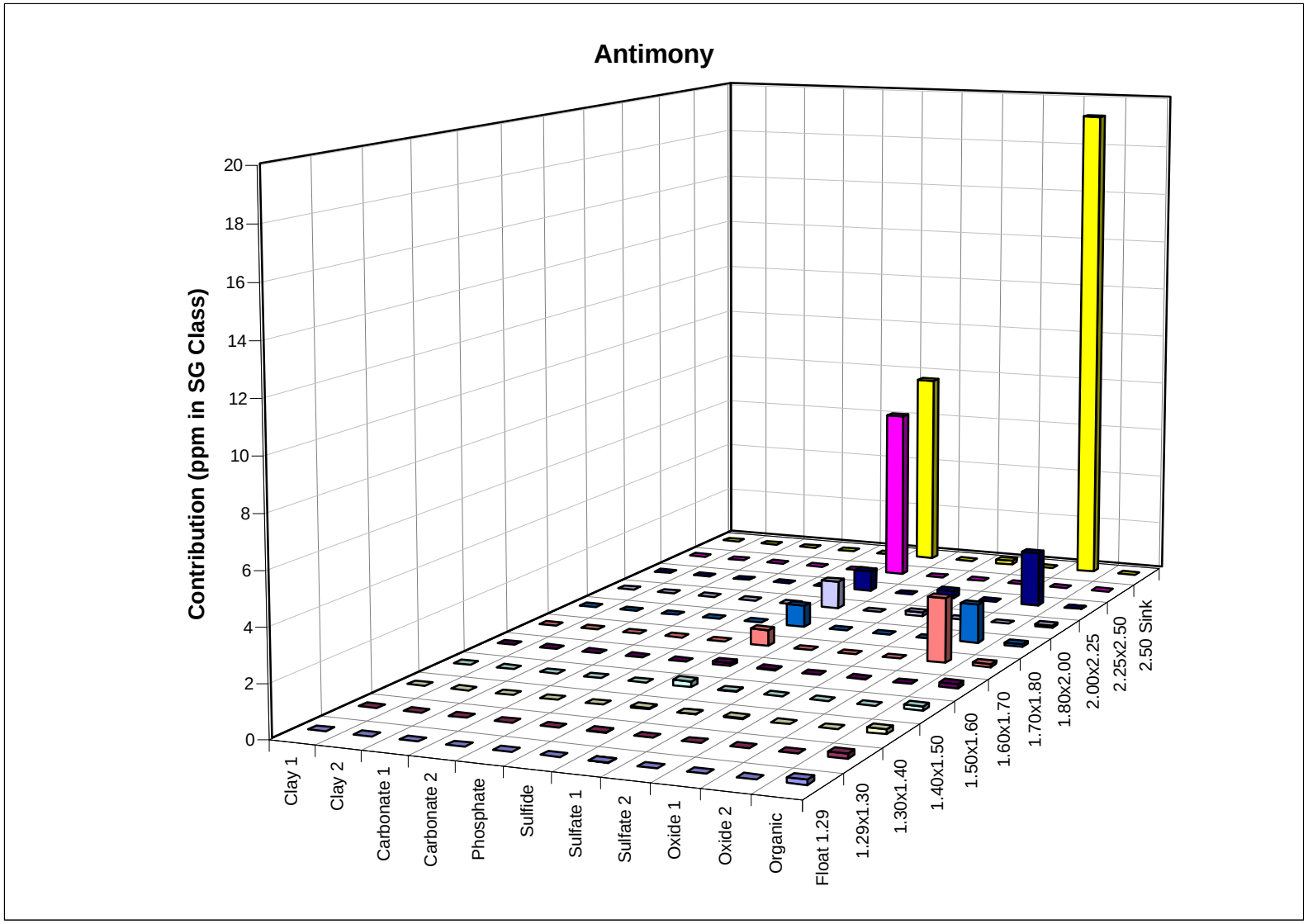
Seam: Coalburg
Sample: Crushed Middlings Only
Class: -270 M
Mass (%): 0.21

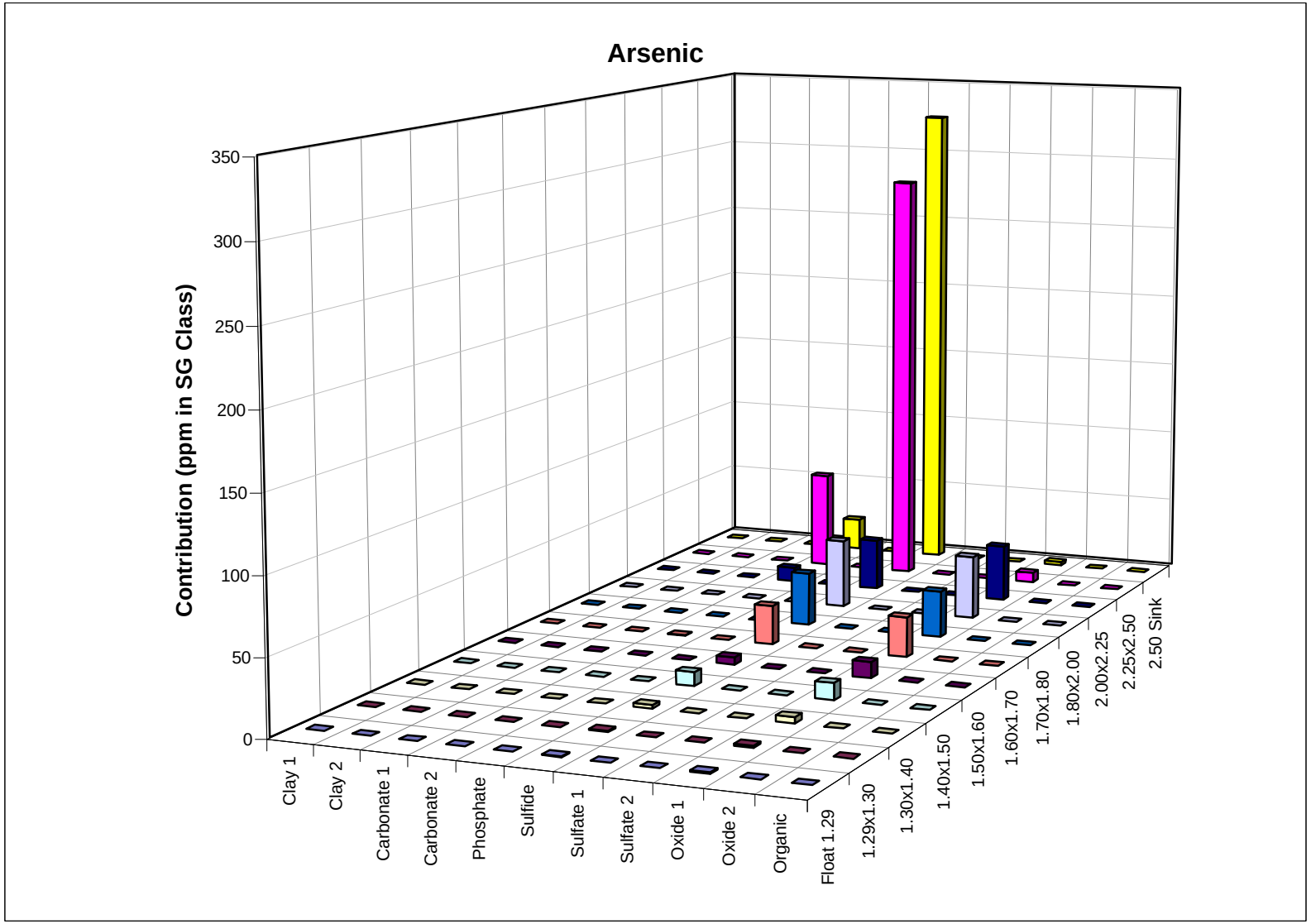


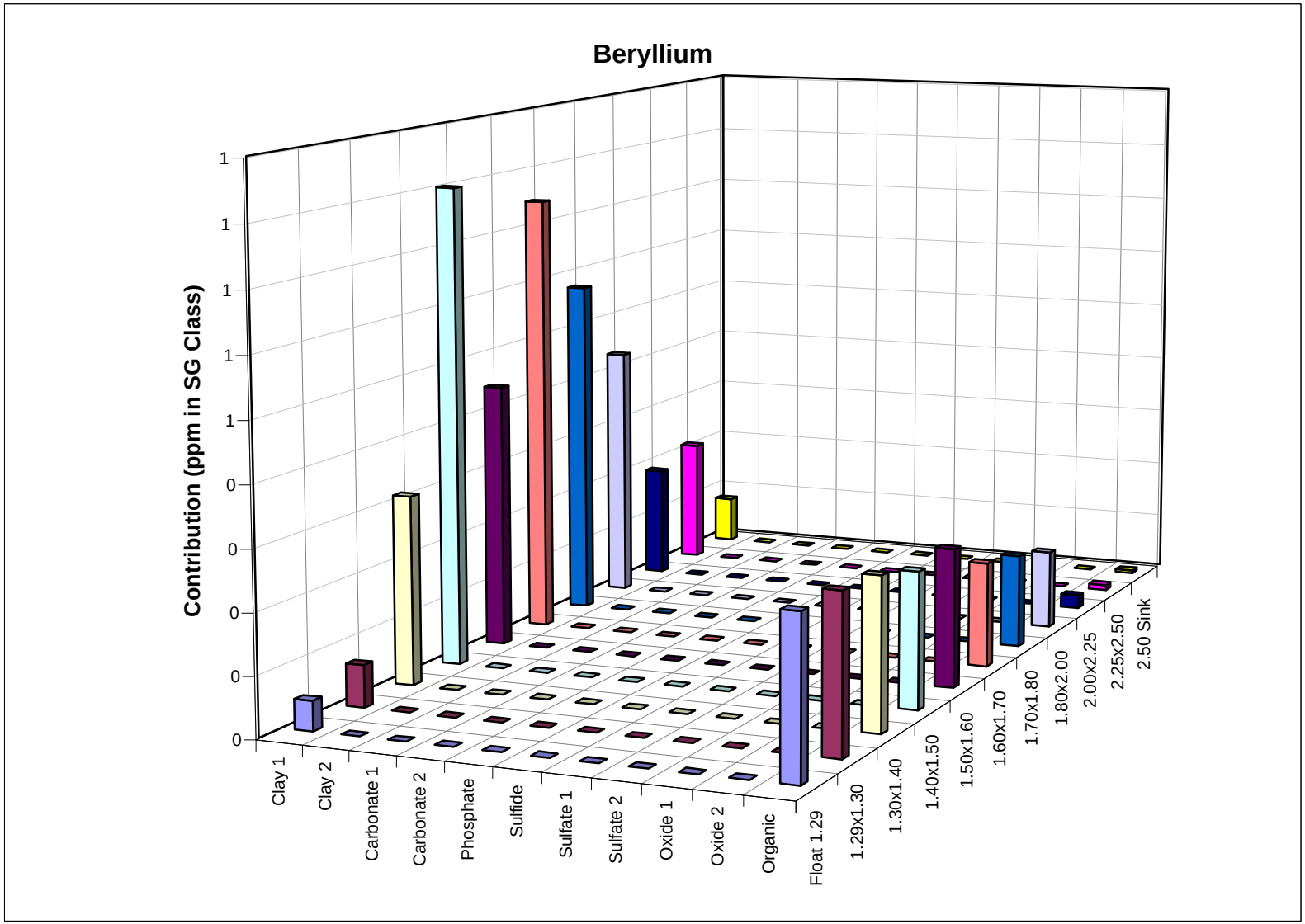


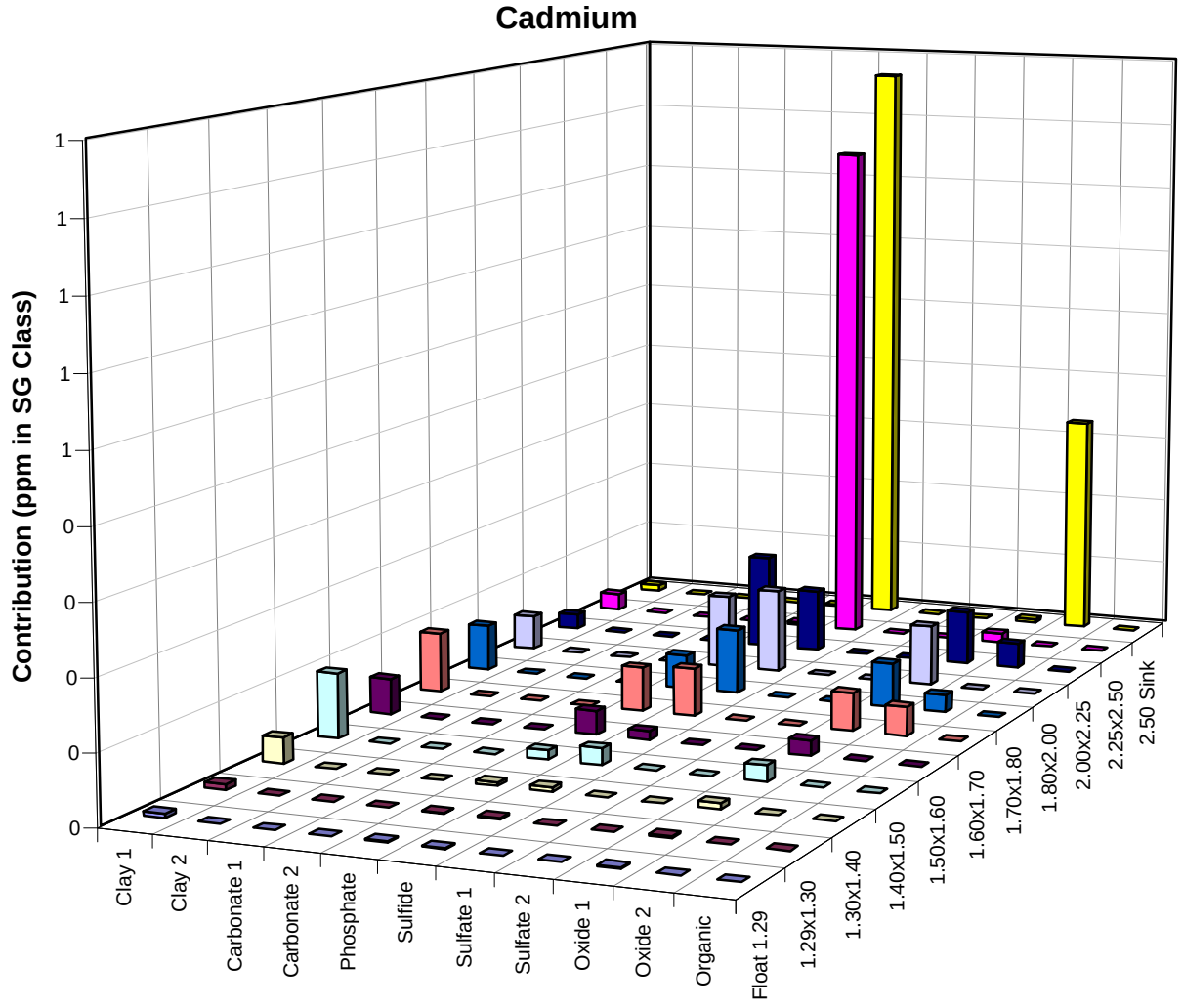
APPENDIX XVI

INDIVIDUAL TRACE ELEMENTS VERSUS SPECIFIC GRAVITY CLASSES FOR CHARACTERIZATION DATA

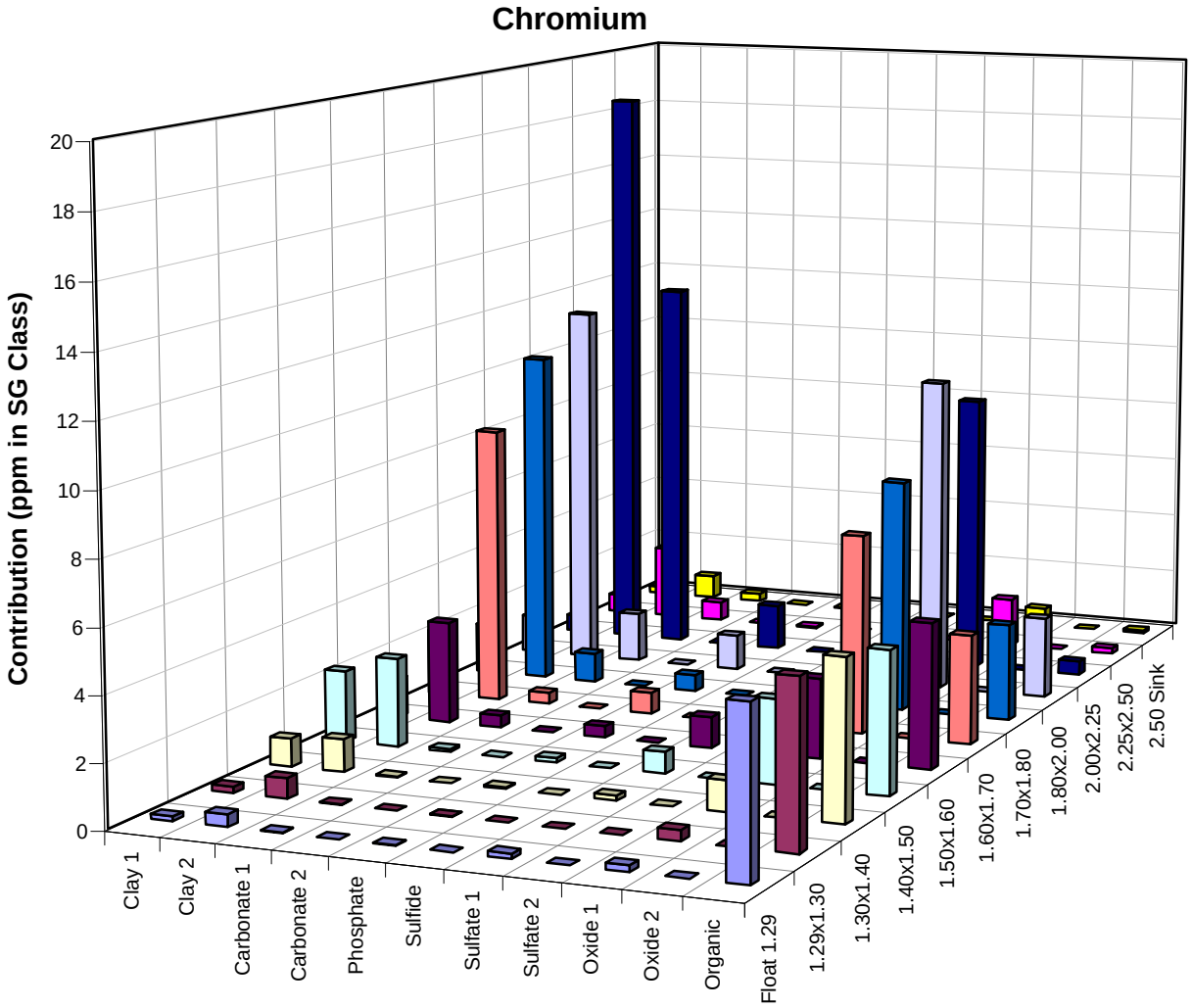

Antimony
Contribution (ppm in SG Class)
0
2
4
6
8
10
12
14
16
18
20
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

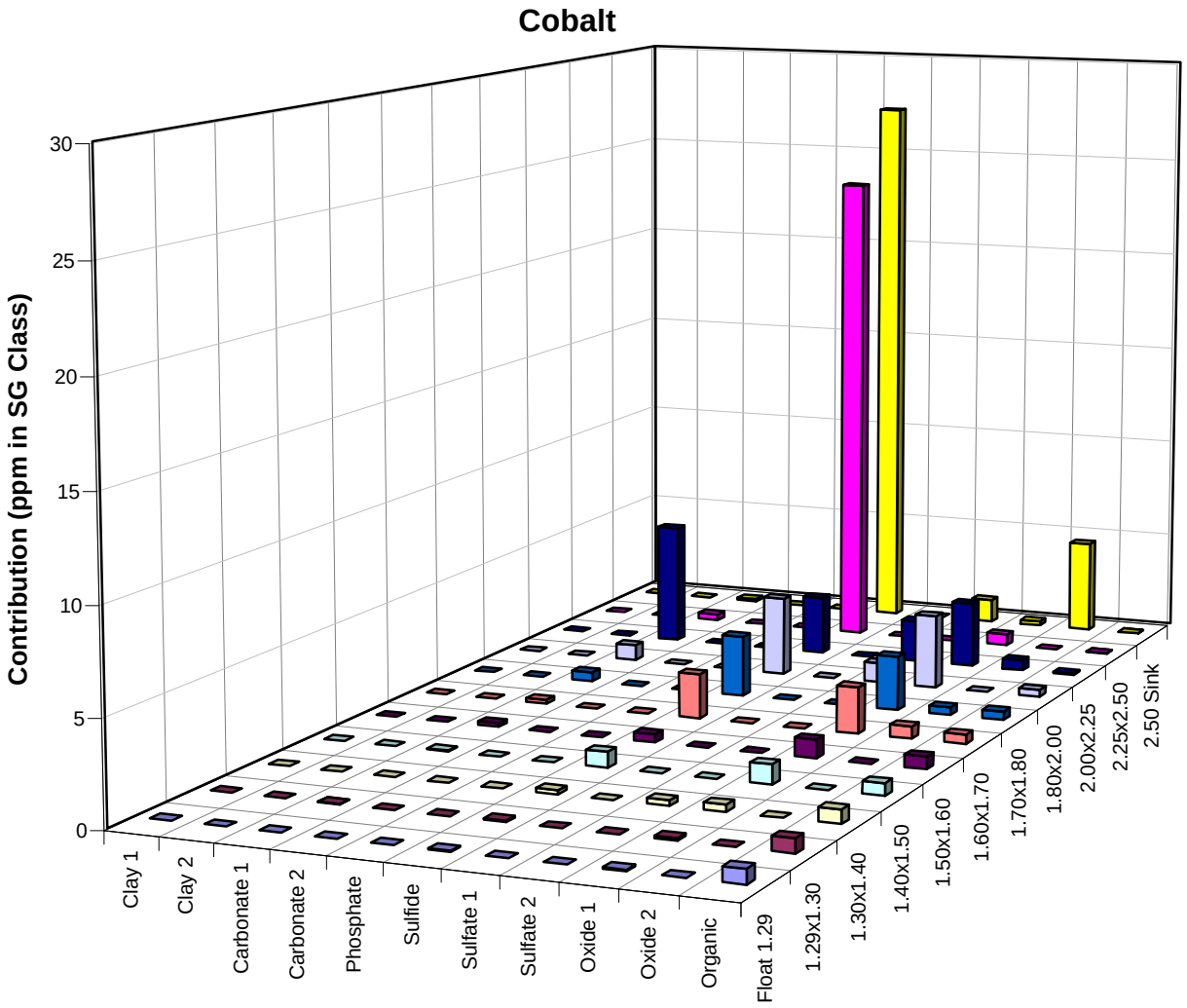

Arsenic
Contribution (ppm in SG Class)
0
50
100
150
200
250
300
350
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

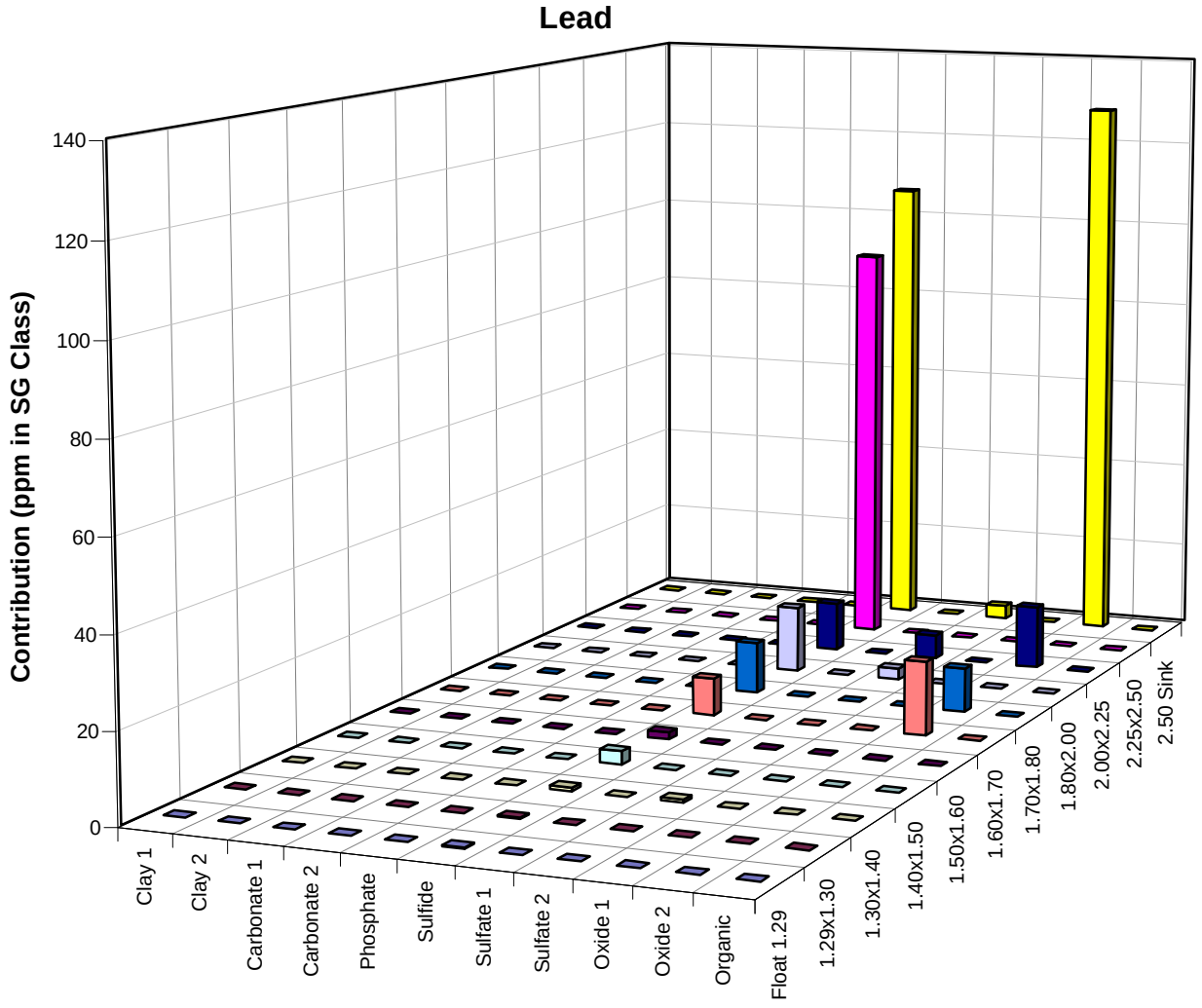

Beryllium
Contribution (ppm in SG Class)
0
0
0
0
0
1
1
1
1
1
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

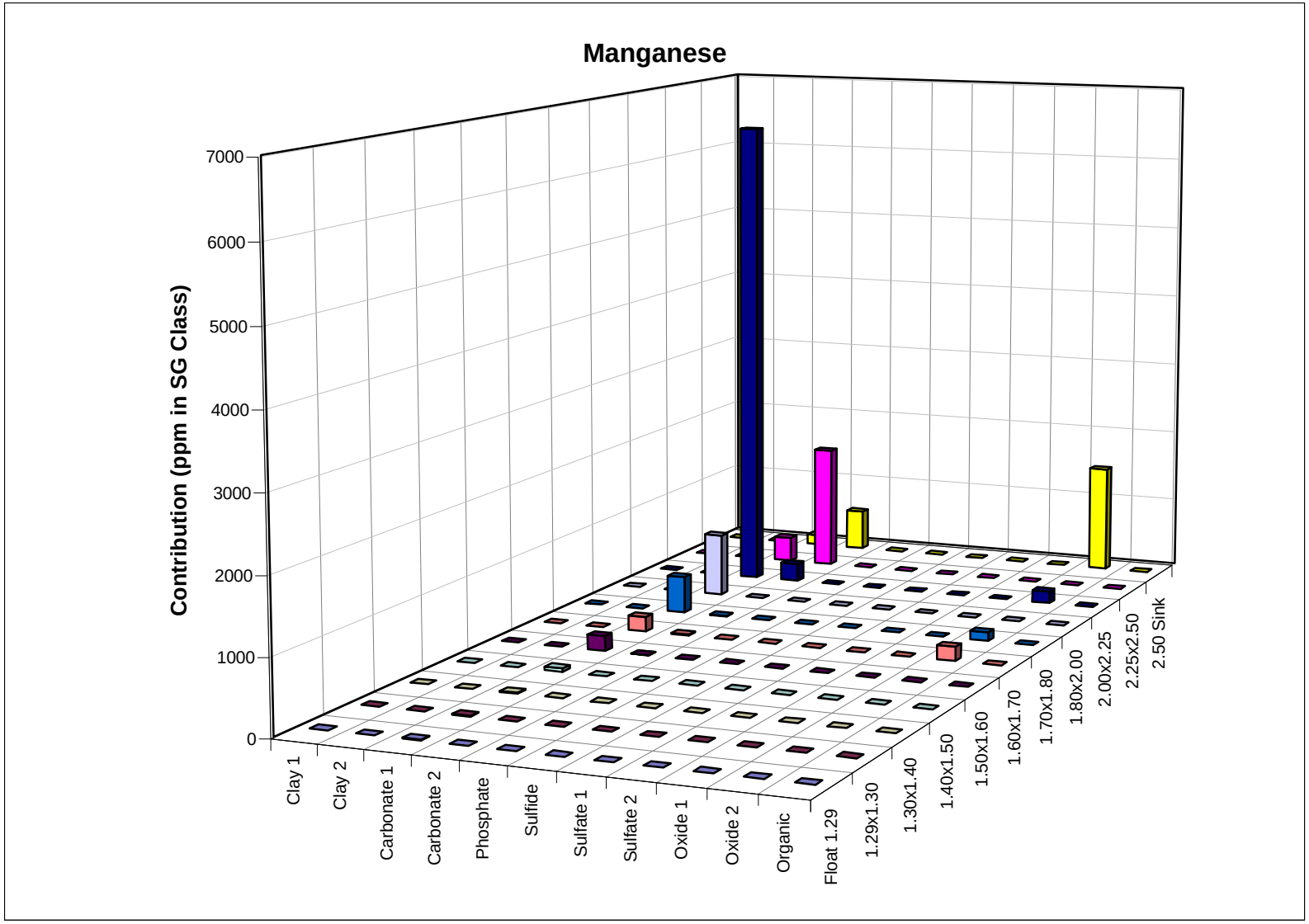

Cadmium
Contribution (ppm in SG Class)
1
1
1
1
1
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

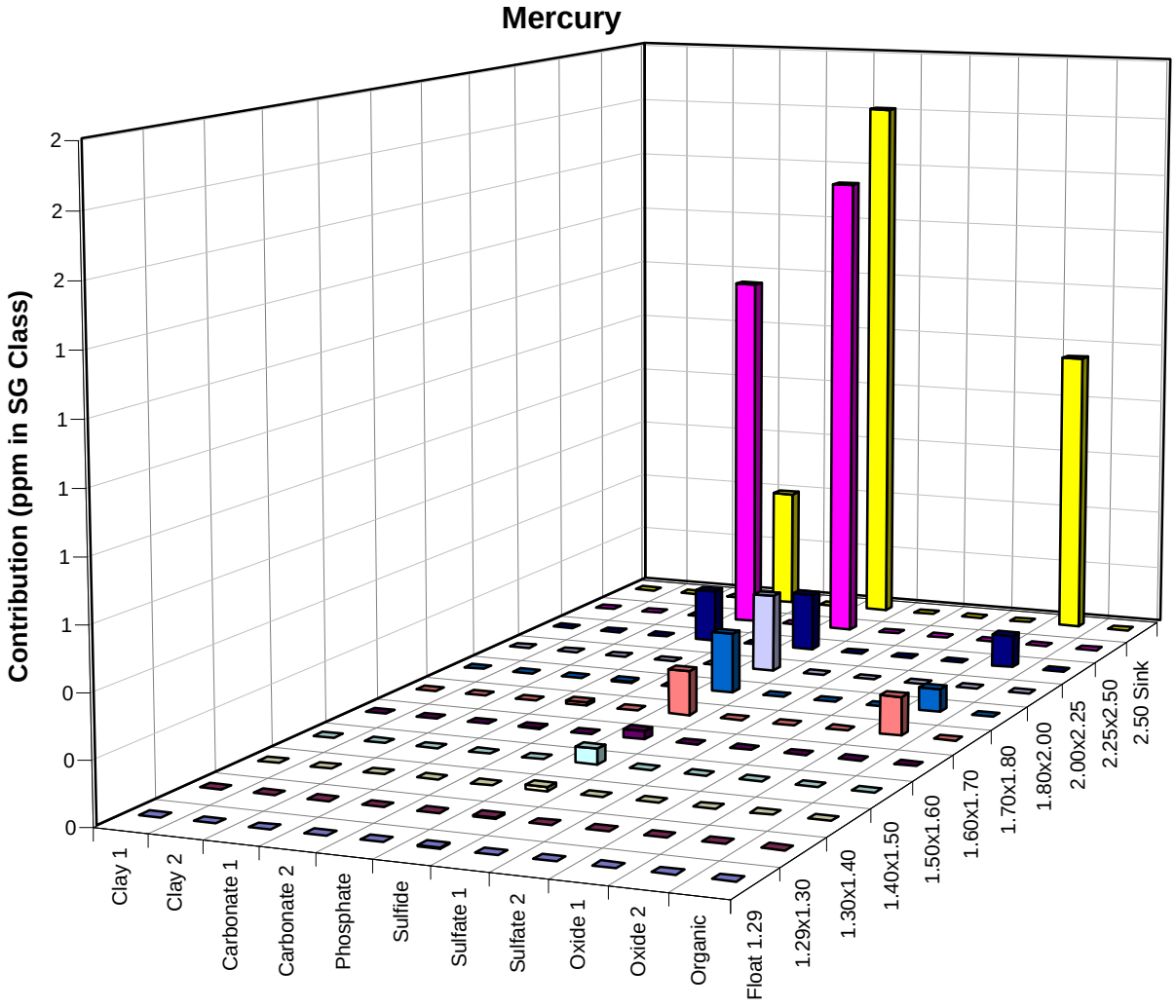
Chlorine
Contribution (ppm in SG Class)
1
1
1
1
1
1
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

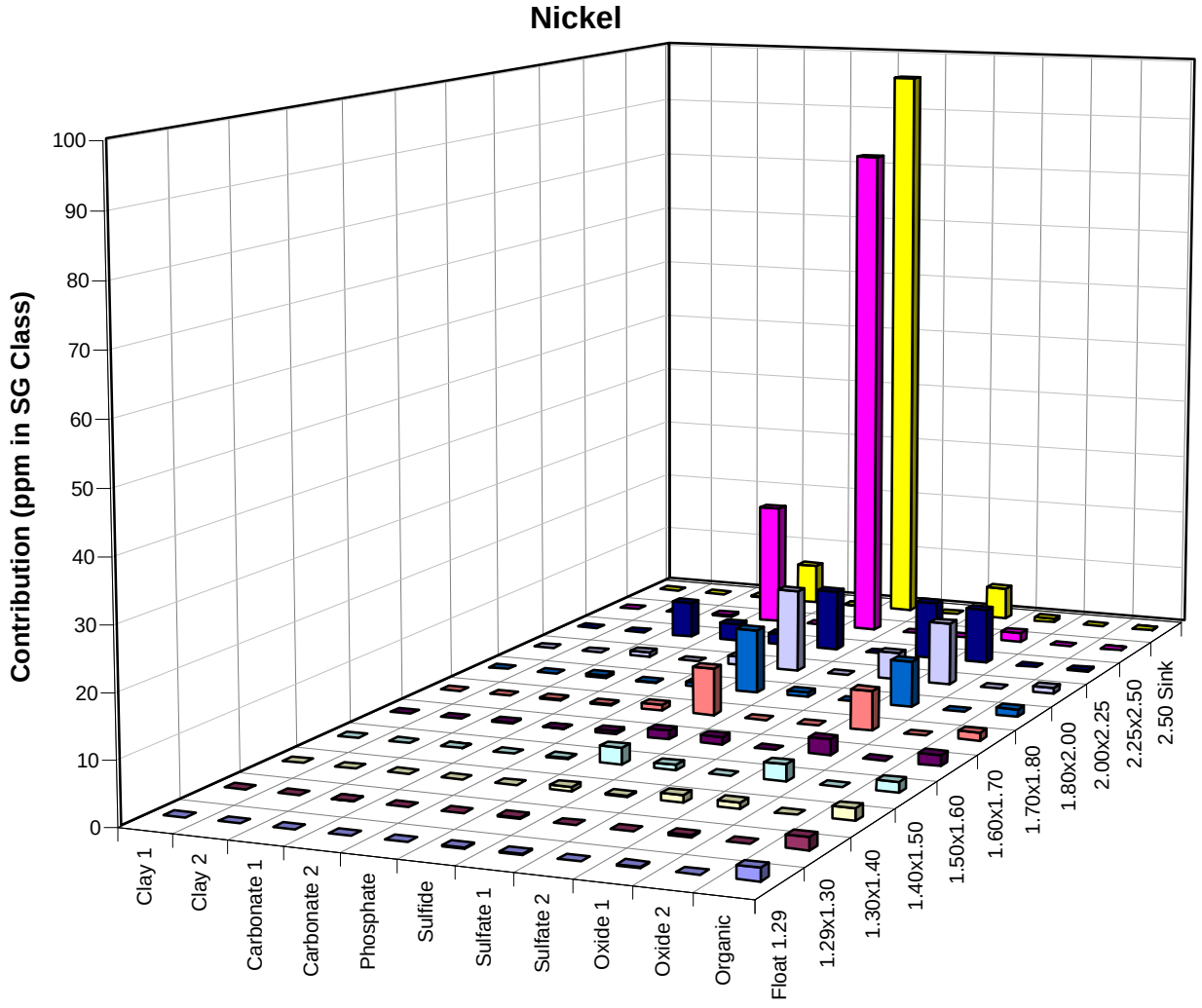

Chromium
Contribution (ppm in SG Class)
0
2
4
6
8
10
12
14
16
18
20
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

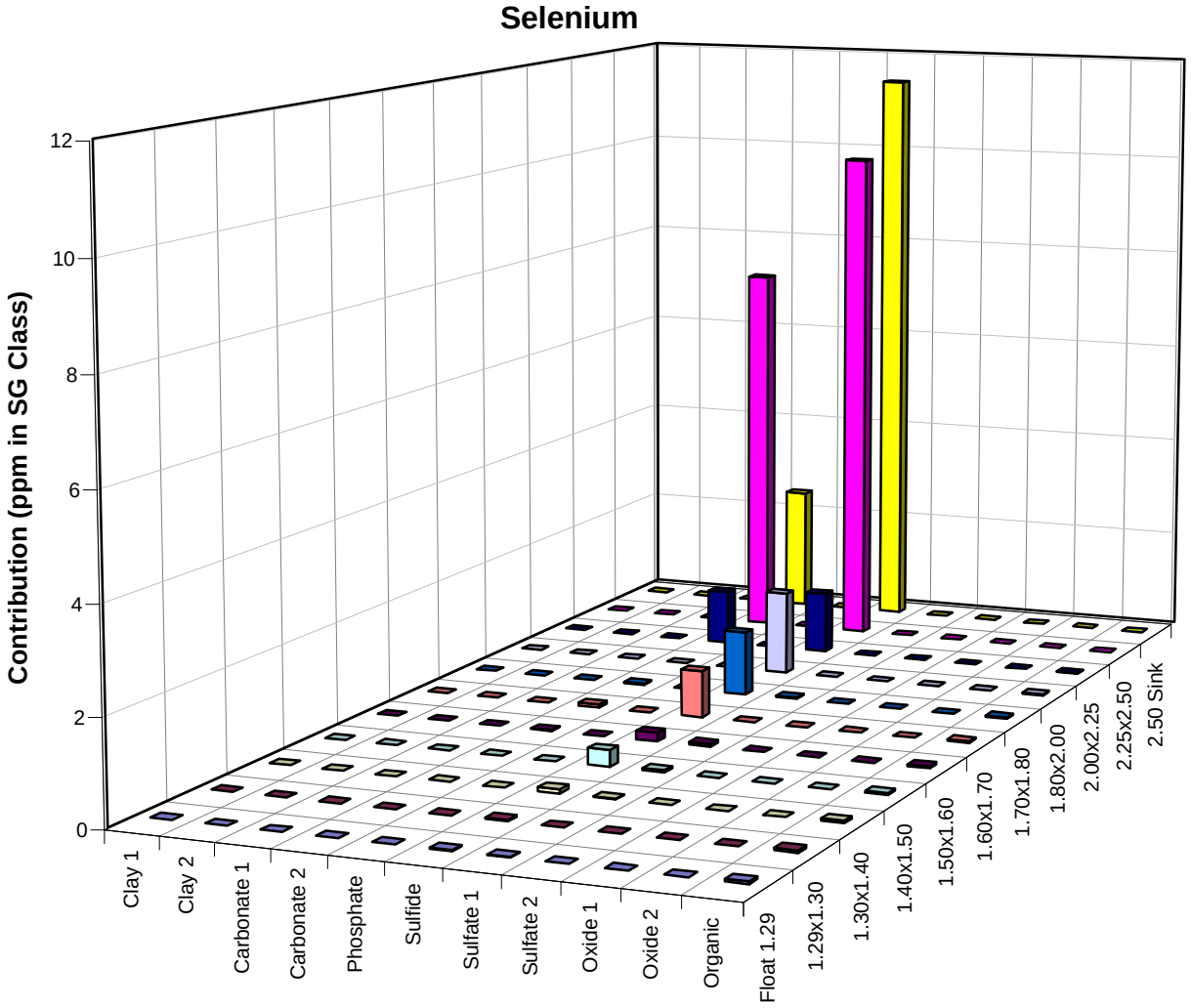

Cobalt
Contribution (ppm in SG Class)
0
5
10
15
20
25
30
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

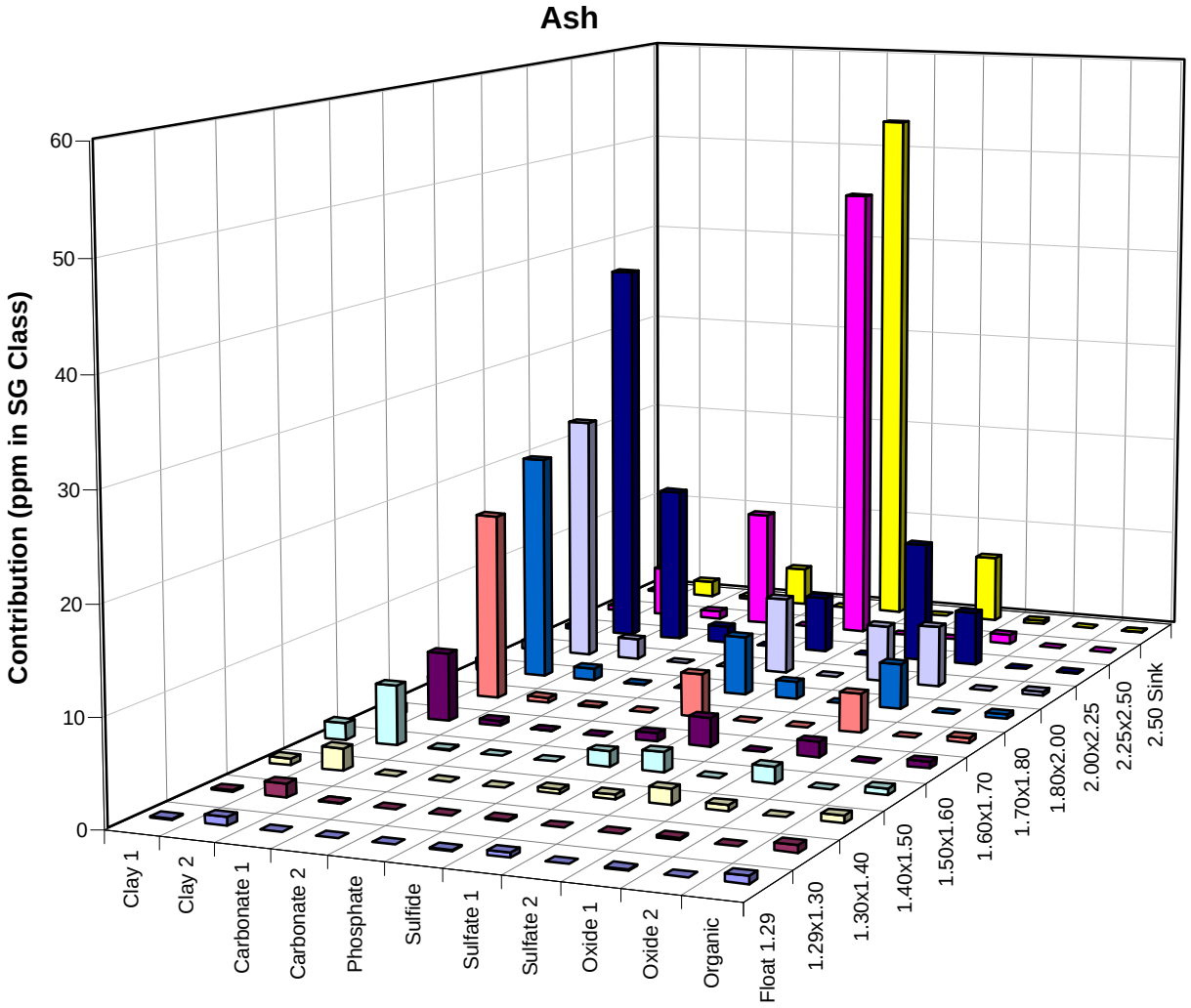

Lead
Contribution (ppm in SG Class)
0
20
40
60
80
100
120
140
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

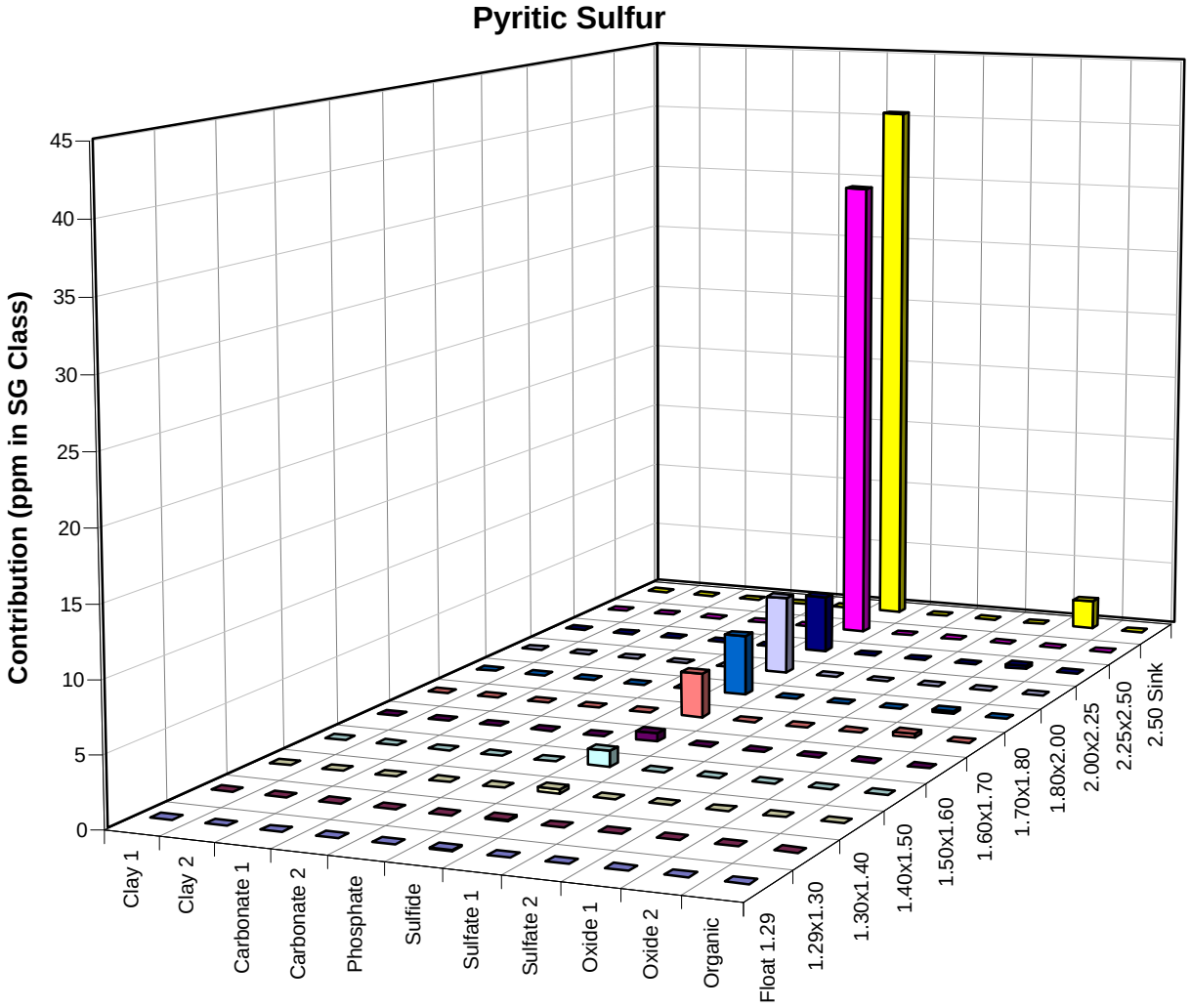

Manganese
Contribution (ppm in SG Class)
0
1000
2000
3000
4000
5000
6000
7000
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

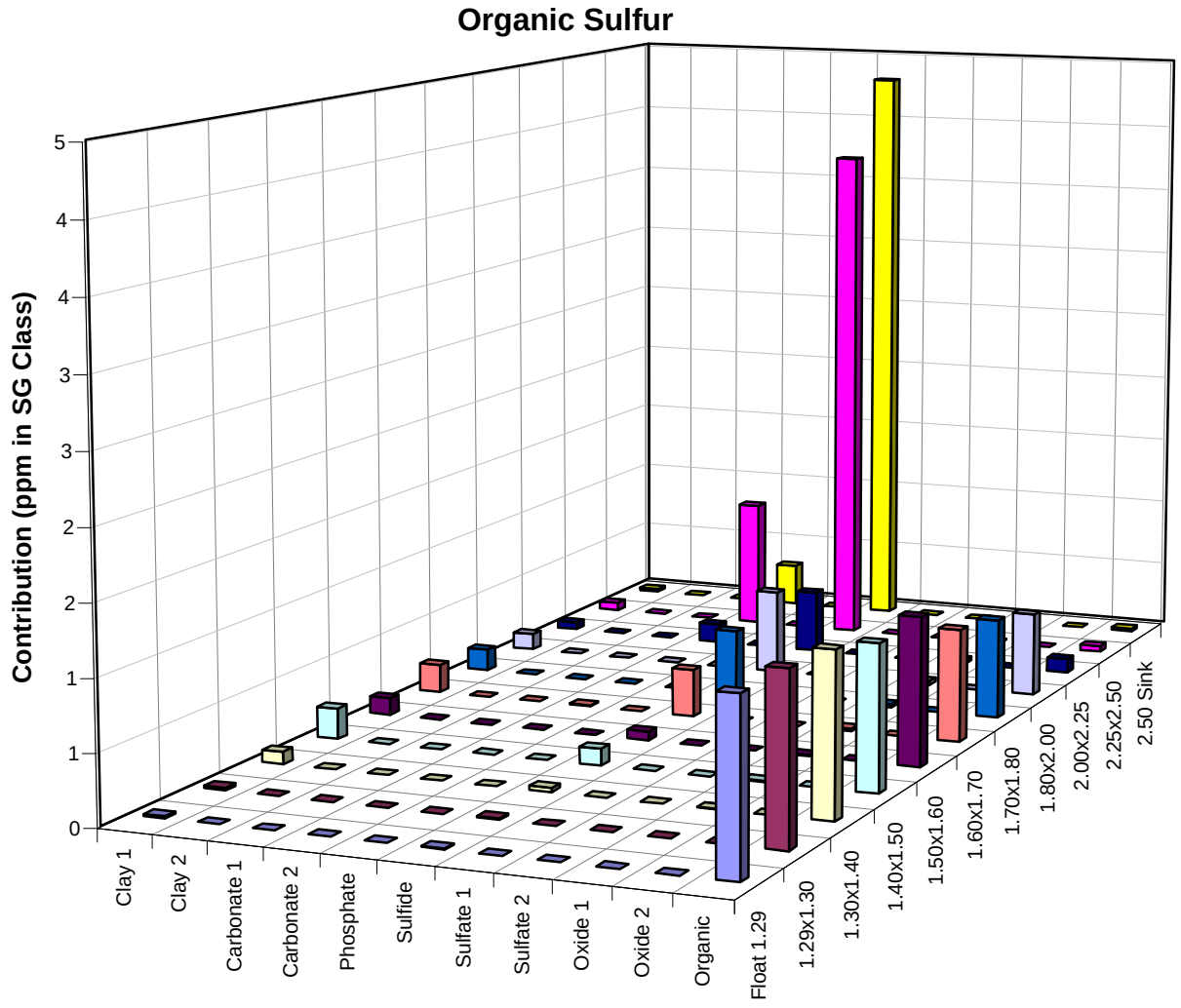

Mercury
Contribution (ppm in SG Class)
0
0
0
1
1
1
1
1
2
2
2
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

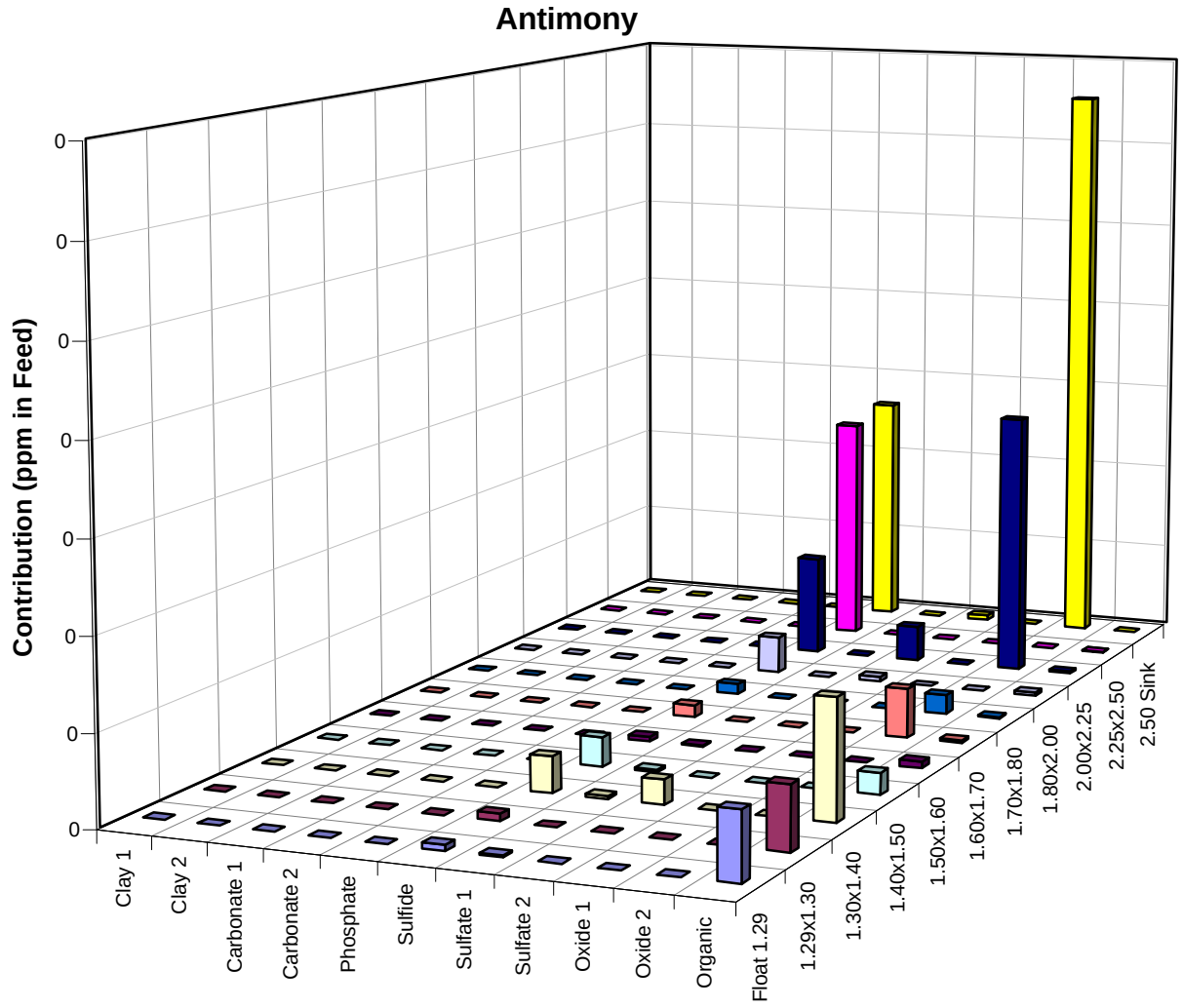

Nickel
Contribution (ppm in SG Class)
100
90
80
70
60
50
40
30
20
10
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

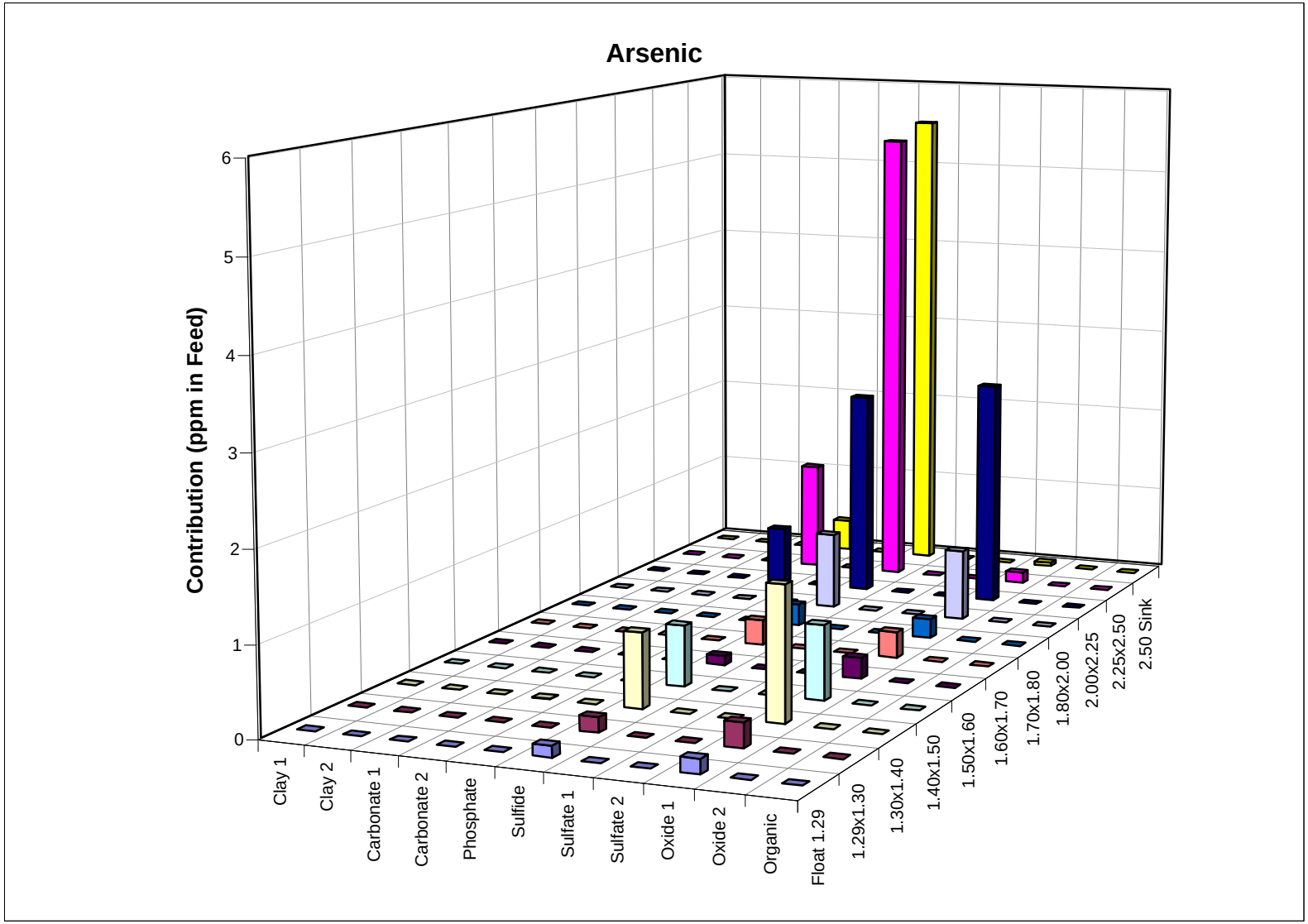

Selenium
Contribution (ppm in SG Class)
0
2
4
6
8
10
12
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

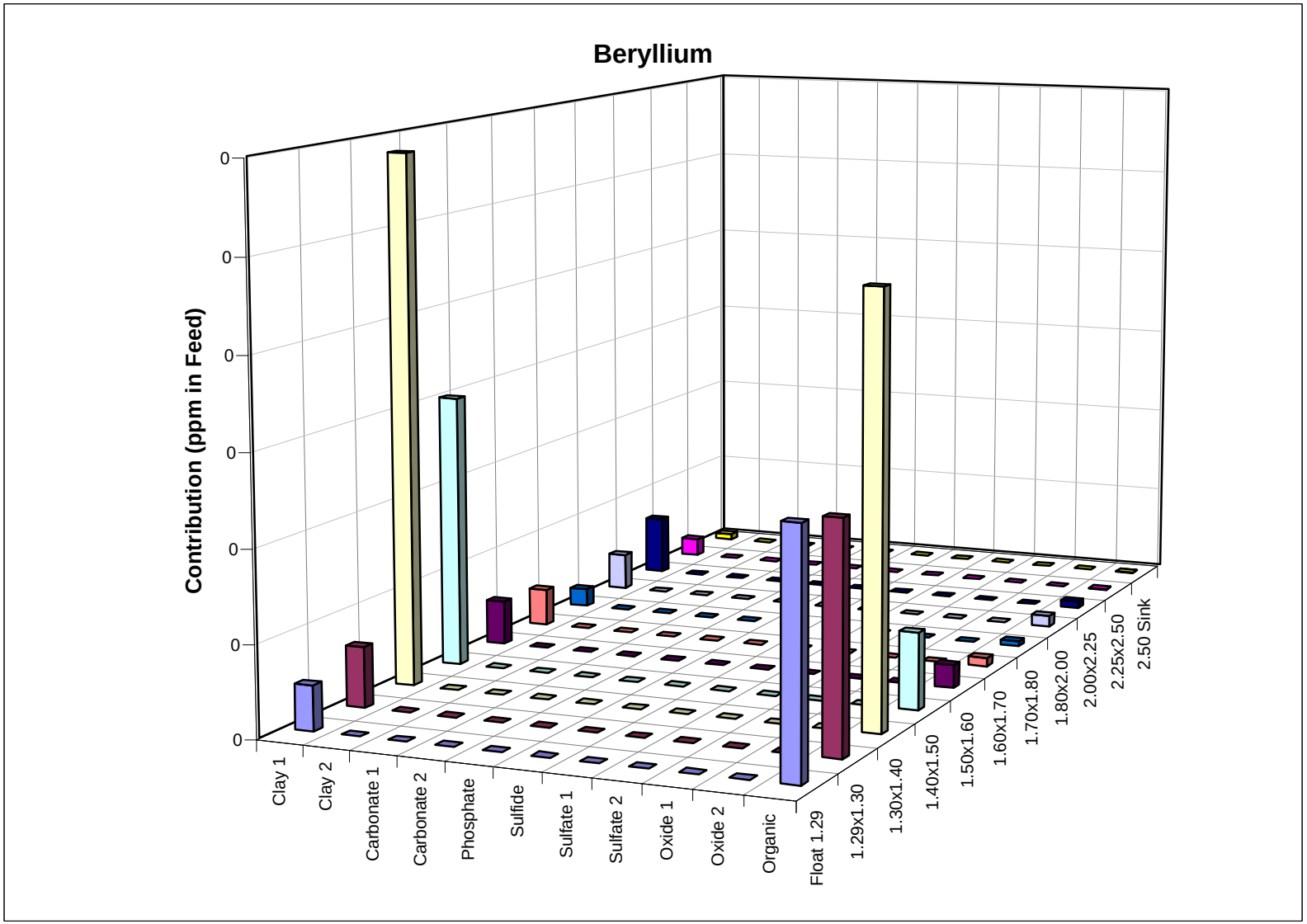

Ash
Contribution (ppm in SG Class)
0
10
20
30
40
50
60
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

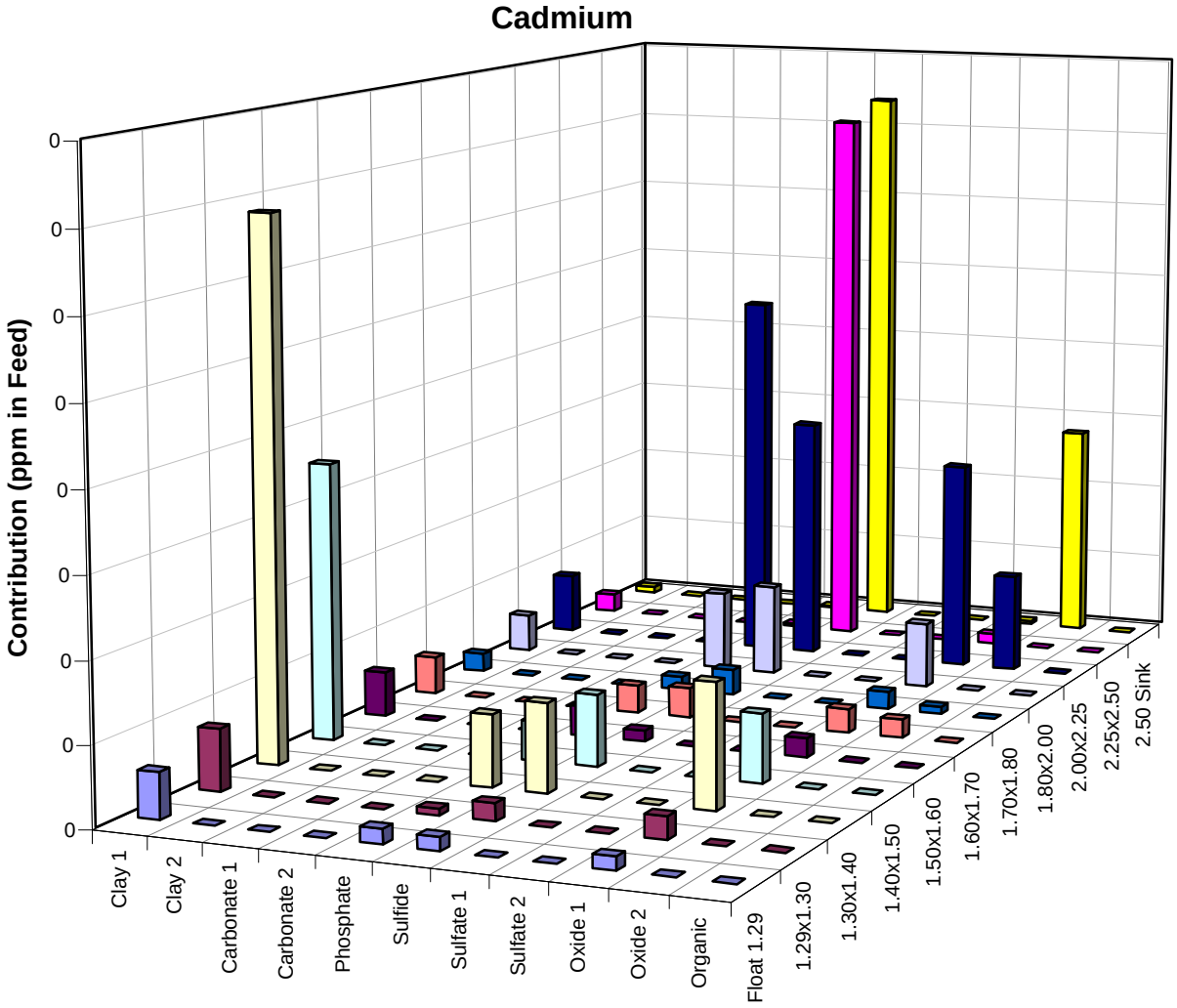

Pyritic Sulfur
Contribution (ppm in SG Class)
0
5
10
15
20
25
30
35
40
45
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

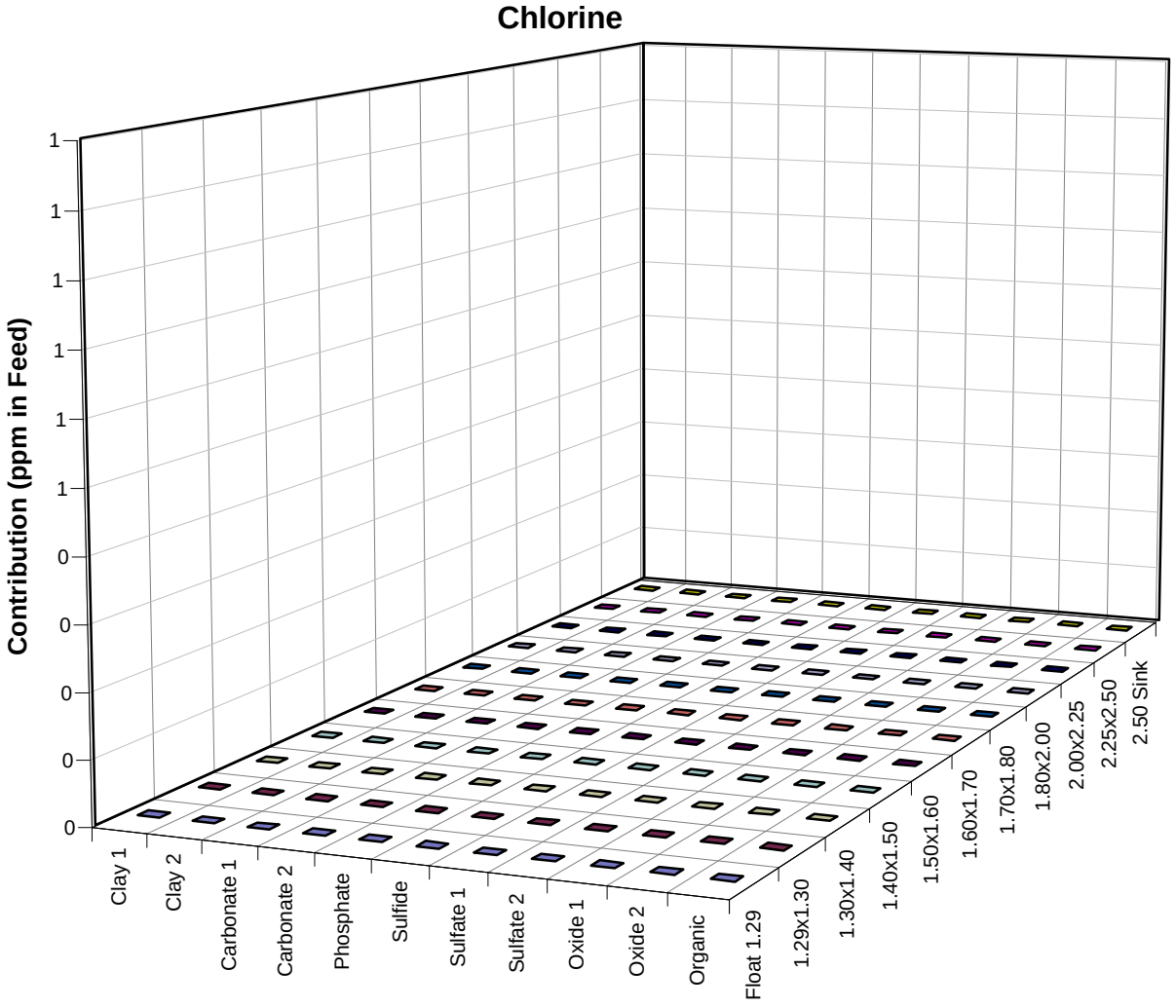

Organic Sulfur
Contribution (ppm in SG Class)
0
1
1
2
2
3
3
4
4
5
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

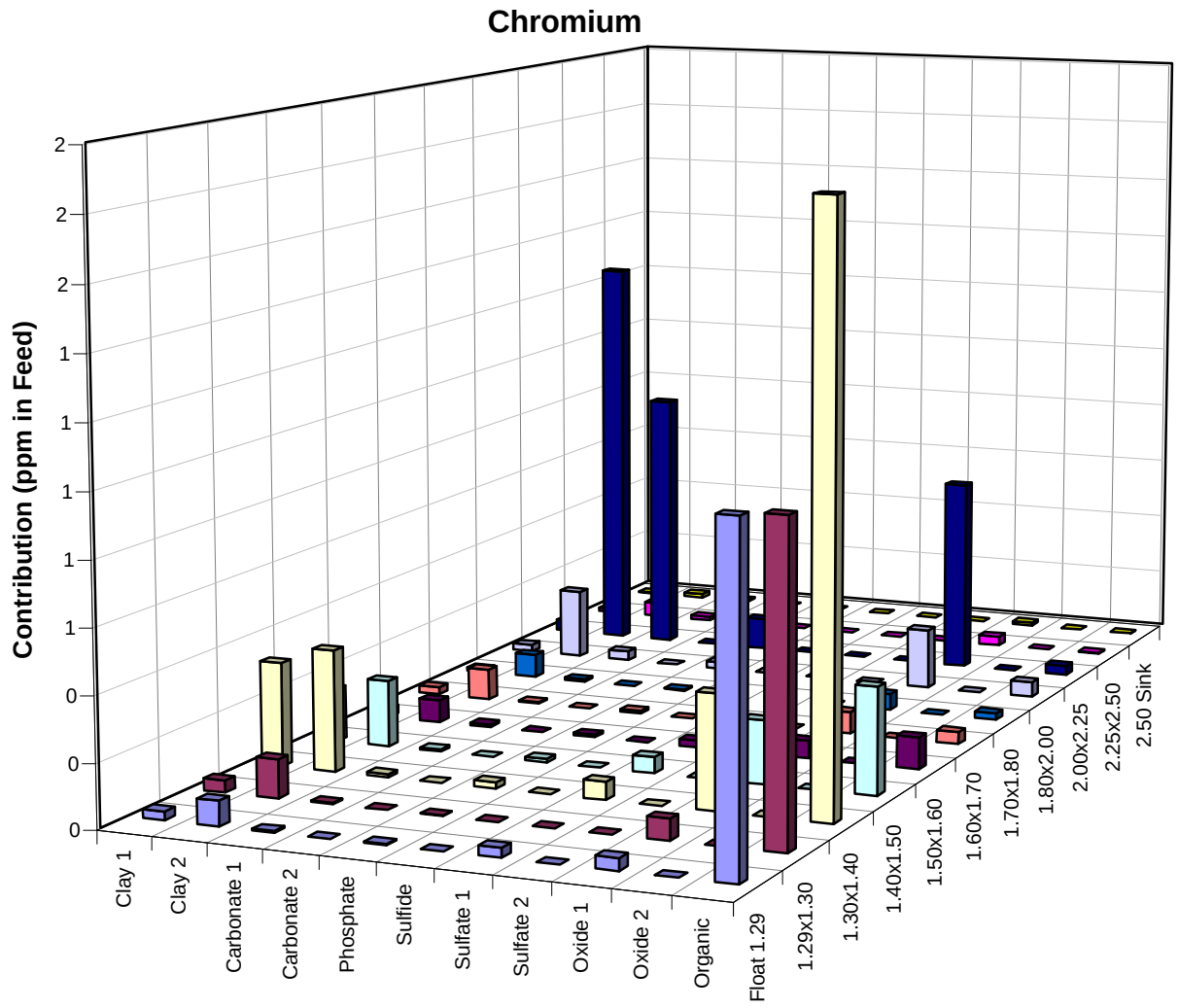

Antimony
Contribution (ppm in Feed)
0
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

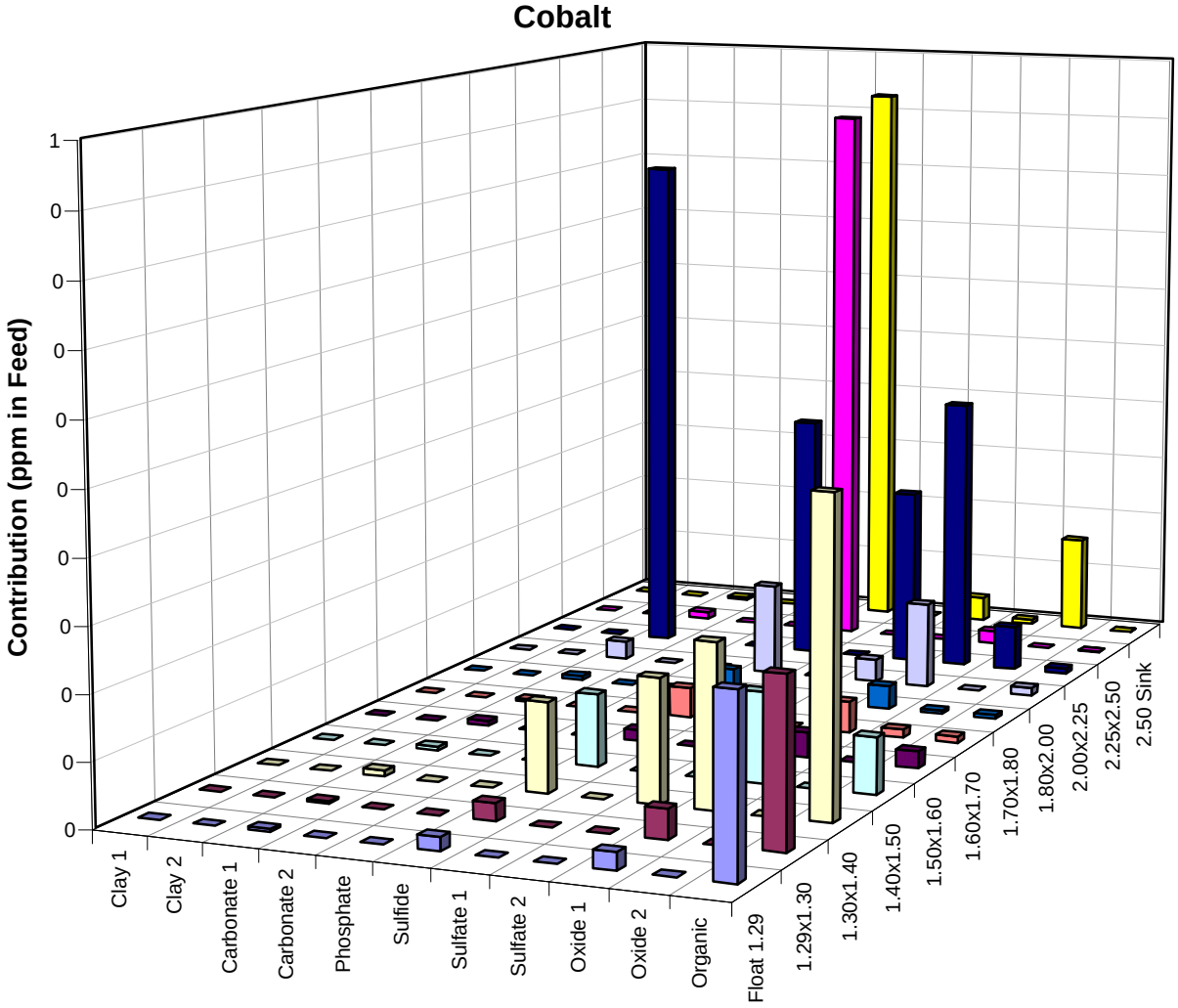

Arsenic
Contribution (ppm in Feed)
0
1
2
3
4
5
6
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

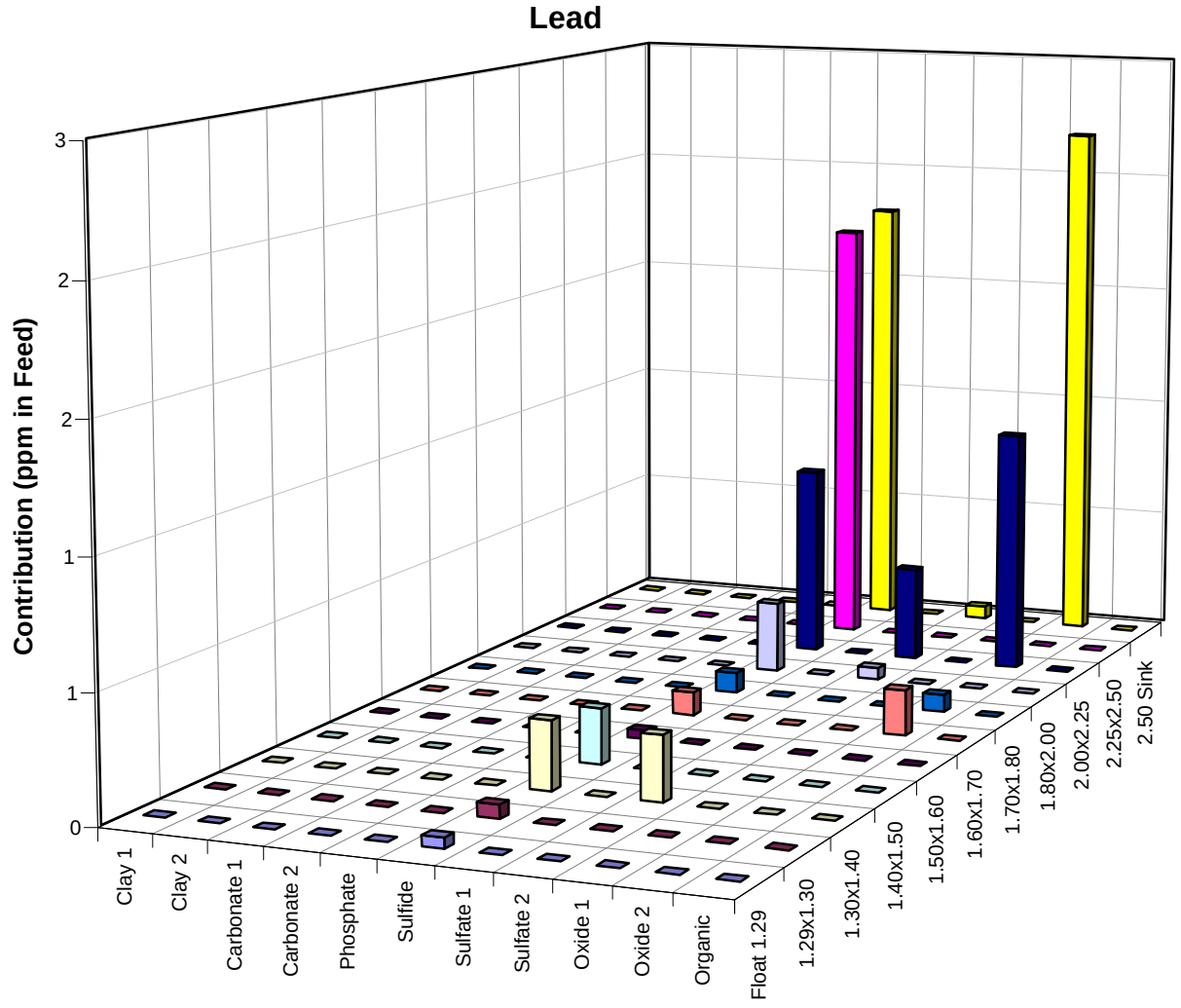

Beryllium
Contribution (ppm in Feed)
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

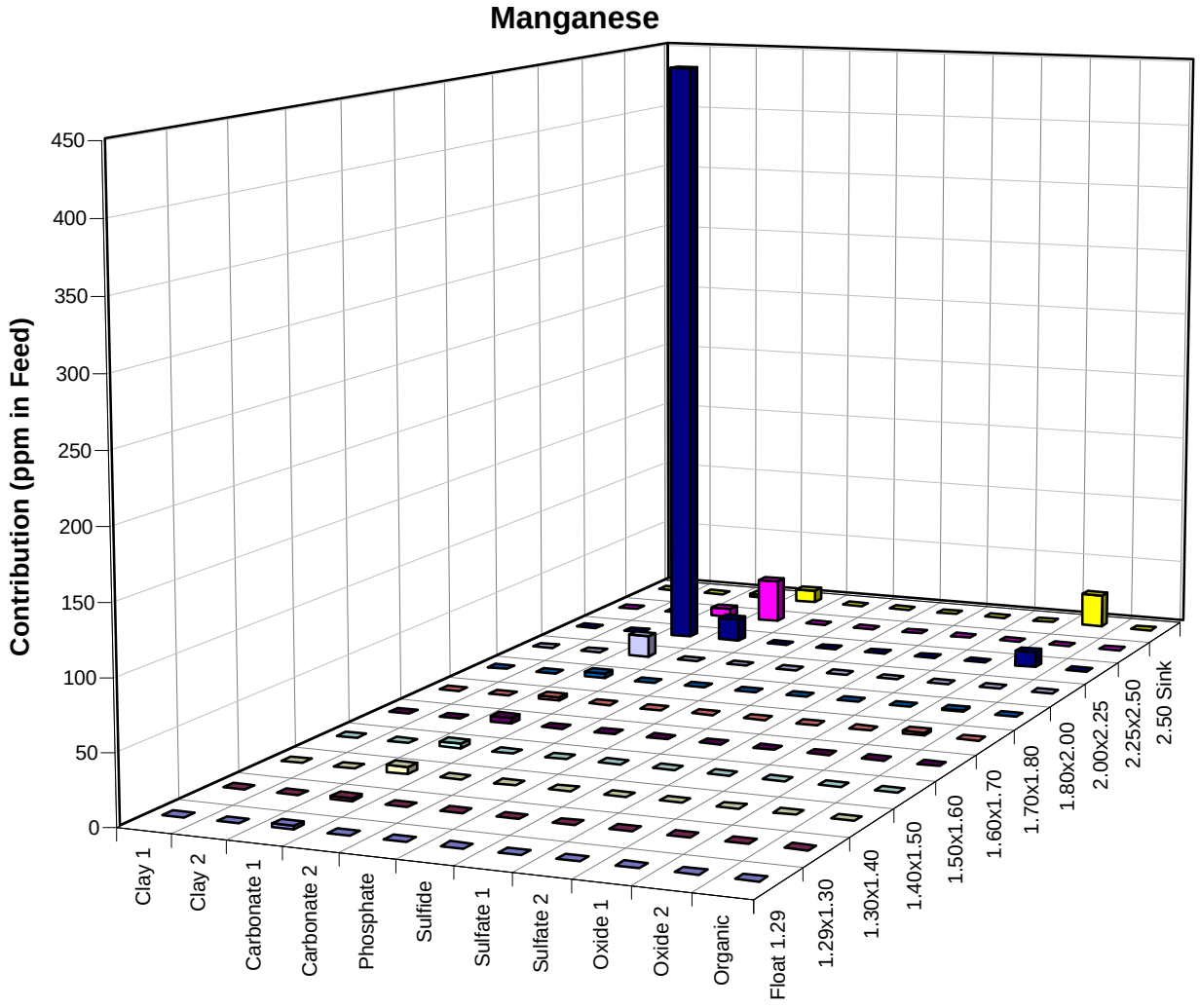

Cadmium
Contribution (ppm in Feed)
0
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

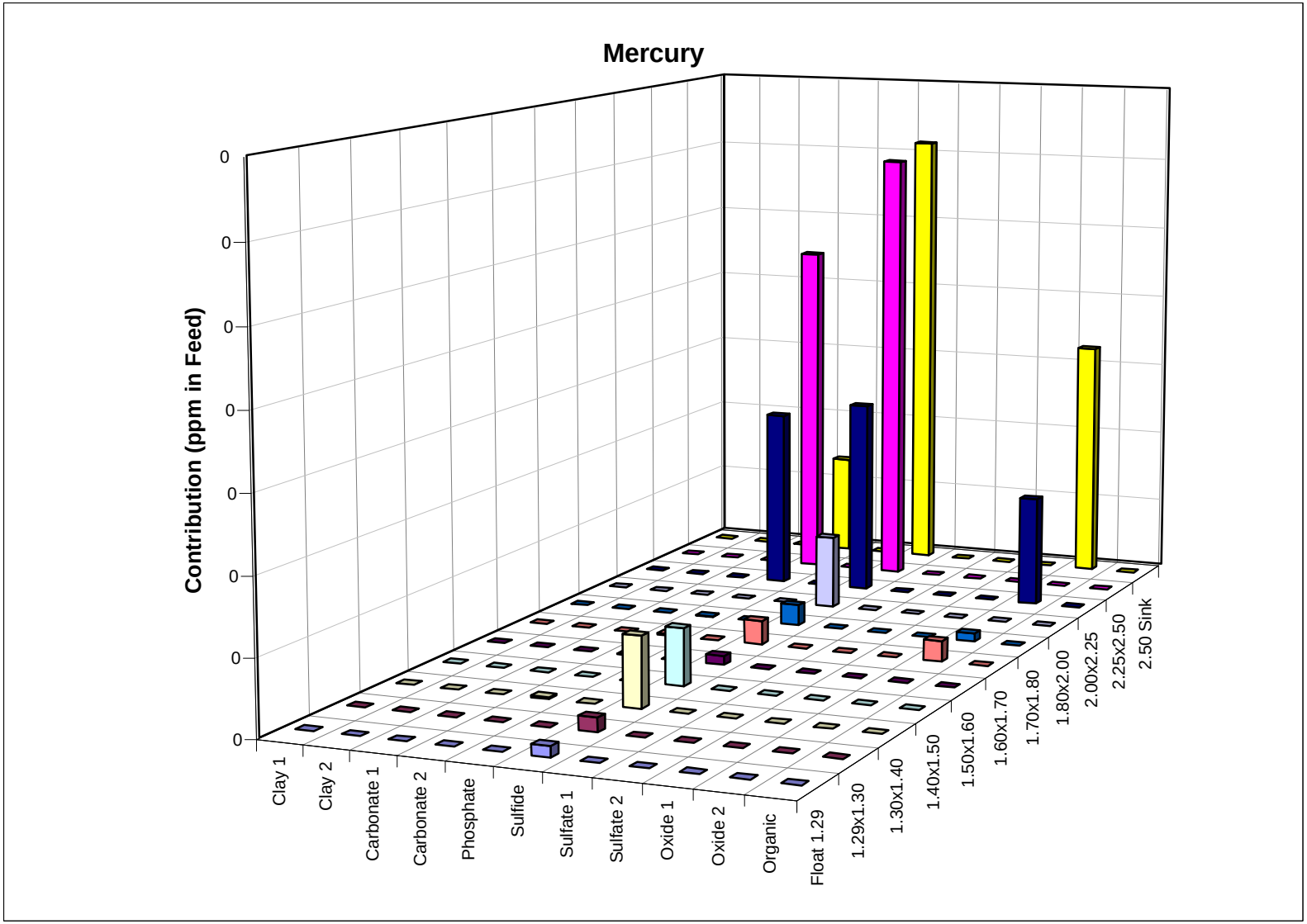

Chlorine
Contribution (ppm in Feed)
1
1
1
1
1
1
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

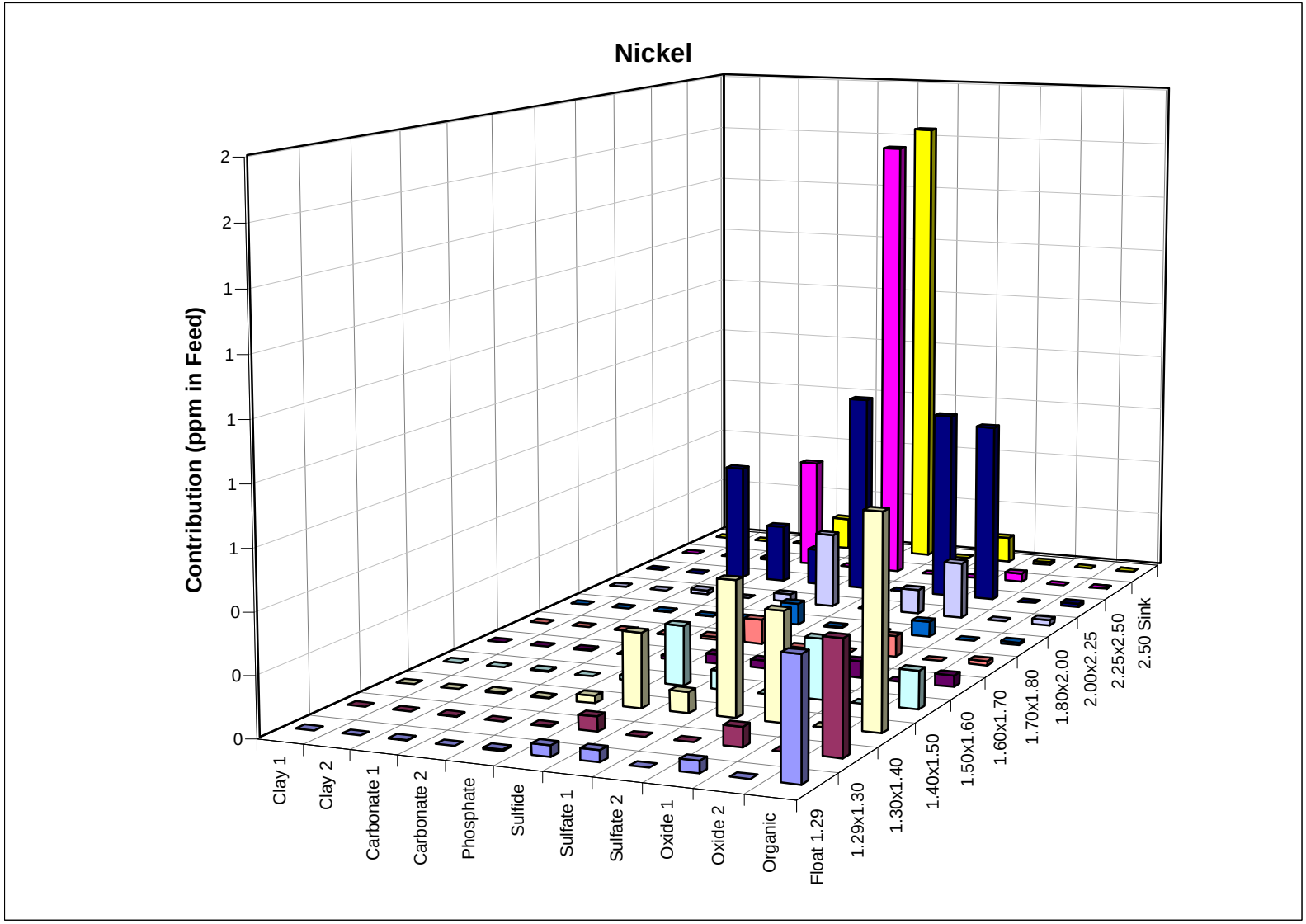

Chromium
Contribution (ppm in Feed)
0
0
0
1
1
1
1
1
2
2
2
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

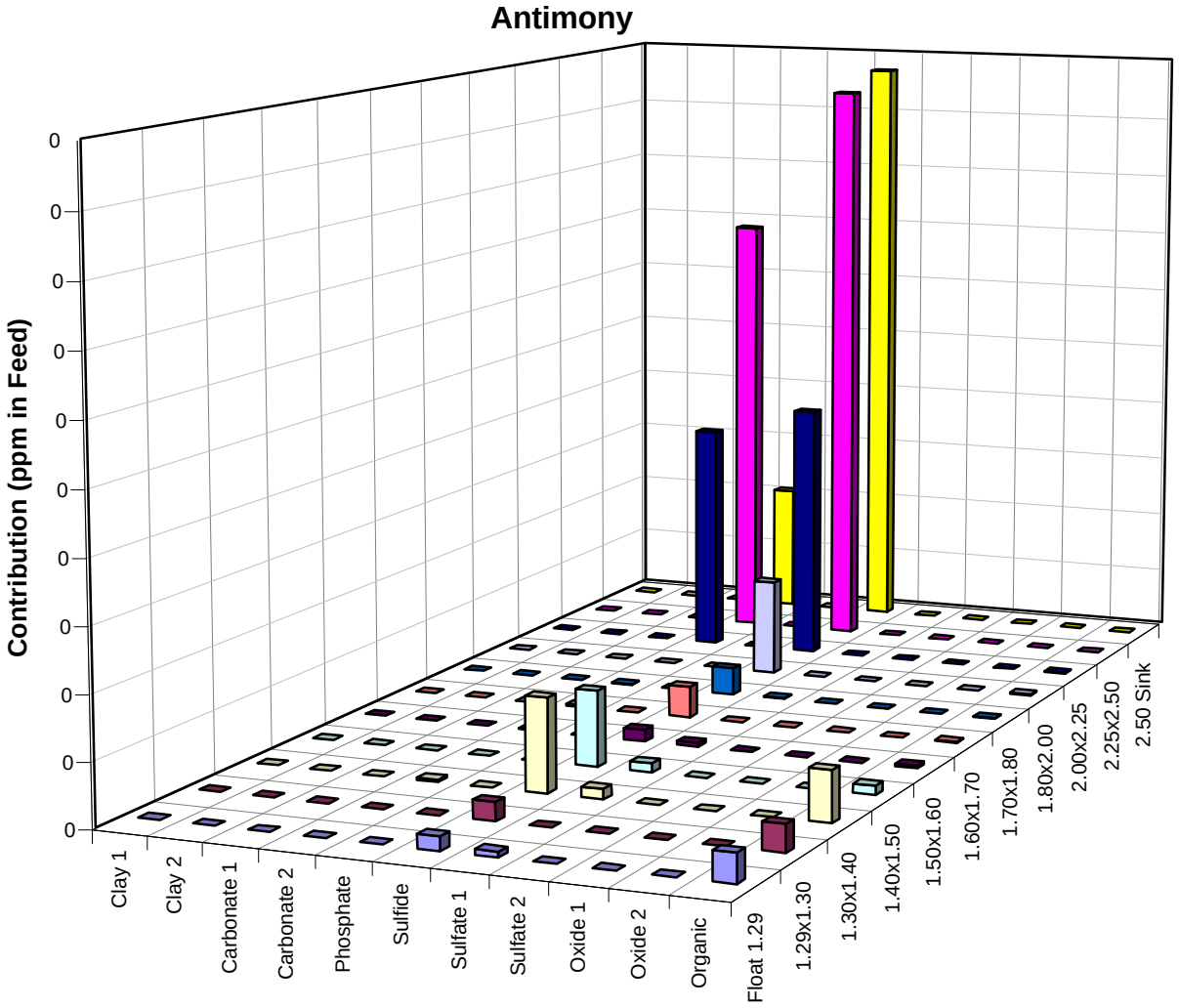

Cobalt
Contribution (ppm in Feed)
1
0
0
0
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

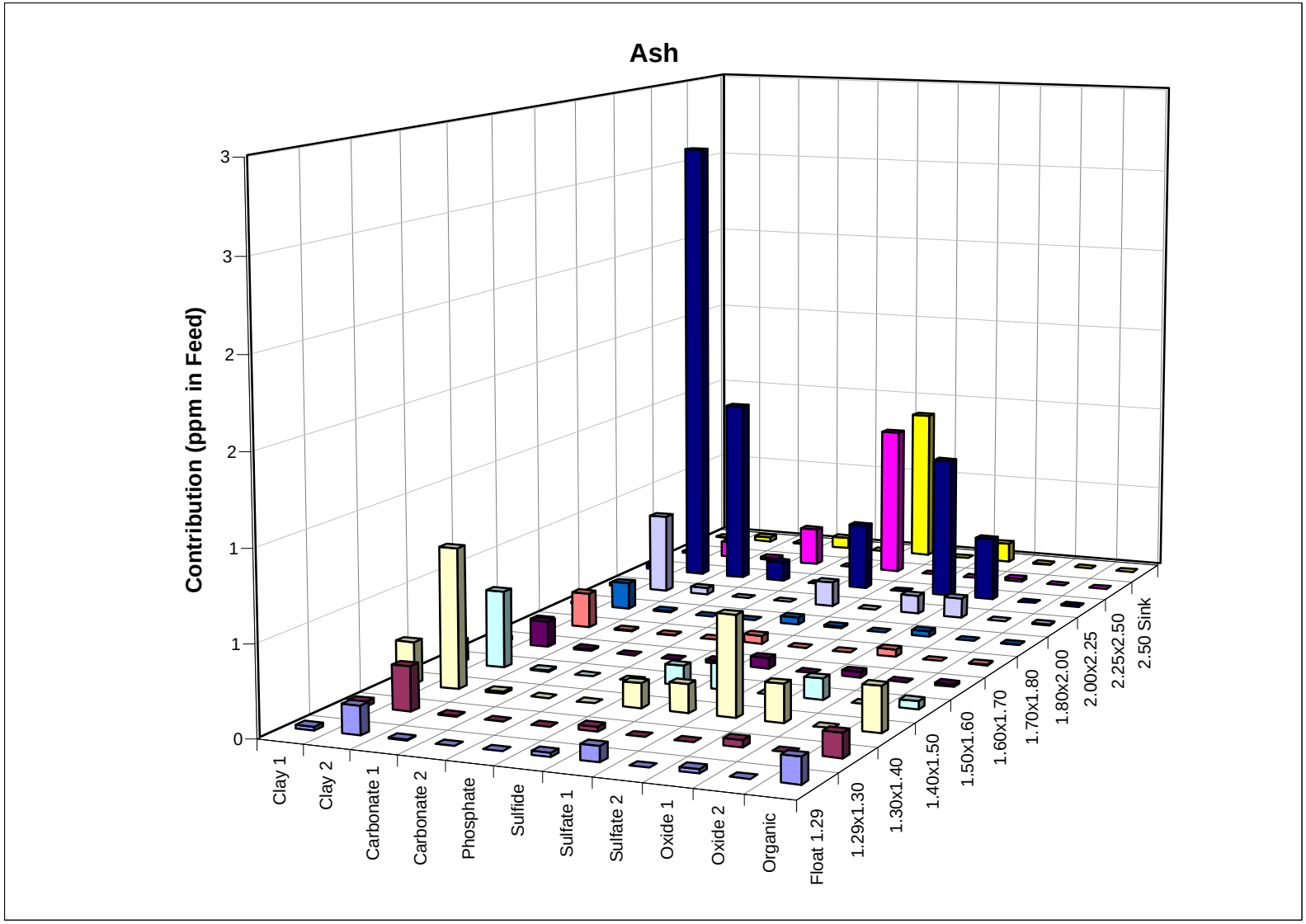

Lead
Contribution (ppm in Feed)
0
1
1
2
2
3
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

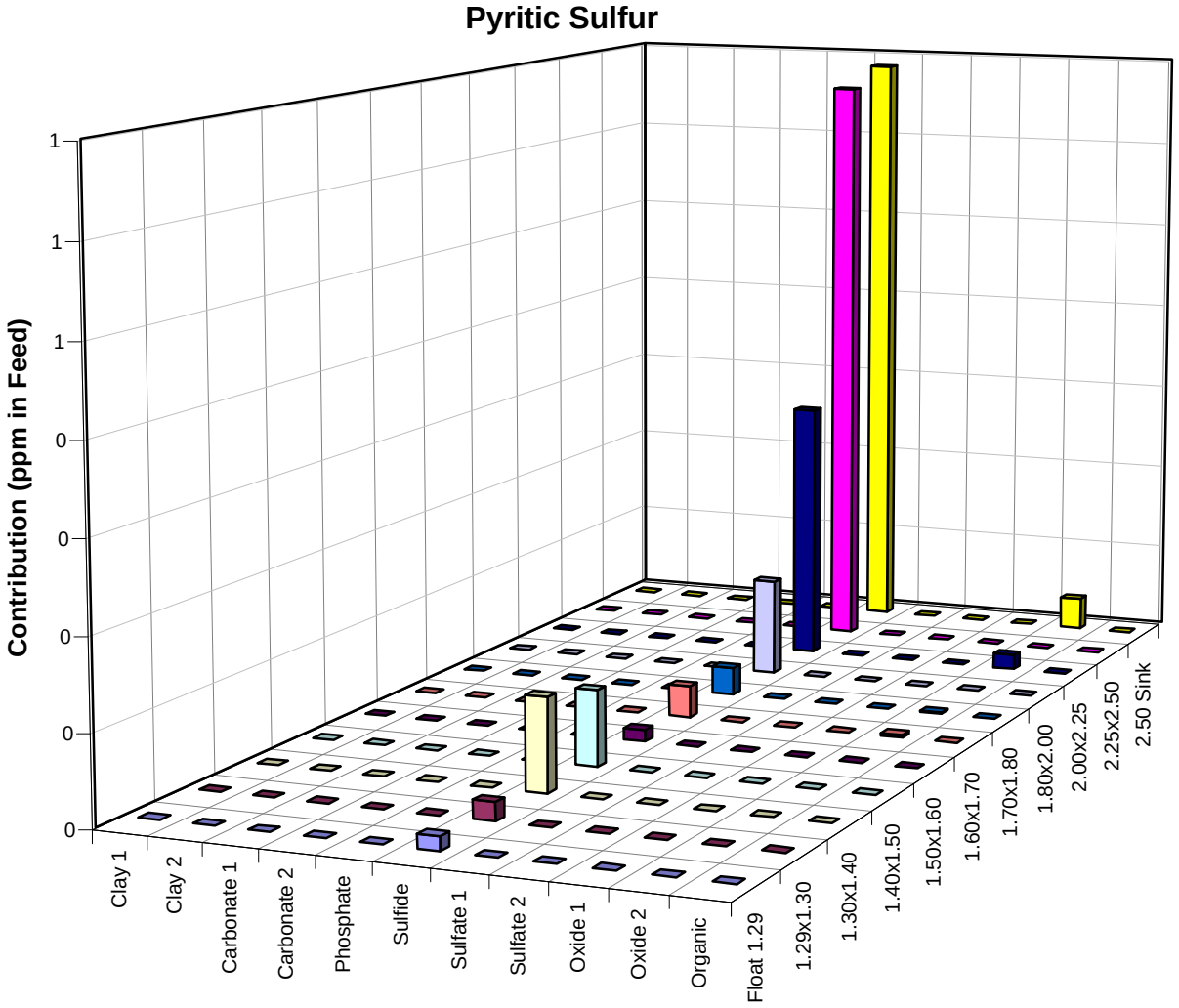

Manganese
Contribution (ppm in Feed)
450
400
350
300
250
200
150
100
50
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

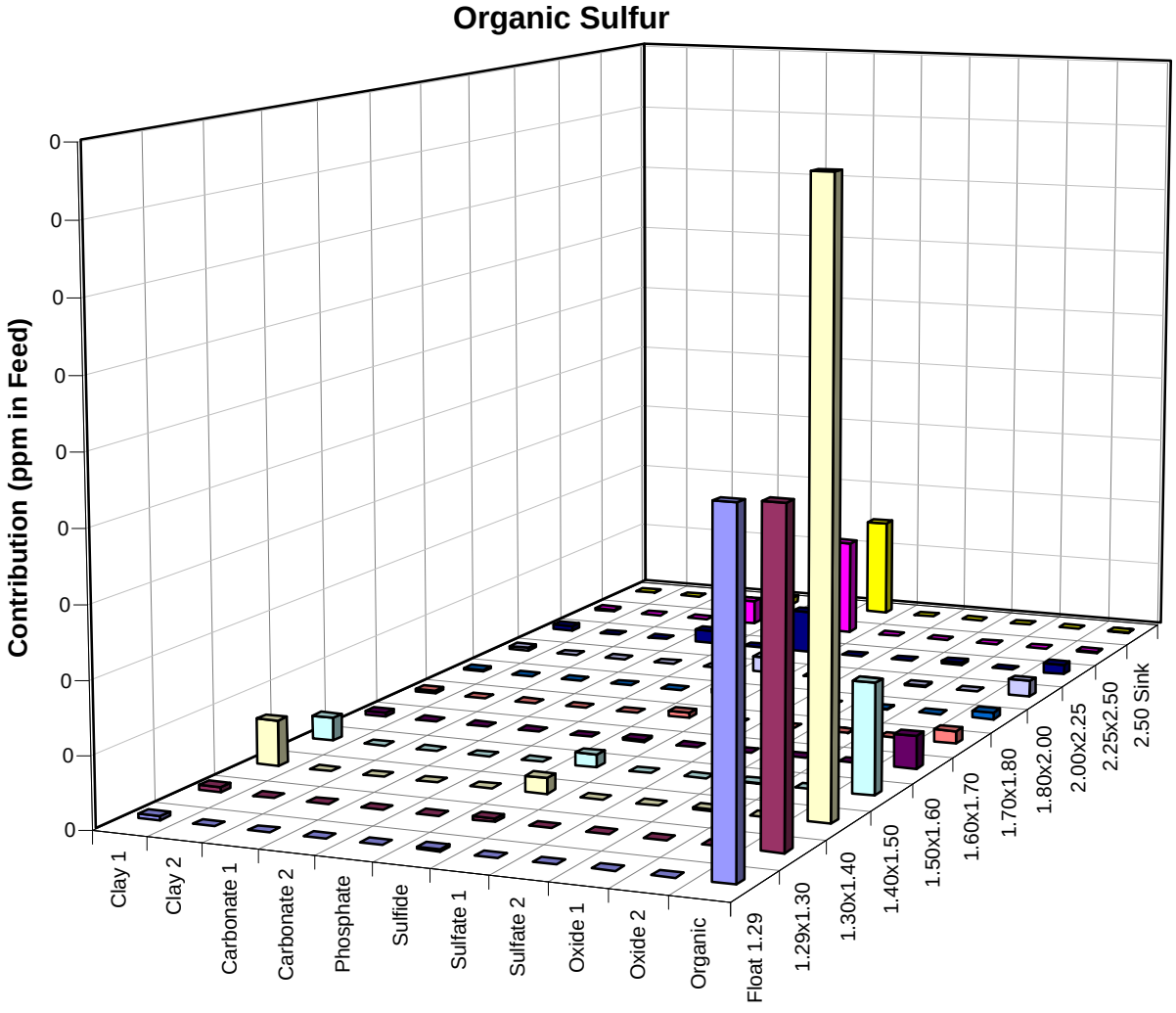

Mercury
Contribution (ppm in Feed)
0
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink


Nickel
Contribution (ppm in Feed)
0
0
0
1
1
1
1
1
2
2
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink


Antimony
Contribution (ppm in Feed)
0
0
0
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink


Ash
Contribution (ppm in Feed)
0
1
1
2
2
3
3
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink


Pyritic Sulfur
Contribution (ppm in Feed)
1
1
1
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink


Organic Sulfur
Contribution (ppm in Feed)
0
0
0
0
0
0
0
0
0
0
Clay 1
Clay 2
Carbonate 1
Carbonate 2
Phosphate
Sulfide
Sulfate 1
Sulfate 2
Oxide 1
Oxide 2
Organic
Float 1.29
1.29x1.30
1.30x1.40
1.40x1.50
1.50x1.60
1.60x1.70
1.70x1.80
1.80x2.00
2.00x2.25
2.25x2.50
2.50 Sink

APPENDIX XVII

PEARSON CORRELATION COEFFICIENTS BETWEEN MINERAL CONSTITUENTS AND INDIVIDUAL TRACE ELEMENTS

	Individual Linear Regression Slope											
CLASSIFICATION	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
CLAY MINERALS	-0.22	-2.15	0.01	0.00	#DIV/0!	1.34	-0.01	-1.94	116.49	-0.04	-0.39	-0.20
Kaolinite	-1.58	-24.34	0.18	-0.05	#DIV/0!	2.40	-2.10	-14.80	-385.86	-0.25	-7.45	-1.16
K-clay	-0.31	-2.83	0.01	0.00	#DIV/0!	2.00	0.00	-2.73	161.56	-0.06	-0.53	-0.30
Na-Clay	-3.71	90.94	0.86	0.27	#DIV/0!	17.60	2.34	-23.36	-2707.57	0.04	16.53	3.18
K-clay/apatite mix	-1.34	-10.30	0.09	0.02	#DIV/0!	9.41	-0.73	-14.71	-256.12	-0.37	-4.33	-1.35
Other clays	-0.18	0.26	-0.06	0.00	#DIV/0!	3.35	0.80	-0.81	710.71	-0.03	1.59	-0.27
CARBONATES	0.00	1.66	-0.02	0.00	#DIV/0!	0.71	0.29	0.31	162.95	0.01	0.80	0.02
Calcite	-0.05	-0.05	-0.01	0.00	#DIV/0!	0.78	0.17	-0.24	160.63	-0.01	0.33	-0.07
Dolomite	-2.18	-21.59	0.17	0.02	#DIV/0!	12.62	-2.04	-24.48	-832.73	-0.60	-9.44	-2.20
Ankerite	1.39	48.91	-0.07	0.10	#DIV/0!	-1.74	3.40	16.63	293.90	0.42	14.22	2.44
Siderite	14.49	1693.60	-1.97	2.76	#DIV/0!	-75.04	97.83	335.83	5576.31	13.90	474.30	91.81
Sr-Ca carbonate	46.42	#######	-24.16	19.39	#DIV/0!	-1001.89	756.88	2353.65	#######	123.13	3972.59	831.42
Ba-Ca carbonate	-1073.75	#######	-86.60	-92.78	#DIV/0!	-2764.01	-2359.53	#######	#######	-166.75	-8072.40	-918.00
PHOSPHATES	-4.95	-55.13	-0.06	-0.04	#DIV/0!	36.57	0.80	-44.54	3706.73	-1.07	-8.39	-5.60
Apatite	-6.60	-74.78	0.16	-0.03	#DIV/0!	42.60	-1.39	-62.09	2719.31	-1.45	-16.59	-7.01
Monazite	-17.01	-193.28	-3.66	-0.75	#DIV/0!	204.34	35.71	-115.94	#######	-3.26	42.92	-25.89
Fe-Ca phosphate	-11.84	-105.67	-3.03	-0.41	#DIV/0!	169.08	33.52	-73.06	#######	-2.29	49.69	-19.16
Al-Sr-REE phosphate	-41.68	-371.94	-10.65	-1.46	#DIV/0!	595.15	118.01	-257.17	#######	-8.06	174.90	-67.46
SULFIDES	0.21	3.97	-0.01	0.01	#DIV/0!	-0.15	0.31	1.99	17.86	0.04	1.16	0.18
Pyrite	0.21	3.97	-0.01	0.01	#DIV/0!	-0.15	0.31	1.99	17.87	0.04	1.16	0.18
Sphalerite	-136.28	-584.85	10.83	3.05	#DIV/0!	1081.46	-96.45	-1683.08	#######	-46.20	-524.70	-140.20
Other sulfides	-51.08	3596.48	0.84	3.18	#DIV/0!	-34.45	141.94	1.75	#######	21.22	853.47	186.18
SULFATES	232.54	1528.49	-13.86	10.77	#DIV/0!	807.57	389.79	1879.03	#######	5.64	834.86	-35.11
Gypsum	-507.19	#######	42.27	-17.92	#DIV/0!	-35.87	-934.02	-4970.29	#######	-91.59	-3342.71	-444.77
Barite	288.75	3313.24	-19.47	12.33	#DIV/0!	679.05	499.74	2496.80	#######	21.87	1322.16	54.21
OXIDES/SILICATES	-0.33	-2.50	0.01	0.00	#DIV/0!	2.77	0.09	-3.05	189.40	-0.08	-0.40	-0.35
Quartz	-0.46	-4.31	0.02	0.00	#DIV/0!	2.91	-0.07	-4.23	172.66	-0.09	-0.96	-0.44
Rutile	-6.85	-5.67	-0.15	0.04	#DIV/0!	60.64	6.39	-55.88	6083.13	-1.21	8.46	-5.29
Fe-Oxide	38.31	412.07	-0.60	1.45	#DIV/0!	-15.64	40.42	328.36	2604.04	4.12	126.44	15.91
Sphene	-27.42	-244.70	-7.01	-0.96	#DIV/0!	391.55	77.64	-169.19	#######	-5.30	115.07	-44.38
Zircon	-234.65	-3749.66	-3.02	-7.34	#DIV/0!	457.62	-377.56	-2740.24	#######	-59.31	-1386.47	-210.50
Aluminum Oxides	88.96	#######	-22.23	22.55	#DIV/0!	-867.84	838.37	2751.11	#######	127.43	4227.48	851.14
Other silicates	13.13	561.10	-1.82	1.28	#DIV/0!	55.22	54.24	172.83	#######	3.81	189.00	21.12
MINERAL MATTER	0.13	2.95	-0.01	0.01	#DIV/0!	0.08	0.26	1.35	39.48	0.02	0.91	0.12
ORGANIC MATTER	-0.13	-2.95	0.01	-0.01	#DIV/0!	-0.08	-0.26	-1.35	-39.48	-0.02	-0.91	-0.12

	Correlation Coefficient (Square Root of Pearsons Coefficient)											
CLASSIFICATION	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
CLAY MINERALS	-0.26	-0.15	0.14	-0.08	#DIV/0!	0.98	-0.01	-0.25	0.51	-0.32	-0.09	-0.30
Kaolinite	-0.35	-0.33	0.90	-0.25	#DIV/0!	0.34	-0.35	-0.37	-0.33	-0.38	-0.34	-0.33
K-clay	-0.23	-0.13	0.11	-0.06	#DIV/0!	0.96	0.00	-0.23	0.47	-0.31	-0.08	-0.29
Na-Clay	-0.10	0.15	0.53	0.15	#DIV/0!	0.30	0.05	-0.07	-0.28	0.01	0.09	0.11
K-clay/apatite mix	-0.13	-0.06	0.19	0.05	#DIV/0!	0.57	-0.05	-0.16	-0.09	-0.24	-0.09	-0.17
Other clays	-0.06	0.01	-0.46	-0.02	#DIV/0!	0.73	0.21	-0.03	0.94	-0.07	0.11	-0.12
CARBONATES	0.00	0.16	-0.53	0.10	#DIV/0!	0.69	0.33	0.05	0.97	0.06	0.25	0.04
Calcite	-0.07	0.00	-0.46	-0.02	#DIV/0!	0.75	0.20	-0.04	0.93	-0.09	0.10	-0.13
Dolomite	-0.14	-0.08	0.25	0.03	#DIV/0!	0.51	-0.10	-0.18	-0.20	-0.26	-0.12	-0.18
Ankerite	0.40	0.86	-0.47	0.63	#DIV/0!	-0.32	0.73	0.54	0.33	0.83	0.84	0.92
Siderite	0.09	0.66	-0.29	0.38	#DIV/0!	-0.31	0.47	0.24	0.14	0.61	0.63	0.77
Sr-Ca carbonate	0.03	0.56	-0.35	0.27	#DIV/0!	-0.41	0.36	0.17	0.07	0.54	0.52	0.69
Ba-Ca carbonate	-0.16	-0.23	-0.30	-0.30	#DIV/0!	-0.26	-0.26	-0.18	-0.18	-0.17	-0.25	-0.18
PHOSPHATES	-0.21	-0.14	-0.06	-0.04	#DIV/0!	0.96	0.02	-0.21	0.59	-0.30	-0.07	-0.30
Apatite	-0.22	-0.15	0.12	-0.02	#DIV/0!	0.90	-0.03	-0.23	0.35	-0.33	-0.11	-0.30
Monazite	-0.09	-0.06	-0.45	-0.09	#DIV/0!	0.70	0.14	-0.07	0.91	-0.12	0.05	-0.18
Fe-Ca phosphate	-0.08	-0.04	-0.45	-0.06	#DIV/0!	0.71	0.16	-0.05	0.93	-0.10	0.07	-0.16
Al-Sr-REE phosphate	-0.08	-0.04	-0.45	-0.06	#DIV/0!	0.71	0.16	-0.05	0.93	-0.10	0.07	-0.16
SULFIDES	0.85	0.99	-0.49	0.93	#DIV/0!	-0.39	0.95	0.92	0.28	1.00	0.98	0.97
Pyrite	0.85	0.99	-0.49	0.93	#DIV/0!	-0.39	0.95	0.92	0.28	1.00	0.98	0.97
Sphalerite	-0.09	-0.02	0.16	0.04	#DIV/0!	0.45	-0.05	-0.12	-0.18	-0.21	-0.07	-0.12
Other sulfides	-0.07	0.28	0.02	0.09	#DIV/0!	-0.03	0.14	0.00	-0.09	0.19	0.22	0.31
SULFATES	0.29	0.11	-0.39	0.28	#DIV/0!	0.62	0.35	0.26	0.77	0.05	0.21	-0.06
Gypsum	-0.30	-0.38	0.56	-0.22	#DIV/0!	-0.01	-0.40	-0.32	-0.34	-0.36	-0.40	-0.33
Barite	0.39	0.27	-0.59	0.36	#DIV/0!	0.58	0.50	0.38	0.85	0.20	0.36	0.09
OXIDES/SILICATES	-0.17	-0.08	0.13	0.01	#DIV/0!	0.92	0.04	-0.18	0.38	-0.27	-0.04	-0.24
Quartz	-0.23	-0.13	0.18	-0.04	#DIV/0!	0.92	-0.03	-0.24	0.33	-0.32	-0.10	-0.28
Rutile	-0.17	-0.01	-0.08	0.02	#DIV/0!	0.94	0.12	-0.15	0.57	-0.20	0.04	-0.17
Fe-Oxide	0.96	0.62	-0.34	0.78	#DIV/0!	-0.25	0.75	0.92	0.25	0.70	0.65	0.51
Sphene	-0.08	-0.04	-0.45	-0.06	#DIV/0!	0.71	0.16	-0.05	0.93	-0.10	0.07	-0.16
Zircon	-0.14	-0.13	-0.04	-0.09	#DIV/0!	0.17	-0.17	-0.18	-0.23	-0.24	-0.17	-0.16
Aluminum Oxides	0.06	0.62	-0.34	0.32	#DIV/0!	-0.37	0.42	0.21	0.10	0.58	0.58	0.74
Other silicates	0.20	0.51	-0.62	0.41	#DIV/0!	0.52	0.60	0.29	0.92	0.39	0.58	0.41
MINERAL MATTER	0.65	0.85	-0.55	0.81	#DIV/0!	0.23	0.92	0.73	0.73	0.77	0.90	0.74
ORGANIC MATTER	-0.65	-0.85	0.55	-0.81	#DIV/0!	-0.23	-0.92	-0.73	-0.73	-0.77	-0.90	-0.74

	Correlation Coefficient Comparison (L=Large, M=Moderate, S=Small)											
CLASSIFICATION	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
CLAY MINERALS					#DIV/0!	+L						
Kaolinite			+M		#DIV/0!							
K-clay					#DIV/0!	+L						
Na-Clay					#DIV/0!							
K-clay/apatite mix					#DIV/0!							
Other clays					#DIV/0!				+M			
CARBONATES					#DIV/0!				+L			
Calcite					#DIV/0!				+M			
Dolomite					#DIV/0!							
Ankerite		+M			#DIV/0!					+S	+S	+M
Siderite					#DIV/0!							+S
Sr-Ca carbonate					#DIV/0!							
Ba-Ca carbonate					#DIV/0!							
PHOSPHATES					#DIV/0!	+L						
Apatite					#DIV/0!	+M						
Monazite					#DIV/0!				+M			
Fe-Ca phosphate					#DIV/0!				+M			
Al-Sr-REE phosphate					#DIV/0!				+M			
SULFIDES	+S	+L		+M	#DIV/0!		+L	+M		+L	+L	+L
Pyrite	+S	+L		+M	#DIV/0!		+L	+M		+L	+L	+L
Sphalerite					#DIV/0!							
Other sulfides					#DIV/0!							
SULFATES					#DIV/0!				+S			
Gypsum					#DIV/0!							
Barite					#DIV/0!				+M			
OXIDES/SILICATES					#DIV/0!	+M						
Quartz					#DIV/0!	+M						
Rutile					#DIV/0!	+M						
Fe-Oxide	+L			+S	#DIV/0!			+M				
Sphene					#DIV/0!				+M			
Zircon					#DIV/0!							
Aluminum Oxides					#DIV/0!							
Other silicates					#DIV/0!				+M			
MINERAL MATTER		+M		+S	#DIV/0!		+M			+S	+M	
ORGANIC MATTER		-M		-S	#DIV/0!		-M			-S	-M	

	Correlation Coefficient (Square Root of Pearsons Coefficient)											
PARAMETER	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash (dry, %)	0.55	0.74	-0.52	0.72	#DIV/0!	0.41	0.84	0.61	0.79	0.63	0.80	0.61
Pyritic (dry, %)	0.87	0.98	-0.49	0.93	#DIV/0!	-0.41	0.95	0.93	0.27	1.00	0.97	0.97
Organic (dry, %)	0.76	0.95	-0.38	0.85	#DIV/0!	-0.55	0.84	0.84	0.07	0.97	0.91	0.98
Sulfur (dry, %)	0.86	0.98	-0.48	0.93	#DIV/0!	-0.43	0.94	0.92	0.25	1.00	0.97	0.97
Parr Mineral Matter (%)	0.66	0.86	-0.55	0.83	#DIV/0!	0.23	0.93	0.74	0.71	0.77	0.90	0.74
Parr Organic Matter (%)	-0.66	-0.86	0.55	-0.83	#DIV/0!	-0.23	-0.93	-0.74	-0.71	-0.77	-0.90	-0.74

	Correlation Coefficient Comparison (L=Large, M=Moderate, S=Small)											
PARAMETER	Sb	As	Be	Cd	Cl	Cr	Co	Pb	Mn	Hg	Ni	Se
Ash (dry, %)					#DIV/0!		+S		+S		+S	
Pyritic (dry, %)	+M	+L		+M	#DIV/0!		+M	+M		+L	+L	+L
Organic (dry, %)	+S	+M		+M	#DIV/0!		+S	+S		+L	+M	+L
Sulfur (dry, %)	+M	+L		+M	#DIV/0!		+M	+M		+L	+L	+L
Parr Mineral Matter (%)		+M		+S	#DIV/0!		+M			+S	+M	
Parr Organic Matter (%)		-M		-S	#DIV/0!		-M			-S	-M	

APPENDIX XVIII

MULTIPLE LINEAR REGRESSION COEFFICIENTS FROM THE CHARACTERIZATION DATA

	Clays		Carbonates		Phosph.	Sulfides	Sulfates		Oxides/Silicates		Organics
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic
Float 1.29	0.326	0.547	0.078	0.000	0.013	0.173	0.002	0.000	0.216	0.000	98.645
1.29x1.30	0.465	0.896	0.062	0.000	0.006	0.245	0.000	0.000	0.391	0.000	97.935
1.30x1.40	2.099	1.451	0.085	0.002	0.034	0.632	0.002	0.004	1.099	0.000	94.592
1.40x1.50	5.356	3.965	0.284	0.000	0.093	2.547	0.009	0.000	3.029	0.000	84.717
1.50x1.60	2.973	4.589	1.281	0.016	0.239	1.344	0.013	0.000	2.883	0.000	86.662
1.60x1.70	4.985	12.567	1.244	0.058	0.447	7.321	0.000	0.000	7.266	0.088	66.024
1.70x1.80	3.849	15.251	3.172	0.020	0.345	9.960	0.008	0.000	8.524	0.053	58.818
1.80x2.00	2.897	16.732	5.390	0.000	0.751	12.968	0.000	0.015	11.635	0.000	49.612
2.00x2.25	1.273	26.590	41.354	1.128	0.969	9.668	0.000	0.032	10.341	0.076	8.569
2.25x2.50	1.420	3.425	2.156	7.799	0.029	79.860	0.000	0.000	1.825	0.000	3.486
2.50 Sink	0.534	1.104	0.895	2.567	0.013	91.618	0.000	0.018	0.678	0.677	1.896

	Sb	As	Be	Cd	Cl	Cr	Co	F	Pb	Mn	Hg	Ni	Se
Float 1.29	0.16	1.00	0.18	0.01	0.00	5.41	0.72	0.00	0.16	15.58	0.02	2.38	0.03
1.29x1.30	0.39	1.43	0.39	0.04	0.00	6.15	0.94	0.00	0.21	21.85	0.02	2.37	0.07
1.30x1.40	0.63	2.51	0.61	0.01	0.00	9.17	1.16	0.00	1.44	39.00	0.01	5.30	0.17
1.40x1.50	0.56	8.60	0.94	0.08	0.00	13.28	2.53	0.00	3.16	67.80	0.02	8.12	0.37
1.50x1.60	0.36	11.02	0.76	0.36	0.00	12.72	2.44	0.00	4.84	197.80	0.03	7.54	0.37
1.60x1.70	1.35	41.44	1.04	0.25	0.00	21.60	5.32	0.00	14.55	204.14	0.26	16.78	0.59
1.70x1.80	2.11	70.76	0.75	0.29	0.00	25.47	6.93	0.00	16.67	281.97	0.10	20.95	1.20
1.80x2.00	3.12	102.28	0.47	0.46	0.00	28.45	9.63	0.00	24.34	436.38	0.17	31.36	2.56
2.00x2.25	2.17	75.84	0.01	0.28	0.00	42.51	14.67	0.00	26.72	6982.35	0.26	39.69	0.31
2.25x2.50	6.33	357.56	0.19	0.78	0.00	3.72	24.60	0.00	90.92	2004.79	2.80	105.90	17.73
2.50 Sink	27.53	347.72	0.10	1.23	0.00	1.55	33.41	0.00	239.51	2209.80	3.20	108.71	13.69

	Ash	Pyritic	Organic	Total
Float 1.29	1.77	0.05	1.27	1.32
1.29x1.30	2.96	0.09	1.22	1.31
1.30x1.40	6.32	0.25	1.22	1.47
1.40x1.50	13	0.9	1.2	2.1
1.50x1.60	13.68	0.91	1.22	2.13
1.60x1.70	28.52	2.93	1.45	4.38
1.70x1.80	36.7	3.9	1.61	5.51
1.80x2.00	46.46	5.44	1.43	6.87
2.00x2.25	78.83	3.4	0.52	3.92
2.25x2.50	64.86	35.19	4.86	40.05
2.50 Sink	65.89	42.75	4.61	47.36

Antimony	Contribuiton (ppm in SG Class)											Actual	Predicted	
	0.00	0.00	0.00	0.00	0.00	0.08	2.06	9.10	0.00	28.42	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.18	0.16	0.20	0.00
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.18	0.39	0.20	0.03
1.30x1.40	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.04	0.00	0.00	0.18	0.63	0.27	0.13
1.40x1.50	0.00	0.00	0.00	0.00	0.00	0.21	0.02	0.00	0.00	0.00	0.16	0.56	0.39	0.03
1.50x1.60	0.00	0.00	0.00	0.00	0.00	0.11	0.03	0.00	0.00	0.00	0.16	0.36	0.30	0.00
1.60x1.70	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00	2.50	0.12	1.35	3.24	3.58
1.70x1.80	0.00	0.00	0.00	0.00	0.00	0.84	0.02	0.00	0.00	1.51	0.11	2.11	2.47	0.13
1.80x2.00	0.00	0.00	0.00	0.00	0.00	1.09	0.00	0.14	0.00	0.00	0.09	3.12	1.32	3.23
2.00x2.25	0.00	0.00	0.00	0.00	0.00	0.81	0.00	0.29	0.00	2.16	0.02	2.17	3.28	1.24
2.25x2.50	0.00	0.00	0.00	0.00	0.00	6.73	0.00	0.00	0.00	0.00	0.01	6.33	6.74	0.17
2.50 Sink	0.00	0.00	0.00	0.00	0.00	7.72	0.00	0.16	0.00	19.24	0.00	27.53	27.13	0.16
Average	0.00	0.00	0.00	0.00	0.00	1.66	0.01	0.06	0.00	2.31	0.11		Total SSQ:	*8.70*

Arsenic	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.00	8.44	0.00	3.55	0.00	0.02	3.65	0.00	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.79	0.00	0.00	1.00	1.40	0.16
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.87	0.00	0.00	1.43	0.00	0.00	1.43	2.30	0.75
1.30x1.40	0.00	0.00	0.00	0.02	0.00	2.24	0.00	0.00	4.01	0.00	0.00	2.51	6.28	14.16
1.40x1.50	0.00	0.00	0.00	0.00	0.00	9.04	0.00	0.00	11.06	0.00	0.00	8.60	20.11	132.50
1.50x1.60	0.00	0.00	0.00	0.14	0.00	4.77	0.00	0.00	10.53	0.00	0.00	11.02	15.44	19.52
1.60x1.70	0.00	0.00	0.00	0.49	0.00	26.00	0.00	0.00	26.54	0.00	0.00	41.44	53.03	134.19
1.70x1.80	0.00	0.00	0.00	0.17	0.00	35.37	0.00	0.00	31.14	0.00	0.00	70.76	66.67	16.72
1.80x2.00	0.00	0.00	0.00	0.00	0.00	46.05	0.00	0.00	42.50	0.00	0.00	102.28	88.55	188.63
2.00x2.25	0.00	0.00	0.00	9.52	0.00	34.33	0.00	0.00	37.77	0.00	0.00	75.84	81.63	33.52
2.25x2.50	0.00	0.00	0.00	65.83	0.00	283.56	0.00	0.00	6.67	0.00	0.00	357.56	356.06	2.24
2.50 Sink	0.00	0.00	0.00	21.67	0.00	325.31	0.00	0.00	2.48	0.00	0.00	347.72	349.46	3.04
Average	0.00	0.00	0.00	8.89	0.00	69.83	0.00	0.00	15.90	0.00	0.00		Total SSQ:	*545.43*

Beryllium	0	0	0	0	0	0	0	0	0	0	0	Actual	Predicted	
	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.18	0.31	0.02
1.29x1.30	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.26	0.39	0.33	0.00
1.30x1.40	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.61	0.56	0.00
1.40x1.50	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.94	1.03	0.01
1.50x1.60	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.76	0.67	0.01
1.60x1.70	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	1.04	0.92	0.01
1.70x1.80	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.75	0.73	0.00
1.80x2.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.47	0.56	0.01
2.00x2.25	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.21	0.04
2.25x2.50	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.19	0.22	0.00
2.50 Sink	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.10	0.08	0.00
Average	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16		Total SSQ:	*0.10*

Cadmium	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.02	0.00	0.00	0.00	0.14	0.01	0.00	0.00	0.01	0.48	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
1.29x1.30	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.01	0.00
1.30x1.40	0.04	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.00	0.01	0.06	0.00
1.40x1.50	0.09	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.02	0.00	0.00	0.08	0.15	0.01
1.50x1.60	0.05	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.02	0.00	0.00	0.36	0.12	0.06
1.60x1.70	0.09	0.00	0.00	0.00	0.06	0.07	0.00	0.00	0.06	0.04	0.00	0.25	0.32	0.00
1.70x1.80	0.07	0.00	0.00	0.00	0.05	0.09	0.00	0.00	0.06	0.03	0.00	0.29	0.30	0.00
1.80x2.00	0.05	0.00	0.00	0.00	0.11	0.12	0.00	0.00	0.09	0.00	0.00	0.46	0.37	0.01
2.00x2.25	0.02	0.00	0.00	0.00	0.14	0.09	0.00	0.00	0.08	0.04	0.00	0.28	0.37	0.01
2.25x2.50	0.02	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.01	0.00	0.00	0.78	0.80	0.00
2.50 Sink	0.01	0.00	0.00	0.00	0.00	0.87	0.00	0.00	0.01	0.33	0.00	1.23	1.21	0.00
Average	0.04	0.00	0.00	0.00	0.04	0.19	0.00	0.00	0.03	0.04	0.00		Total SSQ:	*0.09*

Chlorine	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.30x1.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.40x1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.50x1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.60x1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.70x1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.80x2.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.00x2.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.25x2.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2.50 Sink	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Average	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Total SSQ:	*0.00*

Chromium	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.42	0.70	0.30	0.00	1.52	0.00	75.63	0.00	0.87	0.00	0.05	(ppm)	(ppm)	SSQ
Float 1.29	0.14	0.38	0.02	0.00	0.02	0.00	0.15	0.00	0.19	0.00	5.19	5.41	6.09	0.47
1.29x1.30	0.19	0.63	0.02	0.00	0.01	0.00	0.00	0.00	0.34	0.00	5.15	6.15	6.35	0.04
1.30x1.40	0.87	1.02	0.03	0.00	0.05	0.00	0.15	0.00	0.96	0.00	4.98	9.17	8.06	1.24
1.40x1.50	2.23	2.79	0.08	0.00	0.14	0.00	0.68	0.00	2.65	0.00	4.46	13.28	13.03	0.06
1.50x1.60	1.24	3.23	0.38	0.00	0.36	0.00	0.98	0.00	2.52	0.00	4.56	12.72	13.27	0.31
1.60x1.70	2.08	8.84	0.37	0.00	0.68	0.00	0.00	0.00	6.35	0.00	3.47	21.60	21.80	0.04
1.70x1.80	1.60	10.73	0.94	0.00	0.53	0.00	0.61	0.00	7.45	0.00	3.09	25.47	24.95	0.27
1.80x2.00	1.21	11.77	1.59	0.00	1.14	0.00	0.00	0.00	10.18	0.00	2.61	28.45	28.50	0.00
2.00x2.25	0.53	18.71	12.21	0.00	1.48	0.00	0.00	0.00	9.04	0.00	0.45	42.51	42.42	0.01
2.25x2.50	0.59	2.41	0.64	0.00	0.04	0.00	0.00	0.00	1.60	0.00	0.18	3.72	5.46	3.02
2.50 Sink	0.22	0.78	0.26	0.00	0.02	0.00	0.00	0.00	0.59	0.00	0.10	1.55	1.98	0.18
Average	0.99	5.57	1.50	0.00	0.41	0.00	0.23	0.00	3.81	0.00	3.11		Total SSQ:	*5.64*

Cobalt	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.14	0.00	0.00	0.30	0.00	64.77	0.31	6.81	0.01	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.01	0.00	0.00	0.05	0.00	0.00	0.07	0.00	0.69	0.72	0.82	0.01
1.29x1.30	0.00	0.00	0.01	0.00	0.00	0.07	0.00	0.00	0.12	0.00	0.68	0.94	0.88	0.00
1.30x1.40	0.00	0.00	0.01	0.00	0.00	0.19	0.00	0.26	0.34	0.00	0.66	1.16	1.46	0.09
1.40x1.50	0.00	0.00	0.04	0.00	0.00	0.76	0.00	0.00	0.94	0.00	0.59	2.53	2.33	0.04
1.50x1.60	0.00	0.00	0.18	0.00	0.00	0.40	0.00	0.00	0.90	0.00	0.60	2.44	2.08	0.13
1.60x1.70	0.00	0.00	0.18	0.00	0.00	2.18	0.00	0.00	2.26	0.60	0.46	5.32	5.67	0.13
1.70x1.80	0.00	0.00	0.46	0.00	0.00	2.96	0.00	0.00	2.65	0.36	0.41	6.93	6.84	0.01
1.80x2.00	0.00	0.00	0.77	0.00	0.00	3.86	0.00	0.97	3.62	0.00	0.35	9.63	9.56	0.00
2.00x2.25	0.00	0.00	5.94	0.00	0.00	2.87	0.00	2.07	3.22	0.52	0.06	14.67	14.68	0.00
2.25x2.50	0.00	0.00	0.31	0.00	0.00	23.74	0.00	0.00	0.57	0.00	0.02	24.60	24.64	0.00
2.50 Sink	0.00	0.00	0.13	0.00	0.00	27.24	0.00	1.17	0.21	4.61	0.01	33.41	33.37	0.00
Average	0.00	0.00	0.73	0.00	0.00	5.85	0.00	0.41	1.35	0.55	0.41		Total SSQ:	*0.42*

Lead	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.00	0.00	0.00	1.16	0.00	173.95	0.00	189.00	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00	0.16	0.20	0.00
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.21	0.28	0.00
1.30x1.40	0.00	0.00	0.00	0.00	0.00	0.73	0.00	0.70	0.00	0.00	0.00	1.44	1.43	0.00
1.40x1.50	0.00	0.00	0.00	0.00	0.00	2.95	0.00	0.00	0.00	0.00	0.00	3.16	2.95	0.04
1.50x1.60	0.00	0.00	0.00	0.00	0.00	1.56	0.00	0.00	0.00	0.00	0.00	4.84	1.56	10.75
1.60x1.70	0.00	0.00	0.00	0.00	0.00	8.48	0.00	0.00	0.00	16.63	0.00	14.55	25.12	111.65
1.70x1.80	0.00	0.00	0.00	0.00	0.00	11.54	0.00	0.00	0.00	10.02	0.00	16.67	21.56	23.86
1.80x2.00	0.00	0.00	0.00	0.00	0.00	15.03	0.00	2.61	0.00	0.00	0.00	24.34	17.64	44.99
2.00x2.25	0.00	0.00	0.00	0.00	0.00	11.20	0.00	5.57	0.00	14.36	0.00	26.72	31.13	19.47
2.25x2.50	0.00	0.00	0.00	0.00	0.00	92.55	0.00	0.00	0.00	0.00	0.00	90.92	92.55	2.63
2.50 Sink	0.00	0.00	0.00	0.00	0.00	106.17	0.00	3.13	0.00	127.95	0.00	239.51	237.26	5.07
Average	0.00	0.00	0.00	0.00	0.00	22.79	0.00	1.09	0.00	15.36	0.00		Total SSQ:	*218.46*

Manganese	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	156.88	216.74	0.00	0.00	0.00	0.00	0.00	2172.84	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	12.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	15.6	12.2	11.2
1.29x1.30	0.00	0.00	9.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21.9	9.7	147.1
1.30x1.40	0.00	0.00	13.33	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	39.0	13.8	636.5
1.40x1.50	0.00	0.00	44.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	67.8	44.6	540.4
1.50x1.60	0.00	0.00	200.96	3.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	197.8	204.4	44.0
1.60x1.70	0.00	0.00	195.16	12.57	0.00	0.00	0.00	0.00	0.00	191.21	0.00	204.1	398.9	37944.5
1.70x1.80	0.00	0.00	497.62	4.33	0.00	0.00	0.00	0.00	0.00	115.16	0.00	282.0	617.1	112321.2
1.80x2.00	0.00	0.00	845.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	436.4	845.6	167440.1
2.00x2.25	0.00	0.00	6487.53	244.49	0.00	0.00	0.00	0.00	0.00	165.14	0.00	6982.4	6897.1	7259.5
2.25x2.50	0.00	0.00	338.23	1690.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2004.8	2028.6	567.8
2.50 Sink	0.00	0.00	140.41	556.38	0.00	0.00	0.00	0.00	0.00	1471.01	0.00	2209.8	2167.8	1763.4
Average	0.00	0.00	798.67	228.37	0.00	0.00	0.00	0.00	0.00	176.59	0.00		Total SSQ:	*328676*

Mercury	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.00	0.15	0.00	0.02	0.00	0.00	0.00	1.41	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
1.30x1.40	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00
1.40x1.50	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.02	0.05	0.00
1.50x1.60	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00
1.60x1.70	0.00	0.00	0.00	0.01	0.00	0.14	0.00	0.00	0.00	0.12	0.00	0.26	0.28	0.00
1.70x1.80	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.07	0.00	0.10	0.27	0.03
1.80x2.00	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.17	0.26	0.01
2.00x2.25	0.00	0.00	0.00	0.17	0.00	0.19	0.00	0.00	0.00	0.11	0.00	0.26	0.47	0.05
2.25x2.50	0.00	0.00	0.00	1.21	0.00	1.57	0.00	0.00	0.00	0.00	0.00	2.80	2.78	0.00
2.50 Sink	0.00	0.00	0.00	0.40	0.00	1.81	0.00	0.00	0.00	0.96	0.00	3.20	3.16	0.00
Average	0.00	0.00	0.00	0.16	0.00	0.39	0.00	0.00	0.00	0.11	0.00		Total SSQ:	*0.09*

Nickel	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.14	2.60	1.90	1.05	91.95	298.42	0.88	0.00	0.02	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.01	0.00	0.02	0.18	0.18	0.00	0.19	0.00	1.97	2.38	2.56	0.03
1.29x1.30	0.00	0.00	0.01	0.00	0.01	0.26	0.00	0.00	0.34	0.00	1.95	2.37	2.58	0.04
1.30x1.40	0.00	0.00	0.01	0.01	0.06	0.66	0.18	1.19	0.97	0.00	1.89	5.30	4.98	0.10
1.40x1.50	0.00	0.00	0.04	0.00	0.18	2.66	0.83	0.00	2.67	0.00	1.69	8.12	8.07	0.00
1.50x1.60	0.00	0.00	0.18	0.04	0.45	1.41	1.20	0.00	2.54	0.00	1.73	7.54	7.55	0.00
1.60x1.70	0.00	0.00	0.18	0.15	0.85	7.66	0.00	0.00	6.41	0.00	1.32	16.78	16.56	0.05
1.70x1.80	0.00	0.00	0.46	0.05	0.66	10.42	0.74	0.00	7.52	0.00	1.17	20.95	21.01	0.00
1.80x2.00	0.00	0.00	0.77	0.00	1.43	13.57	0.00	4.48	10.26	0.00	0.99	31.36	31.50	0.02
2.00x2.25	0.00	0.00	5.94	2.94	1.84	10.12	0.00	9.55	9.12	0.00	0.17	39.69	39.67	0.00
2.25x2.50	0.00	0.00	0.31	20.31	0.06	83.56	0.00	0.00	1.61	0.00	0.07	105.90	105.91	0.00
2.50 Sink	0.00	0.00	0.13	6.68	0.02	95.86	0.00	5.37	0.60	0.00	0.04	108.71	108.70	0.00
Average	0.00	0.00	0.73	2.74	0.51	20.58	0.28	1.87	3.84	0.00	1.18		Total SSQ:	*0.25*

Selenium	Estimated Contribuiton (ppm)											Actual	Predicted	
	0.00	0.00	0.00	0.95	0.00	0.12	4.26	0.00	0.00	0.00	0.00	(ppm)	(ppm)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.04	0.03	0.07	0.00
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.04	0.07	0.07	0.00
1.30x1.40	0.00	0.00	0.00	0.00	0.00	0.08	0.01	0.00	0.00	0.00	0.04	0.17	0.13	0.00
1.40x1.50	0.00	0.00	0.00	0.00	0.00	0.32	0.04	0.00	0.00	0.00	0.04	0.37	0.39	0.00
1.50x1.60	0.00	0.00	0.00	0.02	0.00	0.17	0.06	0.00	0.00	0.00	0.04	0.37	0.28	0.01
1.60x1.70	0.00	0.00	0.00	0.06	0.00	0.91	0.00	0.00	0.00	0.00	0.03	0.59	1.00	0.17
1.70x1.80	0.00	0.00	0.00	0.02	0.00	1.24	0.03	0.00	0.00	0.00	0.03	1.20	1.32	0.01
1.80x2.00	0.00	0.00	0.00	0.00	0.00	1.62	0.00	0.00	0.00	0.00	0.02	2.56	1.64	0.85
2.00x2.25	0.00	0.00	0.00	1.07	0.00	1.21	0.00	0.00	0.00	0.00	0.00	0.31	2.28	3.91
2.25x2.50	0.00	0.00	0.00	7.41	0.00	9.96	0.00	0.00	0.00	0.00	0.00	17.73	17.38	0.12
2.50 Sink	0.00	0.00	0.00	2.44	0.00	11.43	0.00	0.00	0.00	0.00	0.00	13.69	13.87	0.03
Average	0.00	0.00	0.00	1.00	0.00	2.45	0.01	0.00	0.00	0.00	0.03		Total SSQ:	*5.10*

Ash	Estimated Contribuiton (%)											Actual	Predicted	
	0.30	1.44	0.37	1.49	0.00	0.58	212.31	373.53	0.52	0.00	0.01	(%)	(%)	SSQ
Float 1.29	0.10	0.79	0.03	0.00	0.00	0.10	0.42	0.00	0.11	0.00	0.71	1.77	2.26	0.24
1.29x1.30	0.14	1.29	0.02	0.00	0.00	0.14	0.00	0.00	0.20	0.00	0.70	2.96	2.50	0.21
1.30x1.40	0.63	2.09	0.03	0.00	0.00	0.36	0.42	1.49	0.57	0.00	0.68	6.32	6.29	0.00
1.40x1.50	1.61	5.72	0.11	0.00	0.00	1.47	1.91	0.00	1.56	0.00	0.61	13.00	12.99	0.00
1.50x1.60	0.90	6.62	0.48	0.02	0.00	0.78	2.76	0.00	1.49	0.00	0.62	13.68	13.66	0.00
1.60x1.70	1.50	18.12	0.47	0.09	0.00	4.23	0.00	0.00	3.75	0.00	0.47	28.52	28.62	0.01
1.70x1.80	1.16	21.99	1.19	0.03	0.00	5.75	1.70	0.00	4.40	0.00	0.42	36.70	36.63	0.00
1.80x2.00	0.87	24.12	2.02	0.00	0.00	7.49	0.00	5.60	6.00	0.00	0.36	46.46	46.46	0.00
2.00x2.25	0.38	38.33	15.51	1.68	0.00	5.58	0.00	11.95	5.33	0.00	0.06	78.83	78.83	0.00
2.25x2.50	0.43	4.94	0.81	11.61	0.00	46.11	0.00	0.00	0.94	0.00	0.02	64.86	64.86	0.00
2.50 Sink	0.16	1.59	0.34	3.82	0.00	52.89	0.00	6.72	0.35	0.00	0.01	65.89	65.89	0.00
Average	0.72	11.42	1.91	1.57	0.00	11.35	0.66	2.34	2.25	0.00	0.42		Total SSQ:	*0.47*

Pyritic	Estimated Contribuiton (%)											Actual	Predicted	
	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	3.19	0.00	(%)	(%)	SSQ
Float 1.29	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.05	0.08	0.00
1.29x1.30	0.00	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.09	0.11	0.00
1.30x1.40	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00	0.00	0.00	0.25	0.28	0.00
1.40x1.50	0.00	0.00	0.00	0.00	0.00	1.12	0.00	0.00	0.00	0.00	0.00	0.90	1.12	0.05
1.50x1.60	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.00	0.00	0.00	0.00	0.91	0.59	0.10
1.60x1.70	0.00	0.00	0.00	0.00	0.00	3.22	0.00	0.00	0.00	0.28	0.00	2.93	3.50	0.33
1.70x1.80	0.00	0.00	0.00	0.00	0.00	4.39	0.00	0.00	0.00	0.17	0.00	3.90	4.55	0.43
1.80x2.00	0.00	0.00	0.00	0.00	0.00	5.71	0.00	0.00	0.00	0.00	0.00	5.44	5.71	0.07
2.00x2.25	0.00	0.00	0.00	0.00	0.00	4.26	0.00	0.00	0.00	0.24	0.00	3.40	4.50	1.21
2.25x2.50	0.00	0.00	0.00	0.00	0.00	35.16	0.00	0.00	0.00	0.00	0.00	35.19	35.16	0.00
2.50 Sink	0.00	0.00	0.00	0.00	0.00	40.34	0.00	0.00	0.00	2.16	0.00	42.75	42.50	0.06
Average	0.00	0.00	0.00	0.00	0.00	8.66	0.00	0.00	0.00	0.26	0.00		Total SSQ:	*2.26*

Organic Sulfur	Estimated Contribuiton (%)											Actual	Predicted	
	0.04	0.00	0.00	0.12	0.00	0.05	0.00	0.00	0.00	0.00	0.01	(%)	(%)	SSQ
Float 1.29	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.20	1.27	1.23	0.00
1.29x1.30	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	1.20	1.22	1.23	0.00
1.30x1.40	0.09	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	1.15	1.22	1.27	0.00
1.40x1.50	0.22	0.00	0.00	0.00	0.00	0.12	0.00	0.00	0.01	0.00	1.03	1.20	1.38	0.03
1.50x1.60	0.12	0.00	0.00	0.00	0.00	0.06	0.00	0.00	0.01	0.00	1.06	1.22	1.25	0.00
1.60x1.70	0.20	0.00	0.00	0.01	0.00	0.34	0.00	0.00	0.02	0.00	0.81	1.45	1.38	0.00
1.70x1.80	0.16	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.02	0.00	0.72	1.61	1.37	0.06
1.80x2.00	0.12	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.03	0.00	0.61	1.43	1.37	0.00
2.00x2.25	0.05	0.00	0.00	0.14	0.00	0.45	0.00	0.00	0.03	0.00	0.10	0.52	0.78	0.07
2.25x2.50	0.06	0.00	0.00	0.95	0.00	3.75	0.00	0.00	0.01	0.00	0.04	4.86	4.81	0.00
2.50 Sink	0.02	0.00	0.00	0.31	0.00	4.31	0.00	0.00	0.00	0.00	0.02	4.61	4.66	0.00
Average	0.10	0.00	0.00	0.13	0.00	0.92	0.00	0.00	0.01	0.00	0.72		Total SSQ:	*0.18*

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.003	0.001	0.000	0.000	0.000	0.037	0.041
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.035	0.039
1.30x1.40	0.000	0.000	0.000	0.000	0.000	0.020	0.002	0.014	0.000	0.000	0.066	0.100
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.016	0.001	0.000	0.000	0.000	0.012	0.029
1.50x1.60	0.000	0.000	0.000	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.004	0.007
1.60x1.70	0.000	0.000	0.000	0.000	0.000	0.007	0.000	0.000	0.000	0.028	0.001	0.036
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.011	0.001	0.017
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.021	0.000	0.003	0.000	0.000	0.002	0.025
2.00x2.25	0.000	0.000	0.000	0.000	0.000	0.056	0.000	0.020	0.000	0.149	0.001	0.226
2.25x2.50	0.000	0.000	0.000	0.000	0.000	0.128	0.000	0.000	0.000	0.000	0.000	0.128
2.50 Sink	0.000	0.000	0.000	0.000	0.000	0.131	0.000	0.003	0.000	0.327	0.000	0.461
Totals	0.000	0.000	0.000	0.000	0.000	0.394	0.004	0.039	0.000	0.514	0.158	1.110
Dependency	0.000	0.000	0.000	0.000	0.000	0.355	0.004	0.035	0.000	0.463	0.142	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.123	0.000	0.000	0.158	0.000	0.000	0.281
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.165	0.000	0.000	0.271	0.000	0.000	0.437
1.30x1.40	0.000	0.000	0.000	0.006	0.000	0.833	0.000	0.000	1.489	0.000	0.000	2.328
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.678	0.000	0.000	0.830	0.000	0.000	1.508
1.50x1.60	0.000	0.000	0.000	0.003	0.000	0.105	0.000	0.000	0.232	0.000	0.000	0.340
1.60x1.70	0.000	0.000	0.000	0.005	0.000	0.286	0.000	0.000	0.292	0.000	0.000	0.583
1.70x1.80	0.000	0.000	0.000	0.001	0.000	0.248	0.000	0.000	0.218	0.000	0.000	0.467
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.875	0.000	0.000	0.808	0.000	0.000	1.682
2.00x2.25	0.000	0.000	0.000	0.657	0.000	2.369	0.000	0.000	2.606	0.000	0.000	5.632
2.25x2.50	0.000	0.000	0.000	1.251	0.000	5.388	0.000	0.000	0.127	0.000	0.000	6.765
2.50 Sink	0.000	0.000	0.000	0.368	0.000	5.530	0.000	0.000	0.042	0.000	0.000	5.941
Totals	0.000	0.000	0.000	2.292	0.000	16.599	0.000	0.000	7.073	0.000	0.000	25.964
Dependency	0.000	0.000	0.000	0.088	0.000	0.639	0.000	0.000	0.272	0.000	0.000	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.052	0.062
1.29x1.30	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.049	0.063
1.30x1.40	0.116	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.093	0.210
1.40x1.50	0.060	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.017	0.077
1.50x1.60	0.010	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005	0.015
1.60x1.70	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.010
1.70x1.80	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.005
1.80x2.00	0.008	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.003	0.011
2.00x2.25	0.013	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.015
2.25x2.50	0.004	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.004
2.50 Sink	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Totals	0.248	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.224	0.472
Dependency	0.525	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.475	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002
1.29x1.30	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.003
1.30x1.40	0.014	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.003	0.000	0.000	0.021
1.40x1.50	0.007	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.002	0.000	0.000	0.012
1.50x1.60	0.001	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.003
1.60x1.70	0.001	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.001	0.000	0.000	0.003
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.002
1.80x2.00	0.001	0.000	0.000	0.000	0.002	0.002	0.000	0.000	0.002	0.000	0.000	0.007
2.00x2.25	0.002	0.000	0.000	0.000	0.010	0.006	0.000	0.000	0.005	0.003	0.000	0.025
2.25x2.50	0.000	0.000	0.000	0.000	0.000	0.014	0.000	0.000	0.000	0.000	0.000	0.015
2.50 Sink	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.000	0.000	0.006	0.000	0.021
Totals	0.029	0.000	0.000	0.000	0.017	0.044	0.000	0.000	0.015	0.009	0.000	0.113
Dependency	0.256	0.000	0.000	0.000	0.148	0.389	0.000	0.000	0.130	0.077	0.000	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.30x1.40	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.50x1.60	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.60x1.70	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.00x2.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.25x2.50	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2.50 Sink	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Totals	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dependency	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.027	0.077	0.005	0.000	0.004	0.000	0.030	0.000	0.038	0.000	1.038	1.219
1.29x1.30	0.037	0.120	0.003	0.000	0.002	0.000	0.000	0.000	0.065	0.000	0.979	1.206
1.30x1.40	0.324	0.379	0.009	0.000	0.019	0.000	0.056	0.000	0.357	0.000	1.846	2.990
1.40x1.50	0.167	0.209	0.006	0.000	0.011	0.000	0.051	0.000	0.199	0.000	0.334	0.977
1.50x1.60	0.027	0.071	0.008	0.000	0.008	0.000	0.022	0.000	0.055	0.000	0.100	0.292
1.60x1.70	0.023	0.097	0.004	0.000	0.007	0.000	0.000	0.000	0.070	0.000	0.038	0.240
1.70x1.80	0.011	0.075	0.007	0.000	0.004	0.000	0.004	0.000	0.052	0.000	0.022	0.175
1.80x2.00	0.023	0.224	0.030	0.000	0.022	0.000	0.000	0.000	0.193	0.000	0.050	0.542
2.00x2.25	0.037	1.291	0.842	0.000	0.102	0.000	0.000	0.000	0.624	0.000	0.031	2.927
2.25x2.50	0.011	0.046	0.012	0.000	0.001	0.000	0.000	0.000	0.030	0.000	0.003	0.104
2.50 Sink	0.004	0.013	0.004	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.002	0.034
Totals	0.692	2.602	0.932	0.000	0.180	0.000	0.163	0.000	1.693	0.000	4.443	10.705
Dependency	0.065	0.243	0.087	0.000	0.017	0.000	0.015	0.000	0.158	0.000	0.415	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.002	0.000	0.000	0.010	0.000	0.000	0.013	0.000	0.137	0.163
1.29x1.30	0.000	0.000	0.002	0.000	0.000	0.014	0.000	0.000	0.023	0.000	0.129	0.168
1.30x1.40	0.000	0.000	0.005	0.000	0.000	0.070	0.000	0.096	0.127	0.000	0.244	0.541
1.40x1.50	0.000	0.000	0.003	0.000	0.000	0.057	0.000	0.000	0.071	0.000	0.044	0.175
1.50x1.60	0.000	0.000	0.004	0.000	0.000	0.009	0.000	0.000	0.020	0.000	0.013	0.046
1.60x1.70	0.000	0.000	0.002	0.000	0.000	0.024	0.000	0.000	0.025	0.007	0.005	0.062
1.70x1.80	0.000	0.000	0.003	0.000	0.000	0.021	0.000	0.000	0.019	0.003	0.003	0.048
1.80x2.00	0.000	0.000	0.015	0.000	0.000	0.073	0.000	0.018	0.069	0.000	0.007	0.182
2.00x2.25	0.000	0.000	0.410	0.000	0.000	0.198	0.000	0.143	0.222	0.036	0.004	1.013
2.25x2.50	0.000	0.000	0.006	0.000	0.000	0.451	0.000	0.000	0.011	0.000	0.000	0.468
2.50 Sink	0.000	0.000	0.002	0.000	0.000	0.463	0.000	0.020	0.004	0.078	0.000	0.567
Totals	0.000	0.000	0.454	0.000	0.000	1.390	0.000	0.277	0.602	0.123	0.588	3.434
Dependency	0.000	0.000	0.132	0.000	0.000	0.405	0.000	0.081	0.175	0.036	0.171	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.040	0.000	0.000	0.000	0.000	0.000	0.040
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.054	0.000	0.000	0.000	0.000	0.000	0.054
1.30x1.40	0.000	0.000	0.000	0.000	0.000	0.272	0.000	0.258	0.000	0.000	0.000	0.530
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.221	0.000	0.000	0.000	0.000	0.000	0.221
1.50x1.60	0.000	0.000	0.000	0.000	0.000	0.034	0.000	0.000	0.000	0.000	0.000	0.034
1.60x1.70	0.000	0.000	0.000	0.000	0.000	0.093	0.000	0.000	0.000	0.183	0.000	0.276
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.081	0.000	0.000	0.000	0.070	0.000	0.151
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.286	0.000	0.050	0.000	0.000	0.000	0.335
2.00x2.25	0.000	0.000	0.000	0.000	0.000	0.773	0.000	0.384	0.000	0.991	0.000	2.148
2.25x2.50	0.000	0.000	0.000	0.000	0.000	1.758	0.000	0.000	0.000	0.000	0.000	1.758
2.50 Sink	0.000	0.000	0.000	0.000	0.000	1.805	0.000	0.053	0.000	2.175	0.000	4.033
Totals	0.000	0.000	0.000	0.000	0.000	5.417	0.000	0.745	0.000	3.419	0.000	9.582
Dependency	0.000	0.000	0.000	0.000	0.000	0.565	0.000	0.078	0.000	0.357	0.000	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	2.447	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.447
1.29x1.30	0.000	0.000	1.848	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.848
1.30x1.40	0.000	0.000	4.947	0.161	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.108
1.40x1.50	0.000	0.000	3.341	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.341
1.50x1.60	0.000	0.000	4.421	0.076	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.497
1.60x1.70	0.000	0.000	2.147	0.138	0.000	0.000	0.000	0.000	0.000	2.103	0.000	4.388
1.70x1.80	0.000	0.000	3.483	0.030	0.000	0.000	0.000	0.000	0.000	0.806	0.000	4.320
1.80x2.00	0.000	0.000	16.066	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.066
2.00x2.25	0.000	0.000	447.639	16.870	0.000	0.000	0.000	0.000	0.000	11.394	0.000	475.903
2.25x2.50	0.000	0.000	6.426	32.117	0.000	0.000	0.000	0.000	0.000	0.000	0.000	38.544
2.50 Sink	0.000	0.000	2.387	9.459	0.000	0.000	0.000	0.000	0.000	25.007	0.000	36.853
Totals	0.000	0.000	495.154	58.851	0.000	0.000	0.000	0.000	0.000	39.311	0.000	593.316
Dependency	0.000	0.000	0.835	0.099	0.000	0.000	0.000	0.000	0.000	0.066	0.000	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
1.30x1.40	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.005
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.000	0.004
1.50x1.60	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.001
1.60x1.70	0.000	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.001	0.000	0.003
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.001	0.000	0.002
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.005	0.000	0.000	0.000	0.000	0.000	0.005
2.00x2.25	0.000	0.000	0.000	0.012	0.000	0.013	0.000	0.000	0.000	0.007	0.000	0.033
2.25x2.50	0.000	0.000	0.000	0.023	0.000	0.030	0.000	0.000	0.000	0.000	0.000	0.053
2.50 Sink	0.000	0.000	0.000	0.007	0.000	0.031	0.000	0.000	0.000	0.016	0.000	0.054
Totals	0.000	0.000	0.000	0.042	0.000	0.092	0.000	0.000	0.000	0.026	0.000	0.160
Dependency	0.000	0.000	0.000	0.263	0.000	0.577	0.000	0.000	0.000	0.160	0.000	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.002	0.000	0.005	0.036	0.037	0.000	0.038	0.000	0.394	0.512
1.29x1.30	0.000	0.000	0.002	0.000	0.002	0.049	0.000	0.000	0.066	0.000	0.371	0.489
1.30x1.40	0.000	0.000	0.005	0.002	0.024	0.245	0.068	0.443	0.359	0.000	0.700	1.846
1.40x1.50	0.000	0.000	0.003	0.000	0.013	0.200	0.062	0.000	0.200	0.000	0.127	0.605
1.50x1.60	0.000	0.000	0.004	0.001	0.010	0.031	0.026	0.000	0.056	0.000	0.038	0.166
1.60x1.70	0.000	0.000	0.002	0.002	0.009	0.084	0.000	0.000	0.070	0.000	0.014	0.182
1.70x1.80	0.000	0.000	0.003	0.000	0.005	0.073	0.005	0.000	0.053	0.000	0.008	0.147
1.80x2.00	0.000	0.000	0.015	0.000	0.027	0.258	0.000	0.085	0.195	0.000	0.019	0.598
2.00x2.25	0.000	0.000	0.410	0.203	0.127	0.698	0.000	0.659	0.629	0.000	0.012	2.737
2.25x2.50	0.000	0.000	0.006	0.386	0.001	1.588	0.000	0.000	0.031	0.000	0.001	2.012
2.50 Sink	0.000	0.000	0.002	0.114	0.000	1.630	0.000	0.091	0.010	0.000	0.001	1.848
Totals	0.000	0.000	0.453	0.707	0.224	4.891	0.199	1.278	1.707	0.000	1.685	11.144
Dependency	0.00	0.00	0.04	0.06	0.02	0.44	0.02	0.11	0.15	0.00	0.15	1.00

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.004	0.002	0.000	0.000	0.000	0.009	0.015
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.006	0.000	0.000	0.000	0.000	0.008	0.014
1.30x1.40	0.000	0.000	0.000	0.001	0.000	0.029	0.003	0.000	0.000	0.000	0.016	0.049
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.024	0.003	0.000	0.000	0.000	0.003	0.030
1.50x1.60	0.000	0.000	0.000	0.000	0.000	0.004	0.001	0.000	0.000	0.000	0.001	0.006
1.60x1.70	0.000	0.000	0.000	0.001	0.000	0.010	0.000	0.000	0.000	0.000	0.000	0.011
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.000	0.000	0.000	0.009
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.031	0.000	0.000	0.000	0.000	0.000	0.031
2.00x2.25	0.000	0.000	0.000	0.074	0.000	0.083	0.000	0.000	0.000	0.000	0.000	0.157
2.25x2.50	0.000	0.000	0.000	0.141	0.000	0.189	0.000	0.000	0.000	0.000	0.000	0.330
2.50 Sink	0.000	0.000	0.000	0.041	0.000	0.194	0.000	0.000	0.000	0.000	0.000	0.236
Totals	0.000	0.000	0.000	0.258	0.000	0.583	0.009	0.000	0.000	0.000	0.038	0.889
Dependency	0.000	0.000	0.000	0.290	0.000	0.656	0.010	0.000	0.000	0.000	0.043	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.020	0.158	0.006	0.000	0.000	0.020	0.085	0.000	0.022	0.000	0.141	0.452
1.29x1.30	0.027	0.245	0.004	0.000	0.000	0.027	0.000	0.000	0.038	0.000	0.133	0.475
1.30x1.40	0.235	0.776	0.012	0.001	0.000	0.135	0.158	0.554	0.210	0.000	0.251	2.333
1.40x1.50	0.121	0.429	0.008	0.000	0.000	0.110	0.143	0.000	0.117	0.000	0.045	0.974
1.50x1.60	0.020	0.146	0.011	0.001	0.000	0.017	0.061	0.000	0.033	0.000	0.014	0.301
1.60x1.70	0.017	0.199	0.005	0.001	0.000	0.046	0.000	0.000	0.041	0.000	0.005	0.315
1.70x1.80	0.008	0.154	0.008	0.000	0.000	0.040	0.012	0.000	0.031	0.000	0.003	0.256
1.80x2.00	0.017	0.458	0.038	0.000	0.000	0.142	0.000	0.106	0.114	0.000	0.007	0.883
2.00x2.25	0.026	2.645	1.070	0.116	0.000	0.385	0.000	0.825	0.368	0.000	0.004	5.439
2.25x2.50	0.008	0.094	0.015	0.221	0.000	0.876	0.000	0.000	0.018	0.000	0.000	1.232
2.50 Sink	0.003	0.027	0.006	0.065	0.000	0.899	0.000	0.114	0.006	0.000	0.000	1.120
Totals	0.501	5.331	1.183	0.404	0.000	2.699	0.458	1.600	0.999	0.000	0.605	13.780
Dependency	0.036	0.387	0.086	0.029	0.000	0.196	0.033	0.116	0.072	0.000	0.044	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.000	0.000	0.000	0.000	0.000	0.015	0.000	0.000	0.000	0.000	0.000	0.015
1.29x1.30	0.000	0.000	0.000	0.000	0.000	0.020	0.000	0.000	0.000	0.000	0.000	0.020
1.30x1.40	0.000	0.000	0.000	0.000	0.000	0.103	0.000	0.000	0.000	0.000	0.000	0.103
1.40x1.50	0.000	0.000	0.000	0.000	0.000	0.084	0.000	0.000	0.000	0.000	0.000	0.084
1.50x1.60	0.000	0.000	0.000	0.000	0.000	0.013	0.000	0.000	0.000	0.000	0.000	0.013
1.60x1.70	0.000	0.000	0.000	0.000	0.000	0.035	0.000	0.000	0.000	0.003	0.000	0.039
1.70x1.80	0.000	0.000	0.000	0.000	0.000	0.031	0.000	0.000	0.000	0.001	0.000	0.032
1.80x2.00	0.000	0.000	0.000	0.000	0.000	0.108	0.000	0.000	0.000	0.000	0.000	0.108
2.00x2.25	0.000	0.000	0.000	0.000	0.000	0.294	0.000	0.000	0.000	0.017	0.000	0.310
2.25x2.50	0.000	0.000	0.000	0.000	0.000	0.668	0.000	0.000	0.000	0.000	0.000	0.668
2.50 Sink	0.000	0.000	0.000	0.000	0.000	0.686	0.000	0.000	0.000	0.037	0.000	0.723
Totals	0.000	0.000	0.000	0.000	0.000	2.058	0.000	0.000	0.000	0.058	0.000	2.116
Dependency	0.000	0.000	0.000	0.000	0.000	0.973	0.000	0.000	0.000	0.027	0.000	1.000

	Contribuiton (% of Feed)											
	Clay 1	Clay 2	Carbonate 1	Carbonate 2	Phosphate	Sulfide	Sulfate 1	Sulfate 2	Oxide 1	Oxide 2	Organic	Totals
Float 1.29	0.003	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.241	0.245
1.29x1.30	0.004	0.000	0.000	0.000	0.000	0.002	0.000	0.000	0.000	0.000	0.227	0.233
1.30x1.40	0.032	0.000	0.000	0.000	0.000	0.011	0.000	0.000	0.001	0.000	0.428	0.473
1.40x1.50	0.016	0.000	0.000	0.000	0.000	0.009	0.000	0.000	0.001	0.000	0.078	0.104
1.50x1.60	0.003	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.023	0.028
1.60x1.70	0.002	0.000	0.000	0.000	0.000	0.004	0.000	0.000	0.000	0.000	0.009	0.015
1.70x1.80	0.001	0.000	0.000	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.005	0.010
1.80x2.00	0.002	0.000	0.000	0.000	0.000	0.012	0.000	0.000	0.001	0.000	0.012	0.026
2.00x2.25	0.004	0.000	0.000	0.009	0.000	0.031	0.000	0.000	0.002	0.000	0.007	0.054
2.25x2.50	0.001	0.000	0.000	0.018	0.000	0.071	0.000	0.000	0.000	0.000	0.001	0.091
2.50 Sink	0.000	0.000	0.000	0.005	0.000	0.073	0.000	0.000	0.000	0.000	0.000	0.079
Totals	0.068	0.000	0.000	0.033	0.000	0.220	0.000	0.000	0.005	0.000	1.031	1.357
Dependency	0.050	0.000	0.000	0.024	0.000	0.162	0.000	0.000	0.004	0.000	0.760	1.000

	Contribuiton (% of Feed)											
	Clay #1	Clay #2	Carbonate #1	Carbonate #2	Phosphate	Sulfide	Sulfate #1	Sulfate #2	Oxide #1	Oxide #2	Organic Matt	Totals
Antimony	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.04	0.00	0.46	0.14	1.000
Arsenic	0.00	0.00	0.00	0.09	0.00	0.64	0.00	0.00	0.27	0.00	0.00	1.000
Beryllium	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	1.000
Cadmium	0.26	0.00	0.00	0.00	0.15	0.39	0.00	0.00	0.13	0.08	0.00	1.000
Chlorine	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Chromium	0.06	0.24	0.09	0.00	0.02	0.00	0.02	0.00	0.16	0.00	0.42	1.000
Cobalt	0.00	0.00	0.13	0.00	0.00	0.40	0.00	0.08	0.18	0.04	0.17	1.000
Lead	0.00	0.00	0.00	0.00	0.00	0.57	0.00	0.08	0.00	0.36	0.00	1.000
Manganese	0.00	0.00	0.83	0.10	0.00	0.00	0.00	0.00	0.00	0.07	0.00	1.000
Mercury	0.00	0.00	0.00	0.26	0.00	0.58	0.00	0.00	0.00	0.16	0.00	1.000
Nickel	0.00	0.00	0.04	0.06	0.02	0.44	0.02	0.11	0.15	0.00	0.15	1.000
Selenium	0.00	0.00	0.00	0.29	0.00	0.66	0.01	0.00	0.00	0.00	0.04	1.000
Ash	0.04	0.39	0.09	0.03	0.00	0.20	0.03	0.12	0.07	0.00	0.04	1.000
Pyritic Sulfur	0.00	0.00	0.00	0.00	0.00	0.97	0.00	0.00	0.00	0.03	0.00	1.000
Organic Sulfur	0.05	0.00	0.00	0.02	0.00	0.16	0.00	0.00	0.00	0.00	0.76	1.000