

AFPC Rock Check Program

Sample No. 2008-06

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	13	0.68	0.127
Other (describe)	102	4	0.61	0.136
Method Group 100		17	0.67	0.09
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	5	26.65	0.127
ICP-induced coupled plasma	202	4	26.66	0.164
Photometric-AFPC 9-6	203	11	26.53	0.185
Automated -AOAC 978.01-15th	204	5	26.51	0.414
Other(describe)	205	3	26.80	0.188
Method Group 200		28	26.63	0.26
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	2	26.86	0.048
ICP-induced coupled plasma	212	4	26.84	0.211
Photometric-AFPC 9-6	213	5	26.67	0.229
Automated -AOAC 978.01-15th	214	5	26.70	0.420
Other(describe)	215	1	26.97	0.000
Method Group 210		16	26.84	0.28
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	2	1.51	0.140
ICP-induced coupled plasma	302	20	1.65	0.090
Other(describe)	303	1	1.67	0.000
Method Group 300		23	1.66	0.08
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	2	0.98	0.022
ICP-induced coupled plasma	402	19	0.93	0.045
Other(describe)	403	1	0.76	0.000
Method Group 400		22	0.93	0.05
MgO				
Atomic Absorption-AFPC 9-18,19	501	3	1.17	0.054
ICP-induced coupled plasma	502	19	1.23	0.049
Other(describe)	503	2	1.21	0.026
Method Group 500		24	1.21	0.05
Acid Insoluble				
Insoluble-AFPC 9-8	601	13	13.60	0.343
Other(describe)	602	4	13.21	2.521
Method Group 600		17	13.50	0.32
CaO				
Gravimetric sulfate	701	1	41.06	0.000
ICP-induced coupled plasma	702	12	41.61	0.440
Ceric Sulfate volumetric	703			
Permanganate	704	3	42.47	0.840
EDTA Volumetric	705	2	41.04	0.498
Other(describe)	706	4	41.88	0.511
Method Group 700		22	41.61	0.69
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	7	41.92	0.260
Ceric Sulfate volumetric	713			
Permanganate	714	2	42.83	0.057
EDTA Volumetric	715	1	41.94	0.000
Other(describe)	716	4	42.17	0.497
Method Group 710		17	42.00	0.56

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	10	3.15	0.468
Other (describe)	803	3	3.12	0.119
Method Group 800		13	3.15	0.31
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma	912	6	27.6	4.88
Other(describe)	913	4	18.4	4.78
Method Group 900		10	22.6	8.07
Cadmium, Cd				
Atomic Absorption	921	1	2	0.0
ICP-induced coupled plasma	922	9	3	1.3
Other(describe)	923	2	3	1.1
Method Group 910		12	3	1.3
Cobalt, Co				
Atomic Absorption	931			
ICP-induced coupled plasma	932	8	3	0.8
Other(describe)	933	1	4	0.0
Method Group 920		9	3	0.6
Mercury, Hg				
Atomic Absorption	941			
ICP-induced coupled plasma	942	1		0.00
Other(describe)	943			
Method Group 930		1	0.0	0.00
Molybdenum, Mo				
Atomic Absorption	951			
ICP-induced coupled plasma	952	8	10	2.3
Other(describe)	953	1	9	0.0
Method Group 940		9	10	1.9
Nickel, Ni				
Atomic Absorption	961	1	15	0.0
ICP-induced coupled plasma	962	8	17	1.6
Other(describe)	963	1	16	0.0
Method Group 950		10	17	2.2
Lead, Pb				
Atomic Absorption	971	1	10	0.0
ICP-induced coupled plasma	972	9	15	2.2
Other(describe)	973	1	14	0.0
Method Group 960		11	14	2.2
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	1	1	0.0
Other(describe)	983	1	2	0.0
Method Group 970		2	1	0.2
Zinc, Zn				
Atomic Absorption	991	2	28	0
ICP-induced coupled plasma	992	7	20	7
Other(describe)	993	3	35	8
Method Group 980		12	28	7

101 Ground Sample AFPC 9-2			
Lab	%	H ₂ O	
16	0.85	-1.301	
10	0.83	-1.143	
16	0.83	-1.143	
Std Dev	0.81	-1.000	
10	0.80	-0.946	
13	0.75	-0.552	
13	0.72	-0.315	
15	0.68	0.000	
Median	0.68	0.000	
15	0.67	0.079	
49	0.64	0.315	
6	0.63	0.394	
30	0.63	0.394	
6	0.56	0.946	
Std Dev	0.55	1.000	
77	0.42	2.049	

102 Other (describe)			
Lab	%	H ₂ O	
9	0.71	-0.734	
9	0.66	-0.367	
Median	0.61	0.000	
51	0.56	0.367	
Std Dev	0.47	1.000	
270	0.28	2.423	

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
77	26.80	-1.182	
Std Dev	26.78	-1.000	
30	26.76	-0.867	
51	26.65	0.000	
Median	26.65	0.000	
241	26.59	0.473	
Std Dev	26.52	1.000	
26	24.72	15.213	

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	26.86	-1.203	
Std Dev	26.82	-1.000	
10	26.72	-0.350	

Median	26.66	0.000	
6	26.60	0.350	
Std Dev	26.49	1.000	
6	26.32	2.056	

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
60	27.60	-5.793	
70	26.98	-2.436	
9	26.72	-1.029	
70	26.72	-1.029	
Std Dev	26.71	-1.000	
9	26.68	-0.812	
78	26.53	0.000	
Median	26.53	0.000	
270	26.49	0.217	
244	26.49	0.244	
78	26.46	0.379	
16	26.45	0.433	
Std Dev	26.35	1.000	
16	26.29	1.299	

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
15	26.94	-1.050	
15	26.93	-1.014	
Std Dev	26.92	-1.000	
13	26.51	0.000	
Median	26.51	0.000	
77	26.37	0.326	
13	26.35	0.386	

205 Other (describe)			
Lab	%	P2O5	
36	26.89	-0.478	
49	26.80	0.000	
Median	26.80	0.000	
Std Dev	26.61	1.000	
51	26.39	2.202	

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
30	26.93	-1.340	
Std Dev	26.91	-1.000	

Median	26.86	0.000	
Std Dev	26.82	1.000	
51	26.80	1.340	

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	27.08	-1.127	
Std Dev	27.05	-1.000	
10	26.93	-0.427	
Median	26.84	0.000	
6	26.75	0.427	
Std Dev	26.63	1.000	
6	26.49	1.670	

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
9	26.90	-0.995	
9	26.87	-0.878	
16	26.67	0.000	
Median	26.67	0.000	
270	26.56	0.462	
16	26.51	0.682	

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
15	27.12	-1.018	
Std Dev	27.12	-1.000	
15	27.11	-0.975	
13	26.70	0.000	
Median	26.70	0.000	
13	26.54	0.365	
77	26.48	0.515	

215 Other (describe)			
Lab	%	P2O5	dB
49	26.97	0.000	
Median	26.97	0.000	

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
241	1.70	-1.340	
Std Dev	1.65	-1.000	
Median	1.51	0.000	
Std Dev	1.37	1.000	

60 1.33 1.340

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
77	1.85	-2.205	
77	1.85	-2.205	
Std Dev	1.74	-1.000	
51	1.74	-0.921	
15	1.73	-0.865	
15	1.73	-0.810	
78	1.71	-0.642	
6	1.70	-0.530	
6	1.68	-0.307	
49	1.67	-0.195	
78	1.66	-0.028	
Median	1.65	0.000	
270	1.65	0.028	
13	1.64	0.140	
9	1.62	0.363	
16	1.60	0.642	
16	1.60	0.642	
9	1.59	0.698	
10	1.58	0.810	
13	1.57	0.921	
10	1.57	0.977	
Std Dev	1.56	1.000	
30	1.39	2.931	

303 Other (describe)			
Lab	%	Fe2O3	
36	1.67	0.000	
Median	1.67	0.000	

401 Atomic Absorption-AFPC 9-16,17			
Lab	%	Al2O3	
51	1.01	-1.340	
Std Dev	1.00	-1.000	
Median	0.98	0.000	
Std Dev	0.96	1.000	
241	0.95	1.340	

402 ICP-induced coupled plasma			
Lab	%	Al2O3	
78	1.34	-9.268	

78	1.31	-8.487
77	1.24	-7.035
77	1.23	-6.812
9	0.97	-1.005
9	0.97	-1.005
Std Dev	0.97	-1.000
10	0.94	-0.223
16	0.94	-0.223
10	0.93	0.000
15	0.93	0.000
Median	0.93	0.000
6	0.92	0.112
6	0.92	0.112
13	0.92	0.112
15	0.92	0.112
16	0.90	0.558
270	0.90	0.558
Std Dev	0.88	1.000
49	0.86	1.452
30	0.85	1.675
13	0.84	1.898

403 Other(describe)		
Lab	%	Al2O3
36	0.76	0.000
Median	0.76	0.000

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
51	1.20	-0.554
241	1.17	0.000
Median	1.17	0.000
Std Dev	1.12	1.000
60	1.06	2.126

502 ICP-induced coupled plasma		
Lab	%	MgO
78	1.29	-1.340
13	1.29	-1.237
78	1.29	-1.237
Std Dev	1.27	-1.000
13	1.26	-0.618
16	1.26	-0.618
10	1.25	-0.412

10	1.24	-0.309
9	1.23	-0.103
9	1.23	-0.103
15	1.23	0.000
16	1.23	0.000
Median	1.23	0.000
15	1.20	0.515
6	1.19	0.722
77	1.19	0.722
49	1.18	0.928
Std Dev	1.18	1.000
6	1.17	1.134
77	1.17	1.134
51	1.02	4.329
30	0.87	7.318

503 Other(describe)		
Lab	%	MgO
36	1.24	-1.340
Std Dev	1.23	-1.000
Median	1.21	0.000
Std Dev	1.18	1.000
270	1.17	1.340

601 Insoluble-AFPC 9-8		
Lab	%	Al
9	13.94	-1.005
Std Dev	13.94	-1.000
9	13.90	-0.888
16	13.88	-0.816
70	13.76	-0.481
51	13.71	-0.320
15	13.61	-0.044
15	13.60	0.000
Median	13.60	0.000
16	13.51	0.262
70	13.44	0.452
10	13.30	0.859
10	13.28	0.932
Std Dev	13.25	1.000
13	13.01	1.704
13	12.86	2.141

602 Other(describe)		
Lab	%	Al
6	13.50	-0.115
6	13.41	-0.079
Median	13.21	0.000
30	13.01	0.079
Std Dev	10.69	1.000
51	1.19	4.769

701 Gravimetric sulfate		
Lab	%	CaO
241	41.06	0.000
Median	41.06	0.000

702 ICP-induced coupled plasma		
Lab	%	CaO
77	43.70	-4.752
77	43.70	-4.752
Std Dev	42.05	-1.000
49	41.91	-0.687
10	41.86	-0.573
30	41.75	-0.324
10	41.65	-0.097
Median	41.61	0.000
16	41.57	0.097
6	41.50	0.244
6	41.32	0.653
16	41.17	0.994
Std Dev	41.17	1.000
78	41.02	1.346
78	40.11	3.412

703 Ceriic Sulfate volumetric		
Lab	%	CaO
Median	0.00	0.000

704 Permanganate		
Lab	%	CaO
9	42.60	-0.155
9	42.47	0.000
Median	42.47	0.000
Std Dev	41.63	1.000
60	40.35	2.525

705 EDTA Volumetric		
Lab	%	CaO
51	41.71	-1.340
Std Dev	41.54	-1.000
Median	41.04	0.000
Std Dev	40.54	1.000
270	40.37	1.340

706 Other(describe)		
Lab	%	CaO
15	42.21	-0.646
15	42.21	-0.636
Median	41.88	0.000
13	41.56	0.636
13	41.42	0.900

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00	0.000	0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
10	42.20	-1.073	
Std Dev	42.18	-1.000	
30	42.01	-0.368	
10	42.00	-0.298	
16	41.92	0.000	
Median	41.92	0.000	
6	41.73	0.715	
Std Dev	41.66	1.000	
6	41.58	1.300	
16	41.51	1.567	

713 Ceriic Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00	0.000	0.000

714 Permanganate			
Lab	%	CaO	dB
9	42.90	-1.340	
Std Dev	42.89	-1.000	
Median	42.83	0.000	
Std Dev	42.77	1.000	
9	42.75	1.340	

715 EDTA Volumetric			
Lab	%	CaO	dB
51	41.94		0.000
Median	41.94		0.000

716 Other(describe)			
Lab	%	CaO	dB
15	42.50		-0.655
15	42.49		-0.637
Median	42.17		0.000
13	41.86		0.637
13	41.73		0.885

801 Volumetric-AFPC 9-37			
Lab	%	Fluorine, F	
Median	0.00		0.000

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
49	3.33		-0.379
51	3.24		-0.176
13	3.23		-0.155
9	3.16		-0.016
13	3.16		-0.005
Median	3.15		0.000
9	3.15		0.005
270	2.75		0.860
Std Dev	2.68		1.000
15	2.53		1.340
15	2.51		1.372
26	0.82		4.981

803 Other(describe)			
Lab	%	Fluorine, F	
77	3.15		-0.251
77	3.12		0.000
Median	3.12		0.000
Std Dev	3.00		1.000
36	2.83		2.429

911 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Arsenic, As	
Median	0.0		0.000

912 ICP-induced coupled plasma			
Lab	ppm	Arsenic, As	
78	37.5		-2.024
Std Dev	32.5		-1.000
78	31.5		-0.794
6	28.0		-0.067
Median	27.6		0.000
6	27.3		0.067
270	23.0		0.948
Std Dev	22.7		1.000
26	4.0		4.842

913 Other(describe)			
Lab	ppm	Arsenic, As	
77	22.1		-0.785
77	21.1		-0.576
Median	18.4		0.000
13	15.6		0.576
Std Dev	13.6		1.000
51	13.0		1.120

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
51	2		0.000
Median	2		0.000

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
26	26		-18.129
270	5		-1.261
Std Dev	4		-1.000
6	4		-0.552
6	3		-0.315
51	3		0.000
Median	3		0.000
77	2		0.788
77	2		0.788
78	2		0.788
78	2		0.788

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
241	4		-1.340

Std Dev	4		-1.000
Median	3		0.000
Std Dev	2		1.000
13	1		1.340

931 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Cobalt, Co	
Median	0		0.000

932 ICP-induced coupled plasma			
Lab	ppm	Cobalt, Co	
51	5		-2.419
270	5		-2.026
Std Dev	4		-1.000
6	4		-0.850
6	3		-0.196
Median	3		0.000
77	3		0.196
77	3		0.196
78	3		0.196
78	3		0.196

933 Other(describe)			
Lab	ppm	Cobalt, Co	
13	4		0.000
Median	4		0.000

941 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Mercury, Hg	
Median	0.0		0.000

942 ICP-induced coupled plasma			
Lab	ppm	Mercury, Hg	
270	0.0		0.000
Median	0.0		0.000

943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	<0.12		0.000
26	<0.05		0.000
Median			0.000

951 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Molybdenum, Mo	

Median	0		0.000
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952 ICP-induced coupled plasma			
Lab	ppm	Iolybdenum, Mo	
78	17		-3.107
78	17		-2.953
Std Dev	12		-1.000
51	12		-0.656
6	10		0.000
6	10		0.000
270	10		0.000
Median	10		0.000
77	9		0.438
77	8		0.875

953 Other(describe)			
Lab	ppm	Iolybdenum, Mo	
13	9		0.000
Median	9		0.000

961 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Nickel, Ni	
51	15		0.000
Median	15		0.000

962 ICP-induced coupled plasma			
Lab	ppm	Nickel, Ni	
270	19		-1.419
Std Dev	18		-1.000
6	18		-0.788
51	18		-0.788
6	17		-0.158
Median	17		0.000
78	17		0.158
78	17		0.158
Std Dev	15		1.000
77	14		1.734
77	13		2.365

963 Other(describe)			
Lab	ppm	Nickel, Ni	
13	16		0.000
Median	16		0.000

971 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Lead, Pb	
51	10		0.000
Median	10		0.000

972 ICP-induced coupled plasma			
Lab	ppm	Lead, Pb	
26	26		-4.913
Std Dev	17		-1.000
78	17		-0.670
51	16		-0.447
270	16		-0.447
6	15		0.000
Median	15		0.000
6	14		0.447
77	13		0.893
77	13		0.893
Std Dev	13		1.000
78	12		1.340

973 Other(describe)			
Lab	ppm	Lead, Pb	
13	14		0.000
Median	14		0.000

981 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Selenium, Se	
Median	0		0.000

982 ICP-induced coupled plasma			
Lab	ppm	Selenium, Se	
270	1		0.000
Median	1		0.000

983 Other(describe)			
Lab	ppm	Selenium, Se	
13	2		0.000
Median	2		0.000

991 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Zinc, Zn	
51	28		0.000
60	28		0.000
Median	28		0.000

992 ICP-induced coupled plasma			
Lab	ppm	Zinc, Zn	
78	36		-2.305
78	28		-1.153
270	27		-1.009
Std Dev	27		-1.000
77	20		0.000
77	20		0.000
Median	20		0.000
6	16		0.519
6	16		0.576

993 Other(describe)			
Lab	ppm	Zinc, Zn	
241	50		-1.876
Std Dev	43		-1.000
13	35		0.000
Median	35		0.000
51	28		0.804

