

AFPC Rock Check Program

Sample No. 2008-12

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	18	0.61	0.141
Other (describe)	102	7	0.62	0.067
Method Group 100		25	0.62	0.11
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	4	28.66	0.097
ICP-induced coupled plasma	202	4	28.60	0.089
Photometric-AFPC 9-6	203	13	28.57	0.179
Automated -AOAC 978.01-15th	204	11	28.67	0.181
Other(describe)	205	5	28.40	0.246
Method Group 200		37	28.60	0.19
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	4	28.78	0.157
ICP-induced coupled plasma	212	2	28.88	0.005
Photometric-AFPC 9-6	213	7	28.75	0.081
Automated -AOAC 978.01-15th	214	11	28.82	0.169
Other(describe)	215	1	28.90	0.000
Method Group 210		25	28.81	0.15
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	4	1.17	0.148
ICP-induced coupled plasma	302	28	1.22	0.023
Other(describe)	303	1	1.18	0.000
Method Group 300		33	1.22	0.03
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	3	0.92	0.041
ICP-induced coupled plasma	402	28	0.89	0.046
Other(describe)	403	1	1.14	0.000
Method Group 400		32	0.89	0.06
MgO				
Atomic Absorption-AFPC 9-18,19	501	4	0.98	0.271
ICP-induced coupled plasma	502	28	0.99	0.047
Other(describe)	503	1	1.00	0.000
Method Group 500		33	0.99	0.06
Acid Insoluble				
Insoluble-AFPC 9-8	601	19	10.33	0.170
Other(describe)	602	1	11.15	0.000
Method Group 600		20	10.35	0.18
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	13	44.10	0.478
Ceric Sulfate volumetric	703	1	43.26	0.000
Permanganate	704	5	43.35	0.888
EDTA Volumetric	705	6	43.93	0.301
Other(describe)	706	7	44.10	0.140
Method Group 700		32	44.01	0.35
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	6	44.23	0.195
Ceric Sulfate volumetric	713			
Permanganate	714	4	44.21	1.120
EDTA Volumetric	715	3	44.57	0.197
Other(describe)	716	7	44.31	0.075
Method Group 710		25	44.33	0.34

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	19	3.34	0.095
Other (describe)	803	2	3.38	0.019
Method Group 800		21	3.35	0.08
Arsenic, As				
Atomic Absorption	911	1	2.0	0.00
ICP-induced coupled plasma	912	5	19.7	8.21
Other(describe)	913	2	12.8	0.97
Method Group 900		8	16.3	6.31
Cadmium, Cd				
Atomic Absorption	921	2	5	2.2
ICP-induced coupled plasma	922	10	3	0.6
Other(describe)	923	1	3	0.0
Method Group 910		13	3	0.7
Cobalt, Co				
Atomic Absorption	931	1	14	0.0
ICP-induced coupled plasma	932	9	3	0.7
Other(describe)	933	1	4	0.0
Method Group 920		11	4	0.8
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	1	7	0.0
ICP-induced coupled plasma	952	7	10	1.2
Other(describe)	953	1	11	0.0
Method Group 940		9	10	1.6
Nickel, Ni				
Atomic Absorption	961	2	30	15.1
ICP-induced coupled plasma	962	9	13	1.9
Other(describe)	963	2	30	11.8
Method Group 950		13	13	3.4
Lead, Pb				
Atomic Absorption	971	2	16	2.1
ICP-induced coupled plasma	972	6	12	4.5
Other(describe)	973	2	16	0.8
Method Group 960		10	14	4.2
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	3	1	1.3
Other(describe)	983	1	2	0.0
Method Group 970		4	2	1.1
Zinc, Zn				
Atomic Absorption	991	3	22	4
ICP-induced coupled plasma	992	8	26	5
Other(describe)	993	3	27	17
Method Group 980		14	26	7

101 Ground Sample AFPC 9-2			
Lab	%	H ₂ O	
27	0.89		-1.952
10	0.79		-1.278
10	0.76		-1.065
Std Dev	0.75		-1.000
13	0.74		-0.923
16	0.73		-0.852
16	0.71		-0.710
13	0.69		-0.568
24	0.66		-0.355
24	0.62		-0.071
Median	0.61		0.000
49	0.60		0.071
75	0.57		0.319
6	0.54		0.497
6	0.54		0.497
15	0.54		0.532
75	0.53		0.568
15	0.52		0.639
Std Dev	0.47		1.000
77	0.25		2.556
77	0.10		3.621

102 Other (describe)			
Lab	%	H ₂ O	
9	0.65		-0.447
9	0.64		-0.298
21	0.64		-0.298
26	0.62		0.000
Median	0.62		0.000
51	0.56		0.893
Std Dev	0.55		1.000
21	0.54		1.191
241	0.44		2.680

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
26	28.73		-0.722
51	28.71		-0.515
Median	28.66		0.000
77	28.61		0.515
Std Dev	28.56		1.000
241	28.51		1.546

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	28.66		-0.705
10	28.66		-0.649
Median	28.60		0.000
6	28.54		0.649
6	28.53		0.762

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
270	29.25		-3.825
6	28.79		-1.256
Std Dev	28.74		-1.000
60	28.70		-0.754
6	28.63		-0.363
9	28.60		-0.195
244	28.60		-0.195
9	28.57		0.000
Median	28.57		0.000
16	28.49		0.419
16	28.45		0.642
78	28.39		0.977
Std Dev	28.39		1.000
36	28.31		1.424
78	28.19		2.122
27	27.86		3.964

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
21	28.95		-1.575
75	28.93		-1.437
Std Dev	28.85		-1.000
24	28.81		-0.774
75	28.70		-0.193
15	28.68		-0.083
15	28.67		0.000
Median	28.67		0.000
21	28.65		0.083
24	28.55		0.635
Std Dev	28.48		1.000
13	28.47		1.078
13	28.39		1.520
77	28.23		2.404

205 Other(describe)			
Lab	%	P2O5	
19	29.10		-2.842
49	28.73		-1.340
Std Dev	28.65		-1.000
92	28.40		0.000
92	28.40		0.000
Median	28.40		0.000
51	28.33		0.284

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
26	28.91		-0.843
51	28.87		-0.604
Median	28.78		0.000
77	28.68		0.604
241	28.64		0.894

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	28.89		-1.340
Std Dev	28.89		-1.000
Median	28.88		0.000
Std Dev	28.88		1.000
10	28.87		1.340

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
6	28.95		-2.404
Std Dev	28.83		-1.000
6	28.79		-0.415
9	28.78		-0.400
9	28.75		0.000
Median	28.75		0.000
16	28.69		0.719
Std Dev	28.67		1.000
16	28.66		1.146
27	28.10		8.015

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
21	29.14		-1.876
75	29.09		-1.597

24	29.00		-1.047
Std Dev	28.99		-1.000
75	28.85		-0.199
15	28.83		-0.063
15	28.82		0.000
Median	28.82		0.000
21	28.81		0.081
24	28.73		0.538
13	28.67		0.895
Std Dev	28.65		1.000
13	28.60		1.286
77	28.26		3.316

215 Other(describe)			
Lab	%	P2O5	dB
49	28.90		0.000
Median	28.90		0.000

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
241	1.32		-1.045
Std Dev	1.31		-1.000
27	1.25		-0.573
Median	1.17		0.000
51	1.08		0.573
60	1.04		0.876

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
77	1.34		-5.038
77	1.32		-4.181
13	1.26		-1.608
10	1.25		-1.179
16	1.25		-1.179
49	1.25		-1.179
Std Dev	1.25		-1.000
15	1.25		-0.965
10	1.24		-0.750
16	1.24		-0.750
15	1.24		-0.536
26	1.24		-0.536
13	1.23		-0.322
78	1.23		-0.322
9	1.23		-0.107

Median	1.22	0.000
6	1.22	0.107
21	1.22	0.107
51	1.22	0.107
78	1.22	0.107
6	1.21	0.536
92	1.21	0.536
92	1.21	0.536
270	1.21	0.536
75	1.20	0.886
9	1.20	0.965
Std Dev	1.20	1.000
75	1.16	2.774
24	1.13	3.966
24	1.12	4.610
21	0.44	33.554

303 Other(describe)		
Lab	%	Fe2O3
19	1.18	0.000
Median	1.18	0.000

401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
51	0.96	-0.975
27	0.92	0.000
Median	0.92	0.000
Std Dev	0.88	1.000
241	0.85	1.705

402 ICP-induced coupled plasma		
Lab	%	Al2O3
77	1.16	-5.907
78	1.14	-5.360
77	1.13	-5.251
78	1.12	-4.922
51	0.98	-1.969
270	0.98	-1.969
21	0.95	-1.313
Std Dev	0.94	-1.000
24	0.93	-0.766
24	0.92	-0.547
26	0.91	-0.438
9	0.90	-0.219

15	0.90	-0.219
15	0.90	-0.109
6	0.89	0.000
6	0.89	0.000
9	0.89	0.000
92	0.89	0.000
92	0.89	0.000
Median	0.89	0.000
16	0.89	0.109
10	0.88	0.219
13	0.87	0.438
16	0.87	0.438
49	0.87	0.438
10	0.86	0.656
13	0.86	0.656
21	0.86	0.656
Std Dev	0.84	1.000
75	0.83	1.420
75	0.77	2.599

403 Other(describe)		
Lab	%	Al2O3
19	1.14	0.000
Median	1.14	0.000

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
36	2.05	-3.955
51	1.02	-0.148
Median	0.98	0.000
27	0.94	0.148
60	0.84	0.518

502 ICP-induced coupled plasma		
Lab	%	MgO
10	1.09	-2.037
92	1.07	-1.715
92	1.07	-1.715
10	1.05	-1.286
270	1.04	-1.072
Std Dev	1.04	-1.000
16	1.04	-0.965
26	1.04	-0.965

78	1.03	-0.750
15	1.01	-0.429
16	1.01	-0.429
15	1.01	-0.322
49	1.00	-0.214
77	1.00	-0.214
6	0.99	0.000
9	0.99	0.000
Median	0.99	0.000
77	0.98	0.214
78	0.98	0.214
75	0.98	0.226
6	0.97	0.429
9	0.97	0.429
21	0.97	0.429
13	0.95	0.858
51	0.95	0.858
Std Dev	0.94	1.000
75	0.93	1.205
13	0.92	1.501
24	0.91	1.715
24	0.91	1.822
21	0.34	13.936

503 Other(describe)		
Lab	%	MgO
19	1.00	0.000
Median	1.00	0.000

601 Insoluble-AFPC 9-8		
Lab	%	Al
21	13.18	-16.816
6	10.95	-3.681
51	10.65	-1.885
26	10.51	-1.090
Std Dev	10.49	-1.000
15	10.47	-0.854
21	10.43	-0.618
15	10.41	-0.501
16	10.39	-0.383
27	10.38	-0.295
10	10.33	0.000
Median	10.33	0.000
24	10.31	0.088

9	10.31	0.118
24	10.28	0.295
16	10.25	0.442
10	10.20	0.766
6	10.19	0.795
Std Dev	10.16	1.000
9	10.16	1.001
13	10.13	1.149
13	10.06	1.561

602 Other(describe)			
Lab	%	Al	
19	11.15		0.000
Median	11.15		0.000

701 Gravimetric sulfate			
Lab	%	CaO	
Median	0.00		0.000

702 ICP-induced coupled plasma			
Lab	%	CaO	
75	45.86		-3.693
75	45.00		-1.876
6	44.79		-1.445
Std Dev	44.58		-1.000

77	44.50	-0.837
49	44.25	-0.314
78	44.17	-0.147
16	44.10	0.000
Median	44.10	0.000
77	44.00	0.209
16	43.96	0.304
6	43.86	0.503
10	43.84	0.555
10	43.68	0.890
Std Dev	43.62	1.000
78	41.56	5.318

703 Ceric Sulfate volumetric			
Lab	%	CaO	
241	43.26		0.000
Median	43.26		0.000

704 Permanganate			
Lab	%	CaO	
26	45.65		-2.590
21	44.49		-1.284
Std Dev	44.24		-1.000
60	43.35		0.000
Median	43.35		0.000
27	43.30		0.056
21	42.79		0.631

705 EDTA Volumetric			
Lab	%	CaO	
9	44.51		-1.925
9	44.29		-1.195
Std Dev	44.23		-1.000
51	44.02		-0.315
Median	43.93		0.000
92	43.83		0.315
92	43.81		0.382
Std Dev	43.62		1.000
270	42.79		3.767

706 Other(describe)			
Lab	%	CaO	
13	44.31		-1.501
Std Dev	44.24		-1.000
19	44.20		-0.715
15	44.16		-0.429
15	44.10		0.000
Median	44.10		0.000
13	44.00		0.715
24	43.99		0.822
24	43.98		0.893

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
6	45.03		-4.111
Std Dev	44.43		-1.000
16	44.42		-0.944
16	44.28		-0.241

Median	44.23		0.000
10	44.18		0.241
6	44.10		0.682
Std Dev	44.04		1.000
10	44.01		1.136

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00		0.000

714 Permanganate			
Lab	%	CaO	dB
26	45.93		-1.541
Std Dev	45.33		-1.000
21	44.73		-0.466
Median	44.21		0.000
27	43.69		0.466
Std Dev	43.09		1.000
21	43.07		1.021

715 EDTA Volumetric			
Lab	%	CaO	dB
9	44.80		-1.146
Std Dev	44.77		-1.000
9	44.57		0.000
Median	44.57		0.000
Std Dev	44.37		1.000
51	44.27		1.534

716 Other(describe)			
Lab	%	CaO	dB
13	44.64		-4.451
15	44.40		-1.221
Std Dev	44.38		-1.000
15	44.33		-0.330
13	44.31		0.000
Median	44.31		0.000
24	44.28		0.379
24	44.25		0.750
Std Dev	44.23		1.000
19	44.20		1.406

801 Volumetric-AFPC 9-37			
Lab	%	Fluorine, F	

Median	0.00		0.000
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802 Specific Ion Electrode			
Lab	%	Fluorine, F	
21	3.52		-1.839
51	3.50		-1.629
24	3.47		-1.366
24	3.47		-1.314
Std Dev	3.44		-1.000
9	3.42		-0.788
13	3.40		-0.631
13	3.39		-0.525
27	3.37		-0.315
9	3.36		-0.210
6	3.34		0.000
Median	3.34		0.000
49	3.33		0.105
75	3.32		0.210
75	3.32		0.210
6	3.29		0.525
21	3.27		0.736
Std Dev	3.24		1.000
15	3.20		1.471
270	3.15		1.997
15	3.15		2.049
36	0.16		33.421

803 Other(describe)			
Lab	%	Fluorine, F	
77	3.40		-1.340
Std Dev	3.39		-1.000
Median	3.38		0.000
Std Dev	3.36		1.000
77	3.35		1.340

911 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Arsenic, As	
27	2.0		0.000
Median	2.0		0.000

912 ICP-induced coupled plasma			
Lab	ppm	Arsenic, As	
78	34.0		-1.742
78	28.5		-1.072

Std Dev	27.9		-1.000
6	19.7		0.000
Median	19.7		0.000
26	17.5		0.268
270	15.0		0.573

913 Other(describe)			
Lab	ppm	Arsenic, As	
13	14.1		-1.340
Std Dev	13.8		-1.000
Median	12.8		0.000
Std Dev	11.8		1.000
51	11.5		1.340

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
27	8		-1.340
Std Dev	7		-1.000
Median	5		0.000
Std Dev	3		1.000
51	2		1.340

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
75	4		-2.188
Std Dev	3		-1.000
51	3		-0.625
75	3		-0.625
78	3		-0.625
78	3		-0.156
Median	3		0.000
26	3		0.156
6	2		0.281
270	2		0.859
77	2		0.938
77	2		0.938

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
13	3		0.000
Median	3		0.000

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

27	14	0.000
Median	14	0.000

932 ICP-induced coupled plasma		
Lab	ppm	Cobalt, Co
6	4	-1.729
78	4	-1.340
78	4	-1.340
Std Dev	4	-1.000
75	4	-0.670
51	3	0.000
75	3	0.000
77	3	0.000
77	3	0.000
Median	3	0.000
270	3	0.536

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	<0.07	0.000
Median	0.0	0.000

951 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	lolybdenum, Mo
51	7	0.000
Median	7	0.000

952 ICP-induced coupled plasma		
Lab	ppm	lolybdenum, Mo
78	16	-5.522

6	11	-1.381
Std Dev	11	-1.000
270	10	-0.406
51	10	0.000
Median	10	0.000
77	9	0.406
78	9	0.487
Std Dev	8	1.000
77	8	1.218

953 Other(describe)		
Lab	ppm	lolybdenum, Mo
13	11	0.000
Median	11	0.000

961 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Nickel, Ni
27	51	-1.340
Std Dev	45	-1.000
Median	30	0.000
Std Dev	15	1.000
51	10	1.340

962 ICP-induced coupled plasma		
Lab	ppm	Nickel, Ni
78	16	-1.608
270	15	-1.340
Std Dev	14	-1.000
78	13	-0.268
6	13	-0.107
51	13	0.000
75	13	0.000
Median	13	0.000
Std Dev	11	1.000
75	11	1.072
77	9	1.876
77	9	1.876

963 Other(describe)		
Lab	ppm	Nickel, Ni
19	46	-1.340
Std Dev	42	-1.000
Median	30	0.000
Std Dev	18	1.000

13	14	1.340
971 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Lead, Pb
27	19	-1.340
Std Dev	18	-1.000
Median	16	0.000
Std Dev	14	1.000
51	13	1.340

972 ICP-induced coupled plasma		
Lab	ppm	Lead, Pb
6	17	-1.117
Std Dev	16	-1.000
270	16	-0.893
78	14	-0.335
Median	12	0.000
78	11	0.335
77	9	0.670
77	9	0.670

973 Other(describe)		
Lab	ppm	Lead, Pb
26	17	-1.340
Std Dev	17	-1.000
Median	16	0.000
Std Dev	15	1.000
13	15	1.340

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

982 ICP-induced coupled plasma		
Lab	ppm	Selenium, Se
6	4	-1.824
Std Dev	2	-1.000
24	1	0.000
Median	1	0.000
270	0	0.856

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

Median	2	0.000
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991 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Zinc, Zn
27	32	-2.552
Std Dev	25	-1.000
51	22	0.000
Median	22	0.000
60	21	0.128

992 ICP-induced coupled plasma		
Lab	ppm	Zinc, Zn
78	37	-2.330
78	36	-2.111
Std Dev	31	-1.000
75	28	-0.361
6	27	-0.077
Median	26	0.000
270	26	0.077
75	26	0.186
Std Dev	22	1.000
77	19	1.608
77	17	2.046

993 Other(describe)		
Lab	ppm	Zinc, Zn
13	44	-1.047
Std Dev	44	-1.000
51	27	0.000
Median	27	0.000
Std Dev	10	1.000
26	0	1.633

