

AFPC Rock Check Program

Sample No. 2013-01

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	27	0.66	0.140
Other (describe)	102			
Method Group 100		27	0.66	0.14
P₂O₅				
Gravimetric AFPC IX.3.B	201	1	29.04	0.000
ICP-induced coupled plasma AFPC IX.3.D	202	4	28.95	0.061
Photometric-AFPC IX.3.C	203	17	28.94	0.116
Automated -AOAC 978.01-15th	204	13	28.98	0.134
Other(describe)	205	1	28.40	0.000
Method Group 200		36	28.94	0.11
P₂O₅ (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	1	29.13	0.000
ICP-induced coupled plasma AFPC IX.3.D	212	3	29.18	0.050
Photometric-AFPC IX.3.C	213	10	29.23	0.054
Automated -AOAC 978.01-15th	214	13	29.13	0.097
Other(describe)	215			
Method Group 210		27	29.20	0.09
Fe₂O₃				
Atomic Absorption-AFPC IX.6.B	301	2	1.30	0.026
ICP-induced coupled plasma-AFPC IX.6.C	302	27	1.41	0.047
Other(describe)	303	3	1.63	0.123
Method Group 300		32	1.41	0.06
Al₂O₃				
Atomic Absorption-AFPC IX.7.B	401	1	0.99	0.000
ICP-induced coupled plasma-AFPC IX.7.C	402	27	0.91	0.054
Other(describe)	403	3	1.54	0.101
Method Group 400		31	0.92	0.09
MgO				
Atomic Absorption-AFPC IX.8.A	501	6	0.48	0.007
ICP-induced coupled plasma-AFPC IX.8.B	502	25	0.49	0.015
Other(describe)	503	3	0.47	0.007
Method Group 500		34	0.48	0.01
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	19	12.20	0.164
Other(describe)	602	1	12.17	0.000
Method Group 600		20	12.19	0.16
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	13	3.77	0.354
Other(describe)	652	4	5.48	3.208
Method Group 650		17	3.77	0.39
CaO				
Gravimetric sulfate-AFPC IX.12.A	701			
ICP-induced coupled plasma-AFPC IX.12.D	702	19	43.22	0.707
Ceric Sulfate volumetric-AFPC IX.12.B	703	1	42.85	0.000
Permanganate	704	1	42.50	0.000
EDTA Volumetric-AFPC IX.12.C	705	2	43.37	0.201
Other(describe)	706	9	43.16	0.369
Method Group 700		32	43.18	0.54
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-induced coupled plasma-AFPC IX.12.D	712	14	43.41	0.220
Ceric Sulfate volumetric-AFPC IX.12.B	713	1	42.92	0.000
Permanganate	714			
EDTA Volumetric-AFPC IX.12.C	715	2	43.62	0.211
Other(describe)	716	8	43.59	0.409
Method Group 710		25	43.43	0.34

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	15	3.42	0.090
Other(describe)	803	4	3.47	0.149
Method Group 800		19	3.42	0.13
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma-AFPC IX.15.B	912	10	9.7	3.02
Other(describe)	913	3	9.5	0.45
Method Group 900		13	9.6	2.31
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921	1	3	0.0
ICP-induced coupled plasma-AFPC IX.11.B	922	14	4	0.9
Other(describe)	923	1	3	0.0
Method Group 910		16	4	0.9
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931	1	6	0.0
ICP-induced coupled plasma-AFPC IX.16.A	932	12	5	1.4
Other(describe)	933	1	5	0.0
Method Group 920		14	5	1.0
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-induced coupled plasma-AFPC IX.16.A	942	1	0.2	0.00
Other(describe)	943			
Method Group 930		1	0.2	0.00
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951			
ICP-induced coupled plasma-AFPC IX.16.A	952	8	7	1.4
Other(describe)	953	2	9	0.4
Method Group 940		10	7	1.7
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961			
ICP-induced coupled plasma-AFPC IX.16.A	962	12	17	3.7
Other(describe)	963	2	21	2.3
Method Group 950		14	17	3.9
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971	1	16	0.0
ICP-induced coupled plasma-AFPC IX.16.A	972	11	13	2.0
Other(describe)	973	1	14	0.0
Method Group 960		13	13	2.4
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-induced coupled plasma-AFPC IX.16.A	982	4	1	0.8
Other(describe)	983	1	2	0.0
Method Group 970		5	1	0.8
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991	2	33	6
ICP-induced coupled plasma-AFPC IX.16.A	992	11	40	3
Other(describe)	993	3	43	6
Method Group 980		16	40	4

101 Ground Sample AFPC IX.2.A			
Lab	%	H ₂ O	
10	0.97		-2.215
10	0.86		-1.429
13	0.85		-1.358
21	0.83		-1.179
Std Dev	0.80		-1.000
15	0.79		-0.929
16	0.79		-0.929
16	0.78		-0.858
15	0.77		-0.786
13	0.75		-0.643
24	0.70		-0.250
24	0.69		-0.214
49	0.67		-0.071
9	0.67		-0.036
33	0.66		0.000
75	0.66		0.000
Median	0.66		0.000
9	0.64		0.179
21	0.63		0.214
75	0.62		0.286
35	0.60		0.429
26	0.59		0.500
61	0.59		0.536
35	0.55		0.786
Std Dev	0.52		1.000
61	0.52		1.001
6	0.52		1.036
77	0.32		2.430
77	0.26		2.859
27	0.16		3.573

102 Other (describe)			
Lab	%	H ₂ O	
Median	0.00		0.000

201 Gravimetric AFPC IX.3.B			
Lab	%	P2O5	
77	29.04		0.000
Median	29.04		0.000

202 ICP-induced coupled plasma AFPC IX.3.D			
Lab	%	P2O5	

6	29.06		-1.773
Std Dev	29.01		-1.000
10	28.98		-0.454
Median	28.95		0.000
10	28.93		0.454
16	28.90		0.866

203 Photometric-AFPC IX.3.C			
Lab	%	P2O5	

35	29.26		-2.810
6	29.10		-1.426
49	29.10		-1.426
35	29.06		-1.081
9	29.06		-1.037
Std Dev	29.05		-1.000
33	29.04		-0.908
9	29.01		-0.605
16	28.94		-0.043
78	28.94		0.000
301	28.94		0.000
Median	28.94		0.000
26	28.93		0.086
270	28.92		0.141
92	28.90		0.303
92	28.90		0.303
Std Dev	28.82		1.000
78	28.81		1.124
60	28.60		2.896
27	28.13		6.959

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	

61	29.20		-1.638
21	29.17		-1.377
21	29.14		-1.191
Std Dev	29.11		-1.000
77	29.05		-0.521
24	29.01		-0.223
15	28.98		0.000
15	28.98		0.000
Median	28.98		0.000
24	28.92		0.447
75	28.89		0.670
13	28.87		0.819

Std Dev	28.85		1.000
61	28.85		1.005
75	28.75		1.712
13	28.57		3.052

205 Other(describe)			
Lab	%	P2O5	

19	28.40		0.000
Median	28.40		0.000

211 Gravimetric AFPC IX.3.B			
Lab	%	P2O5	dB

77	29.13		0.000
Median	29.13		0.000

212 ICP-induced coupled plasma AFPC IX.3.D			
Lab	%	P2O5	dB

10	29.26		-1.762
Std Dev	29.23		-1.000
10	29.18		0.000
Median	29.18		0.000
16	29.13		0.918

213 Photometric-AFPC IX.3.C			
Lab	%	P2O5	dB

35	29.44		-3.865
49	29.30		-1.280
Std Dev	29.28		-1.000
6	29.25		-0.439
9	29.24		-0.255
33	29.23		-0.113
Median	29.23		0.000
35	29.22		0.113
9	29.20		0.509
Std Dev	29.17		1.000
16	29.17		1.093
26	29.10		2.398
27	28.18		19.379

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB

21	29.41		-2.914
61	29.35		-2.346
21	29.32		-2.057

Std Dev	29.22		-1.000
24	29.21		-0.887
15	29.21		-0.879
15	29.20		-0.818
77	29.13		0.000
Median	29.13		0.000
24	29.12		0.034
13	29.12		0.085
75	29.08		0.453
Std Dev	29.03		1.000
61	29.01		1.147
75	28.93		2.030
13	28.79		3.513

215 Other(describe)			
Lab	%	P2O5	dB

Median	0.00		0.000
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301 Atomic Absorption-AFPC IX.6.B			
Lab	%	Fe2O3	

60	1.33		-1.340
Std Dev	1.32		-1.000
Median	1.30		0.000
Std Dev	1.27		1.000
33	1.26		1.340

302 ICP-induced coupled plasma-AFPC IX.6.C			
Lab	%	Fe2O3	

78	1.52		-2.466
78	1.51		-2.144
61	1.47		-1.394
13	1.46		-1.179
Std Dev	1.45		-1.000
13	1.44		-0.750
16	1.44		-0.750
16	1.43		-0.536
9	1.43		-0.429
10	1.43		-0.429
10	1.42		-0.322
270	1.42		-0.322
49	1.41		-0.107
15	1.41		0.000
15	1.41		0.000
21	1.41		0.000

61	1.41	0.000
Median	1.41	0.000
6	1.40	0.107
9	1.40	0.214
75	1.38	0.614
92	1.37	0.750
92	1.36	0.965
Std Dev	1.36	1.000
75	1.33	1.622
24	1.31	2.144
24	1.29	2.466
21	1.23	3.859
35	0.94	9.970
35	0.90	10.827

303 Other(describe)		
Lab	%	Fe2O3
77	1.75	-0.975
77	1.63	0.000
Std Dev	1.51	1.000
19	1.42	1.705

401 Atomic Absorption-AFPC IX.6.B		
Lab	%	Al2O3
33	0.99	0.000
Median	0.99	0.000

402 ICP-induced coupled plasma-AFPC IX.6.C		
Lab	%	Al2O3
78	1.27	-6.561
78	1.24	-6.007
61	1.09	-3.327
24	1.03	-2.126
61	1.03	-2.126
24	1.02	-1.941
92	0.97	-1.109
Std Dev	0.96	-1.000
92	0.96	-0.924
9	0.93	-0.370
49	0.92	-0.185
9	0.92	-0.092
13	0.92	-0.092
13	0.91	0.000

16	0.91	0.000
Median	0.91	0.000
6	0.90	0.185
16	0.90	0.185
75	0.90	0.267
10	0.90	0.277
15	0.90	0.277
15	0.90	0.277
21	0.89	0.370
10	0.89	0.462
75	0.87	0.658
21	0.86	0.924
270	0.86	0.924
Std Dev	0.86	1.000
35	0.63	5.175
35	0.61	5.545

403 Other(describe)		
Lab	%	Al2O3
77	1.57	-0.298
77	1.54	0.000
Median	1.54	0.000
Std Dev	1.44	1.000
19	1.30	2.382

501 Atomic Absorption-AFPC IX.8.A		
Lab	%	MgO
33	0.48	-0.670
35	0.48	-0.670
301	0.48	-0.670
Median	0.48	0.000
35	0.47	0.670
60	0.47	0.670
Std Dev	0.47	1.000
27	0.20	36.997

502 ICP-induced coupled plasma-AFPC IX.8.B		
Lab	%	MgO
92	0.55	-4.355
92	0.53	-3.015
24	0.52	-2.010
24	0.51	-1.675
61	0.51	-1.675
61	0.50	-1.173

16	0.50	-1.005
49	0.50	-1.005
Std Dev	0.50	-1.000
10	0.49	-0.335
16	0.49	-0.335
78	0.49	-0.335
78	0.49	-0.335
9	0.49	0.000
10	0.49	0.000
15	0.49	0.000
15	0.49	0.000
Median	0.49	0.000
6	0.48	0.335
9	0.48	0.335
13	0.48	0.335
21	0.48	0.335
Std Dev	0.47	1.000
21	0.45	2.345
75	0.44	3.179
13	0.44	3.350
270	0.43	3.578
75	0.42	4.240

503 Other(describe)		
Lab	%	MgO
77	0.49	-2.680
Std Dev	0.48	-1.000
19	0.47	0.000
77	0.47	0.000
Median	0.47	0.000

601 Insoluble-AFPC IX.4.A		
Lab	%	Al
16	12.41	-1.279
16	12.40	-1.218
Std Dev	12.36	-1.000
24	12.36	-0.975
10	12.31	-0.670
13	12.31	-0.640
9	12.30	-0.609
35	12.30	-0.609
24	12.29	-0.518
49	12.23	-0.183
10	12.20	0.000

Median	12.20	0.000
15	12.15	0.335
35	12.13	0.426
15	12.12	0.487
33	12.10	0.609
21	12.07	0.822
Std Dev	12.04	1.000
9	11.98	1.370
13	11.97	1.401
21	11.91	1.766
6	11.83	2.284

602 Other(describe)		
Lab	%	Al
19	12.17	0.000
Median	12.17	0.000

651 Gasometric-AFPC IX.13.B		
Lab	%	CO2
49	4.14	-1.044
Std Dev	4.12	-1.000
24	4.01	-0.663
61	3.98	-0.581
15	3.93	-0.437
15	3.91	-0.381
21	3.79	-0.056
21	3.77	0.000
Median	3.77	0.000
77	3.69	0.226
61	3.64	0.378
9	3.45	0.903
9	3.45	0.903
Std Dev	3.42	1.000
13	2.55	3.442
13	2.41	3.837

652 Other(describe)		
Lab	%	CO2
35	7.78	-0.719
35	7.60	-0.662
Median	5.48	0.000
78	3.35	0.662
78	3.34	0.667

701 Gravimetric sulfate-AFPC IX.12.A			
Lab	%	CaO	
Median	0.00		0.000

702 ICP-induced coupled plasma-AFPC IX.12.D			
Lab	%	CaO	
92	45.17		-2.765
92	44.73		-2.143
61	44.51		-1.825
78	44.31		-1.542
78	44.27		-1.485
Std Dev	43.92		-1.000
270	43.74		-0.742
49	43.55		-0.474
16	43.31		-0.134
10	43.31		-0.127
9	43.22		0.000
Median	43.22		0.000

21	43.20		0.021
6	43.12		0.134
9	43.09		0.184
10	43.06		0.219
16	43.05		0.233
21	42.95		0.375
75	42.62		0.837
Std Dev	42.51		1.000
75	41.74		2.085
61	41.10		2.992

703 Ceric Sulfate volumetric-AFPC IX.12.B			
Lab	%	CaO	
27	42.85		0.000
Median	42.85		0.000

704 Permanganate			
Lab	%	CaO	
60	42.50		0.000
Median	42.50		0.000

705 EDTA Volumetric-AFPC IX.12.C			
Lab	%	CaO	
35	43.64		-1.340
Std Dev	43.57		-1.000
Median	43.37		0.000

Std Dev	43.17		1.000
35	43.10		1.340

706 Other(describe)			
Lab	%	CaO	
77	44.10		-2.545
77	43.80		-1.733
Std Dev	43.53		-1.000
15	43.41		-0.663
15	43.39		-0.609
24	43.16		0.000
Median	43.16		0.000
19	43.00		0.433
13	42.91		0.677
33	42.88		0.758
Std Dev	42.79		1.000
13	42.58		1.584

711 Gravimetric sulfate-AFPC IX.12.A			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma-AFPC IX.12.D			
Lab	%	CaO	dB
61	44.77		-6.162
49	43.84		-1.960
10	43.73		-1.438
16	43.65		-1.080
Std Dev	43.63		-1.000
9	43.49		-0.355
21	43.47		-0.276
10	43.43		-0.093
Median	43.41		0.000
16	43.39		0.093
9	43.37		0.181
6	43.34		0.318
21	43.31		0.482
Std Dev	43.19		1.000
75	42.89		2.386
75	42.02		6.349
61	41.31		9.551

713 Ceric Sulfate volumetric-AFPC IX.12.B			
Lab	%	CaO	dB

27	42.92		0.000
Median	42.92		0.000

714 Permanganate			
Lab	%	CaO	dB
Median	0.00		0.000

715 EDTA Volumetric-AFPC IX.12.C			
Lab	%	CaO	dB
35	43.90		-1.340
Std Dev	43.83		-1.000
Median	43.62		0.000
Std Dev	43.41		1.000
35	43.34		1.340

716 Other(describe)			
Lab	%	CaO	dB
77	44.21		-1.522
Std Dev	44.00		-1.000
77	43.94		-0.852
15	43.75		-0.388
15	43.72		-0.317
Median	43.59		0.000
24	43.46		0.317
13	43.28		0.767
Std Dev	43.18		1.000
33	43.16		1.043
13	42.90		1.698

801 Volumetric-AFPC IX.14.A			
Lab	%	Fluorine, F	
Median	0.00		0.000

802 Specific Ion Electrode-AFPC IX.14.B			
Lab	%	Fluorine, F	
15	3.98		-6.253
15	3.97		-6.142
21	3.90		-5.304
49	3.51		-1.005
Std Dev	3.51		-1.000
24	3.45		-0.335
35	3.44		-0.223
21	3.43		-0.112
9	3.42		0.000

Median	3.42		0.000
35	3.40		0.223
9	3.39		0.335
13	3.38		0.502
13	3.35		0.838
Std Dev	3.33		1.000
27	3.31		1.284
75	3.19		2.624
75	3.10		3.573

803 Other(describe)			
Lab	%	Fluorine, F	
33	3.56		-0.603
77	3.56		-0.603
Median	3.47		0.000
77	3.38		0.603
Std Dev	3.32		1.000
19	3.30		1.139

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

912 ICP-induced coupled plasma-AFPC IX.15.I			
Lab	ppm	Arsenic, As	
6	13.1		-1.141
61	13.0		-1.108
Std Dev	12.7		-1.000
61	12.5		-0.943
24	12.1		-0.811
78	9.8		-0.033
Median	9.7		0.000
270	9.6		0.033
77	9.4		0.083
35	8.0		0.546
35	8.0		0.546
Std Dev	6.6		1.000
78	5.7		1.323

913 Other(describe)			
Lab	ppm	Arsenic, As	
13	10.2		-1.563
Std Dev	9.9		-1.000
77	9.5		0.000

Median	9.5	0.000
Std Dev	9.1	1.000
33	9.0	1.117

921	Atomic Absorption-AFPC IX.11.A	
Lab	ppm	Cadmium, Cd
301	<0.2	0.000
33	3	0.000
Median	3	0.000

922	ICP-induced coupled plasma-AFPC IX.11.B	
Lab	ppm	Cadmium, Cd

270	29	-27.940
35	5	-1.140
Std Dev	5	-1.000
24	4	-0.513
24	4	-0.228
78	4	-0.228
78	4	-0.188
35	4	0.000
77	4	0.000
Median	4	0.000
61	4	0.285
Std Dev	3	1.000
75	3	1.026
61	3	1.140
77	3	1.140
75	3	1.197
6	3	1.711

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

931	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Cobalt, Co
33	6	0.000
Median	6	0.000

932	ICP-induced coupled plasma-AFPC IX.16.A	
Lab	ppm	Cobalt, Co
35	10	-3.481
78	8	-1.740

78	8	-1.740
Std Dev	6	-1.000
35	6	-0.696
61	5	-0.084
61	5	0.000
77	5	0.000
Median	5	0.000
6	5	0.104
270	5	0.278
75	4	0.696
77	4	0.696
75	4	0.835

933	Other(describe)	
Lab	ppm	Cobalt, Co
13	5	0.000
Median	5	0.000

941	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Mercury, Hg
Median	0.0	0.000

942	ICP-induced coupled plasma-AFPC IX.16.A	
Lab	ppm	Mercury, Hg
270	0.2	0.000
Median	0.2	0.000

943	Other(describe)	
Lab	ppm	Mercury, Hg
13	<0.09	0.000
Median	0.0	0.000

951	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	lolybdenum, Mo
Median	0	0.000

952	ICP-induced coupled plasma-AFPC IX.16.A	
Lab	ppm	lolybdenum, Mo
61	12	-4.003
6	8	-1.128
Std Dev	8	-1.000
61	7	-0.622
77	7	-0.364
Median	7	0.000

77	6	0.364
78	6	0.546
78	6	0.728
24	5	0.801

953	Other(describe)	
Lab	ppm	Molybdenum, Mo
33	9	-1.340
Std Dev	9	-1.000
Median	9	0.000
Std Dev	8	1.000
13	8	1.340

961	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Nickel, Ni
Median	0	0.000

962	ICP-induced coupled plasma-AFPC IX.16.A	
Lab	ppm	Nickel, Ni
35	30	-3.627
35	21	-1.191
77	21	-1.191
Std Dev	20	-1.000
77	20	-0.920
61	18	-0.244
6	17	-0.162
Median	17	0.000
61	16	0.162
75	16	0.162
75	15	0.325
78	15	0.433
78	15	0.433
270	15	0.433

963	Other(describe)	
Lab	ppm	Nickel, Ni
19	24	-1.340
Std Dev	23	-1.000
Median	21	0.000
Std Dev	19	1.000
13	18	1.340

971	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Lead, Pb

33	16	0.000
Median	16	0.000

972	ICP-induced coupled plasma-AFPC IX.16.A	
Lab	ppm	Lead, Pb
35	17	-2.297
6	16	-1.787
Std Dev	14	-1.000
35	13	-0.255
61	13	-0.255
61	13	0.000
270	13	0.000
Median	13	0.000
77	12	0.255
77	11	0.766
Std Dev	11	1.000
24	10	1.404
78	9	1.787
78	6	3.114

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

981	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Selenium, Se
Median	0	0.000

982	ICP-induced coupled plasma-AFPC IX.16.A	
Lab	ppm	Selenium, Se
77	1	-0.670
77	1	-0.670
Median	1	0.000
61	0	0.670
61	0	0.670

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

991	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Zinc, Zn

33	41	-1.340
Std Dev	39	-1.000
Median	33	0.000
Std Dev	27	1.000
60	25	1.340

992 ICP-induced coupled plasma-AFPC IX.16.A

Lab	ppm	Zinc, Zn
61	49	-2.547
61	49	-2.547
6	44	-1.075
Std Dev	43	-1.000
75	43	-0.810
77	40	-0.044
75	40	0.000
Median	40	0.000
78	40	0.103
35	39	0.250
77	38	0.545
78	38	0.545
Std Dev	36	1.000
35	34	1.723

993 Other(describe)

Lab	ppm	Zinc, Zn
13	51	-1.429
Std Dev	49	-1.000
19	43	0.000
Median	43	0.000
Std Dev	37	1.000
19	36	1.251