

AFPC Rock Check Program

Sample No. 2014-06

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	25	0.77	0.127
Other (describe)	102			
Method Group 100		25	0.77	0.13
P₂O₅				
Gravimetric AFPC IX.3.B	201	1	28.23	0.000
ICP-induced coupled plasma AFPC IX.3.D	202	5	28.55	0.030
Photometric-AFPC IX.3.C	203	14	28.49	0.242
Automated -AOAC 978.01-15th	204	9	28.43	0.060
Other(describe)	205	1	28.40	0.000
Method Group 200		30	28.48	0.13
P₂O₅ (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	1	28.29	0.000
ICP-induced coupled plasma AFPC IX.3.D	212	5	28.75	0.025
Photometric-AFPC IX.3.C	213	8	28.79	0.104
Automated -AOAC 978.01-15th	214	9	28.71	0.072
Other(describe)	215			
Method Group 210		23	28.75	0.07
Fe₂O₃				
Atomic Absorption-AFPC IX.6.B	301	2	1.22	0.039
ICP-induced coupled plasma-AFPC IX.6.C	302	24	1.41	0.038
Other(describe)	303	3	1.53	0.093
Method Group 300		29	1.41	0.04
Al₂O₃				
Atomic Absorption-AFPC IX.7.B	401	1	0.89	0.000
ICP-induced coupled plasma-AFPC IX.7.C	402	24	0.92	0.047
Other(describe)	403	3	1.12	0.067
Method Group 400		28	0.92	0.09
MgO				
Atomic Absorption-AFPC IX.8.A	501	5	0.66	0.056
ICP-induced coupled plasma-AFPC IX.8.B	502	22	0.69	0.013
Other(describe)	503	3	0.68	0.034
Method Group 500		30	0.69	0.02
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	18	11.69	0.287
Other(describe)	602	1	13.15	0.000
Method Group 600		19	11.69	0.29
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	12	4.12	0.112
Other(describe)	652	6	3.86	2.858
Method Group 650		18	4.09	0.23
CaO				
Gravimetric sulfate-AFPC IX.12.A	701			
ICP-induced coupled plasma-AFPC IX.12.D	702	16	43.07	0.208
Ceric Sulfate volumetric-AFPC IX.12.B	703	1	39.46	0.000
Permanganate	704	2	43.07	0.123
EDTA Volumetric-AFPC IX.12.C	705	4	43.43	0.166
Other(describe)	706	7	43.50	0.235
Method Group 700		30	43.11	0.38
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-induced coupled plasma-AFPC IX.12.D	712	12	43.38	0.143
Ceric Sulfate volumetric-AFPC IX.12.B	713	1	39.62	0.000
Permanganate	714	1	43.52	0.000
EDTA Volumetric-AFPC IX.12.C	715	4	43.73	0.184
Other(describe)	716	6	43.71	0.056
Method Group 710		23	43.52	0.29

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	17	3.34	0.071
Other (describe)	803	3	3.30	0.019
Method Group 800		20	3.33	0.07
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma-AFPC IX.15.B	912	5	14.0	3.51
Other(describe)	913	1	16.7	0.00
Method Group 900		6	15.3	3.13
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921			
ICP-induced coupled plasma-AFPC IX.11.B	922	9	3	0.0
Other(describe)	923	1	3	0.0
Method Group 910		10	3	0.1
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931			
ICP-induced coupled plasma-AFPC IX.16.A	932	9	4	0.1
Other(describe)	933	1	5	0.0
Method Group 920		10	4	0.3
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-induced coupled plasma-AFPC IX.16.A	942	2	0.4	0.07
Other(describe)	943	1	0.1	0.00
Method Group 930		3	0.3	0.15
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951			
ICP-induced coupled plasma-AFPC IX.16.A	952	7	7	1.1
Other(describe)	953	1	8	0.0
Method Group 940		8	7	1.2
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961			
ICP-induced coupled plasma-AFPC IX.16.A	962	9	14	2.2
Other(describe)	963	3	24	4.2
Method Group 950		12	15	2.5
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971			
ICP-induced coupled plasma-AFPC IX.16.A	972	7	12	5.6
Other(describe)	973	1	12	0.0
Method Group 960		8	12	3.2
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-induced coupled plasma-AFPC IX.16.A	982			
Other(describe)	983	1	4	0.0
Method Group 970		1	4	0.0
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991	1	57	0
ICP-induced coupled plasma-AFPC IX.16.A	992	11	30	7
Other(describe)	993	2	34	2
Method Group 980		14	33	7

101	Ground Sample AFPC IX.2.A	
Lab	%	H ₂ O
13	1.06	-2.286
21	0.97	-1.576
26	0.97	-1.537
21	0.94	-1.301
13	0.90	-1.025
75	0.90	-1.025
Std Dev	0.90	-1.000
9	0.83	-0.473
16	0.80	-0.236
10	0.79	-0.158
16	0.79	-0.158
10	0.78	-0.079
9	0.78	-0.039
49	0.77	0.000
Median	0.77	0.000
75	0.71	0.512
35	0.70	0.552
275	0.70	0.552
275	0.69	0.631
6	0.67	0.788
30	0.66	0.867
Std Dev	0.64	1.000
35	0.52	1.939
15	0.43	2.680
27	0.41	2.838
15	0.36	3.232
77	0.33	3.468
77	0.20	4.493

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

201	Gravimetric AFPC IX.3.B	
Lab	%	P2O5
77	28.23	0.000
Median	28.23	0.000

202	ICP-induced coupled plasma AFPC IX.3.D	
Lab	%	P2O5
10	28.58	-0.838
6	28.56	-0.335

16	28.55	0.000
Median	28.55	0.000
Std Dev	28.52	1.000
10	28.52	1.005
16	28.49	2.010

203	Photometric-AFPC IX.3.C	
Lab	%	P2O5
35	28.90	-1.687
35	28.82	-1.356
Std Dev	28.73	-1.000
49	28.64	-0.611
30	28.61	-0.486
6	28.54	-0.197
9	28.54	-0.197
9	28.51	-0.052
Median	28.49	0.000
26	28.48	0.052
92	28.38	0.466
92	28.37	0.507
Std Dev	28.25	1.000
78	28.24	1.066
60	28.10	1.625
78	28.10	1.625
27	28.05	1.832

204	Automated -AOAC 978.01-15th	
Lab	%	P2O5
15	28.79	-6.030
15	28.77	-5.611
Std Dev	28.49	-1.000
13	28.48	-0.837
13	28.45	-0.335
21	28.43	0.000
21	28.43	0.000
Median	28.43	0.000
75	28.40	0.503
75	28.40	0.586
Std Dev	28.37	1.000
77	28.13	5.025

205	Other(describe)	
Lab	%	P2O5
19	28.40	0.000

Median	28.40	0.000
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211	Gravimetric AFPC IX.3.B		
Lab	%	P2O5	dB
77	28.29	0.000	
Median	28.29	0.000	0.000

212	ICP-induced coupled plasma AFPC IX.3.D		
Lab	%	P2O5	dB
10	28.80	-2.018	
Std Dev	28.78	-1.000	
16	28.78	-0.999	
6	28.75	0.000	
Median	28.75	0.000	
10	28.74	0.341	
Std Dev	28.73	1.000	
16	28.72	1.330	

213	Photometric-AFPC IX.3.C		
Lab	%	P2O5	dB
35	29.10	-3.017	
35	28.97	-1.750	
Std Dev	28.89	-1.000	
49	28.86	-0.699	
30	28.80	-0.102	
Median	28.79	0.000	
9	28.78	0.102	
26	28.76	0.307	
9	28.73	0.594	
Std Dev	28.69	1.000	
27	28.17	5.990	

214	Automated -AOAC 978.01-15th		
Lab	%	P2O5	dB
15	28.89	-2.566	
15	28.89	-2.500	
Std Dev	28.78	-1.000	
13	28.75	-0.641	
13	28.74	-0.417	
21	28.71	0.000	
Median	28.71	0.000	
21	28.70	0.140	
75	28.66	0.699	
Std Dev	28.64	1.000	

75	28.60	1.547
77	28.22	6.713

215	Other(describe)		
Lab	%	P2O5	dB
Median	0.00	0.000	0.000

301	Atomic Absorption-AFPC IX.6.B		
Lab	%	Fe2O3	
60	1.28	-1.340	
Std Dev	1.26	-1.000	
Median	1.22	0.000	
Std Dev	1.18	1.000	
30	1.17	1.340	

302	ICP-induced coupled plasma-AFPC IX.6.C		
Lab	%	Fe2O3	
275	1.77	-9.413	
275	1.75	-8.890	
35	1.52	-2.876	
75	1.51	-2.570	
15	1.47	-1.438	
6	1.45	-1.046	
49	1.45	-1.046	
Std Dev	1.45	-1.000	
15	1.45	-0.915	
75	1.43	-0.644	
21	1.42	-0.131	
10	1.41	0.000	
21	1.41	0.000	
78	1.41	0.000	
Median	1.41	0.000	
13	1.41	0.131	
9	1.40	0.261	
13	1.40	0.261	
16	1.40	0.261	
16	1.40	0.261	
9	1.40	0.392	
10	1.40	0.392	
78	1.40	0.392	
Std Dev	1.37	1.000	
92	1.35	1.569	
92	1.30	2.876	
35	1.17	6.275	

303 Other(describe)		
Lab	%	Fe2O3
77	1.55	-0.214
77	1.53	0.000
Median	1.53	0.000
Std Dev	1.44	1.000
19	1.30	2.466

401 Atomic Absorption-AFPC IX.6.B		
Lab	%	Al2O3
30	0.89	0.000
Median	0.89	0.000

402 ICP-induced coupled plasma-AFPC IX.6.C		
Lab	%	Al2O3
78	1.19	-5.789
78	1.17	-5.467
75	1.05	-2.854
35	1.02	-2.251
275	1.01	-2.037
275	1.01	-2.037
Std Dev	0.96	-1.000
92	0.94	-0.536
75	0.94	-0.519
49	0.93	-0.322
9	0.92	-0.107
21	0.92	-0.107
92	0.92	-0.107
Median	0.92	0.000
6	0.91	0.107
9	0.91	0.107
15	0.91	0.107
15	0.91	0.107
10	0.90	0.429
13	0.90	0.429
21	0.90	0.429
13	0.89	0.536
16	0.89	0.536
16	0.89	0.536
10	0.88	0.750
Std Dev	0.87	1.000
35	0.85	1.394

403 Other(describe)		
Lab	%	Al2O3
77	1.16	-0.596
77	1.12	0.000
Median	1.12	0.000
Std Dev	1.05	1.000
19	0.98	2.084

501 Atomic Absorption-AFPC IX.8.A		
Lab	%	MgO
35	0.74	-1.429
35	0.73	-1.251
Std Dev	0.72	-1.000
27	0.66	0.000
Median	0.66	0.000
60	0.66	0.089
30	0.62	0.715

502 ICP-induced coupled plasma-AFPC IX.8.B		
Lab	%	MgO
275	0.71	-1.531
Std Dev	0.70	-1.000
6	0.70	-0.766
13	0.70	-0.766
16	0.70	-0.766
16	0.70	-0.766
275	0.70	-0.766
10	0.69	0.000
10	0.69	0.000
21	0.69	0.000
49	0.69	0.000
78	0.69	0.000
78	0.69	0.000
92	0.69	0.000
Median	0.69	0.000
9	0.68	0.766
13	0.68	0.766
15	0.68	0.766
15	0.68	0.766
Std Dev	0.68	1.000
9	0.68	1.149
21	0.68	1.149
92	0.67	1.531
75	0.64	3.557

503 Other(describe)		
Lab	%	MgO
77	0.77	-2.680
Std Dev	0.71	-1.000
19	0.68	0.000
77	0.68	0.000
Median	0.68	0.000

601 Insoluble-AFPC IX.4.A		
Lab	%	Al
21	11.99	-1.062
21	11.99	-1.044
Std Dev	11.97	-1.000
16	11.96	-0.957
13	11.88	-0.661
9	11.85	-0.557
35	11.84	-0.539
16	11.73	-0.157
10	11.71	-0.070
13	11.69	-0.017
Median	11.69	0.000
49	11.68	0.017
35	11.66	0.087
9	11.60	0.313
10	11.49	0.696
15	11.45	0.818
26	11.45	0.835
30	11.43	0.888
Std Dev	11.40	1.000
6	11.26	1.479
15	11.18	1.775

602 Other(describe)		
Lab	%	Al
19	13.15	0.000
Median	13.15	0.000

651 Gasometric-AFPC IX.13.B		
Lab	%	CO2
21	4.77	-5.851
21	4.76	-5.762
13	4.26	-1.295

Std Dev	4.23	-1.000
49	4.20	-0.759
13	4.17	-0.491
77	4.14	-0.223
Median	4.12	0.000
9	4.09	0.223
9	4.09	0.223
15	4.07	0.402
15	4.05	0.581
30	4.05	0.581
Std Dev	4.00	1.000
6	3.90	1.921

652 Other(describe)		
Lab	%	CO2
35	9.05	-1.816
35	8.79	-1.725
Std Dev	6.72	-1.000
78	3.87	-0.003
Median	3.86	0.000
78	3.85	0.003
275	3.69	0.059
275	3.59	0.094

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

702 ICP-induced coupled plasma-AFPC IX.12.B		
Lab	%	CaO
78	43.81	-3.528
49	43.69	-2.976
16	43.29	-1.053
Std Dev	43.28	-1.000
10	43.24	-0.788
9	43.12	-0.212
10	43.11	-0.187
92	43.11	-0.187
75	43.09	-0.101
Median	43.07	0.000
6	43.05	0.101
16	43.02	0.245
9	42.98	0.437
21	42.88	0.942

Std Dev	42.86	1.000
78	42.84	1.110
21	42.83	1.183
92	41.90	5.629
75	39.98	14.873

703 Ceric Sulfate volumetric-AFPC IX.12.B		
Lab	%	CaO
27	39.46	0.000
Median	39.46	0.000

704 Permanganate		
Lab	%	CaO
30	43.23	-1.340
Std Dev	43.19	-1.000
Median	43.07	0.000
Std Dev	42.94	1.000
60	42.90	1.340

705 EDTA Volumetric-AFPC IX.12.C		
Lab	%	CaO
35	43.44	-0.060
275	43.44	-0.060
Median	43.43	0.000
275	43.42	0.060
Std Dev	43.26	1.000
35	42.61	4.938

706 Other(describe)		
Lab	%	CaO
77	43.80	-1.276
Std Dev	43.74	-1.000
15	43.58	-0.319
15	43.54	-0.170
77	43.50	0.000
Median	43.50	0.000
Std Dev	43.26	1.000
13	43.25	1.063
13	43.24	1.127
19	43.00	2.127

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
49	44.03		-4.532
16	43.63		-1.768
10	43.58		-1.380

Std Dev	43.53	-1.000
9	43.48	-0.655
10	43.45	-0.466
75	43.40	-0.109
Median	43.38	0.000
16	43.37	0.109
6	43.34	0.295
9	43.32	0.468
21	43.29	0.613
Std Dev	43.24	1.000
21	43.23	1.074
75	40.34	21.323

713 Ceric Sulfate volumetric-AFPC IX.12.B			
Lab	%	CaO	dB
27	39.62		0.000
Median	39.62		0.000

714 Permanganate			
Lab	%	CaO	dB
30	43.52		0.000
Median	43.52		0.000

715 EDTA Volumetric-AFPC IX.12.C			
Lab	%	CaO	dB
35	43.75		-0.067
275	43.75		-0.067
Median	43.73		0.000
275	43.72		0.067
Std Dev	43.55		1.000
35	42.83		4.893

716 Other(describe)			
Lab	%	CaO	dB
77	43.95		-4.160
Std Dev	43.77		-1.000
15	43.73		-0.347
15	43.73		-0.268

Median	43.71	0.000
13	43.70	0.268
Std Dev	43.66	1.000
13	43.64	1.262
77	43.59	2.259

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
35	3.41	-0.987
49	3.41	-0.987
13	3.40	-0.776
13	3.39	-0.705
15	3.39	-0.705
15	3.39	-0.635
35	3.38	-0.564
9	3.37	-0.423
9	3.34	0.000
Median	3.34	0.000
26	3.33	0.141
30	3.31	0.423
6	3.30	0.564
21	3.30	0.635
21	3.30	0.635
27	3.29	0.705
Std Dev	3.27	1.000
75	3.17	2.468
75	3.13	2.962

803 Other(describe)		
Lab	%	Fluorine, F
77	3.32	-1.072
Std Dev	3.32	-1.000
19	3.30	0.000
Median	3.30	0.000
Std Dev	3.28	1.000
77	3.27	1.608

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
78	18.0	-1.140
Std Dev	17.5	-1.000
6	16.7	-0.770
78	14.0	0.000
Median	14.0	0.000
35	12.0	0.570
35	12.0	0.570

913 Other(describe)		
Lab	ppm	Arsenic, As
13	16.7	0.000
Median	16.7	0.000

921 Atomic Absorption-AFPC IX.11.A		
Lab	ppm	Cadmium, Cd
Median	0	0.000

922 ICP-induced coupled plasma-AFPC IX.11.I		
Lab	ppm	Cadmium, Cd
78	4	-30.552
78	4	-30.150
75	3	-1.340
Std Dev	3	-1.000
35	3	0.000
35	3	0.000
75	3	0.000
77	3	0.000
Median	3	0.000
Std Dev	3	1.000
6	3	2.680
77	2	26.800

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
Median	0	0.000

932 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	Cobalt, Co	
78	5		-6.700
78	5		-3.350
6	4		-1.340
Std Dev	4		-1.000
35	4		0.000
35	4		0.000
77	4		0.000
77	4		0.000
Median	4		0.000
Std Dev	4		1.000
75	4		3.015
75	3		4.020

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	
35	0.5		-1.340
Std Dev	0.5		-1.000
Median	0.4		0.000
Std Dev	0.3		1.000
35	0.3		1.340

943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	0.1		0.000
Median	0.1		0.000

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

952 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	tolybdenum, Mo	
6	8		-0.536

78	7		-0.357
78	7		-0.357
77	7		0.000
Median	7		0.000
275	6		0.983
275	6		0.983
Std Dev	6		1.000
77	4		2.680

953 Other(describe)			
Lab	ppm	tolybdenum, Mo	
13	8		0.000
Median	8		0.000

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	
75	15		-0.624
77	15		-0.462
6	15		-0.416
75	14		-0.162
77	14		0.000
Median	14		0.000
78	13		0.693
35	12		0.924
35	12		0.924
78	12		0.924

963 Other(describe)			
Lab	ppm	Nickel, Ni	
19	28		-0.953
19	24		0.000
Median	24		0.000
Std Dev	20		1.000
13	17		1.727

971 Atomic Absorption-AFPC IX.16.B			
Lab	ppm	Lead, Pb	
Median	0		0.000

972 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	Lead, Pb	
6	16		-0.679
77	15		-0.536
35	13		-0.179
35	12		0.000
77	12		0.000
Median	12		0.000
Std Dev	6		1.000
78	1		1.965
78	1		1.965

973 Other(describe)			
Lab	ppm	Lead, Pb	
13	12		0.000
Median	12		0.000

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

982 ICP-induced id coupled plasma-AFPC IX.16.A			
Lab	ppm	Selenium, Se	
Median	0		0.000

983 Other(describe)			
Lab	ppm	Selenium, Se	
13	4		0.000
Median	4		0.000

991 Atomic Absorption-AFPC IX.16.B			
Lab	ppm	Zinc, Zn	
60	57		0.000
Median	57		0.000

992 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	Zinc, Zn	
78	42		-1.762
78	42		-1.762
Std Dev	37		-1.000
75	36		-0.925
75	36		-0.830
6	34		-0.587
35	30		0.000

Median	30		0.000
77	29		0.147
35	27		0.441
275	27		0.485
275	25		0.764
Std Dev	23		1.000
77	19		1.615

993 Other(describe)			
Lab	ppm	Zinc, Zn	
19	36		-1.340
Std Dev	35		-1.000
Median	34		0.000
Std Dev	32		1.000
13	32		1.340

