

AFPC Rock Check Program

Sample No. 2014-01

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	26	0.74	0.094
Other (describe)	102			
Method Group 100		26	0.74	0.09
P₂O₅				
Gravimetric AFPC IX.3.B	201	3	31.41	0.146
ICP-induced coupled plasma AFPC IX.3.D	202	5	31.34	0.045
Photometric-AFPC IX.3.C	203	16	31.16	0.157
Automated -AOAC 978.01-15th	204	9	31.39	0.067
Other(describe)	205	1	31.10	0.000
Method Group 200		34	31.30	0.19
P₂O₅ (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	2	31.43	0.097
ICP-induced coupled plasma AFPC IX.3.D	212	5	31.61	0.052
Photometric-AFPC IX.3.C	213	10	31.49	0.156
Automated -AOAC 978.01-15th	214	9	31.62	0.055
Other(describe)	215			
Method Group 210		26	31.58	0.15
Fe₂O₃				
Atomic Absorption-AFPC IX.6.B	301	4	1.00	0.154
ICP-induced coupled plasma-AFPC IX.6.C	302	23	1.08	0.041
Other(describe)	303	3	1.33	0.039
Method Group 300		30	1.08	0.05
Al₂O₃				
Atomic Absorption-AFPC IX.7.B	401	3	1.35	0.026
ICP-induced coupled plasma-AFPC IX.7.C	402	23	1.26	0.032
Other(describe)	403	3	1.68	0.019
Method Group 400		29	1.29	0.11
MgO				
Atomic Absorption-AFPC IX.8.A	501	5	0.36	0.001
ICP-induced coupled plasma-AFPC IX.8.B	502	23	0.39	0.007
Other(describe)	503	3	0.35	0.019
Method Group 500		31	0.38	0.01
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	20	7.57	0.181
Other(describe)	602	1	7.72	0.000
Method Group 600		21	7.57	0.18
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	15	3.94	0.231
Other(describe)	652	6	4.75	1.979
Method Group 650		21	4.05	0.66
CaO				
Gravimetric sulfate-AFPC IX.12.A	701	1	45.67	0.000
ICP-induced coupled plasma-AFPC IX.12.D	702	18	45.62	0.481
Ceric Sulfate volumetric-AFPC IX.12.B	703			
Permanganate	704	2	45.19	0.011
EDTA Volumetric-AFPC IX.12.C	705	3	45.74	0.291
Other(describe)	706	8	45.69	0.231
Method Group 700		32	45.68	0.33
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-induced coupled plasma-AFPC IX.12.D	712	14	45.85	0.213
Ceric Sulfate volumetric-AFPC IX.12.B	713			
Permanganate	714	1	45.46	0.000
EDTA Volumetric-AFPC IX.12.C	715	3	46.03	0.316
Other(describe)	716	7	46.01	0.507
Method Group 710		24	45.98	0.33

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	16	3.62	0.129
Other (describe)	803	3	3.67	0.034
Method Group 800		19	3.64	0.12
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma-AFPC IX.15.B	912	8	8.1	1.50
Other(describe)	913	4	7.3	3.15
Method Group 900		12	8.1	2.01
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921	1	6	0.0
ICP-induced coupled plasma-AFPC IX.11.B	922	10	5	0.7
Other(describe)	923	1	6	0.0
Method Group 910		12	6	0.7
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931	1	4	0.0
ICP-induced coupled plasma-AFPC IX.16.A	932	10	6	0.8
Other(describe)	933	1	6	0.0
Method Group 920		12	6	0.9
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-induced coupled plasma-AFPC IX.16.A	942	1	0.1	0.00
Other(describe)	943	1	0.3	0.00
Method Group 930		2	0.2	0.08
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951	1	25	0.0
ICP-induced coupled plasma-AFPC IX.16.A	952	9	5	1.9
Other(describe)	953	2	6	0.2
Method Group 940		12	5	2.3
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961	1	15	0.0
ICP-induced coupled plasma-AFPC IX.16.A	962	10	15	0.4
Other(describe)	963	1	18	0.0
Method Group 950		12	15	0.5
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971	1	19	0.0
ICP-induced coupled plasma-AFPC IX.16.A	972	10	12	5.5
Other(describe)	973	1	14	0.0
Method Group 960		12	14	6.1
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-induced coupled plasma-AFPC IX.16.A	982	4	1	0.3
Other(describe)	983	1	3	0.0
Method Group 970		5	1	1.1
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991	3	80	4
ICP-induced coupled plasma-AFPC IX.16.A	992	10	83	7
Other(describe)	993	1	83	0
Method Group 980		14	80	6

101 Ground Sample AFPC IX.2.A			
Lab	%	H ₂ O	
15	0.99		-2.707
15	0.99		-2.707
26	0.97		-2.494
10	0.89		-1.645
10	0.87		-1.380
16	0.86		-1.327
16	0.83		-1.008
Std Dev	0.83		-1.000
6	0.83		-0.955
266	0.80		-0.690
13	0.80		-0.637
9	0.79		-0.531
13	0.77		-0.371
9	0.74		-0.053
Median	0.74		0.000
21	0.73		0.053
21	0.72		0.159
35	0.72		0.159
49	0.72		0.159
24	0.72		0.212
24	0.71		0.265
33	0.70		0.371
Std Dev	0.64		1.000
241	0.64		1.008
61	0.59		1.539
61	0.58		1.645
35	0.58		1.645
77	0.33		4.299
77	0.22		5.466

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

201 Gravimetric AFPC IX.3.B			
Lab	%	P2O5	
77	31.49		-0.584
55	31.41		0.000
Median	31.41		0.000
Std Dev	31.26		1.000
241	31.10		2.096

202 ICP-induced coupled plasma AFPC IX.3.D			
Lab	%	P2O5	
266	32.94		-35.733
Std Dev	31.38		-1.000
16	31.36		-0.447
10	31.34		0.000
Median	31.34		0.000
16	31.30		0.893
Std Dev	31.30		1.000
10	31.24		2.345

203 Photometric-AFPC IX.3.C			
Lab	%	P2O5	
301	31.59		-2.776
61	31.48		-2.042
33	31.39		-1.500
49	31.39		-1.500
Std Dev	31.31		-1.000
35	31.30		-0.925
6	31.29		-0.830
35	31.23		-0.479
92	31.16		-0.032
Median	31.16		0.000
92	31.15		0.032
9	31.15		0.064
26	31.14		0.096
78	31.12		0.255
78	31.11		0.319
9	31.10		0.351
61	31.03		0.830
Std Dev	31.00		1.000
60	30.75		2.584

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
15	31.65		-3.797
15	31.60		-3.052
Std Dev	31.46		-1.000
24	31.45		-0.819
24	31.40		-0.149
13	31.39		0.000
21	31.39		0.000
Median	31.39		0.000
13	31.36		0.521

Std Dev	31.32		1.000
77	31.21		2.680
21	31.20		2.903

205 Other(describe)			
Lab	%	P2O5	
55	31.10		0.000
Median	31.10		0.000

211 Gravimetric AFPC IX.3.B				
Lab	%	P2O5	dB	
77	31.56			-1.340
Std Dev	31.53			-1.000
Median	31.43			0.000
Std Dev	31.33			1.000
241	31.30			1.340

212 ICP-induced coupled plasma AFPC IX.3.D				
Lab	%	P2O5	dB	
266	33.21			-30.448
Std Dev	31.67			-1.000
16	31.63			-0.355
10	31.61			0.000
Median	31.61			0.000
16	31.56			0.985
Std Dev	31.56			1.000
10	31.52			1.873

213 Photometric-AFPC IX.3.C				
Lab	%	P2O5	dB	
61	31.66			-1.108
Std Dev	31.64			-1.000
49	31.62			-0.845
33	31.61			-0.804
6	31.55			-0.380
35	31.53			-0.263
Median	31.49			0.000
26	31.45			0.263
35	31.41			0.474
9	31.38			0.698
9	31.35			0.898
Std Dev	31.33			1.000
61	31.21			1.777

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
15	31.96		-6.172
15	31.91		-5.247
Std Dev	31.68		-1.000
24	31.67		-0.860
13	31.64		-0.312
24	31.62		0.000
Median	31.62		0.000
21	31.62		0.126
13	31.60		0.480
Std Dev	31.57		1.000
21	31.42		3.667
77	31.31		5.701

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

301 Atomic Absorption-AFPC IX.6.B			
Lab	%	Fe2O3	
33	1.10		-0.633
60	1.10		-0.601
Median	1.00		0.000
241	0.91		0.601
Std Dev	0.85		1.000
301	0.83		1.121

302 ICP-induced coupled plasma-AFPC IX.6.C			
Lab	%	Fe2O3	
266	1.30		-5.360
78	1.21		-3.167
78	1.17		-2.071
15	1.14		-1.462
15	1.13		-1.218
61	1.13		-1.096
Std Dev	1.12		-1.000
61	1.12		-0.975
6	1.09		-0.244
13	1.09		-0.122
13	1.08		0.000
16	1.08		0.000
16	1.08		0.000
49	1.08		0.000

Median	1.08	0.000
9	1.08	0.122
10	1.08	0.122
9	1.07	0.244
21	1.07	0.244
10	1.07	0.365
Std Dev	1.04	1.000
21	1.02	1.462
92	1.00	1.949
92	1.00	1.949
24	0.97	2.802
24	0.95	3.167

303 Other(describe)		
Lab	%	Fe2O3
77	1.34	-0.255
77	1.33	0.000
Median	1.33	0.000
Std Dev	1.29	1.000
55	1.24	2.425

401 Atomic Absorption-AFPC IX.6.B		
Lab	%	Al2O3
33	1.40	-1.761
Std Dev	1.38	-1.000
241	1.35	0.000
Median	1.35	0.000
301	1.33	0.919

402 ICP-induced coupled plasma-AFPC IX.6.C		
Lab	%	Al2O3
266	1.84	-18.287
78	1.52	-8.198
61	1.43	-5.360
78	1.42	-5.045
61	1.38	-3.784
15	1.30	-1.104
Std Dev	1.29	-1.000
92	1.29	-0.946
92	1.29	-0.946
15	1.29	-0.788
24	1.29	-0.788
24	1.28	-0.631
16	1.26	0.000

Median	1.26	0.000
10	1.26	0.158
10	1.26	0.158
6	1.25	0.315
9	1.25	0.315
16	1.25	0.315
49	1.25	0.315
13	1.25	0.473
9	1.24	0.631
Std Dev	1.23	1.000
13	1.22	1.261
21	1.20	2.049
21	1.20	2.049

403 Other(describe)		
Lab	%	Al2O3
77	1.68	0.000
77	1.68	0.000
Median	1.68	0.000
Std Dev	1.66	1.000
55	1.63	2.680

501 Atomic Absorption-AFPC IX.8.A		
Lab	%	MgO
35	0.47	-147.400
35	0.36	-1.340
Std Dev	0.36	-1.000
33	0.36	0.000
60	0.36	0.000
Median	0.36	0.000
Std Dev	0.36	1.000
241	0.32	53.600

502 ICP-induced coupled plasma-AFPC IX.8.B		
Lab	%	MgO
266	0.41	-3.350
61	0.41	-2.680
15	0.40	-1.340
Std Dev	0.39	-1.000
10	0.39	-0.670
13	0.39	-0.670
15	0.39	-0.670
16	0.39	-0.670
21	0.39	-0.670

49	0.39	-0.670
10	0.39	0.000
13	0.39	0.000
21	0.39	0.000
61	0.39	0.000
Median	0.39	0.000
6	0.38	0.670
9	0.38	0.670
16	0.38	0.670
24	0.38	0.670
78	0.38	0.670
Std Dev	0.38	1.000
9	0.38	1.340
78	0.37	2.010
92	0.37	2.010
92	0.37	2.010
24	0.37	2.680

503 Other(describe)		
Lab	%	MgO
77	0.39	-2.144
Std Dev	0.37	-1.000
55	0.35	0.000
Median	0.35	0.000
77	0.34	0.536

601 Insoluble-AFPC IX.4.A		
Lab	%	Al
35	7.88	-1.741
21	7.88	-1.713
Std Dev	7.75	-1.000
24	7.74	-0.967
16	7.73	-0.912
35	7.71	-0.801
24	7.70	-0.746
16	7.68	-0.635
49	7.61	-0.249
15	7.57	-0.028
10	7.57	0.000
10	7.57	0.000
Median	7.57	0.000
9	7.54	0.138
13	7.51	0.332
15	7.50	0.387

26	7.47	0.553
13	7.45	0.663
9	7.42	0.801
33	7.42	0.801
Std Dev	7.38	1.000
21	7.27	1.630
6	7.18	2.127

602 Other(describe)		
Lab	%	Al
266	7.72	0.000
Median	7.72	0.000

651 Gasometric-AFPC IX.13.B		
Lab	%	CO2
61	5.00	-4.604
61	5.00	-4.604
Std Dev	4.17	-1.000
21	4.13	-0.821
21	4.09	-0.670
15	4.07	-0.562
24	4.05	-0.475
15	4.01	-0.303
24	3.94	0.000
Median	3.94	0.000
9	3.88	0.238
9	3.88	0.238
49	3.80	0.584
13	3.74	0.865
13	3.72	0.929
Std Dev	3.70	1.000
6	3.69	1.081
77	3.51	1.837

652 Other(describe)		
Lab	%	CO2
35	7.63	-1.457
35	7.59	-1.437
Std Dev	6.72	-1.000
78	4.80	-0.028
Median	4.75	0.000
78	4.69	0.028
301	4.09	0.331
266	3.33	0.715

701 Gravimetric sulfate-AFPC IX.12.A		
Lab	%	CaO
301	45.67	0.000
Median	45.67	0.000

702 ICP-induced coupled plasma-AFPC IX.12.D		
Lab	%	CaO
92	47.03	-2.940
92	46.92	-2.711
78	46.65	-2.150
21	46.18	-1.163
21	46.12	-1.049
Std Dev	46.10	-1.000
9	45.84	-0.467
78	45.71	-0.187
9	45.68	-0.135
49	45.66	-0.093
Median	45.62	0.000
10	45.57	0.093
13	45.47	0.301
6	45.47	0.312
10	45.45	0.343
16	45.39	0.467
13	45.35	0.551
16	45.32	0.613
Std Dev	45.13	1.000
61	41.97	7.583
61	40.58	10.471

703 Ceriic Sulfate volumetric-AFPC IX.12.B		
Lab	%	CaO
Median	0.00	0.000

704 Permanganate		
Lab	%	CaO
60	45.20	-1.340
Std Dev	45.20	-1.000
Median	45.19	0.000
Std Dev	45.17	1.000
241	45.17	1.340

705 EDTA Volumetric-AFPC IX.12.C		
Lab	%	CaO

266	46.48	-2.543
Std Dev	46.03	-1.000
35	45.74	0.000
Median	45.74	0.000
35	45.70	0.137

706 Other(describe)		
Lab	%	CaO
15	45.86	-0.702
15	45.81	-0.508
24	45.81	-0.508
55	45.71	-0.054
Median	45.69	0.000
24	45.68	0.054
77	45.60	0.400
Std Dev	45.46	1.000
77	45.20	2.129
33	40.52	22.359

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

712 ICP-induced coupled plasma-AFPC IX.12.D		
Lab	%	CaO
21	46.51	-3.090
21	46.46	-2.852
9	46.20	-1.650
Std Dev	46.06	-1.000
9	46.02	-0.796
49	45.99	-0.658
10	45.97	-0.548
10	45.86	-0.035
Median	45.85	0.000
6	45.84	0.035
13	45.83	0.076
16	45.77	0.379
16	45.71	0.645
13	45.70	0.697
Std Dev	45.64	1.000
61	42.21	17.046
61	40.81	23.619

713 Ceriic Sulfate volumetric-AFPC IX.12.B			
Lab	%	CaO	dB
Median	0.00	0.000	0.000

714 Permanganate			
Lab	%	CaO	dB
241	45.46	0.000	
Median	45.46	0.000	0.000

715 EDTA Volumetric-AFPC IX.12.C			
Lab	%	CaO	dB
266	46.85	-2.602	
Std Dev	46.35	-1.000	
35	46.03	0.000	
Median	46.03	0.000	0.000
35	46.01	0.078	

716 Other(describe)			
Lab	%	CaO	dB
15	46.31	-0.606	
15	46.27	-0.516	
24	46.14	-0.263	
24	46.01	0.000	
Median	46.01	0.000	0.000
77	45.70	0.604	
Std Dev	45.50	1.000	
77	45.35	1.297	
33	40.81	10.266	

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

802 Specific Ion Electrode-AFPC IX.14.B			
Lab	%	Fluorine, F	
15	4.15	-4.059	
15	4.06	-3.360	
49	3.76	-1.068	
Std Dev	3.75	-1.000	
35	3.75	-0.990	
35	3.74	-0.913	
13	3.67	-0.369	
13	3.64	-0.136	
21	3.63	-0.058	

Median	3.62	0.000
9	3.62	0.058
26	3.59	0.252
9	3.58	0.330
21	3.58	0.330
24	3.54	0.641
Std Dev	3.49	1.000
24	3.43	1.495
6	3.41	1.651
266	1.69	15.012

803 Other(describe)		
Lab	%	Fluorine, F
33	3.73	-1.787
Std Dev	3.70	-1.000
77	3.67	0.000
Median	3.67	0.000
77	3.64	0.893

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

912 ICP-induced coupled plasma-AFPC IX.15.1		
Lab	ppm	Arsenic, As
61	57.6	-32.959
6	13.0	-3.263
Std Dev	9.6	-1.000
24	8.5	-0.233
78	8.3	-0.133
Median	8.1	0.000
266	7.9	0.133
24	7.8	0.233
78	7.1	0.699
Std Dev	6.6	1.000
77	6.4	1.132

913 Other(describe)		
Lab	ppm	Arsenic, As
55	16.0	-2.769
Std Dev	10.4	-1.000
13	8.3	-0.311
Median	7.3	0.000
77	6.3	0.311

33 5.0 0.724

921 Atomic Absorption-AFPC IX.11.A		
Lab	ppm	Cadmium, Cd
33	6	0.000
Median	6	0.000

922 ICP-induced coupled plasma-AFPC IX.11.B		
Lab	ppm	Cadmium, Cd
78	6	-1.567
78	6	-1.065
Std Dev	6	-1.000
6	6	-0.923
77	6	-0.923
61	5	-0.231
Median	5	0.000
24	5	0.231
24	5	0.366
77	5	0.434
266	5	0.434
61	5	0.597

923 Other(describe)		
Lab	ppm	Cadmium, Cd
13	6	0.000
Median	6	0.000

931 Atomic Absorption-AFPC IX.16.B		
Lab	ppm	Cobalt, Co
33	4	0.000
Median	4	0.000

932 ICP-induced coupled plasma-AFPC IX.16.A		
Lab	ppm	Cobalt, Co
78	8	-2.951
78	8	-2.349
Std Dev	6	-1.000
61	6	-0.542
77	6	-0.542
6	6	-0.181
Median	6	0.000
266	5	0.181
77	5	0.662
24	5	0.843

24 5 0.903
Std Dev 5 1.000
61 3 2.843

933 Other(describe)		
Lab	ppm	Cobalt, Co
13	6	0.000
Median	6	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
266	0.1	0.000
Median	0.1	0.000

943 Other(describe)		
Lab	ppm	Mercury, Hg
13	0.3	0.000
Median	0.3	0.000

951 Atomic Absorption-AFPC IX.16.B		
Lab	ppm	Iolybdenum, Mo
55	25	0.000
Median	25	0.000

952 ICP-induced coupled plasma-AFPC IX.16.A		
Lab	ppm	Iolybdenum, Mo
61	14	-4.477
6	8	-1.617
Std Dev	7	-1.000
266	6	-0.544
78	5	-0.026
78	5	0.000
Median	5	0.000
77	4	0.436
24	3	0.796
24	3	0.847
77	3	0.950

953 Other(describe)		
Lab	ppm	Iolybdenum, Mo

13 7 -1.340
Std Dev 7 -1.000
Median 6 0.000
Std Dev 6 1.000
33 6 1.340

961 Atomic Absorption-AFPC IX.16.B		
Lab	ppm	Nickel, Ni
33	15	0.000
Median	15	0.000

962 ICP-induced coupled plasma-AFPC IX.16.A		
Lab	ppm	Nickel, Ni
266	23	-16.815
6	16	-1.894
61	16	-1.044
Std Dev	16	-1.000
61	15	-0.620
24	15	-0.287
Median	15	0.000
24	15	0.287
77	15	0.402
77	15	0.402
Std Dev	15	1.000
78	14	2.697
78	14	2.697

963 Other(describe)		
Lab	ppm	Nickel, Ni
13	18	0.000
Median	18	0.000

971 Atomic Absorption-AFPC IX.16.B		
Lab	ppm	Lead, Pb
33	19	0.000
Median	19	0.000

972 ICP-induced coupled plasma-AFPC IX.16.A		
Lab	ppm	Lead, Pb
61	28	-2.953
6	18	-1.179
Std Dev	17	-1.000
266	17	-0.978
77	14	-0.446

61 13 -0.287
Median 12 0.000
77 10 0.287
24 9 0.461
24 9 0.507
Std Dev 6 1.000
78 1 1.936
78 1 1.936

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
266	3	-4.467
Std Dev	2	-1.000
77	1	0.000
77	1	0.000
Median	1	0.000
61	1	0.893

983 Other(describe)		
Lab	ppm	Selenium, Se
13	3	0.000
Median	3	0.000

991 Atomic Absorption-AFPC IX.16.B		
Lab	ppm	Zinc, Zn
33	80	0.000
55	80	0.000
Median	80	0.000
Std Dev	76	1.000
60	70	2.680

992 ICP-induced coupled plasma-AFPC IX.16.A		
Lab	ppm	Zinc, Zn
24	113	-4.596
24	105	-3.372

Std Dev	89	-1.000
78	87	-0.652
61	86	-0.436
78	86	-0.425
Median	83	0.000
61	80	0.425
6	78	0.708
266	78	0.753
Std Dev	76	1.000
77	64	2.824
77	60	3.428

993	Other(describe)		
Lab	ppm	Zinc, Zn	
13	83		0.000
Median	83		0.000