

AFPC Rock Check Program

Sample No. 2011-08

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	19	0.14	0.036
Other (describe)	102	6	0.19	1.375
Method Group 100		25	0.15	0.04
P₂O₅				
Gravimetric AFPC IX.3.B	201	2	26.71	2.332
ICP-induced coupled plasma AFPC IX.3.D	202	2	29.31	0.103
Photometric-AFPC IX.3.C	203	11	29.63	0.127
Automated -AOAC 978.01-15th	204	11	29.58	0.174
Other(describe)	205	4	39.19	13.883
Method Group 200		30	29.63	0.21
P₂O₅ (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	2	27.05	2.083
ICP-induced coupled plasma AFPC IX.3.D	212	2	29.36	0.100
Photometric-AFPC IX.3.C	213	6	29.70	0.056
Automated -AOAC 978.01-15th	214	11	29.62	0.180
Other(describe)	215	4	39.84	14.579
Method Group 210		25	29.68	0.17
Fe₂O₃				
Atomic Absorption-AFPC IX.6.B	301			
ICP-induced coupled plasma-AFPC IX.6.C	302	26	0.79	0.050
Other(describe)	303	2	1.17	0.011
Method Group 300		28	0.80	0.05
Al₂O₃				
Atomic Absorption-AFPC IX.7.B	401			
ICP-induced coupled plasma-AFPC IX.7.C	402	26	0.46	0.030
Other(describe)	403	2	0.81	0.015
Method Group 400		28	0.47	0.05
MgO				
Atomic Absorption-AFPC IX.8.A	501	2	0.71	0.015
ICP-induced coupled plasma-AFPC IX.8.B	502	24	0.69	0.015
Other(describe)	503	2	0.65	0.047
Method Group 500		28	0.69	0.02
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	15	9.61	0.343
Other(describe)	602	3	0.76	3.325
Method Group 600		18	9.61	0.44
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	11	2.03	0.664
Other(describe)	652	8	3.29	0.556
Method Group 650		19	2.30	0.91
CaO				
Gravimetric sulfate-AFPC IX.12.A	701			
ICP-induced coupled plasma-AFPC IX.12.D	702	18	47.93	0.791
Ceric Sulfate volumetric-AFPC IX.12.B	703	1	47.04	0.000
Permanganate	704	4	35.96	17.653
EDTA Volumetric-AFPC IX.12.C	705	2	47.74	0.049
Other(describe)	706	4	47.43	0.049
Method Group 700		29	47.68	0.47
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-induced coupled plasma-AFPC IX.12.D	712	13	47.77	1.119
Ceric Sulfate volumetric-AFPC IX.12.B	713	1	48.40	0.000
Permanganate	714	4	36.32	17.349
EDTA Volumetric-AFPC IX.12.C	715	2	47.79	0.054
Other(describe)	716	4	47.53	0.037
Method Group 710		24	47.72	0.60

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	15	3.50	0.134
Other(describe)	803	4	1.95	2.192
Method Group 800		19	3.47	0.13
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma-AFPC IX.15.B	912	9	17.2	7.09
Other(describe)	913	1	15.9	0.00
Method Group 900		10	16.6	6.77
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921			
ICP-induced coupled plasma-AFPC IX.11.B	922	11	31	1.9
Other(describe)	923	3	3	9.9
Method Group 910		14	30	7.7
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931			
ICP-induced coupled plasma-AFPC IX.16.A	932	11	1	0.6
Other(describe)	933	3	4	1.1
Method Group 920		14	1	0.9
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-induced coupled plasma-AFPC IX.16.A	942	1	0.0	0.00
Other(describe)	943			
Method Group 930		1	0.0	0.00
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951			
ICP-induced coupled plasma-AFPC IX.16.A	952	7	9	0.9
Other(describe)	953	3	25	6.3
Method Group 940		10	10	9.3
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961			
ICP-induced coupled plasma-AFPC IX.16.A	962	11	20	1.0
Other(describe)	963	3	9	5.5
Method Group 950		14	20	5.3
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971			
ICP-induced coupled plasma-AFPC IX.16.A	972	7	3	0.5
Other(describe)	973	1	3	0.0
Method Group 960		8	3	0.5
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-induced coupled plasma-AFPC IX.16.A	982	3	1	0.8
Other(describe)	983	3	7	1.8
Method Group 970		6	4	3.6
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991			
ICP-induced coupled plasma-AFPC IX.16.A	992	11	274	18
Other(describe)	993	3	46	85
Method Group 980		14	267	63

101 Ground Sample AFPC IX.2.A			
Lab	%	H ₂ O	
15	0.24		-2.792
13	0.20		-1.675
49	0.19		-1.396
10	0.18		-1.117
61	0.18		-1.117
Std Dev	0.18		-1.000
16	0.16		-0.558
10	0.16		-0.419
75	0.15		-0.279
75	0.15		-0.140
9	0.14		0.000
13	0.14		0.000
16	0.14		0.000
Median	0.14		0.000
15	0.13		0.279
35	0.13		0.307
9	0.12		0.698
Std Dev	0.10		1.000
35	0.10		1.117
61	0.10		1.256
77	0.06		2.233
77	0.04		2.792

102 Other (describe)			
Lab	%	H ₂ O	
241	2.80		-1.896
280	2.60		-1.747
Std Dev	1.57		-1.000
26	0.23		-0.024
Median	0.19		0.000
21	0.16		0.024
21	0.16		0.024
280	0.00		0.140

201 Gravimetric AFPC IX.3.B			
Lab	%	P2O5	
77	29.83		-1.340
Std Dev	29.04		-1.000
Median	26.71		0.000
Std Dev	24.37		1.000
241	23.58		1.340

202 ICP-induced coupled plasma AFPC IX.3.D			
Lab	%	P2O5	
10	29.45		-1.340
Std Dev	29.42		-1.000
Median	29.31		0.000
Std Dev	29.21		1.000
10	29.18		1.340

203 Photometric-AFPC IX.3.C			
Lab	%	P2O5	
26	29.81		-1.379
Std Dev	29.76		-1.000
49	29.70		-0.552
16	29.68		-0.394
270	29.66		-0.236
16	29.64		-0.079
9	29.63		0.000
Median	29.63		0.000
9	29.60		0.276
Std Dev	29.50		1.000
92	29.50		1.025
92	29.50		1.025
78	29.39		1.931
78	29.29		2.680

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
61	30.03		-2.594
15	29.82		-1.354
15	29.78		-1.124
77	29.76		-1.037
Std Dev	29.75		-1.000
21	29.63		-0.259
75	29.58		0.000
Median	29.58		0.000
21	29.58		0.029
75	29.58		0.029
61	29.50		0.490
13	29.41		0.980
Std Dev	29.41		1.000
13	29.31		1.556

205 Other(describe)			
Lab	%	P2O5	

280	49.63		-0.752
280	48.28		-0.655
Median	39.19		0.000
35	30.09		0.655
35	29.78		0.677

211 Gravimetric AFPC IX.3.B			
Lab	%	P2O5	dB
77	29.84		-1.340
Std Dev	29.13		-1.000
Median	27.05		0.000
Std Dev	24.97		1.000
241	24.26		1.340

212 ICP-induced coupled plasma AFPC IX.3.D			
Lab	%	P2O5	dB
10	29.50		-1.340
Std Dev	29.46		-1.000
Median	29.36		0.000
Std Dev	29.26		1.000
10	29.23		1.340

213 Photometric-AFPC IX.3.C			
Lab	%	P2O5	dB
26	29.87		-2.985
Std Dev	29.76		-1.000
49	29.76		-0.926
16	29.73		-0.410
Median	29.70		0.000
16	29.68		0.410
9	29.67		0.588
Std Dev	29.65		1.000
9	29.63		1.344

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
61	30.08		-2.548
15	29.85		-1.271
15	29.85		-1.232
Std Dev	29.80		-1.000
77	29.78		-0.850
21	29.67		-0.266
75	29.62		0.000
Median	29.62		0.000

21	29.62		0.011
75	29.62		0.036
61	29.52		0.562
13	29.47		0.862
Std Dev	29.44		1.000
13	29.35		1.515

215 Other(describe)			
Lab	%	P2O5	dB
280	49.63		-0.671
280	49.57		-0.667
Median	39.84		0.000
35	30.12		0.667
35	29.82		0.688

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

302 ICP-induced coupled plasma-AFPC IX.6.C			
Lab	%	Fe2O3	
77	0.92		-2.581
77	0.91		-2.382
Std Dev	0.84		-1.000
13	0.83		-0.794
49	0.83		-0.794
78	0.83		-0.695
16	0.82		-0.596
16	0.82		-0.596
9	0.81		-0.397
9	0.81		-0.298
10	0.80		-0.199
13	0.80		-0.199
78	0.80		-0.199
10	0.79		0.000
61	0.79		0.000
Median	0.79		0.000
75	0.77		0.377
270	0.77		0.397
61	0.76		0.695
75	0.75		0.743
15	0.75		0.794
15	0.75		0.794
21	0.75		0.794

21	0.75	0.794
92	0.74	0.993
92	0.74	0.993
Std Dev	0.74	1.000
35	0.62	3.415
35	0.60	3.772

303 Other(describe)		
Lab	%	Fe2O3
280	1.19	-1.340
Std Dev	1.18	-1.000
Median	1.17	0.000
Std Dev	1.16	1.000
280	1.16	1.340

401 Atomic Absorption-AFPC IX.6.B		
Lab	%	Al2O3
Median	0.00	0.000

402 ICP-induced coupled plasma-AFPC IX.6.C		
Lab	%	Al2O3
77	0.56	-3.266
77	0.56	-3.266
78	0.56	-3.266
78	0.55	-2.764
61	0.54	-2.596
61	0.50	-1.256
Std Dev	0.49	-1.000
15	0.48	-0.586
21	0.48	-0.586
92	0.48	-0.586
92	0.48	-0.586
15	0.47	-0.251
21	0.47	-0.251
270	0.47	-0.084
Median	0.46	0.000
49	0.46	0.084
9	0.46	0.251
9	0.45	0.419
13	0.45	0.419
13	0.45	0.419
16	0.44	0.754
16	0.44	0.754
Std Dev	0.43	1.000

10	0.43	1.089
10	0.43	1.089
75	0.43	1.097
75	0.43	1.130
35	0.42	1.424
35	0.41	1.893

403 Other(describe)		
Lab	%	Al2O3
280	0.83	-1.340
Std Dev	0.82	-1.000
Median	0.81	0.000
Std Dev	0.80	1.000
280	0.79	1.340

501 Atomic Absorption-AFPC IX.8.A		
Lab	%	MgO
35	0.73	-1.340
Std Dev	0.72	-1.000
Median	0.71	0.000
Std Dev	0.69	1.000
35	0.69	1.340

502 ICP-induced coupled plasma-AFPC IX.8.B		
Lab	%	MgO
92	0.75	-4.301
92	0.75	-4.301
Std Dev	0.70	-1.000
13	0.70	-0.993
16	0.70	-0.993
61	0.70	-0.993
77	0.70	-0.993
270	0.70	-0.794
78	0.70	-0.662
16	0.69	-0.331
49	0.69	-0.331
10	0.69	0.000
61	0.69	0.000
78	0.69	0.000
Median	0.69	0.000
9	0.68	0.331
9	0.68	0.331
10	0.68	0.331
15	0.68	0.331

21	0.68	0.331
15	0.67	0.993
21	0.67	0.993
Std Dev	0.67	1.000
13	0.65	2.316
77	0.65	2.316
75	0.62	4.010
75	0.61	5.107

503 Other(describe)		
Lab	%	MgO
280	0.71	-1.340
Std Dev	0.69	-1.000
Median	0.65	0.000
Std Dev	0.60	1.000
280	0.59	1.340

601 Insoluble-AFPC IX.4.A		
Lab	%	Al
35	10.05	-1.282
Std Dev	9.95	-1.000
16	9.94	-0.961
16	9.94	-0.961
21	9.91	-0.874
21	9.91	-0.874
15	9.82	-0.612
15	9.82	-0.612
9	9.61	0.000
Median	9.61	0.000
35	9.60	0.017
9	9.60	0.044
26	9.57	0.117
10	9.33	0.816
10	9.29	0.947
Std Dev	9.27	1.000
13	9.23	1.107
13	9.22	1.136

602 Other(describe)		
Lab	%	Al
49	9.66	-2.678
Std Dev	4.08	-1.000

651 Gasometric-AFPC IX.13.B		
Lab	%	CO2
77	2.62	-0.889
77	2.45	-0.633
49	2.30	-0.407
15	2.22	-0.286
15	2.21	-0.271
9	2.03	0.000
Median	2.03	0.000
9	1.98	0.075
61	1.37	0.989
61	1.37	0.998
Std Dev	1.37	1.000
13	1.18	1.280
13	1.17	1.296

652 Other(describe)		
Lab	%	CO2
280	4.36	-1.925
280	4.25	-1.727
Std Dev	3.84	-1.000
35	3.58	-0.531
35	3.35	-0.117
Median	3.29	0.000
21	3.22	0.117
21	3.22	0.117
Std Dev	2.73	1.000
78	2.35	1.691
78	2.22	1.925

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
92	50.24	-2.920
92	50.18	-2.844
Std Dev	48.72	-1.000
77	48.68	-0.948
77	48.63	-0.885
270	48.53	-0.758
78	48.24	-0.386
78	48.04	-0.139
9	47.95	-0.019
16	47.94	-0.013

Median	47.93	0.000
9	47.92	0.013
16	47.91	0.025
49	47.68	0.316
10	47.64	0.367
10	47.32	0.777
Std Dev	47.14	1.000
75	46.45	1.877
61	46.08	2.339
75	45.57	2.983
61	41.30	8.381

703 Ceric Sulfate volumetric-AFPC IX.12.B		
Lab	%	CaO
241	47.04	0.000
Median	47.04	0.000

704 Permanganate		
Lab	%	CaO
21	47.88	-0.675
21	47.73	-0.666
Median	35.96	0.000
280	24.20	0.666
280	23.84	0.687

705 EDTA Volumetric-AFPC IX.12.C		
Lab	%	CaO
35	47.80	-1.340
Std Dev	47.78	-1.000
Median	47.74	0.000
Std Dev	47.69	1.000
35	47.67	1.340

706 Other(describe)		
Lab	%	CaO
15	47.53	-2.062
Std Dev	47.48	-1.000
13	47.44	-0.206
Median	47.43	0.000
15	47.42	0.206
Std Dev	47.38	1.000
13	47.33	2.062

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
77	48.70		-0.830
77	48.66		-0.794
16	48.02		-0.220
9	48.01		-0.216
16	47.98		-0.184
9	47.98		-0.183
49	47.77		0.000
Median	47.77		0.000
10	47.71		0.051
10	47.40		0.331
Std Dev	46.65		1.000
75	46.51		1.124
61	46.12		1.471
75	45.64		1.905
61	41.37		5.715

713 Ceric Sulfate volumetric-AFPC IX.12.B			
Lab	%	CaO	dB
241	48.40		0.000
Median	48.40		0.000

714 Permanganate			
Lab	%	CaO	dB
21	47.96		-0.671
21	47.80		-0.662
Median	36.32		0.000
280	24.84		0.662
280	23.84		0.720

715 EDTA Volumetric-AFPC IX.12.C			
Lab	%	CaO	dB
35	47.86		-1.340
Std Dev	47.84		-1.000
Median	47.79		0.000
Std Dev	47.74		1.000
35	47.72		1.340

716 Other(describe)			
Lab	%	CaO	dB
15	47.59		-1.547
Std Dev	47.57		-1.000
13	47.54		-0.013
Median	47.53		0.000
15	47.53		0.013
Std Dev	47.50		1.000
13	47.40		3.733

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	3.68		-1.340
35	3.67		-1.266
9	3.65		-1.117
9	3.64		-1.042
Std Dev	3.63		-1.000
13	3.54		-0.298
13	3.51		-0.074
15	3.50		0.000
21	3.50		0.000
49	3.50		0.000
Median	3.50		0.000
15	3.47		0.223
21	3.45		0.409
75	3.38		0.931
Std Dev	3.37		1.000
75	3.33		1.266
270	3.30		1.489
26	3.24		1.936

803 Other(describe)			
Lab	%	Fluorine, F	
77	3.43		-0.677
77	3.39		-0.659
Median	1.95		0.000
280	0.50		0.659
280	0.35		0.728

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
61	22.0	-0.677
61	20.2	-0.423
270	18.5	-0.183
78	17.8	-0.085
78	17.2	0.000
Median	17.2	0.000
Std Dev	10.1	1.000
35	10.0	1.016
35	9.0	1.157
77	5.0	1.721
77	5.0	1.721

913 Other(describe)		
Lab	ppm	Arsenic, As
13	15.9	0.000
Median	15.9	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	34	-1.659
78	33	-1.337
Std Dev	33	-1.000
61	32	-0.614
77	32	-0.614
77	31	-0.078
75	31	0.000
Median	31	0.000
75	30	0.276
61	30	0.458
270	29	0.994
Std Dev	29	1.000
35	19	6.354
35	18	6.890

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
13	29	-2.630	
Std Dev	12	-1.000	
280	3	0.000	
Median	3	0.000	
280	2	0.050	

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	2	-1.746	
78	2	-1.746	
270	2	-1.048	
Std Dev	2	-1.000	
61	1	-0.183	
77	1	0.000	
77	1	0.000	
Median	1	0.000	
61	1	0.096	
35	1	0.698	
35	1	0.751	
Std Dev	0	1.000	
75	0	1.746	
75	0	1.746	

933 Other(describe)			
Lab	ppm	Cobalt, Co	
280	4	0.000	
280	4	0.000	
Median	4	0.000	
Std Dev	3	1.000	
13	1	2.680	

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	0.0	0.000	

Median	0.0	0.000
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943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	<0.07	0.000	
Median	0.0	0.000	

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

952 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	Iolybdenum, Mo	
61	36	-30.038	
Std Dev	10	-1.000	
61	10	-0.558	
270	10	-0.447	
78	9	0.000	
Median	9	0.000	
78	9	0.447	
Std Dev	8	1.000	
77	8	1.228	
77	7	2.345	

953 Other(describe)			
Lab	ppm	Iolybdenum, Mo	
280	27	-0.318	
280	25	0.000	
Median	25	0.000	
Std Dev	19	1.000	
13	10	2.362	

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	
61	23	-2.477	
77	22	-1.982	
Std Dev	21	-1.000	
270	21	-0.991	
61	21	-0.793	
77	20	0.000	

78	20	0.000
78	20	0.000
Median	20	0.000
75	20	0.411
75	20	0.485
Std Dev	19	1.000
35	12	7.926
35	12	7.926

963 Other(describe)			
Lab	ppm	Nickel, Ni	
13	23	-2.499	
Std Dev	15	-1.000	
280	9	0.000	
Median	9	0.000	
280	8	0.181	

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	
77	<0.02	0.000	
77	<0.02	0.000	
270	5	-3.991	
Std Dev	3	-1.000	
78	3	-0.641	
61	3	-0.163	
61	3	0.000	
Median	3	0.000	
78	3	0.124	
Std Dev	2	1.000	
35	2	1.752	
35		1.752	

973 Other(describe)			
Lab	ppm	Lead, Pb	
280	*	0.000	
13	3	0.000	
Median	3	0.000	

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

Median	0	0.000
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982 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	Selenium, Se	
77	<0.02	0.000	
77	<0.02	0.000	
270	3	-2.460	
Std Dev	2	-1.000	
61	1	0.000	
Median	1	0.000	
61		0.220	

983 Other(describe)			
Lab	ppm	Selenium, Se	
280	9	-1.119	
Std Dev	9	-1.000	
280	7	0.000	
Median	7	0.000	
Std Dev	5	1.000	
13	4	1.561	

991 Atomic Absorption-AFPC IX.16.B			
Lab	ppm	Zinc, Zn	
Median	0	0.000	

992 ICP-induced coupled plasma-AFPC IX.16.A			
Lab	ppm	Zinc, Zn	
270	325	-2.753	
Std Dev	293	-1.000	
78	291	-0.912	
61	290	-0.858	
78	282	-0.425	
75	278	-0.217	
75	274	0.000	
Median	274	0.000	
77	264	0.550	
77	263	0.604	
61	260	0.793	
Std Dev	256	1.000	
35	175	5.368	
35	170	5.639	

993 Other(describe)			
Lab	ppm	Zinc, Zn	

	13	270	-2.645
Std Dev	131		-1.000
	280	46	0.000
Median	46		0.000
	280	43	0.035