

AFPC Rock Check Program

Sample No. 2008-04

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	23	1.15	0.183
Other (describe)	102	3	0.97	0.146
Method Group 100		26	1.15	0.18
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	5	32.95	0.104
ICP-induced coupled plasma	202	4	32.80	0.054
Photometric-AFPC 9-6	203	14	32.87	0.235
Automated -AOAC 978.01-15th	204	9	32.93	0.164
Other(describe)	205	3	32.78	0.705
Method Group 200		35	32.88	0.21
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	5	33.23	0.183
ICP-induced coupled plasma	212	3	33.22	0.053
Photometric-AFPC 9-6	213	8	33.26	0.366
Automated -AOAC 978.01-15th	214	9	33.41	0.113
Other(describe)	215	1	33.25	0.000
Method Group 210		26	33.29	0.18
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	9	0.94	0.104
ICP-induced coupled plasma	302	22	0.97	0.035
Other(describe)	303	3	0.96	0.037
Method Group 300		34	0.97	0.05
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	7	1.36	0.162
ICP-induced coupled plasma	402	22	1.42	0.072
Other(describe)	403	3	1.75	0.172
Method Group 400		32	1.42	0.13
MgO				
Atomic Absorption-AFPC 9-18,19	501	9	0.37	0.037
ICP-induced coupled plasma	502	20	0.39	0.009
Other(describe)	503	4	0.40	0.013
Method Group 500		33	0.39	0.02
Acid Insoluble				
Insoluble-AFPC 9-8	601	18	3.04	0.173
Other(describe)	602	2	4.43	0.131
Method Group 600		20	3.08	0.23
CaO				
Gravimetric sulfate	701	2	47.06	0.224
ICP-induced coupled plasma	702	12	47.83	0.607
Ceric Sulfate volumetric	703			
Permanganate	704	3	46.85	0.560
EDTA Volumetric	705	4	47.85	0.252
Other(describe)	706	9	47.82	0.075
Method Group 700		30	47.82	0.52
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	5	48.47	0.155
Ceric Sulfate volumetric	713			
Permanganate	714	2	47.40	0.000
EDTA Volumetric	715	4	48.19	0.118
Other(describe)	716	9	48.40	0.171
Method Group 710		24	48.39	0.31

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801	1	3.99	0.000
Specific Ion Electrode	802	17	3.76	0.254
Other (describe)	803	2	3.95	0.015
Method Group 800		20	3.78	0.18
Arsenic, As				
Atomic Absorption	911	2	1.0	0.00
ICP-induced coupled plasma	912	3		3.73
Other(describe)	913	5	7.0	2.24
Method Group 900		10	6.5	6.16
Cadmium, Cd				
Atomic Absorption	921	5	5	0.4
ICP-induced coupled plasma	922	9	4	0.2
Other(describe)	923	1	5	0.0
Method Group 910		15	4	0.4
Cobalt, Co				
Atomic Absorption	931	2	12	0.0
ICP-induced coupled plasma	932	8	4	1.0
Other(describe)	933	2	5	0.3
Method Group 920		12	4	1.5
Mercury, Hg				
Atomic Absorption	941	1	0.1	0.00
ICP-induced coupled plasma	942	1	1.0	0.00
Other(describe)	943			
Method Group 930		2	0.5	0.34
Molybdenum, Mo				
Atomic Absorption	951	1	17	0.0
ICP-induced coupled plasma	952	7	14	1.0
Other(describe)	953	1	15	0.0
Method Group 940		9	14	1.3
Nickel, Ni				
Atomic Absorption	961	3	27	7.3
ICP-induced coupled plasma	962	9	7	0.4
Other(describe)	963	2	24	9.9
Method Group 950		14	7	2.4
Lead, Pb				
Atomic Absorption	971	2	29	0.0
ICP-induced coupled plasma	972	7	23	3.3
Other(describe)	973	1	18	0.0
Method Group 960		10	24	4.4
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	1		0.0
Other(describe)	983	1	3	0.0
Method Group 970		2	1	1.1
Zinc, Zn				
Atomic Absorption	991	3	48	3
ICP-induced coupled plasma	992	11	52	13
Other(describe)	993	3	47	11
Method Group 980		17	50	14

101 Ground Sample AFPC 9-2		
Lab	%	H ₂ O
55	1.63	-2.598
16	1.57	-2.297
16	1.54	-2.106
13	1.44	-1.586
13	1.39	-1.285
10	1.34	-1.012
Std Dev	1.33	-1.000
10	1.30	-0.820
9	1.23	-0.438
24	1.23	-0.410
15	1.15	0.000
27	1.15	0.000
27	1.15	0.000
Median	1.15	0.000
75	1.15	0.027
75	1.13	0.109
49	1.10	0.273
15	1.10	0.301
9	1.08	0.383
24	1.07	0.465
6	1.03	0.656
Std Dev	0.97	1.000
55	0.66	2.680
241	0.58	3.118
77	0.38	4.211
77	0.35	4.376

102 Other (describe)		
Lab	%	H ₂ O
33	1.17	-1.374
Std Dev	1.12	-1.000
51	0.97	0.000
Median	0.97	0.000
Std Dev	0.82	1.000
270	0.78	1.306

201 Gravimetric AFPC 9-5		
Lab	%	P2O5
77	33.11	-1.531
51	33.09	-1.340
Std Dev	33.05	-1.000
55	32.95	0.000

55	32.95	0.000
Median	32.95	0.000
Std Dev	32.85	1.000
241	32.67	2.680

202 ICP-induced coupled plasma		
Lab	%	P2O5
10	32.87	-1.294
Std Dev	32.85	-1.000
6	32.82	-0.370
Median	32.80	0.000
10	32.78	0.370
Std Dev	32.75	1.000
19	32.70	1.848

203 Photometric-AFPC 9-6		
Lab	%	P2O5
60	34.60	-7.381
16	33.16	-1.255
16	33.13	-1.127
Std Dev	33.10	-1.000
35	33.10	-1.000
9	33.02	-0.659
78	32.99	-0.510
9	32.91	-0.191
Median	32.87	0.000
33	32.82	0.191
244	32.78	0.362
270	32.78	0.362
78	32.76	0.447
36	32.73	0.574
Std Dev	32.63	1.000
27	32.35	2.191
27	32.35	2.191

204 Automated -AOAC 978.01-15th		
Lab	%	P2O5
75	33.10	-1.035
75	33.10	-1.035
Std Dev	33.09	-1.000
15	33.07	-0.853
15	33.05	-0.700
13	32.93	0.000
24	32.93	0.000

Median	32.93	0.000
24	32.85	0.487
77	32.85	0.487
13	32.84	0.579

205 Other(describe)		
Lab	%	P2O5
49	32.88	-0.142
51	32.78	0.000
Median	32.78	0.000
Std Dev	32.07	1.000
19	30.99	2.538

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
55	33.49		-1.465
51	33.41		-1.026
Std Dev	33.41		-1.000
77	33.23		0.000
Median	33.23		0.000
55	33.17		0.314
Std Dev	33.04		1.000
241	32.86		1.999

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	33.30		-1.505
Std Dev	33.28		-1.000
10	33.22		0.000
Median	33.22		0.000
Std Dev	33.17		1.000
6	33.16		1.175

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
16	33.68		-1.128
16	33.66		-1.078
Std Dev	33.63		-1.000
9	33.38		-0.318
9	33.32		-0.152
Median	33.26		0.000
33	33.21		0.152
270	33.04		0.619
Std Dev	32.90		1.000

27	32.73	1.470
27	32.73	1.470

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
75	33.48		-0.639
75	33.48		-0.594
15	33.44		-0.221
15	33.43		-0.162
13	33.41		0.000
Median	33.41		0.000
Std Dev	33.30		1.000
13	33.30		1.016
24	33.28		1.119
24	33.26		1.358
77	32.98		3.851

215 Other(describe)			
Lab	%	P2O5	dB
49	33.25		0.000
Median	33.25		0.000

301 Atomic Absorption-AFPC 9-12,13		
Lab	%	Fe2O3
55	3.24	-22.014
55	1.27	-3.111
Std Dev	1.04	-1.000
33	1.01	-0.670
27	0.94	0.000
27	0.94	0.000
Median	0.94	0.000
60	0.90	0.431
36	0.87	0.670
Std Dev	0.84	1.000
51	0.83	1.053
241	0.82	1.149

302 ICP-induced coupled plasma		
Lab	%	Fe2O3
35	1.27	-8.547
77	1.10	-3.766
77	1.10	-3.766
78	1.01	-1.159
78	1.01	-1.014

Std Dev	1.00	-1.000
49	1.00	-0.869
15	1.00	-0.724
10	0.99	-0.435
6	0.98	-0.290
9	0.97	0.000
13	0.97	0.000
13	0.97	0.000
15	0.97	0.000
16	0.97	0.000
Median	0.97	0.000
10	0.97	0.145
16	0.96	0.290
9	0.95	0.579
75	0.94	0.757
Std Dev	0.94	1.000
75	0.93	1.070
24	0.89	2.318
24	0.87	2.897
270	0.78	5.505

303 Other(describe)		
Lab	%	Fe2O3
51	0.98	-0.536
19	0.96	0.000
Median	0.96	0.000
Std Dev	0.92	1.000
19	0.88	2.144

401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
55	3.12	-10.812
51	1.55	-1.171
Std Dev	1.52	-1.000
33	1.45	-0.554
27	1.36	0.000
27	1.36	0.000
Median	1.36	0.000
55	1.21	0.955
Std Dev	1.20	1.000
36	0.65	4.374

402 ICP-induced coupled plasma		
Lab	%	Al2O3

77	1.69	-3.780
78	1.68	-3.572
77	1.67	-3.503
78	1.66	-3.364
270	1.56	-1.977
24	1.51	-1.214
Std Dev	1.49	-1.000
24	1.48	-0.798
6	1.45	-0.451
9	1.43	-0.173
13	1.43	-0.104
13	1.42	-0.035
Median	1.42	0.000
16	1.42	0.035
10	1.41	0.104
10	1.41	0.104
16	1.41	0.104
75	1.40	0.193
9	1.40	0.243
35	1.39	0.451
75	1.38	0.493
15	1.38	0.590
15	1.38	0.590
49	1.36	0.798

403 Other(describe)		
Lab	%	Al2O3
19	2.00	-1.457
Std Dev	1.92	-1.000
19	1.75	0.000
Median	1.75	0.000
Std Dev	1.58	1.000
51	1.54	1.223

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
55	1.17	-21.306
55	0.49	-3.082
36	0.41	-1.072
Std Dev	0.41	-1.000
33	0.39	-0.536
51	0.37	0.000
Median	0.37	0.000
35	0.37	0.134

27	0.36	0.268
27	0.36	0.268
60	0.36	0.268

502 ICP-induced coupled plasma		
Lab	%	MgO
13	0.41	-1.608
9	0.40	-1.072
15	0.40	-1.072
16	0.40	-1.072
16	0.40	-1.072
49	0.40	-1.072
Std Dev	0.40	-1.000
10	0.40	-0.536
15	0.40	-0.536
6	0.39	0.000
9	0.39	0.000
10	0.39	0.000
13	0.39	0.000
77	0.39	0.000
78	0.39	0.000
78	0.39	0.000
Median	0.39	0.000
Std Dev	0.38	1.000
77	0.38	1.072
24	0.36	3.216
24	0.35	4.288
75	0.30	9.629
75	0.30	9.842

503 Other(describe)		
Lab	%	MgO
19	0.42	-1.914
Std Dev	0.41	-1.000
19	0.40	-0.383
Median	0.40	0.000
51	0.39	0.383
Std Dev	0.38	1.000
270	0.38	1.149

601 Insoluble-AFPC 9-8		
Lab	%	Al
27	4.30	-7.316
27	4.30	-7.316

51	3.26	-1.289
24	3.25	-1.202
Std Dev	3.21	-1.000
33	3.18	-0.826
16	3.13	-0.536
13	3.08	-0.246
16	3.08	-0.246
9	3.07	-0.188
Median	3.04	0.000
24	3.01	0.188
13	3.00	0.246
35	2.96	0.449
10	2.94	0.565
15	2.94	0.594
10	2.92	0.681
15	2.92	0.710
9	2.91	0.739
Std Dev	2.86	1.000
6	2.69	2.014

602 Other(describe)		
Lab	%	Al
19	4.60	-1.340
Std Dev	4.56	-1.000
Median	4.43	0.000
Std Dev	4.29	1.000
19	4.25	1.340

701 Gravimetric sulfate		
Lab	%	CaO
55	47.36	-1.340
Std Dev	47.28	-1.000
Median	47.06	0.000
Std Dev	46.83	1.000
55	46.76	1.340

702 ICP-induced coupled plasma		
Lab	%	CaO
75	49.43	-2.634
75	49.21	-2.277
77	48.50	-1.107
77	48.50	-1.107
Std Dev	48.43	-1.000
16	47.93	-0.161

10	47.84	-0.012
Median	47.83	0.000
6	47.82	0.012
49	47.81	0.029
16	47.78	0.078
10	47.41	0.696
Std Dev	47.22	1.000
78	46.70	1.857
78	46.39	2.367

703 Ceric Sulfate volumetric		
Lab	%	CaO
Median	0.00	0.000

704 Permanganate		
Lab	%	CaO
60	48.35	-2.680
Std Dev	47.41	-1.000
27	46.85	0.000
27	46.85	0.000
Median	46.85	0.000

705 EDTA Volumetric		
Lab	%	CaO
35	48.18	-1.310
Std Dev	48.10	-1.000
9	47.96	-0.437
Median	47.85	0.000
51	47.74	0.437
Std Dev	47.60	1.000
9	47.49	1.429

706 Other(describe)		
Lab	%	CaO
19	48.60	-10.452
24	48.25	-5.762
Std Dev	47.89	-1.000
15	47.87	-0.670
13	47.84	-0.268
15	47.82	0.000
Median	47.82	0.000
24	47.80	0.335
13	47.77	0.670
Std Dev	47.75	1.000

33	47.72	1.340
19	47.20	8.308
711 Gravimetric sulfate		
Lab	%	CaO
Median	0.00	0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
16	48.69	-1.451	
Std Dev	48.62	-1.000	
16	48.52	-0.387	
10	48.47	0.000	
Median	48.47	0.000	
6	48.32	0.953	
Std Dev	48.31	1.000	
10	48.05	2.708	

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00	0.000	

714 Permanganate			
Lab	%	CaO	dB
27	47.40	0.000	
27	47.40	0.000	
Median	47.40	0.000	

715 EDTA Volumetric			
Lab	%	CaO	dB
9	48.56	-3.084	
Std Dev	48.31	-1.000	
51	48.21	-0.117	
Median	48.19	0.000	
35	48.18	0.117	
Std Dev	48.08	1.000	
9	48.01	1.573	

716 Other(describe)			
Lab	%	CaO	dB
24	48.85	-2.619	
19	48.60	-1.168	
Std Dev	48.57	-1.000	
13	48.54	-0.812	

13	48.44	-0.239
15	48.40	0.000
Median	48.40	0.000
15	48.38	0.138
24	48.31	0.528
33	48.28	0.672
Std Dev	48.23	1.000
19	47.20	7.007

801 Volumetric-AFPC 9-37		
Lab	%	Fluorine, F
33	3.99	0.000
Median	3.99	0.000

802 Specific Ion Electrode		
Lab	%	Fluorine, F
9	3.99	-0.906
270	3.85	-0.355
51	3.82	-0.236
24	3.81	-0.177
9	3.80	-0.158
35	3.80	-0.158
49	3.78	-0.079
24	3.78	-0.059
13	3.76	0.000
Median	3.76	0.000
13	3.71	0.217
75	3.65	0.434
75	3.63	0.512
Std Dev	3.51	1.000
27	3.46	1.182
27	3.46	1.182
36	3.43	1.301
15	3.27	1.951
15	3.24	2.069

803 Other(describe)		
Lab	%	Fluorine, F
77	3.97	-1.340
Std Dev	3.96	-1.000
Median	3.95	0.000
Std Dev	3.94	1.000
77	3.93	1.340

911 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Arsenic, As	
27	1.0	0.000	
27	1.0	0.000	
Median	1.0	0.000	

912 ICP-induced coupled plasma			
Lab	ppm	Arsenic, As	
270	10.0	-2.680	
Std Dev	3.7	-1.000	
78	0.0	0.000	
78	0.0	0.000	
Median	0.0	0.000	

913 Other(describe)			
Lab	ppm	Arsenic, As	
6	14.0	-3.127	
51	10.0	-1.340	
Std Dev	9.2	-1.000	
77	7.0	0.000	
77	7.0	0.000	
Median	7.0	0.000	
13	5.9	0.485	

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
19	6	-4.020	
19	5	-1.340	
Std Dev	5	-1.000	
27	5	0.000	
27	5	0.000	
Median	5	0.000	
Std Dev	4	1.000	
51	4	1.340	

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
51	5	-5.360	
270	4	-1.608	
Std Dev	4	-1.000	
75	4	0.000	
75	4	0.000	
77	4	0.000	
77	4	0.000	

Median	4	0.000
Std Dev	4	1.000
78	4	1.340
78	4	1.876
6	3	5.360

923 Other(describe)		
Lab ppm	Cadmium, Cd	
13	5	0.000
Median	5	0.000

931 Atomic Absorption-AFPC 9-16,17		
Lab ppm	Cobalt, Co	
27	12	0.000
27	12	0.000
Median	12	0.000

932 ICP-induced coupled plasma		
Lab ppm	Cobalt, Co	
78	5	-1.517
78	5	-1.517
Std Dev	4	-1.000
77	4	-0.506
77	4	-0.506
Median	4	0.000
75	3	0.506
75	3	0.506
6	3	0.809
Std Dev	3	1.000
270	1	2.326

933 Other(describe)		
Lab ppm	Cobalt, Co	
51	5	-1.340
Std Dev	5	-1.000
Median	5	0.000
Std Dev	4	1.000
13	4	1.340

941 Atomic Absorption-AFPC 9-18,19		
Lab ppm	Mercury, Hg	
33	0.1	0.000
Median	0.1	0.000

942 ICP-induced coupled plasma		
Lab ppm	Mercury, Hg	
270	1.0	0.000
Median	1.0	0.000

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

951 Atomic Absorption-AFPC 9-18,19		
Lab ppm	lolybdenum, Mo	
51	17	0.000
Median	17	0.000

952 ICP-induced coupled plasma		
Lab ppm	lolybdenum, Mo	
6	15	-0.957
78	15	-0.957
51	14	0.000
270	14	0.000
Median	14	0.000
78	13	0.766
77	13	0.957
Std Dev	13	1.000
77	12	1.914

953 Other(describe)		
Lab ppm	lolybdenum, Mo	
13	15	0.000
Median	15	0.000

961 Atomic Absorption-AFPC 9-12,13		
Lab ppm	Nickel, Ni	
27	27	0.000
27	27	0.000
Median	27	0.000
Std Dev	19	1.000
51	7	2.680

962 ICP-induced coupled plasma		
Lab ppm	Nickel, Ni	
51	9	-5.360
270	9	-5.360
Std Dev	7	-1.000

6	7	0.000
75	7	0.000
75	7	0.000
77	7	0.000
Median	7	0.000
Std Dev	7	1.000
78	7	1.340
77	6	2.680
78	6	2.680

963 Other(describe)		
Lab ppm	Nickel, Ni	
19	37	-1.340
Std Dev	34	-1.000
Median	24	0.000
Std Dev	14	1.000
13	11	1.340

971 Atomic Absorption-AFPC 9-16,17		
Lab ppm	Lead, Pb	
27	29	0.000
27	29	0.000
Median	29	0.000

972 ICP-induced coupled plasma		
Lab ppm	Lead, Pb	
51	26	-0.914
78	25	-0.457
78	24	-0.305
270	23	0.000
Median	23	0.000
77	20	0.914
Std Dev	20	1.000
6	20	1.005
77	18	1.523

973 Other(describe)		
Lab ppm	Lead, Pb	
13	18	0.000
Median	18	0.000

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

982 ICP-induced coupled plasma		
Lab ppm	Selenium, Se	
270	0	0.000
Median	0	0.000

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

991 Atomic Absorption-AFPC 9-18,19		
Lab ppm	Zinc, Zn	
27	48	0.000
27	48	0.000
Median	48	0.000
Std Dev	45	1.000
60	40	2.680

992 ICP-induced coupled plasma		
Lab ppm	Zinc, Zn	
78	70	-1.379
78	68	-1.222
24	67	-1.182
24	67	-1.143
Std Dev	65	-1.000
270	59	-0.552
51	52	0.000
Median	52	0.000
75	51	0.118
6	50	0.158
75	50	0.197
77	48	0.315
77	47	0.394

993 Other(describe)		
Lab ppm	Zinc, Zn	
13	70	-2.205
Std Dev	58	-1.000
19	47	0.000
Median	47	0.000
19	42	0.475

