

AFPC Rock Check Program

Sample No. 2002-12

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	28	0.89	0.205
Other (describe)	102	2	0.37	0.026
Method Group 100		30	0.88	0.22
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	3	30.82	0.276
ICP-induced coupled plasma	202			
Photometric-AFPC 9-6	203	19	30.30	0.215
Automated -AOAC 978.01-15th	204	9	30.11	0.075
Other(describe)	205	1	30.13	0.000
Method Group 200		32	30.20	0.19
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	11	0.88	0.063
ICP-induced coupled plasma	302	21	0.90	0.026
Other(describe)	303	1	0.84	0.000
Method Group 300		33	0.89	0.05
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	8	0.98	0.119
ICP-induced coupled plasma	402	21	1.01	0.082
Other(describe)	403	1	1.18	0.000
Method Group 400		30	1.01	0.08
MgO				
Atomic Absorption-AFPC 9-18,19	501	12	0.68	0.088
ICP-induced coupled plasma	502	19	0.72	0.046
Other(describe)	503	1	0.62	0.000
Method Group 500		32	0.72	0.08
Acid Insoluble				
Insoluble-AFPC 9-8	601	22	8.15	0.186
Other(describe)	602			
Method Group 600		22	8.15	0.19
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	14	45.31	0.508
Ceric Sulfate volumetric	703	1	42.96	0.000
Permanganate	704	3	45.55	0.836
EDTA Volumetric	705	3	45.92	1.090
Other(describe)	706	6	45.34	0.719
Method Group 700		27	45.34	0.79
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	20	3.54	0.118
Oher(describe)	803	2	3.78	0.011
Method Group 800		22	3.56	0.15

	Method #	# of Anal.	Grand Median	Std Dev
Arsenic, As				
Atomic Absorption	911	1	16.0	0.00
ICP-induced coupled plasma	912	2	8.0	2.45
Other(describe)	913	4	9.0	0.28
Method Group 900		7	9.0	1.42
Cadmium, Cd				
Atomic Absorption	921	2	3	0.6
ICP-induced coupled plasma	922	12	3	0.2
Other(describe)	923	2	3	0.3
Method Group 910		16	3	0.3
Cobalt, Co				
Atomic Absorption	931	1	11	0.0
ICP-induced coupled plasma	932	6	3	1.0
Other(describe)	933	2	2	0.3
Method Group 920		9	3	1.1
Mercury, Hg				
Atomic Absorption	941	1	0.1	0.00
ICP-induced coupled plasma	942			
Other(describe)	943			
Method Group 930		1	0.1	0.00
Molybdenum, Mo				
Atomic Absorption	951	1	13	0.0
ICP-induced coupled plasma	952	6	6	1.4
Other(describe)	953	1	6	0.0
Method Group 940		8	6	2.6
Nickel, Ni				
Atomic Absorption	961	2	10	2.1
ICP-induced coupled plasma	962	8	7	1.6
Other(describe)	963	2	30	14.6
Method Group 950		12	8	2.4
Lead, Pb				
Atomic Absorption	971	2	24	3.0
ICP-induced coupled plasma	972	5	12	5.4
Other(describe)	973	1	19	0.0
Method Group 960		8	18	6.8
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	1	1	0.0
Other(describe)	983	2	3	1.7
Method Group 970		3	1	1.7
Zinc, Zn				
Atomic Absorption	991	3	44	4
ICP-induced coupled plasma	992	10	32	9
Other(describe)	993	2	35	3
Method Group 980		15	39	8

101 Ground Sample AFPC 9-2			
Lab	%	H ₂ O	
5	1.07		-0.889
6	1.03		-0.694
238	1.03		-0.694
13	1.03		-0.670
13	1.02		-0.621
6	0.99		-0.499
61	0.98		-0.451
61	0.98		-0.451
5	0.93		-0.207
6	0.93		-0.207
6	0.91		-0.110
75	0.91		-0.085
75	0.90		-0.037
33	0.89		-0.012
Median	0.89		0.000
78	0.89		0.012
57	0.88		0.037
50	0.83		0.280
50	0.83		0.280
24	0.81		0.402
6	0.72		0.816
78	0.71		0.865
51	0.69		0.962
Std Dev	0.68		1.000
242	0.67		1.084
35	0.59		1.450
6	0.52		1.791
24	0.52		1.815
77	0.30		2.863
77	0.27		3.009

102 Other (describe)			
Lab	%	H ₂ O	
241	0.40		-1.340
Std Dev	0.39		-1.000
Median	0.37		0.000
Std Dev	0.34		1.000
241	0.33		1.340

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
241	31.10		-1.014

Std Dev	31.10		-1.000
241	30.82		0.000
Median	30.82		0.000
Std Dev	30.54		1.000
51	30.36		1.666

202 ICP-induced coupled plasma			
Lab	%	P2O5	
Median	0.00		0.000

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
6	31.30		-4.661
6	31.22		-4.288
Std Dev	30.51		-1.000
6	30.45		-0.699
19	30.44		-0.653
35	30.35		-0.233
5	30.34		-0.186
6	30.34		-0.186
36	30.34		-0.186
5	30.30		0.000
61	30.30		0.000
Median	30.30		0.000
61	30.20		0.466
78	30.16		0.653
6	30.10		0.932
Std Dev	30.09		1.000
78	30.07		1.095
6	30.05		1.165
50	30.00		1.398
50	30.00		1.398
33	29.87		2.004
238	29.20		5.127

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
24	30.56		-5.963
24	30.32		-2.747
75	30.20		-1.206
75	30.20		-1.206
Std Dev	30.18		-1.000
13	30.11		0.000
77	30.11		0.000

Median	30.11		0.000
77	30.10		0.134
Std Dev	30.04		1.000
57	30.00		1.474
13	29.74		5.025

205 Other(describe)			
Lab	%	P2O5	
242	30.13		0.000
Median	30.13		0.000

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
241	1.15		-4.256
241	1.04		-2.522
Std Dev	0.94		-1.000
51	0.94		-0.946
50	0.93		-0.788
50	0.93		-0.788
5	0.88		0.000
Median	0.88		0.000
5	0.86		0.315
36	0.86		0.315
57	0.84		0.631
33	0.83		0.788
Std Dev	0.82		1.000
242	0.74		2.286

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
6	1.36		-17.631
6	1.36		-17.631
238	1.17		-10.356
77	0.96		-2.316
77	0.96		-2.316
Std Dev	0.93		-1.000
13	0.92		-0.593
75	0.91		-0.368
6	0.90		-0.019
13	0.90		-0.019
51	0.90		-0.019
78	0.90		0.000
Median	0.90		0.000
78	0.89		0.325

6	0.89		0.364
6	0.89		0.364
75	0.88		0.732
6	0.88		0.747
61	0.88		0.938
Std Dev	0.87		1.000
61	0.87		1.129
24	0.84		2.278
24	0.83		2.852
35	0.75		5.724

303 Other(describe)			
Lab	%	Fe2O3	
19	0.84		0.000
Median	0.84		0.000

401 Atomic Absorption-AFPC 9-16,17			
Lab	%	Al2O3	
50	1.08		-0.879
50	1.08		-0.879
51	1.08		-0.879
5	1.01		-0.293
Median	0.98		0.000
5	0.94		0.293
241	0.94		0.293
241	0.86		0.963
Std Dev	0.86		1.000
33	0.83		1.214

402 ICP-induced coupled plasma			
Lab	%	Al2O3	
6	96.00		-1157.2
77	1.40		-4.751
77	1.34		-4.020
78	1.29		-3.356
78	1.25		-2.948
Std Dev	1.09		-1.000
238	1.09		-0.975
51	1.07		-0.731
6	1.04		-0.365
6	1.03		-0.244
24	1.02		-0.122
24	1.01		0.000
Median	1.01		0.000

13	1.00	0.183
13	0.99	0.244
35	0.99	0.244
6	0.98	0.365
6	0.98	0.365
75	0.97	0.452
75	0.97	0.475
6	0.97	0.487
61	0.95	0.731
61	0.95	0.792

403 Other(describe)		
Lab	%	Al2O3
19	1.18	0.000
Median	1.18	0.000

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
35	0.76	-0.969
5	0.74	-0.741
51	0.74	-0.741
5	0.72	-0.513
57	0.72	-0.513
36	0.70	-0.285
Median	0.68	0.000
33	0.65	0.285
50	0.63	0.513
50	0.63	0.513
Std Dev	0.59	1.000
242	0.54	1.540
241	0.40	3.136
241	0.39	3.250

502 ICP-induced coupled plasma		
Lab	%	MgO
6	73.00	-1559.6
Std Dev	0.77	-1.000
78	0.76	-0.863
61	0.75	-0.647
61	0.75	-0.647
78	0.74	-0.442
13	0.74	-0.324
13	0.73	-0.216
77	0.73	-0.216

77	0.73	-0.216
6	0.72	0.000
6	0.72	0.000
51	0.72	0.000
Median	0.72	0.000
24	0.70	0.539
24	0.69	0.647
Std Dev	0.67	1.000
75	0.66	1.267
75	0.65	1.506
238	0.58	3.021
6	0.41	6.689
6	0.40	6.905

503 Other(describe)		
Lab	%	MgO
19	0.62	0.000
Median	0.62	0.000

601 Insoluble-AFPC 9-8		
Lab	%	Al
19	9.10	-5.131
13	8.43	-1.495
Std Dev	8.33	-1.000
57	8.30	-0.822
5	8.28	-0.714
5	8.27	-0.660
24	8.27	-0.633
13	8.26	-0.606
61	8.26	-0.579
51	8.18	-0.175
6	8.16	-0.067
61	8.15	-0.013
Median	8.15	0.000
24	8.15	0.013
6	8.14	0.040
6	8.12	0.148
6	8.07	0.417
33	8.06	0.471
238	8.00	0.795
Std Dev	7.96	1.000
241	7.87	1.495
241	7.87	1.495
35	7.83	1.710

6	6.95	6.451
6	6.81	7.205

602 Other(describe)		
Lab	%	Al
Median	0.00	0.000

701 Gravimetric sulfate		
Lab	%	CaO
Median	0.00	0.000

702 ICP-induced coupled plasma		
Lab	%	CaO
75	46.59	-2.518
6	45.90	-1.170
Std Dev	45.81	-1.000
6	45.81	-0.993
78	45.73	-0.826
77	45.70	-0.777
61	45.63	-0.639
6	45.34	-0.069
Median	45.31	0.000
6	45.27	0.069
6	45.19	0.226
61	45.15	0.305
77	45.00	0.600
Std Dev	44.80	1.000
6	44.76	1.072
78	44.74	1.121
75	43.98	2.604

703 Ceric Sulfate volumetric		
Lab	%	CaO
238	42.96	0.000
Median	42.96	0.000

704 Permanganate		
Lab	%	CaO
241	46.56	-1.208
Std Dev	46.39	-1.000
241	45.55	0.000
Median	45.55	0.000
Std Dev	44.71	1.000
57	44.32	1.472

705 EDTA Volumetric		
Lab	%	CaO
35	46.13	-0.193
51	45.92	0.000
Median	45.92	0.000
Std Dev	44.83	1.000
33	43.21	2.487

706 Other(describe)		
Lab	%	CaO
19	46.00	-0.925
24	45.90	-0.786
24	45.68	-0.480
Median	45.34	0.000
13	44.99	0.480
13	44.85	0.681
242	44.67	0.932

801 Volumetric-AFPC 9-37		
Lab	%	Fluorine, F
Median	0.00	0.000

802 Specific Ion Electrode		
Lab	%	Fluorine, F
24	3.82	-2.300
51	3.81	-2.258
24	3.68	-1.118
33	3.67	-1.076
Std Dev	3.66	-1.000
238	3.61	-0.570
35	3.59	-0.401
6	3.56	-0.148
6	3.56	-0.148
6	3.56	-0.148
6	3.55	-0.063
Median	3.54	0.000
78	3.54	0.063
6	3.53	0.106
78	3.53	0.106
13	3.47	0.612
36	3.44	0.865
13	3.43	0.992
Std Dev	3.42	1.000

241	3.23	2.638
19	3.20	2.891
75	3.12	3.566
75	3.04	4.242

803 Other(describe)		
Lab	%	Fluorine, F
77	3.79	-1.340
Std Dev	3.79	-1.000
Median	3.78	0.000
Std Dev	3.76	1.000
77	3.76	1.340

911 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Arsenic, As
33	16.0	0.000
Median	16.0	0.000

912 ICP-induced coupled plasma		
Lab	ppm	Arsenic, As
78	<5	0.000
78	<5	0.000
6	11.3	-1.340
Std Dev	10.5	-1.000
Median	8.0	0.000
238		1.340

913 Other(describe)		
Lab	ppm	Arsenic, As
13	10.5	-5.360
Std Dev	9.3	-1.000
51	9.0	0.000
77	9.0	0.000
77	9.0	0.000
Median	9.0	0.000

921 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Cadmium, Cd
33	4	-1.340
Std Dev	3	-1.000
Median	3	0.000
Std Dev	2	1.000
51	2	1.340

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
77	5		-8.441
6	4		-2.954
238	3		-1.562
61	3		-1.266
Std Dev	3		-1.000
61	3		-0.844
50	3		0.000
50	3		0.000
51	3		0.000
75	3		0.000
75	3		0.000
78	3		0.000
78	3		0.000
Median	3		0.000

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
57	4		-1.340
Std Dev	4		-1.000
Median	3		0.000
Std Dev	3		1.000
13	3		1.340

931 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Cobalt, Co
57	11	0.000
Median	11	0.000

932 ICP-induced coupled plasma			
Lab	ppm	Cobalt, Co	
51	<8		0.000
78	5		-1.936
Std Dev	4		-1.000
78	4		-0.943
77	3		-0.447
Median	3		0.000
6	2		0.447
75	2		0.546
75	2		0.546

933 Other(describe)			
Lab	ppm	Cobalt, Co	

13	3	-1.340
Std Dev	2	-1.000
Median	2	0.000
Std Dev	2	1.000
238	2	1.340

941 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Mercury, Hg	
238	<.1		0.000
33	0.1		0.000
Median	0.1		0.000

942 ICP-induced coupled plasma			
Lab	ppm	Mercury, Hg	
Median	0.0	0	0.000

943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	<.04		0.000
Median	0.0		0.000

951 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Molybdenum, Mo	
51	13		0.000
Median	13		0.000

952 ICP-induced coupled plasma			
Lab	ppm	Molybdenum, Mo	
238	46		-28.352
78	7		-1.058
Std Dev	7		-1.000
78	6		-0.353
Median	6		0.000
77	5		0.353
6	5		0.494
24	4		0.917

953 Other(describe)			
Lab	ppm	Molybdenum, Mo	
13	6		0.000
Median	6		0.000

961 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Nickel, Ni	

57	13	-1.340
Std Dev	12	-1.000
Median	10	0.000
Std Dev	8	1.000
51	7	1.340

962 ICP-induced coupled plasma			
Lab	ppm	Nickel, Ni	
51	<13		0.000
78	11		-2.132
78	10		-1.523
Std Dev	9		-1.000
77	8		-0.609
75	7		0.000
75	7		0.000
Median	7		0.000
6	7		0.183
Std Dev	5		1.000
24	5		1.462
238	4		1.821

963 Other(describe)			
Lab	ppm	Nickel, Ni	
19	49		-1.340
Std Dev	44		-1.000
Median	30		0.000
Std Dev	15		1.000
13	10		1.340

971 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Lead, Pb	
57	28		-1.340
Std Dev	27		-1.000
Median	24		0.000
Std Dev	21		1.000
33	20		1.340

972 ICP-induced coupled plasma			
Lab	ppm	Lead, Pb	
77	21		-1.744
6	17		-1.065
Std Dev	17		-1.000
78	12		0.000
Median	12		0.000

78	10	0.275
Std Dev	6	1.000
238	4	1.388

973 Other(describe)		
Lab	ppm	Lead, Pb
13	19	0.000
Median	19	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
238	1	0.000
Median	1	0.000

983 Other(describe)		
Lab	ppm	Selenium, Se
13	6	-1.340
Std Dev	5	-1.000
Median	3	0.000
Std Dev	2	1.000
77	1	1.340

991 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Zinc, Zn
51	49	-1.276
Std Dev	48	-1.000
33	44	0.000
Median	44	0.000
Std Dev	40	1.000
57	39	1.404

992 ICP-induced coupled plasma		
Lab	ppm	Zinc, Zn
78	44	-1.336
77	43	-1.220
Std Dev	41	-1.000
78	41	-0.931
238	39	-0.740
51	33	-0.064
Median	32	0.000

6	32	0.064
75	32	0.110
75	28	0.572
24	27	0.624
24	26	0.792

993 Other(describe)		
Lab	ppm	Zinc, Zn
13	40	-1.340
Std Dev	38	-1.000
Median	35	0.000
Std Dev	32	1.000
19	31	1.340

