

AFPC Rock Check Program

Sample No. 2006-04

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	19	1.10	0.112
Other (describe)	102	5	1.00	0.153
Method Group 100		24	1.04	0.11
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	3	32.80	0.127
ICP-induced coupled plasma	202	1	32.60	0.000
Photometric-AFPC 9-6	203	16	32.66	0.200
Automated -AOAC 978.01-15th	204	9	32.69	0.175
Other(describe)	205	2	32.77	0.026
Method Group 200		31	32.67	0.18
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	3	32.83	0.193
ICP-induced coupled plasma	212			
Photometric-AFPC 9-6	213	13	33.02	0.104
Automated -AOAC 978.01-15th	214	7	33.03	0.121
Other(describe)	215	1	33.07	0.000
Method Group 210		14	33.03	0.17
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	7	1.17	0.127
ICP-induced coupled plasma	302	19	1.19	0.076
Other(describe)	303	4	1.10	0.040
Method Group 300		30	1.18	0.07
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	5	1.19	0.015
ICP-induced coupled plasma	402	21	1.18	0.138
Other(describe)	403	2	1.15	0.037
Method Group 400		28	1.18	0.11
MgO				
Atomic Absorption-AFPC 9-18,19	501	8	0.43	0.041
ICP-induced coupled plasma	502	20	0.43	0.032
Other(describe)	503	2	0.45	0.004
Method Group 500		30	0.43	0.03
Acid Insoluble				
Insoluble-AFPC 9-8	601	17	3.01	0.127
Other(describe)	602	1	3.02	0.000
Method Group 600		18	3.01	0.12
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	12	47.96	2.220
Ceric Sulfate volumetric	703			
Permanganate	704	3	48.58	1.228
EDTA Volumetric	705	4	48.00	0.313
Other(describe)	706	7	47.65	0.382
Method Group 700		26	47.89	0.70
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	4	50.28	3.014
Ceric Sulfate volumetric	713			
Permanganate	714	1	49.26	0.000
EDTA Volumetric	715	4	48.44	0.378
Other(describe)	716	6	48.26	0.260
Method Group 710		14	48.94	2.17

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	16	3.76	0.122
Other (describe)	803	2	3.92	0.011
Method Group 800		18	3.77	0.14
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma	912	4	12.8	3.54
Other(describe)	913	3	6.9	0.90
Method Group 900		7	9.5	3.81
Cadmium, Cd				
Atomic Absorption	921	3	4	0.4
ICP-induced coupled plasma	922	9	5	0.7
Other(describe)	923	4	3	1.8
Method Group 910		16	4	1.0
Cobalt, Co				
Atomic Absorption	931			
ICP-induced coupled plasma	932	6	5	2.0
Other(describe)	933	4	4	3.8
Method Group 920		10	4	2.1
Mercury, Hg				
Atomic Absorption	941			
ICP-induced coupled plasma	942			
Other(describe)	943	1	0.1	0.00
Method Group 930		1	0.1	0.00
Molybdenum, Mo				
Atomic Absorption	951	1	15	0.0
ICP-induced coupled plasma	952	3	18	5.5
Other(describe)	953	3	8	3.7
Method Group 940		7	15	4.8
Nickel, Ni				
Atomic Absorption	961	1	19	0.0
ICP-induced coupled plasma	962	5	10	4.1
Other(describe)	963	5	11	20.5
Method Group 950		11	11	13.1
Lead, Pb				
Atomic Absorption	971			
ICP-induced coupled plasma	972	2	23	0.2
Other(describe)	973	4	23	2.3
Method Group 960		6	23	1.2
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982			
Other(describe)	983	4	10	9.7
Method Group 970		4	10	9.7
Zinc, Zn				
Atomic Absorption	991	4	49	13
ICP-induced coupled plasma	992	5	44	2
Other(describe)	993	6	41	11
Method Group 980		15	44	7

101 Ground Sample AFPC 9-2			
Lab	%	H ₂ O	
27	1.39		-2.591
61	1.25		-1.340
61	1.25		-1.340
Std Dev	1.21		-1.000
50	1.19		-0.804
13	1.14		-0.357
78	1.14		-0.313
35	1.13		-0.268
75	1.13		-0.268
78	1.12		-0.179
5	1.10		0.000
Median	1.10		0.000
5	1.09		0.089
13	1.06		0.402
9	1.02		0.759
9	0.99		0.983
Std Dev	0.99		1.000
15	0.99		1.027
75	0.97		1.161
15	0.97		1.206
34	0.96		1.251
77	0.27		7.415

102 Other (describe)			
Lab	%	H ₂ O	
6	1.03		-0.196
69	1.01		-0.065
69	1.00		0.000
Median	1.00		0.000
Std Dev	0.85		1.000
51	0.81		1.275
241	0.08		6.007

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
51	32.82		-0.158
241	32.80		0.000
Median	32.80		0.000
Std Dev	32.67		1.000
77	32.48		2.522

202 ICP-induced coupled plasma			
Lab	%	P2O5	
26	32.60		0.000
Median	32.60		0.000

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
35	34.15		-7.464
60	33.15		-2.455
69	32.90		-1.202
69	32.87		-1.052
Std Dev	32.86		-1.000
9	32.80		-0.676
5	32.68		-0.100
9	32.67		-0.025
5	32.66		0.000
61	32.66		0.000
Median	32.66		0.000
78	32.65		0.075
34	32.62		0.200
61	32.59		0.351
Std Dev	32.46		1.000
78	32.42		1.227
19	32.35		1.553
27	32.34		1.603
36	29.32		16.731

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
77	32.90		-1.197
Std Dev	32.87		-1.000
15	32.81		-0.656
15	32.79		-0.542
75	32.71		-0.114
75	32.69		0.000
Median	32.69		0.000
13	32.57		0.684
13	32.55		0.798
Std Dev	32.51		1.000
50	32.40		1.654
57	31.30		7.926

205 Other (describe)			
Lab	%	P2O5	

51	32.80		-1.340
Std Dev	32.79		-1.000
Median	32.77		0.000
Std Dev	32.74		1.000
6	32.73		1.340

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
51	33.09		-1.343
Std Dev	33.02		-1.000
241	32.83		0.000
Median	32.83		0.000
Std Dev	32.63		1.000
77	32.57		1.337

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
Median	0.00		0.000

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
35	34.54		-14.555
69	33.24		-2.038
69	33.20		-1.715
9	33.13		-1.036
Std Dev	33.13		-1.000
61	33.07		-0.481
5	33.04		-0.162
5	33.02		0.000
Median	33.02		0.000
78	33.02		0.033
61	33.00		0.199
9	32.99		0.304
34	32.94		0.835
Std Dev	32.92		1.000
27	32.80		2.182
78	32.78		2.313

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
15	33.13		-0.831
15	33.10		-0.610
75	33.06		-0.274
75	33.03		0.000

Median	33.03		0.000
13	32.95		0.698
Std Dev	32.91		1.000
13	32.90		1.098
50	32.79		1.978

215 Other (describe)			
Lab	%	P2O5	dB
6	33.07		0.000
Median	33.07		0.000

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
241	1.27		-0.788
36	1.25		-0.631
5	1.19		-0.158
5	1.17		0.000
Median	1.17		0.000
51	1.11		0.512
Std Dev	1.04		1.000
60	1.00		1.379
27	0.96		1.655

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
35	2.91		-22.486
78	1.29		-1.327
77	1.29		-1.307
78	1.29		-1.242
51	1.27		-1.046
Std Dev	1.27		-1.000
77	1.26		-0.915
13	1.22		-0.327
34	1.21		-0.275
15	1.20		-0.131
15	1.19		0.000
Median	1.19		0.000
9	1.19		0.065
13	1.18		0.196
61	1.17		0.261
26	1.17		0.327
50	1.16		0.392
61	1.16		0.392
75	1.15		0.483

75	1.15	0.519
9	1.14	0.654
303 Other(describe)		
Lab	%	Fe2O3
6	1.20	-2.431
Std Dev	1.14	-1.000
69	1.11	-0.187
Median	1.10	0.000
69	1.10	0.187
Std Dev	1.06	1.000
19	1.03	1.807
401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
27	1.25	-3.685
241	1.21	-1.340
Std Dev	1.20	-1.000
5	1.19	0.000
51	1.19	0.000
Median	1.19	0.000
5	1.18	0.670
402 ICP-induced coupled plasma		
Lab	%	Al2O3
35	5.02	-27.850
77	1.50	-2.354
77	1.49	-2.282
78	1.37	-1.427
78	1.36	-1.318
51	1.33	-1.086
Std Dev	1.31	-1.000
50	1.30	-0.905
15	1.28	-0.761
9	1.19	-0.072
34	1.18	-0.036
9	1.18	0.000
13	1.18	0.000
Median	1.18	0.000
61	1.16	0.109
15	1.16	0.145
13	1.15	0.217
61	1.14	0.254
75	1.13	0.304

75	1.13	0.320
26	1.12	0.398
Std Dev	1.04	1.000
69	1.00	1.304
69	0.95	1.630

403 Other(describe)		
Lab	%	Al2O3
6	1.20	-1.340
Std Dev	1.19	-1.000
Median	1.15	0.000
Std Dev	1.11	1.000
19	1.10	1.340

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
35	0.56	-3.182
27	0.48	-1.322
Std Dev	0.47	-1.000
36	0.46	-0.734
5	0.43	0.000
5	0.43	0.000
Median	0.43	0.000
60	0.42	0.245
Std Dev	0.39	1.000
51	0.39	1.101
57	0.36	1.713

502 ICP-induced coupled plasma		
Lab	%	MgO
51	0.47	-1.055
Std Dev	0.46	-1.000
9	0.45	-0.435
13	0.45	-0.435
34	0.44	-0.310
61	0.44	-0.279
61	0.44	-0.279
13	0.44	-0.124
26	0.44	-0.124
78	0.44	-0.124
78	0.43	-0.031
Median	0.43	0.000
15	0.43	0.031
77	0.43	0.031

77	0.42	0.341
9	0.42	0.497
50	0.40	0.962
Std Dev	0.40	1.000
75	0.39	1.356
75	0.36	2.115
15	0.36	2.204
69	0.34	2.824
69	0.33	3.135

503 Other(describe)		
Lab	%	MgO
19	0.45	-1.340
Std Dev	0.45	-1.000
Median	0.45	0.000
Std Dev	0.44	1.000
6	0.44	1.340

601 Insoluble-AFPC 9-8		
Lab	%	Al
19	4.30	-10.208
9	3.29	-2.207
9	3.26	-1.971
13	3.19	-1.419
Std Dev	3.13	-1.000
61	3.07	-0.512
61	3.07	-0.473
51	3.02	-0.118
15	3.01	-0.039
15	3.01	0.000
Median	3.01	0.000
5	2.99	0.118
5	2.97	0.276
13	2.95	0.434
57	2.90	0.828
Std Dev	2.88	1.000
35	2.74	2.089
69	2.05	7.528
69	2.05	7.528
27	1.99	8.001

602 Other(describe)		
Lab	%	Al
6	3.02	0.000

Median	3.02	0.000
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701 Gravimetric sulfate		
Lab	%	CaO
Median	0.00	0.000

702 ICP-induced coupled plasma		
Lab	%	CaO
69	51.79	-1.726
69	51.77	-1.715
78	50.84	-1.299
78	50.61	-1.195
Std Dev	50.18	-1.000
77	48.60	-0.290
75	48.10	-0.066
Median	47.96	0.000
34	47.81	0.066
26	47.80	0.073
77	47.70	0.116
61	47.67	0.129
61	47.61	0.159
75	46.67	0.580

703 Ceric Sulfate volumetric		
Lab	%	CaO
Median	0.00	0.000

704 Permanganate		
Lab	%	CaO
241	50.69	-1.719
Std Dev	49.81	-1.000
27	48.58	0.000
Median	48.58	0.000
60	47.40	0.961

705 EDTA Volumetric		
Lab	%	CaO
35	48.72	-2.289
Std Dev	48.32	-1.000
9	48.13	-0.391
Median	48.00	0.000
51	47.88	0.391
9	47.78	0.726

706 Other(describe)			
Lab	%	CaO	
13	48.46		-2.105
Std Dev	48.03		-1.000
13	47.97		-0.824
6	47.90		-0.654
15	47.65		0.000
Median	47.65		0.000
15	47.64		0.026
Std Dev	47.27		1.000
19	47.20		1.177
50	46.86		2.066

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
69	52.32		-0.676
69	52.29		-0.666
Median	50.28		0.000
61	48.27		0.666
61	48.21		0.688

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00		0.000

714 Permanganate			
Lab	%	CaO	dB
27	49.26		0.000
Median	49.26		0.000

715 EDTA Volumetric			
Lab	%	CaO	dB
35	49.28		-2.222
Std Dev	48.82		-1.000
9	48.61		-0.447
Median	48.44		0.000
51	48.27		0.447
9	48.26		0.457

716 Other(describe)				
Lab	%	CaO		dB
13	49.01			-2.899
Std Dev	48.52			-1.000
13	48.48			-0.829
6	48.40			-0.529
Median	48.26			0.000
15	48.12			0.529
15	48.10			0.605
Std Dev	48.00			1.000
19	47.20			4.089

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

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
78	3.89		-1.043
Std Dev	3.88		-1.000
9	3.86		-0.839
9	3.85		-0.757
78	3.84		-0.675
13	3.81		-0.389
69	3.80		-0.348
69	3.78		-0.184
13	3.77		-0.061
Median	3.76		0.000
35	3.75		0.061
75	3.74		0.184
75	3.66		0.798
27	3.66		0.839
Std Dev	3.64		1.000
51	3.64		1.002
15	3.38		3.089
15	3.36		3.294
36	2.13		13.318

803 Other(describe)			
Lab	%	Fluorine, F	
77	3.93		-1.340
Std Dev	3.93		-1.000
Median	3.92		0.000
Std Dev	3.90		1.000

911 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Arsenic, As	
Median	0.0		0.000

912 ICP-induced coupled plasma			
Lab	ppm	Arsenic, As	
69	15.0		-0.635
69	15.0		-0.635
Median	12.8		0.000
78	10.5		0.635
78	9.5		0.917

913 Other(describe)			
Lab	ppm	Arsenic, As	
13	8.4		-1.675
Std Dev	7.8		-1.000
77	6.9		0.000
Median	6.9		0.000
Std Dev	6.0		1.000
51	6.0		1.005

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
51	5		-2.680
Std Dev	4		-1.000
19	4		0.000
57	4		0.000
Median	4		0.000

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
77	6		-1.474
Std Dev	6		-1.000
50	6		-0.804
51	5		-0.134
78	5		0.000
78	5		0.000
Median	5		0.000
Std Dev	4		1.000
75	4		1.206
75	4		1.206
61	3		2.881

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
27	5		-1.182
Std Dev	5		-1.000
13	4		-0.593
Median	3		0.000
69	2		0.593
69	2		0.623

931 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Cobalt, Co	
Median	0		0.000

932 ICP-induced coupled plasma			
Lab	ppm	Cobalt, Co	
78	7		-0.893
78	7		-0.893
77	6		-0.383
Median	5		0.000
75	5		0.383
51	4		0.638
75	4		0.638

933 Other(describe)			
Lab	ppm	Cobalt, Co	
27	19		-4.189
Std Dev	7		-1.000
13	4		-0.166
Median	4		0.000
69	3		0.166
69	3		0.176

941 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Mercury, Hg	
Median	0.0		0.000

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

943 Other(describe)			
Lab	ppm	Mercury, Hg	

69	<0.2	0.000
69	<0.2	0.000
13	0.1	0.000
Median		0.000

951	Atomic Absorption-AFPC 9-18,19	
Lab	ppm	Molybdenum, Mo
51	15	0.000
Median	15	0.000

952	ICP-induced coupled plasma	
Lab	ppm	Molybdenum, Mo
78	30	-2.209
Std Dev	23	-1.000
78	18	0.000
Median	18	0.000
77	15	0.471

953	Other(describe)	
Lab	ppm	Molybdenum, Mo
13	18	-2.634
Std Dev	12	-1.000
69	8	0.000
Median	8	0.000
69	8	0.046

961	Atomic Absorption-AFPC 9-12,13	
Lab	ppm	Nickel, Ni
51	19	0.000
Median	19	0.000

962	ICP-induced coupled plasma	
Lab	ppm	Nickel, Ni
78	32	-5.579
78	15	-1.218
Std Dev	14	-1.000
75	10	0.000
Median	10	0.000
75	9	0.122
77	7	0.609

963	Other(describe)	
Lab	ppm	Nickel, Ni
27	42	-1.521

19	32	-1.033
Std Dev	31	-1.000
13	11	0.000
Median	11	0.000
69	5	0.307
69	4	0.343

971	Atomic Absorption-AFPC 9-16,17	
Lab	ppm	Lead, Pb
Median	0	0.000

972	ICP-induced coupled plasma	
Lab	ppm	Lead, Pb
78	24	-1.340
Std Dev	23	-1.000
Median	23	0.000
Std Dev	23	1.000
78	23	1.340

973	Other(describe)	
Lab	ppm	Lead, Pb
69	24	-0.529
69	24	-0.433
Median	23	0.000
27	22	0.433
Std Dev	20	1.000
13	17	2.232

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

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

983	Other(describe)	
Lab	ppm	Selenium, Se
69	16	-0.623
69	16	-0.620
Median	10	0.000
13	4	0.620
Std Dev	0	1.000
78	0	1.014

991	Atomic Absorption-AFPC 9-18,19	
Lab	ppm	Zinc, Zn
60	57	-0.647
	57	-0.647
Median	49	0.000
51	41	0.647
57	38	0.828

992	ICP-induced coupled plasma	
Lab	ppm	Zinc, Zn
78	46	-1.072
Std Dev	46	-1.000
78	45	-0.268
75	44	0.000
Median	44	0.000
Std Dev	42	1.000
77	42	1.072
75	41	1.876

993	Other(describe)	
Lab	ppm	Zinc, Zn
27	65	-2.100
Std Dev	52	-1.000
13	52	-0.963
51	44	-0.263
Median	41	0.000
19	38	0.263
69	34	0.649
69	33	0.666

