

AFPC Rock Check Program

Sample No. 2008-02

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	21	0.13	0.019
Other (describe)	102	3	0.07	0.011
Method Group 100		24	0.13	0.03
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	5	30.31	0.149
ICP-induced coupled plasma	202	3	30.14	0.026
Photometric-AFPC 9-6	203	11	29.85	0.121
Automated -AOAC 978.01-15th	204	11	30.12	0.235
Other(describe)	205	4	29.63	0.198
Method Group 200		34	30.04	0.25
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	4	30.38	0.169
ICP-induced coupled plasma	212	3	30.18	0.029
Photometric-AFPC 9-6	213	5	30.01	0.152
Automated -AOAC 978.01-15th	214	11	30.15	0.230
Other(describe)	215	1	30.11	0.000
Method Group 210		24	30.12	0.17
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	8	0.70	0.078
ICP-induced coupled plasma	302	22	0.72	0.046
Other(describe)	303	2	0.70	0.007
Method Group 300		32	0.71	0.05
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	7	0.43	0.063
ICP-induced coupled plasma	402	22	0.42	0.021
Other(describe)	403	2	0.46	0.047
Method Group 400		31	0.43	0.03
MgO				
Atomic Absorption-AFPC 9-18,19	501	7	0.63	0.028
ICP-induced coupled plasma	502	22	0.61	0.024
Other(describe)	503	2	0.62	0.017
Method Group 500		31	0.62	0.02
Acid Insoluble				
Insoluble-AFPC 9-8	601	15	10.00	0.106
Other(describe)	602	1	10.51	0.000
Method Group 600		16	10.00	0.12
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	11	47.90	0.650
Ceric Sulfate volumetric	703			
Permanganate	704	1	47.65	0.000
EDTA Volumetric	705	5	48.03	0.485
Other(describe)	706	11	48.08	0.386
Method Group 700		28	48.03	0.60
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	3	47.90	0.225
Ceric Sulfate volumetric	713			
Permanganate	714			
EDTA Volumetric	715	3	48.10	0.037
Other(describe)	716	10	48.06	0.140
Method Group 710		22	48.10	0.50

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801	2	3.62	0.000
Specific Ion Electrode	802	15	3.45	0.067
Other (describe)	803	3	3.50	0.056
Method Group 800		20	3.47	0.12
Arsenic, As				
Atomic Absorption	911	2	12.0	0.00
ICP-induced coupled plasma	912	3	15.0	1.12
Other(describe)	913	4	13.2	3.16
Method Group 900		9	14.0	2.24
Cadmium, Cd				
Atomic Absorption	921	3	40	1.9
ICP-induced coupled plasma	922	10	37	3.5
Other(describe)	923	1	38	0.0
Method Group 910		14	37	3.5
Cobalt, Co				
Atomic Absorption	931	2	1	0.0
ICP-induced coupled plasma	932	7	1	1.4
Other(describe)	933	1	1	0.0
Method Group 920		10	1	0.7
Mercury, Hg				
Atomic Absorption	941	2		0.00
ICP-induced coupled plasma	942	1		0.00
Other(describe)	943			
Method Group 930		3	0.0	0.00
Molybdenum, Mo				
Atomic Absorption	951			
ICP-induced coupled plasma	952	5	11	1.4
Other(describe)	953	1	10	0.0
Method Group 940		6	10	1.2
Nickel, Ni				
Atomic Absorption	961	3	17	0.4
ICP-induced coupled plasma	962	8	17	2.2
Other(describe)	963	2	32	8.8
Method Group 950		13	17	2.2
Lead, Pb				
Atomic Absorption	971	3	7	1.5
ICP-induced coupled plasma	972	3	4	0.2
Other(describe)	973	1	3	0.0
Method Group 960		7	4	1.7
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	1	3	0.0
Other(describe)	983	1	5	0.0
Method Group 970		2	4	0.6
Zinc, Zn				
Atomic Absorption	991	3	353	10
ICP-induced coupled plasma	992	8	293	58
Other(describe)	993	2	337	6
Method Group 980		13	330	50

101 Ground Sample AFPC 9-2		
Lab	%	H ₂ O
55	0.47	-17.956
55	0.29	-8.576
13	0.20	-3.752
15	0.18	-2.412
13	0.17	-2.144
Std Dev	0.15	-1.000
15	0.15	-0.804
61	0.15	-0.804
9	0.14	-0.536
9	0.14	-0.536
10	0.14	-0.268
24	0.13	0.000
61	0.13	0.000
Median	0.13	0.000
6	0.12	0.536
24	0.12	0.536
49	0.12	0.536
61	0.12	0.536
Std Dev	0.11	1.000
6	0.11	1.072
75	0.10	1.608
75	0.10	1.608
77	0.02	5.896
77	0.02	5.896

102 Other (describe)		
Lab	%	H ₂ O
51	0.10	-2.680
Std Dev	0.08	-1.000
33	0.07	0.000
33	0.07	0.000
Median	0.07	0.000

201 Gravimetric AFPC 9-5		
Lab	%	P2O5
31.93		-10.854
55	30.50	-1.273
Std Dev	30.46	-1.000
77	30.31	0.000
Median	30.31	0.000
55	30.30	0.067
Std Dev	30.16	1.000

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	30.17		-1.149
Std Dev	30.17		-1.000
6	30.14		0.000
Median	30.14		0.000
Std Dev	30.11		1.000
6	30.10		1.531

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
36	30.22		-3.051
9	30.05		-1.649
61	30.02		-1.361
Std Dev	29.97		-1.000
9	29.97		-0.990
244	29.86		-0.082
60	29.85		0.000
78	29.85		0.000
Median	29.85		0.000
33	29.83		0.165
33	29.83		0.165
78	29.77		0.701
Std Dev	29.73		1.000
270	29.33		4.288

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
75	30.30		-0.766
77	30.29		-0.744
15	30.19		-0.319
15	30.15		-0.128
75	30.14		-0.106
24	30.12		0.000
Median	30.12		0.000
24	30.07		0.213
Std Dev	29.88		1.000
13	29.88		1.021
13	29.83		1.212
61	27.60		10.699
61	27.41		11.528

205 Other(describe)			
Lab	%	P2O5	
49	30.07		-2.250
Std Dev	29.82		-1.000
90	29.71		-0.430
Median	29.63		0.000
19	29.54		0.430
51	29.52		0.531

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
55	30.59		-1.243
Std Dev	30.55		-1.000
55	30.44		-0.372
Median	30.38		0.000
77	30.32		0.372
Std Dev	30.21		1.000
51	30.06		1.888

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	30.21		-1.193
Std Dev	30.21		-1.000
6	30.18		0.000
Median	30.18		0.000
Std Dev	30.15		1.000
6	30.13		1.487

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
9	30.09		-0.528
61	30.05		-0.277
9	30.01		0.000
Median	30.01		0.000
Std Dev	29.86		1.000
33	29.85		1.063
33	29.85		1.063

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
75	30.33		-0.758
77	30.30		-0.630
15	30.24		-0.399
15	30.19		-0.164

75	30.17		-0.083
24	30.15		0.000
Median	30.15		0.000
24	30.10		0.205
13	29.93		0.980
Std Dev	29.92		1.000
13	29.89		1.137
61	27.63		10.954
61	27.44		11.774

215 Other(describe)			
Lab	%	P2O5	dB
49	30.11		0.000
Median	30.11		0.000

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
1.41			-9.061
Std Dev	0.78		-1.000
33	0.75		-0.638
33	0.75		-0.638
55	0.71		-0.064
Median	0.70		0.000
55	0.70		0.064
60	0.65		0.638
51	0.63		0.893
Std Dev	0.62		1.000
36	0.11		7.530

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
77	0.82		-2.156
77	0.79		-1.510
78	0.78		-1.294
Std Dev	0.77		-1.000
78	0.77		-0.970
15	0.75		-0.539
9	0.74		-0.431
13	0.74		-0.431
15	0.74		-0.323
10	0.73		-0.108
61	0.73		-0.108
13	0.72		0.000
49	0.72		0.000
Median	0.72		0.000

9	0.71	0.216
6	0.70	0.431
75	0.70	0.487
6	0.69	0.647
75	0.67	0.996
Std Dev	0.67	1.000
24	0.65	1.510
24	0.65	1.617
270	0.54	3.882
61	0.51	4.529
61	0.51	4.636

303 Other(describe)		
Lab	%	Fe2O3
19	0.71	-1.340
Std Dev	0.71	-1.000
Median	0.70	0.000
Std Dev	0.69	1.000
90	0.69	1.340

401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
1.25		-12.927
36	0.55	-1.892
Std Dev	0.49	-1.000
33	0.43	0.000
33	0.43	0.000
Median	0.43	0.000
51	0.42	0.158
55	0.39	0.631
Std Dev	0.37	1.000
55	0.20	3.626

402 ICP-induced coupled plasma		
Lab	%	Al2O3
77	0.52	-4.751
77	0.52	-4.751
78	0.51	-4.264
78	0.51	-4.020
Std Dev	0.44	-1.000
75	0.44	-0.615
24	0.43	-0.365
24	0.43	-0.365
61	0.43	-0.365
270	0.43	-0.365

10	0.43	-0.122
13	0.43	-0.122
Median	0.42	0.000
9	0.42	0.122
61	0.42	0.122
61	0.42	0.122
75	0.42	0.333
49	0.41	0.609
Std Dev	0.40	1.000
9	0.40	1.096
13	0.39	1.584
15	0.39	1.827
6	0.38	2.071
15	0.37	2.558
6	0.36	3.045

403 Other(describe)		
Lab	%	Al2O3
19	0.52	-1.340
Std Dev	0.50	-1.000
Median	0.46	0.000
Std Dev	0.41	1.000
90	0.40	1.340

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
55	0.68	-1.608
51	0.66	-1.072
Std Dev	0.66	-1.000
55	0.66	-0.893
36	0.63	0.000
Median	0.63	0.000
33	0.62	0.357
33	0.62	0.357
Std Dev	0.60	1.000
60	0.54	3.395

502 ICP-induced coupled plasma		
Lab	%	MgO
51	0.65	-1.649
Std Dev	0.63	-1.000
15	0.63	-0.618
78	0.63	-0.618
78	0.63	-0.618

6	0.62	-0.412
9	0.62	-0.412
9	0.62	-0.412
15	0.62	-0.412
61	0.62	-0.412
6	0.61	0.000
10	0.61	0.000
49	0.61	0.000
77	0.61	0.000
Median	0.61	0.000
61	0.60	0.412
77	0.60	0.412
61	0.60	0.618
Std Dev	0.59	1.000
13	0.59	1.031
24	0.58	1.237
24	0.57	1.649
13	0.57	1.855
75	0.49	4.902
75	0.48	5.422

503 Other(describe)		
Lab	%	MgO
19	0.64	-1.340
Std Dev	0.63	-1.000
Median	0.62	0.000
Std Dev	0.60	1.000
90	0.59	1.340

601 Insoluble-AFPC 9-8		
Lab	%	Al
6	10.13	-1.269
10	10.13	-1.269
Std Dev	10.10	-1.000
9	10.10	-0.987
61	10.08	-0.752
6	10.04	-0.423
24	10.03	-0.296
13	10.01	-0.141
24	10.00	0.000
Median	10.00	0.000
51	9.99	0.047
15	9.94	0.564
9	9.93	0.611

13	9.90	0.893
Std Dev	9.89	1.000
15	9.88	1.081
33	9.82	1.646
33	9.82	1.646

602 Other(describe)		
Lab	%	Al
19	10.51	0.000
Median	10.51	0.000

701 Gravimetric sulfate		
Lab	%	CaO
Median	0.00	0.000

702 ICP-induced coupled plasma		
Lab	%	CaO
75	49.44	-2.371
49	48.77	-1.338
78	48.77	-1.338
Std Dev	48.55	-1.000
78	48.44	-0.831
10	48.04	-0.215
77	47.90	0.000
77	47.90	0.000
Median	47.90	0.000
6	47.84	0.092
75	47.63	0.418
61	47.44	0.708
Std Dev	47.25	1.000
	37.96	15.292

703 Ceric Sulfate volumetric		
Lab	%	CaO
Median	0.00	0.000

704 Permanganate		
Lab	%	CaO
60	47.65	0.000
Median	47.65	0.000

705 EDTA Volumetric		
Lab	%	CaO
55	49.04	-2.072
55	48.68	-1.340

Std Dev	48.52	-1.000
9	48.03	0.000
9	48.03	0.000
Median	48.03	0.000
51	47.95	0.165

706 Other(describe)		
Lab	%	CaO
90	48.92	-2.175
24	48.77	-1.774
24	48.68	-1.554
Std Dev	48.47	-1.000
33	48.12	-0.104
33	48.12	-0.104
6	48.08	0.000
Median	48.08	0.000
15	47.91	0.453
13	47.89	0.505
15	47.88	0.518
19	47.76	0.829
Std Dev	47.69	1.000
13	47.63	1.178

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
10	48.10	-0.922	
6	47.90	0.000	
Median	47.90	0.000	
Std Dev	47.67	1.000	
61	47.50	1.758	

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00		0.000

714 Permanganate			
Lab	%	CaO	dB
Median	0.00		0.000

715 EDTA Volumetric			
Lab	%	CaO	dB
9	48.10	0.000	
9	48.10	0.000	
Median	48.10	0.000	
Std Dev	48.06	1.000	
51	48.00	2.680	

716 Other(describe)			
Lab	%	CaO	dB
24	48.83	-5.525	
24	48.74	-4.881	
Std Dev	48.20	-1.000	
33	48.15	-0.693	
33	48.15	-0.693	
6	48.13	-0.544	
Median	48.06	0.000	
13	47.98	0.544	
15	47.97	0.590	
15	47.96	0.666	
Std Dev	47.92	1.000	
19	47.76	2.127	
13	47.71	2.513	

801 Volumetric-AFPC 9-37			
Lab	%	Fluorine, F	
33	3.62	0.000	
33	3.62	0.000	
Median	3.62	0.000	

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
24	3.64	-2.754	
49	3.62	-2.531	
24	3.62	-2.457	
Std Dev	3.52	-1.000	
51	3.50	-0.744	
75	3.48	-0.372	
9	3.47	-0.298	
13	3.47	-0.223	
9	3.45	0.000	
Median	3.45	0.000	
13	3.44	0.223	
6	3.40	0.744	

270	3.40	0.744
75	3.40	0.819
Std Dev	3.38	1.000
15	3.28	2.606
15	3.24	3.127
36	1.89	23.227

803 Other(describe)		
Lab	%	Fluorine, F
77	3.55	-0.893
77	3.50	0.000
Median	3.50	0.000
Std Dev	3.44	1.000
6	3.40	1.787

911 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Arsenic, As
33	12.0	0.000
33	12.0	0.000
Median	12.0	0.000

912 ICP-induced coupled plasma		
Lab	ppm	Arsenic, As
270	17.0	-1.787
Std Dev	16.1	-1.000
78	15.0	0.000
Median	15.0	0.000
78	14.0	0.893

913 Other(describe)		
Lab	ppm	Arsenic, As
77	15.0	-0.577
77	15.0	-0.577
Median	13.2	0.000
13	11.4	0.577
Std Dev	10.0	1.000
51	9.0	1.320

921 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Cadmium, Cd
33	40	0.000
33	40	0.000
Median	40	0.000
Std Dev	38	1.000

51	35	2.680
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922 ICP-induced coupled plasma		
Lab	ppm	Cadmium, Cd
78	41	-1.404
78	41	-1.347
Std Dev	40	-1.000
51	40	-0.993
24	38	-0.284
24	37	-0.142
Median	37	0.000
77	36	0.142
77	36	0.142
270	34	0.652
Std Dev	33	1.000
75	33	1.134
75	32	1.276

923 Other(describe)		
Lab	ppm	Cadmium, Cd
13	38	0.000
Median	38	0.000

931 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Cobalt, Co
33	1	0.000
33	1	0.000
Median	1	0.000

932 ICP-induced coupled plasma		
Lab	ppm	Cobalt, Co
78	4	-2.116
78	4	-1.763
Std Dev	2	-1.000
270	2	-0.917
75	1	0.000
75	1	0.000
77	1	0.000
77	1	0.000
Median	1	0.000

933 Other(describe)		
Lab	ppm	Cobalt, Co
13	1	0.000

Median	1	0.000
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941 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Mercury, Hg
33	0.0	0.000
33	0.0	0.000
Median	0.0	0.000

942 ICP-induced coupled plasma		
Lab	ppm	Mercury, Hg
270	0.0	0.000
Median	0.0	0.000

943 Other(describe)		
Lab	ppm	Mercury, Hg
13	<0.12	0.000
Median	0.0	0.000

951 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	lolybdenum, Mo
Median	0	0.000

952 ICP-induced coupled plasma		
Lab	ppm	lolybdenum, Mo
77	11	-0.362
78	11	-0.254
78	11	0.000
Median	11	0.000
Std Dev	9	1.000
270	9	1.086
77	7	2.535

953 Other(describe)		
Lab	ppm	lolybdenum, Mo
13	10	0.000
Median	10	0.000

961 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Nickel, Ni
51	18	-2.680
Std Dev	17	-1.000
33	17	0.000
33	17	0.000
Median	17	0.000

962 ICP-induced coupled plasma		
Lab	ppm	Nickel, Ni
78	20	-1.340
51	19	-1.117
78	19	-1.117
Std Dev	19	-1.000
270	17	-0.223
Median	17	0.000
75	16	0.223
77	16	0.223
77	16	0.223
75	15	0.670

963 Other(describe)		
Lab	ppm	Nickel, Ni
19	44	-1.340
Std Dev	41	-1.000
Median	32	0.000
Std Dev	23	1.000
13	20	1.340

971 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Lead, Pb
33	7	0.000
33	7	0.000
Median	7	0.000
Std Dev	6	1.000
51	3	2.680

972 ICP-induced coupled plasma		
Lab	ppm	Lead, Pb
78	<1	0.000
78	<1	0.000
77	4	0.000
77	4	0.000
Median	4	0.000
270		2.680

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

983 Other(describe)		
Lab	ppm	Selenium, Se
13	5	0.000
Median	5	0.000

991 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Zinc, Zn
33	353	0.000
33	353	0.000
Median	353	0.000
Std Dev	343	1.000
60	326	2.680

992 ICP-induced coupled plasma		
Lab	ppm	Zinc, Zn
270	465	-2.946
78	363	-1.188
78	360	-1.136
Std Dev	352	-1.000
51	301	-0.133
Median	293	0.000
75	286	0.133
75	285	0.150
77	275	0.313
77	267	0.450

993 Other(describe)		
Lab	ppm	Zinc, Zn
19	345	-1.340
Std Dev	343	-1.000
Median	337	0.000
Std Dev	331	1.000
13	330	1.340

