

# AFPC Rock Check Program

Sample No. 2007-12

	Method #	# of Anal.	Grand Median	Std Dev
<b>Moisture</b>				
Ground Sample AFPC 9-2	101	16	0.70	0.131
Other (describe)	102			
Method Group 100		16	0.70	0.13
<b>BPL or P<sub>2</sub>O<sub>5</sub></b>				
Gravimetric AFPC 9-5	201	3	29.56	0.187
ICP-induced coupled plasma	202	1	29.69	0.000
Photometric-AFPC 9-6	203	13	29.20	0.369
Automated -AOAC 978.01-15th	204	10	29.54	0.183
Other(describe)	205	3	29.66	0.705
Method Group 200		30	29.49	0.28
<b>BPL or P<sub>2</sub>O<sub>5</sub> (on Dry Basis)</b>				
Gravimetric AFPC 9-5	211	1	29.35	0.000
ICP-induced coupled plasma	212	1	29.93	0.000
Photometric-AFPC 9-6	213	4	29.78	0.176
Automated -AOAC 978.01-15th	214	9	29.77	0.208
Other(describe)	215	1	29.87	0.000
Method Group 210		16	29.77	0.19
<b>Fe<sub>2</sub>O<sub>3</sub></b>				
Atomic Absorption-AFPC 9-12,13	301	3	1.02	0.041
ICP-induced coupled plasma	302	23	1.02	0.146
Other(describe)	303	1	0.92	0.000
Method Group 300		27	1.02	0.13
<b>Al<sub>2</sub>O<sub>3</sub></b>				
Atomic Absorption-AFPC 9-16,17	401	1	1.03	0.000
ICP-induced coupled plasma	402	21	1.08	0.063
Other(describe)	403	1	1.27	0.000
Method Group 400		23	1.08	0.08
<b>MgO</b>				
Atomic Absorption-AFPC 9-18,19	501	4	0.82	0.016
ICP-induced coupled plasma	502	21	0.85	0.034
Other(describe)	503	1	0.83	0.000
Method Group 500		26	0.84	0.03
<b>Acid Insoluble</b>				
Insoluble-AFPC 9-8	601	15	9.03	0.256
Other(describe)	602	1	10.00	0.000
Method Group 600		16	9.07	0.26
<b>CaO</b>				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	12	44.57	0.476
Ceric Sulfate volumetric	703			
Permanganate	704	1	43.10	0.000
EDTA Volumetric	705	3	44.48	0.228
Other(describe)	706	8	44.60	0.239
Method Group 700		24	44.54	0.39
<b>CaO (on Dry Basis)</b>				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	3	44.96	0.028
Ceric Sulfate volumetric	713			
Permanganate	714			
EDTA Volumetric	715	3	44.83	0.357
Other(describe)	716	8	44.89	0.336
Method Group 710		16	44.96	0.21

	Method #	# of Anal.	Grand Median	Std Dev
<b>Fluorine, F</b>				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	16	3.42	0.104
Other (describe)	803	2	3.37	0.034
Method Group 800		18	3.42	0.08
<b>Arsenic, As</b>				
Atomic Absorption	911			
ICP-induced coupled plasma	912	4	17.8	3.92
Other(describe)	913	2	24.0	2.99
Method Group 900		6	19.8	4.01
<b>Cadmium, Cd</b>				
Atomic Absorption	921	1	2	0.0
ICP-induced coupled plasma	922	12	3	0.8
Other(describe)	923	1	3	0.0
Method Group 910		14	3	0.9
<b>Cobalt, Co</b>				
Atomic Absorption	931			
ICP-induced coupled plasma	932	11	5	1.2
Other(describe)	933	1	4	0.0
Method Group 920		12	5	1.1
<b>Mercury, Hg</b>				
Atomic Absorption	941			
ICP-induced coupled plasma	942	2	0.8	0.37
Other(describe)	943	1	0.1	0.00
Method Group 930		3	0.3	0.42
<b>Molybdenum, Mo</b>				
Atomic Absorption	951			
ICP-induced coupled plasma	952	9	11	1.1
Other(describe)	953	1	15	0.0
Method Group 940		10	11	1.4
<b>Nickel, Ni</b>				
Atomic Absorption	961			
ICP-induced coupled plasma	962	10	18	3.0
Other(describe)	963	2	28	4.3
Method Group 950		12	20	3.7
<b>Lead, Pb</b>				
Atomic Absorption	971	1	13	0.0
ICP-induced coupled plasma	972	7	18	7.4
Other(describe)	973	1	17	0.0
Method Group 960		9	17	3.7
<b>Selenium, Se</b>				
Atomic Absorption	981			
ICP-induced coupled plasma	982	2	10	6.0
Other(describe)	983	1	4	0.0
Method Group 970		3	4	6.0
<b>Zinc, Zn</b>				
Atomic Absorption	991	2	46	0
ICP-induced coupled plasma	992	10	43	15
Other(describe)	993	2	49	6
Method Group 980		14	44	11

101 Ground Sample AFPC 9-2			
Lab	%	H <sub>2</sub> O	
61	1.09		-2.995
61	0.89		-1.419
Std Dev	0.84		-1.000
13	0.84		-0.985
13	0.83		-0.906
10	0.81		-0.788
9	0.77		-0.473
9	0.77		-0.473
6	0.75		-0.315
49	0.71		0.000
Median	0.71		0.000
15	0.70		0.118
75	0.67		0.355
15	0.65		0.473
24	0.64		0.552
75	0.64		0.591
24	0.61		0.788
Std Dev	0.58		1.000
77	0.26		3.547
77	0.22		3.862

102 Other (describe)			
Lab	%	H <sub>2</sub> O	
6	0.75		0.000
Median	0.75		0.000

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
50	29.77		-1.126
Std Dev	29.75		-1.000
51	29.56		0.000
Median	29.56		0.000
Std Dev	29.37		1.000
77	29.27		1.554

202 ICP-induced coupled plasma			
Lab	%	P2O5	
6	29.75		-1.340
Std Dev	29.74		-1.000
Median	29.72		0.000
Std Dev	29.70		1.000
10	29.69		1.340

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
36	29.78		-1.336
Std Dev	29.66		-1.000
61	29.65		-0.971
61	29.57		-0.732
60	29.50		-0.549
6	29.45		-0.408
9	29.44		-0.380
9	29.41		-0.295
Median	29.31		0.000
78	29.20		0.295
70	29.19		0.324
70	29.03		0.774
78	29.01		0.844
57	29.00		0.858
Std Dev	28.95		1.000
270	28.84		1.308
270	28.72		1.646

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
237	30.37		-4.526
Std Dev	29.73		-1.000
15	29.65		-0.588
75	29.65		-0.588
75	29.65		-0.588
15	29.57		-0.123
Median	29.54		0.000
13	29.52		0.123
77	29.48		0.342
24	29.38		0.889
13	29.37		0.971
Std Dev	29.36		1.000
24	29.34		1.135

205 Other (describe)			
Lab	%	P2O5	
19	31.20		-2.184
Std Dev	30.37		-1.000
49	29.66		0.000
Median	29.66		0.000
51	29.31		0.496

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
77	29.35		0.000
Median	29.35		0.000

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
6	29.97		-1.340
Std Dev	29.97		-1.000
Median	29.95		0.000
Std Dev	29.94		1.000
10	29.93		1.340

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
61	29.92		-1.469
61	29.89		-1.315
Std Dev	29.84		-1.000
6	29.67		0.000
Median	29.67		0.000
9	29.67		0.025
9	29.64		0.207

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
75	29.85		-0.398
15	29.84		-0.376
75	29.84		-0.355
15	29.77		-0.030
13	29.77		0.000
Median	29.77		0.000
13	29.61		0.736
24	29.56		0.985
Std Dev	29.56		1.000
77	29.54		1.059
24	29.52		1.160

215 Other (describe)			
Lab	%	P2O5	dB
49	29.87		0.000
Median	29.87		0.000

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
36	1.09		-1.705
Std Dev	1.06		-1.000
60	1.02		0.000
Median	1.02		0.000
51	0.98		0.975

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
77	1.16		-0.961
77	1.13		-0.747
51	1.10		-0.532
15	1.09		-0.461
15	1.09		-0.461
49	1.09		-0.461
78	1.07		-0.282
78	1.07		-0.282
75	1.05		-0.197
75	1.05		-0.159
6	1.03		-0.032
270	1.03		-0.032
Median	1.03		0.000
237	1.02		0.032
50	1.01		0.082
9	0.96		0.468
9	0.94		0.611
61	0.91		0.825
Std Dev	0.89		1.000
13	0.89		1.004
10	0.88		1.040
61	0.88		1.040
13	0.88		1.076
24	0.86		1.219
24	0.85		1.290
270	0.50		3.756

303 Other (describe)			
Lab	%	Fe2O3	
19	0.92		0.000
Median	0.92		0.000

401 Atomic Absorption-AFPC 9-16,17			
Lab	%	Al2O3	

51	1.03	0.000
Median	1.03	0.000

402 ICP-induced coupled plasma			
Lab	%	Al2O3	
77	1.42	-5.625	
77	1.39	-5.129	
78	1.27	-3.144	
78	1.24	-2.565	
237	1.19	-1.770	
Std Dev	1.14	-1.000	
24	1.14	-0.993	
24	1.13	-0.745	
6	1.12	-0.662	
9	1.12	-0.662	
9	1.08	0.000	
61	1.08	0.000	
270	1.08	0.000	
Median	1.08	0.000	
15	1.08	0.083	
15	1.08	0.083	
61	1.07	0.165	
75	1.06	0.396	
10	1.06	0.414	
49	1.05	0.496	
75	1.04	0.640	
Std Dev	1.02	1.000	
13	1.02	1.075	
13	1.00	1.324	
270	0.85	3.805	

403 Other(describe)			
Lab	%	Al2O3	
19	1.27	0.000	
Median	1.27	0.000	

501 Atomic Absorption-AFPC 9-18,19			
Lab	%	MgO	
51	0.86	-2.680	
Std Dev	0.83	-1.000	
36	0.82	-0.158	
Median	0.82	0.000	
60	0.82	0.158	
Std Dev	0.80	1.000	

57	0.79	1.734
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502 ICP-induced coupled plasma			
Lab	%	MgO	
9	0.88	-0.975	
61	0.88	-0.812	
10	0.87	-0.650	
61	0.87	-0.487	
6	0.86	-0.325	
9	0.86	-0.325	
49	0.86	-0.325	
15	0.85	0.000	
15	0.85	0.000	
51	0.85	0.000	
77	0.85	0.000	
77	0.85	0.000	
Median	0.85	0.000	
50	0.85	0.130	
13	0.83	0.650	
78	0.83	0.650	
78	0.83	0.650	
Std Dev	0.82	1.000	
13	0.82	1.137	
75	0.81	1.183	
75	0.81	1.264	
24	0.81	1.462	
24	0.78	2.274	
237	0.65	6.529	

503 Other(describe)			
Lab	%	MgO	
19	0.83	0.000	
Median	0.83	0.000	

601 Insoluble-AFPC 9-8			
Lab	%	Al	
57	9.58	-1.979	
9	9.36	-1.133	
Std Dev	9.33	-1.000	
6	9.25	-0.711	
61	9.22	-0.576	
70	9.19	-0.480	
61	9.19	-0.461	
9	9.16	-0.365	

15	9.10	-0.134
Median	9.07	0.000
70	9.03	0.134
15	8.98	0.327
51	8.91	0.596
24	8.85	0.826
24	8.84	0.865
13	8.82	0.941
Std Dev	8.80	1.000
10	8.78	1.114
13	8.49	2.209

602 Other(describe)			
Lab	%	Al	
19	10.00	0.000	
Median	10.00	0.000	

701 Gravimetric sulfate			
Lab	%	CaO	
Median	0.00	0.000	

702 ICP-induced coupled plasma			
Lab	%	CaO	
75	46.35	-5.320	
75	45.98	-4.191	
77	45.30	-2.132	
50	44.94	-1.035	
Std Dev	44.93	-1.000	
6	44.65	-0.152	
49	44.64	-0.122	
10	44.60	0.000	
Median	44.60	0.000	
61	44.55	0.168	
61	44.53	0.213	
77	44.50	0.305	
Std Dev	44.27	1.000	
237	44.07	1.614	
78	43.89	2.178	
78	42.30	7.020	

703 Ceric Sulfate volumetric			
Lab	%	CaO	
Median	0.00	0.000	

704 Permanganate			
Lab	%	CaO	
60	43.10	0.000	
Median	43.10	0.000	

705 EDTA Volumetric			
Lab	%	CaO	
9	44.70	-0.967	
9	44.48	0.000	
Median	44.48	0.000	
Std Dev	44.25	1.000	
51	44.09	1.713	

706 Other(describe)			
Lab	%	CaO	
57	48.30	-15.515	
24	45.02	-1.780	
Std Dev	44.83	-1.000	
15	44.68	-0.335	
24	44.68	-0.335	
Median	44.60	0.000	
15	44.52	0.335	
19	44.50	0.398	
Std Dev	44.36	1.000	
13	44.27	1.382	
13	44.14	1.905	

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00	0.000	

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
61	45.02	-1.657	
Std Dev	45.00	-1.000	
6	44.99	-0.428	
Median	44.98	0.000	
10	44.96	0.428	
Std Dev	44.95	1.000	
61	44.95	1.136	

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	45.05		-0.621
9	44.83		0.000
Median	44.83		0.000
Std Dev	44.47		1.000
51	44.09		2.059

716 Other(describe)			
Lab	%	CaO	dB
57	48.30		-10.158
24	45.31		-1.257
Std Dev	45.22		-1.000
15	44.97		-0.236
24	44.95		-0.183
Median	44.89		0.000
15	44.83		0.183
13	44.63		0.758
Std Dev	44.55		1.000
13	44.51		1.120
19	44.50		1.155

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

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
49	3.55		-2.049
24	3.55		-1.971
13	3.54		-1.813
51	3.49		-1.104
Std Dev	3.48		-1.000
9	3.44		-0.315
237	3.44		-0.315
13	3.43		-0.079
9	3.42		0.000
24	3.42		0.000
Median	3.42		0.000

6	3.40		0.315
270	3.40		0.315
75	3.38		0.709
Std Dev	3.36		1.000
75	3.36		1.025
15	3.19		3.705
15	3.11		4.966
270	2.90		8.198
36	2.44		15.449

803 Other(describe)			
Lab	%	Fluorine, F	
77	3.41		-1.340
Std Dev	3.40		-1.000
Median	3.37		0.000
Std Dev	3.33		1.000
77	3.32		1.340

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	
6	27.0		-1.436
Std Dev	24.7		-1.000
270	23.0		-0.670
78	19.5		0.000
Median	19.5		0.000
78	16.0		0.670
Std Dev	14.3		1.000
270	12.5		1.340

913 Other(describe)			
Lab	ppm	Arsenic, As	
13	28.0		-1.340
Std Dev	27.0		-1.000
Median	24.0		0.000
Std Dev	21.0		1.000
77	20.0		1.340

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
57	2		0.000

Median	2		0.000
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922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
270	82		#####
78	4		-1.693
78	4		-1.340
61	4		-1.128
Std Dev	4		-1.000
270	3		-0.324
6	3		0.000
75	3		0.000
77	3		0.000
77	3		0.000
Median	3		0.000
61	3		0.212
75	3		0.705
Std Dev	2		1.000
237	2		1.195
51	2		1.411

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
13	3		0.000
Median	3		0.000

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

932 ICP-induced coupled plasma			
Lab	ppm	Cobalt, Co	
51	7		-1.475
78	7		-1.475
78	7		-1.475
Std Dev	7		-1.000
270	6		-0.639
6	6		-0.492
50	6		-0.492
Median	6		0.000
75	5		0.492
75	5		0.492
77	5		0.492
77	5		0.492

270	5		0.787
Std Dev	4		1.000
237	4		1.067

933 Other(describe)			
Lab	ppm	Cobalt, Co	
13	4		0.000
Median	4		0.000

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	
270	1.3		-1.340
Std Dev	1.1		-1.000
Median	0.8		0.000
Std Dev	0.4		1.000
270	0.3		1.340

943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	0.1		0.000
Median	0.1		0.000

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

952 ICP-induced coupled plasma			
Lab	ppm	Iolybdenum, Mo	
78	13		-2.290
50	13		-2.082
270	13		-1.561
Std Dev	12		-1.000
78	12		-0.677
6	11		0.000
77	11		0.000
77	11		0.000
270	11		0.000
Median	11		0.000
Std Dev	10		1.000
51	9		2.082

237 9 2.525

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

961 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Nickel, Ni
Median	0	0.000

962 ICP-induced coupled plasma		
Lab	ppm	Nickel, Ni
270	94	-25.125
Std Dev	22	-1.000
270	21	-0.503
51	20	-0.335
78	20	-0.335
6	19	0.000
78	19	0.000
Median	19	0.000
237	17	0.570
Std Dev	16	1.000
75	16	1.005
75	16	1.005
77	15	1.340
77	15	1.340

963 Other(describe)		
Lab	ppm	Nickel, Ni
19	34	-1.340
Std Dev	33	-1.000
Median	28	0.000
Std Dev	24	1.000
13	23	1.340

971 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Lead, Pb
51	13	0.000
Median	13	0.000

972 ICP-induced coupled plasma		
Lab	ppm	Lead, Pb
78	33	-3.035

78	28	-2.071
Std Dev	22	-1.000
237	18	-0.133
270	18	-0.048
Median	17	0.000
6	17	0.048
77	14	0.626
Std Dev	12	1.000
77	12	1.012
270	10	1.397

973 Other(describe)		
Lab	ppm	Lead, Pb
13	17	0.000
Median	17	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	18	-1.340
Std Dev	16	-1.000
Median	10	0.000
Std Dev	4	1.000
270	2	1.340

983 Other(describe)		
Lab	ppm	Selenium, Se
13	4	0.000
Median	4	0.000

991 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Zinc, Zn
60	46	-1.340
Std Dev	46	-1.000
Median	46	0.000
Std Dev	45	1.000
57	45	1.340

992 ICP-induced coupled plasma		
Lab	ppm	Zinc, Zn
78	68	-1.650

50	65	-1.481
78	63	-1.347
Std Dev	58	-1.000
270	49	-0.370
51	43	0.000
75	43	0.000
Median	43	0.000
237	41	0.141
75	39	0.269
77	37	0.404
77	34	0.606

993 Other(describe)		
Lab	ppm	Zinc, Zn
13	58	-1.340
Std Dev	56	-1.000
Median	49	0.000
Std Dev	43	1.000
19	41	1.340

