

AFPC Rock Check Program

Sample No. 2008-05

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	27	0.88	0.222
Other (describe)	102	2	0.55	0.037
Method Group 100		29	0.87	0.22
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	4	24.45	0.235
ICP-induced coupled plasma	202	3	24.80	0.244
Photometric-AFPC 9-6	203	15	24.36	0.556
Automated -AOAC 978.01-15th	204	9	24.44	0.687
Other(describe)	205	5	24.29	0.701
Method Group 200		36	24.44	0.55
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	3	24.65	0.233
ICP-induced coupled plasma	212	3	25.01	0.265
Photometric-AFPC 9-6	213	11	24.56	0.617
Automated -AOAC 978.01-15th	214	9	24.63	0.792
Other(describe)	215	3	24.42	1.447
Method Group 210		29	24.63	0.63
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	4	1.20	0.050
ICP-induced coupled plasma	302	26	1.20	0.160
Other(describe)	303	2	1.42	0.019
Method Group 300		32	1.20	0.17
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	3	1.25	0.082
ICP-induced coupled plasma	402	26	1.23	0.177
Other(describe)	403	1	1.62	0.000
Method Group 400		30	1.26	0.24
MgO				
Atomic Absorption-AFPC 9-18,19	501	6	0.54	0.078
ICP-induced coupled plasma	502	23	0.53	0.034
Other(describe)	503	1	0.56	0.000
Method Group 500		30	0.53	0.03
Acid Insoluble				
Insoluble-AFPC 9-8	601	19	20.48	2.590
Other(describe)	602	1	21.13	0.000
Method Group 600		20	20.80	2.40
CaO				
Gravimetric sulfate	701	3	37.45	0.407
ICP-induced coupled plasma	702	13	36.58	1.086
Ceric Sulfate volumetric	703	1	35.69	0.000
Permanganate	704	3	36.65	0.188
EDTA Volumetric	705	7	37.74	1.563
Other(describe)	706	6	37.64	0.884
Method Group 700		33	37.15	1.07
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	5	37.29	0.704
Ceric Sulfate volumetric	713	1	35.91	0.000
Permanganate	714	2	37.03	0.000
EDTA Volumetric	715	6	38.08	4.616
Other(describe)	716	6	37.92	0.835
Method Group 710		29	37.74	1.02

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	19	2.47	0.153
Other (describe)	803	3	2.47	0.086
Method Group 800		22	2.47	0.15
Arsenic, As				
Atomic Absorption	911	2	4.0	0.00
ICP-induced coupled plasma	912	2	37.3	11.75
Other(describe)	913	3	19.1	1.25
Method Group 900		7	19.1	7.80
Cadmium, Cd				
Atomic Absorption	921	2	13	0.0
ICP-induced coupled plasma	922	8	89	3.1
Other(describe)	923	1	103	0.0
Method Group 910		11	89	12.2
Cobalt, Co				
Atomic Absorption	931	2	8	0.0
ICP-induced coupled plasma	932	8	1	0.7
Other(describe)	933	1	3	0.0
Method Group 920		11	2	1.5
Mercury, Hg				
Atomic Absorption	941			
ICP-induced coupled plasma	942			
Other(describe)	943	1	0.3	0.00
Method Group 930		1	0.3	0.00
Molybdenum, Mo				
Atomic Absorption	951			
ICP-induced coupled plasma	952	6	19	6.4
Other(describe)	953	1	25	0.0
Method Group 940		7	20	6.4
Nickel, Ni				
Atomic Absorption	961	2	210	0.0
ICP-induced coupled plasma	962	8	179	12.4
Other(describe)	963	1	224	0.0
Method Group 950		11	193	22.0
Lead, Pb				
Atomic Absorption	971	2	22	0.0
ICP-induced coupled plasma	972	4	11	1.1
Other(describe)	973	1	10	0.0
Method Group 960		7	11	4.8
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	1	19	0.0
Other(describe)	983	2	22	1.8
Method Group 970		3	20	2.1
Zinc, Zn				
Atomic Absorption	991	3	614	223
ICP-induced coupled plasma	992	7	1401	67
Other(describe)	993	1	1872	0
Method Group 980		11	1374	360

101 Ground Sample AFPC 9-2		
Lab	%	H ₂ O
35	9.60	-39.277
35	9.60	-39.277
55	1.22	-1.531
16	1.21	-1.464
16	1.20	-1.441
13	1.12	-1.058
Std Dev	1.10	-1.000
13	1.09	-0.923
27	1.03	-0.676
27	1.03	-0.676
75	0.90	-0.068
75	0.90	-0.068
9	0.89	-0.045
9	0.89	-0.045
10	0.88	0.000
Median	0.88	0.000
24	0.87	0.045
49	0.87	0.045
10	0.85	0.135
9	0.82	0.270
9	0.82	0.270
55	0.77	0.495
24	0.75	0.586
15	0.74	0.653
15	0.69	0.878
6	0.68	0.901
Std Dev	0.66	1.000
237	0.56	1.441
77	0.40	2.162
77	0.34	2.432

102 Other (describe)		
Lab	%	H ₂ O
30	0.60	-1.340
Std Dev	0.59	-1.000
Median	0.55	0.000
Std Dev	0.51	1.000
270	0.50	1.340

201 Gravimetric AFPC 9-5		
Lab	%	P2O5
26	24.68	-0.978

55	24.55	-0.425
Median	24.45	0.000
55	24.35	0.425
Std Dev	24.21	1.000
77	24.02	1.829

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	25.11	-1.268	
Std Dev	25.04	-1.000	
10	24.80	0.000	
Median	24.80	0.000	
Std Dev	24.55	1.000	
6	24.45	1.412	

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
60	25.25	-1.601	
35	25.10	-1.331	
Std Dev	24.92	-1.000	
9	24.75	-0.701	
9	24.75	-0.701	
9	24.65	-0.522	
9	24.65	-0.522	
270	24.44	-0.144	
78	24.36	0.000	
Median	24.36	0.000	
244	24.21	0.270	
78	24.02	0.612	
16	23.99	0.666	
16	23.92	0.791	
Std Dev	23.80	1.000	
27	23.72	1.160	
27	23.72	1.160	
30	22.97	2.500	

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
15	24.81	-0.546	
15	24.81	-0.539	
75	24.50	-0.095	
24	24.45	-0.022	
24	24.44	0.000	
Median	24.44	0.000	

75	24.35	0.124
Std Dev	23.75	1.000
77	23.58	1.245
13	22.74	2.469
13	22.67	2.571

205 Other(describe)			
Lab	%	P2O5	
36	26.83	-3.628	
35	25.10	-1.162	
Std Dev	24.99	-1.000	
237	24.29	0.000	
Median	24.29	0.000	
244	24.16	0.178	
49	23.68	0.862	

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
55	24.74	-0.385	
55	24.65	0.000	
Median	24.65	0.000	
Std Dev	24.42	1.000	
77	24.12	2.295	

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	25.33	-1.208	
Std Dev	25.27	-1.000	
10	25.01	0.000	
Median	25.01	0.000	
Std Dev	24.74	1.000	
6	24.62	1.472	

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
35	27.77	-5.190	
Std Dev	25.18	-1.000	
9	24.95	-0.635	
9	24.95	-0.635	
9	24.87	-0.500	
9	24.87	-0.500	
270	24.56	0.000	
Median	24.56	0.000	
16	24.28	0.454	

16	24.21	0.571
27	23.96	0.974
27	23.96	0.974
Std Dev	23.95	1.000
30	23.11	2.357

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
15	24.99	-0.453	
15	24.98	-0.431	
75	24.72	-0.109	
24	24.65	-0.019	
24	24.63	0.000	
Median	24.63	0.000	
75	24.57	0.082	
Std Dev	23.84	1.000	
77	23.66	1.231	
13	22.99	2.078	
13	22.93	2.159	

215 Other(describe)			
Lab	%	P2O5	dB
35	27.77	-2.311	
Std Dev	25.87	-1.000	
237	24.42	0.000	
Median	24.42	0.000	
49	23.89	0.369	

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
26	1.20	0.000	
27	1.20	0.000	
27	1.20	0.000	
Median	1.20	0.000	
Std Dev	1.15	1.000	
60	0.93	5.360	

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
35	1.46	-1.628	
35	1.46	-1.628	
77	1.45	-1.566	
77	1.43	-1.440	
49	1.42	-1.378	

13	1.36	-1.002
Std Dev	1.36	-1.000
13	1.35	-0.939
24	1.31	-0.658
78	1.28	-0.501
78	1.27	-0.438
16	1.25	-0.313
16	1.24	-0.219
6	1.21	-0.063
Median	1.20	0.000
270	1.19	0.063
10	1.15	0.313
10	1.15	0.344
75	1.14	0.360
9	1.13	0.438
9	1.13	0.438
75	1.12	0.482
9	1.12	0.501
9	1.12	0.501
237	1.10	0.626
24	1.06	0.908
15	1.05	0.939
15	1.05	0.971

303 Other(describe)		
Lab	%	Fe2O3
36	1.44	-1.340
Std Dev	1.43	-1.000
Median	1.42	0.000
Std Dev	1.40	1.000
30	1.39	1.340

401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
26	1.47	-2.680
Std Dev	1.33	-1.000
27	1.25	0.000
27	1.25	0.000
Median	1.25	0.000

402 ICP-induced coupled plasma		
Lab	%	Al2O3
78	3.44	-12.469
78	3.43	-12.384

77	3.41	-12.300
77	3.40	-12.243
35	1.45	-1.241
35	1.45	-1.241
Std Dev	1.41	-1.000
237	1.34	-0.592
9	1.31	-0.451
9	1.31	-0.451
9	1.30	-0.395
9	1.30	-0.395
270	1.30	-0.395
6	1.26	-0.169
Median	1.23	0.000
49	1.20	0.169
75	1.17	0.330
15	1.16	0.395
15	1.15	0.480
24	1.11	0.677
16	1.10	0.762
16	1.09	0.790
75	1.08	0.835
10	1.08	0.875
10	1.07	0.903
Std Dev	1.05	1.000
13	1.03	1.157
13	0.96	1.552
24	0.85	2.172

403 Other(describe)		
Lab	%	Al2O3
30	1.62	0.000
Median	1.62	0.000

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
27	0.67	-1.659
27	0.67	-1.659
Std Dev	0.62	-1.000
35	0.54	0.000
35	0.54	0.000
Median	0.54	0.000
26	0.53	0.128
Std Dev	0.46	1.000
60	0.43	1.404

502 ICP-induced coupled plasma		
Lab	%	MgO
77	0.59	-1.750
78	0.59	-1.604
77	0.58	-1.458
78	0.58	-1.458
Std Dev	0.56	-1.000
6	0.54	-0.292
9	0.54	-0.292
9	0.54	-0.292
49	0.54	-0.292
16	0.54	-0.146
9	0.53	0.000
9	0.53	0.000
13	0.53	0.000
16	0.53	0.000
Median	0.53	0.000
237	0.51	0.583
10	0.50	0.875
13	0.50	0.875
Std Dev	0.50	1.000
10	0.50	1.021
75	0.49	1.076
15	0.48	1.604
75	0.47	1.642
15	0.47	1.750
24	0.47	1.895
24	0.45	2.478

503 Other(describe)		
Lab	%	MgO
36	0.56	0.000
Median	0.56	0.000

601 Insoluble-AFPC 9-8		
Lab	%	Al
27	25.43	-1.912
27	25.43	-1.912
15	25.23	-1.834
15	25.06	-1.769
30	24.24	-1.454
13	23.29	-1.085
13	23.07	-1.002

Std Dev	23.06	-1.000
16	22.26	-0.687
16	22.16	-0.649
10	20.48	0.000
Median	20.48	0.000
9	20.44	0.014
9	20.44	0.014
10	20.36	0.046
24	20.32	0.060
24	20.27	0.081
9	19.83	0.249
9	19.83	0.249
35	19.45	0.396
35	19.45	0.396

602 Other(describe)		
Lab	%	Al
6	21.13	0.000
Median	21.13	0.000

701 Gravimetric sulfate		
Lab	%	CaO
26	38.20	-1.844
Std Dev	37.86	-1.000
55	37.45	0.000
Median	37.45	0.000
55	37.11	0.836

702 ICP-induced coupled plasma		
Lab	%	CaO
75	38.55	-1.813
75	38.44	-1.717
10	37.78	-1.105
Std Dev	37.67	-1.000
10	37.64	-0.972
6	37.04	-0.424
237	36.64	-0.055
16	36.58	0.000
Median	36.58	0.000
77	36.50	0.074
16	36.25	0.309
49	36.18	0.368
77	36.10	0.442
78	35.71	0.806

Std Dev	35.49	1.000
78	34.89	1.556

703 Ceric Sulfate volumetric		
Lab	%	CaO
30	35.69	0.000
Median	35.69	0.000

704 Permanganate		
Lab	%	CaO
60	37.15	-2.680
Std Dev	36.83	-1.000
27	36.65	0.000
27	36.65	0.000
Median	36.65	0.000

705 EDTA Volumetric		
Lab	%	CaO
35	41.79	-2.590
35	41.79	-2.590
Std Dev	39.30	-1.000
9	37.74	0.000
9	37.74	0.000
Median	37.74	0.000
9	37.67	0.045
9	37.67	0.045
270	36.33	0.902

706 Other(describe)		
Lab	%	CaO
24	37.89	-0.280
15	37.80	-0.172
24	37.77	-0.144
Median	37.64	0.000
15	37.52	0.144
Std Dev	36.76	1.000
13	36.30	1.518
13	35.76	2.134

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
10	38.10		-1.151
Std Dev	38.00		-1.000
10	37.97		-0.960
6	37.29		0.000
Median	37.29		0.000
16	37.03		0.380
16	36.69		0.865

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
30	35.91	0.000	
Median	35.91	0.000	

714 Permanganate			
Lab	%	CaO	dB
27	37.03	0.000	
27	37.03	0.000	
Median	37.03	0.000	

715 EDTA Volumetric			
Lab	%	CaO	dB
35	46.23	-1.766	
35	46.23	-1.766	
Std Dev	42.69	-1.000	
9	38.08	0.000	
9	38.08	0.000	
Median	38.08	0.000	
9	37.98	0.021	
9	37.98	0.021	

716 Other(describe)			
Lab	%	CaO	dB
24	38.18	-0.302	
24	38.10	-0.212	
15	38.07	-0.180	
Median	37.92	0.000	
15	37.77	0.180	
Std Dev	37.09	1.000	
13	36.71	1.454	
13	36.15	2.127	

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

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
24	2.64	-1.079	
Std Dev	2.62	-1.000	
27	2.60	-0.817	
27	2.60	-0.817	
24	2.59	-0.784	
75	2.51	-0.261	
75	2.50	-0.196	
237	2.49	-0.098	
49	2.48	-0.065	
9	2.47	0.000	
9	2.47	0.000	
Median	2.47	0.000	
9	2.39	0.523	
9	2.39	0.523	
Std Dev	2.32	1.000	
13	2.30	1.111	
13	2.30	1.111	
270	2.30	1.111	
15	2.08	2.549	
15	2.07	2.647	
35	1.63	5.491	
35	1.63	5.491	

803 Other(describe)			
Lab	%	Fluorine, F	
77	2.50	-0.350	
77	2.47	0.000	
Median	2.47	0.000	
Std Dev	2.38	1.000	
36	2.27	2.330	

911 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Arsenic, As	
27	4.0	0.000	
27	4.0	0.000	
Median	4.0	0.000	

912 ICP-induced coupled plasma			
Lab	ppm	Arsenic, As	
78	53.0	-1.340	
Std Dev	49.0	-1.000	
Median	37.3	0.000	
Std Dev	25.5	1.000	
270	21.5	1.340	

913 Other(describe)			
Lab	ppm	Arsenic, As	
77	19.9	-0.640	
77	19.1	0.000	
Median	19.1	0.000	
Std Dev	17.9	1.000	
13	16.6	2.040	

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
27	13	0.000	
27	13	0.000	
Median	13	0.000	

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
77	94	-1.549	
Std Dev	92	-1.000	
77	90	-0.265	
75	90	-0.104	
78	89	-0.056	
Median	89	0.000	
75	89	0.056	
78	88	0.377	
Std Dev	86	1.000	
270	78	3.651	
237	69	6.475	

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
13	103	0.000	
Median	103	0.000	

931 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Cobalt, Co	
27	8	0.000	

27	8	0.000
Median	8	0.000
932 ICP-induced coupled plasma		
Lab	ppm	Cobalt, Co
77	3	-2.718
77	3	-2.718
Std Dev	2	-1.000
75	2	-0.421
237	1	-0.345
Median	1	0.000
75	1	0.345
78	1	0.345
78	1	0.345
270	1	0.498

933 Other(describe)		
Lab	ppm	Cobalt, Co
13	3	0.000
Median	3	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
Median	0.0	0.000

943 Other(describe)		
Lab	ppm	Mercury, Hg
13	<0.12	0.000
77	0.3	0.000
Median	0.3	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
78	33	-2.097
78	30	-1.721
Std Dev	26	-1.000

270	20	-0.039
Median	19	0.000
77	19	0.039
77	19	0.039
237	16	0.509

953 Other(describe)		
Lab	ppm	lolybdenum, Mo
13	25	0.000
Median	25	0.000

961 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Nickel, Ni
27	210	0.000
27	210	0.000
Median	210	0.000

962 ICP-induced coupled plasma		
Lab	ppm	Nickel, Ni
270	203	-1.955
78	193	-1.149
78	193	-1.108
Std Dev	191	-1.000
237	181	-0.141
Median	179	0.000

77	177	0.141
77	177	0.141
75	173	0.463
75	170	0.705

963 Other(describe)		
Lab	ppm	Nickel, Ni
13	224	0.000
Median	224	0.000

971 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Lead, Pb
27	22	0.000
27	22	0.000
Median	22	0.000

972 ICP-induced coupled plasma		
Lab	ppm	Lead, Pb
77	12	-0.932

77	11	0.000
270	11	0.000
Median	11	0.000
Std Dev	10	1.000
237	6	4.428

973 Other(describe)		
Lab	ppm	Lead, Pb
13	10	0.000
Median	10	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	19	0.000
Median	19	0.000

983 Other(describe)		
Lab	ppm	Selenium, Se
13	25	-1.340
Std Dev	24	-1.000
Median	22	0.000
Std Dev	20	1.000
77	20	1.340

991 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Zinc, Zn
27	614	0.000
27	614	0.000
Median	614	0.000
Std Dev	390	1.000
60	15	2.680

992 ICP-induced coupled plasma		
Lab	ppm	Zinc, Zn
78	1470	-1.030
Std Dev	1468	-1.000
78	1460	-0.873
75	1413	-0.172
270	1401	0.000
Median	1401	0.000

75	1374	0.411
Std Dev	1334	1.000
77	1319	1.224
77	1293	1.612

993 Other(describe)		
Lab	ppm	Zinc, Zn
13	1872	0.000
Median	1872	0.000

