

AFPC Rock Check Program

Sample No. 2006-11

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	20	0.71	0.069
Other (describe)	102	7	0.73	0.052
Method Group 100		27	0.72	0.06
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	3	29.03	0.052
ICP-induced coupled plasma	202	2	29.40	0.056
Photometric-AFPC 9-6	203	14	29.31	0.025
Automated -AOAC 978.01-15th	204	11	29.02	0.284
Other(describe)	205	1	29.04	0.000
Method Group 200		31	29.30	0.22
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	3	29.27	0.098
ICP-induced coupled plasma	212	1	29.56	0.000
Photometric-AFPC 9-6	213	11	29.53	0.027
Automated -AOAC 978.01-15th	214	11	29.24	0.270
Other(describe)	215	1	29.28	0.000
Method Group 210		13	29.52	0.09
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	6	0.48	0.038
ICP-induced coupled plasma	302	19	0.51	0.032
Other(describe)	303	5	0.57	0.007
Method Group 300		30	0.51	0.04
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	5	0.67	0.060
ICP-induced coupled plasma	402	22	0.73	0.132
Other(describe)	403	1	1.40	0.000
Method Group 400		28	0.71	0.13
MgO				
Atomic Absorption-AFPC 9-18,19	501	5	0.35	0.015
ICP-induced coupled plasma	502	23	0.35	0.019
Other(describe)	503	1	0.37	0.000
Method Group 500		29	0.35	0.02
Acid Insoluble				
Insoluble-AFPC 9-8	601	21	12.75	0.881
Other(describe)	602			
Method Group 600		21	12.75	0.88
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	15	43.58	1.985
Ceric Sulfate volumetric	703			
Permanganate	704	2	42.96	0.343
EDTA Volumetric	705	3	43.04	0.060
Other(describe)	706	7	43.01	0.213
Method Group 700		27	43.14	0.47
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	9	43.92	2.217
Ceric Sulfate volumetric	713			
Permanganate	714			
EDTA Volumetric	715	3	43.40	0.057
Other(describe)	716	7	43.35	0.213
Method Group 710		12	43.38	0.51

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	16	2.91	0.108
Other (describe)	803	2	3.22	0.022
Method Group 800		18	2.97	0.18
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma	912	6	8.2	0.93
Other(describe)	913	4	8.2	1.76
Method Group 900		10	8.2	1.00
Cadmium, Cd				
Atomic Absorption	921	1	91	0.0
ICP-induced coupled plasma	922	11	96	7.8
Other(describe)	923	3	105	4.9
Method Group 910		15	97	11.0
Cobalt, Co				
Atomic Absorption	931			
ICP-induced coupled plasma	932	4	2	0.8
Other(describe)	933	1	2	0.0
Method Group 920		5	2	0.7
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			
ICP-induced coupled plasma	952	6	9	0.9
Other(describe)	953	3	9	1.0
Method Group 940		9	9	0.3
Nickel, Ni				
Atomic Absorption	961	1	89	0.0
ICP-induced coupled plasma	962	7	79	5.3
Other(describe)	963	4	71	8.7
Method Group 950		12	77	9.6
Lead, Pb				
Atomic Absorption	971			
ICP-induced coupled plasma	972	7	9	2.1
Other(describe)	973	3	9	1.0
Method Group 960		10	9	1.9
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982			
Other(describe)	983	2	20	2.8
Method Group 970		2	20	2.8
Zinc, Zn				
Atomic Absorption	991	1	884	0
ICP-induced coupled plasma	992	6	725	107
Other(describe)	993	4	708	159
Method Group 980		11	741	140

101 Ground Sample AFPC 9-2		
Lab	%	H ₂ O
13	0.82	-1.485
10	0.80	-1.268
Std Dev	0.78	-1.000
61	0.78	-0.978
24	0.78	-0.905
13	0.77	-0.833
15	0.77	-0.761
6	0.76	-0.616
15	0.74	-0.326
9	0.72	-0.109
61	0.72	-0.109
Median	0.71	0.000
6	0.71	0.109
9	0.70	0.181
5	0.69	0.326
24	0.69	0.398
5	0.68	0.471
75	0.66	0.833
Std Dev	0.64	1.000
34	0.63	1.195
75	0.60	1.702
77	0.17	7.859
77	0.15	8.149

102 Other (describe)		
Lab	%	H ₂ O
51	0.83	-1.914
51	0.83	-1.914
Std Dev	0.78	-1.000
69	0.73	0.000
69	0.73	0.000
Median	0.73	0.000
69	0.71	0.383
69	0.71	0.383
Std Dev	0.68	1.000
241	0.59	2.680

201 Gravimetric AFPC 9-5		
Lab	%	P2O5
241	29.16	-2.489
Std Dev	29.08	-1.000
51	29.03	0.000

Median	29.03	0.000
77	29.02	0.191

202 ICP-induced coupled plasma		
Lab	%	P2O5
26	29.47	-1.340
Std Dev	29.45	-1.000
Median	29.40	0.000
Std Dev	29.34	1.000
10	29.32	1.340

203 Photometric-AFPC 9-6		
Lab	%	P2O5
9	29.66	-13.896
9	29.45	-5.559
61	29.35	-1.588
Std Dev	29.34	-1.000
34	29.33	-0.794
61	29.32	-0.199
69	29.31	0.000
69	29.31	0.000
69	29.31	0.000
69	29.31	0.000
Median	29.31	0.000
60	29.30	0.397
5	29.29	0.794
Std Dev	29.28	1.000
5	29.24	2.779
19	29.01	11.911
36	20.69	342.2

204 Automated -AOAC 978.01-15th		
Lab	%	P2O5
15	30.01	-3.473
15	29.96	-3.297
Std Dev	29.30	-1.000
75	29.30	-0.987
75	29.30	-0.987
13	29.20	-0.635
77	29.02	0.000
Median	29.02	0.000
24	29.01	0.035
24	28.93	0.335
6	28.92	0.370

6	28.91	0.406
13	28.86	0.564

205 Other(describe)		
Lab	%	P2O5
51	29.04	0.000
Median	29.04	0.000

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
241	29.33		-0.611
51	29.27		0.000
Median	29.27		0.000
Std Dev	29.17		1.000
77	29.07		2.069

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	29.56		0.000
Median	29.56		0.000

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
9	29.87		-12.653
9	29.66		-5.084
61	29.56		-1.374
Std Dev	29.55		-1.000
61	29.55		-0.734
69	29.53		0.000
69	29.53		0.000
Median	29.53		0.000
69	29.52		0.219
69	29.52		0.219
34	29.52		0.353
Std Dev	29.50		1.000
5	29.49		1.180
5	29.44		3.143

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
15	30.24		-3.702
15	30.18		-3.482
Std Dev	29.51		-1.000
75	29.49		-0.950

75	29.48	-0.884
13	29.44	-0.753
24	29.24	0.000
Median	29.24	0.000
6	29.12	0.414
24	29.12	0.415
6	29.12	0.431
13	29.08	0.565
77	29.06	0.641

215 Other(describe)			
Lab	%	P2O5	dB
51	29.28		0.000
Median	29.28		0.000

301 Atomic Absorption-AFPC 9-12,13		
Lab	%	Fe2O3
241	0.51	-0.850
5	0.50	-0.588
5	0.49	-0.327
Median	0.48	0.000
60	0.47	0.327
51	0.44	0.980
Std Dev	0.44	1.000
36	0.35	3.334

302 ICP-induced coupled plasma		
Lab	%	Fe2O3
77	0.56	-1.706
77	0.55	-1.396
Std Dev	0.54	-1.000
51	0.53	-0.776
6	0.53	-0.621
9	0.52	-0.465
15	0.52	-0.465
34	0.52	-0.465
6	0.52	-0.310
9	0.51	-0.155
15	0.51	0.000
Median	0.51	0.000
24	0.50	0.310
75	0.49	0.526
26	0.48	0.776
75	0.48	0.818

10	0.48	0.931
Std Dev	0.47	1.000
13	0.47	1.086
61	0.46	1.551
13	0.45	1.706
61	0.45	1.706

303 Other(describe)		
Lab	%	Fe2O3
19	0.96	-52.260
Std Dev	0.58	-1.000
69	0.57	0.000
69	0.57	0.000
Median	0.57	0.000
Std Dev	0.56	1.000
69	0.56	1.340
69	0.56	1.340

401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
51	1.02	-5.863
Std Dev	0.73	-1.000
5	0.72	-0.837
5	0.67	0.000
Median	0.67	0.000
241	0.64	0.503
Std Dev	0.61	1.000
36	0.30	6.198

402 ICP-induced coupled plasma		
Lab	%	Al2O3
77	1.63	-6.872
77	1.62	-6.796
6	0.87	-1.094
9	0.86	-1.018
Std Dev	0.86	-1.000
6	0.85	-0.942
15	0.85	-0.942
15	0.85	-0.904
75	0.84	-0.902
9	0.80	-0.561
34	0.79	-0.485
75	0.75	-0.199
Median	0.73	0.000

24	0.70	0.199
61	0.70	0.199
61	0.68	0.351
69	0.68	0.351
69	0.68	0.351
69	0.67	0.427
69	0.67	0.427
10	0.67	0.465
26	0.65	0.579
Std Dev	0.59	1.000
13	0.54	1.453
13	0.53	1.529

403 Other(describe)		
Lab	%	Al2O3
19	1.40	0.000
Median	1.40	0.000

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
5	0.36	-0.670
5	0.35	0.000
36	0.35	0.000
Median	0.35	0.000
Std Dev	0.34	1.000
51	0.33	1.340
60	0.31	2.680

502 ICP-induced coupled plasma		
Lab	%	MgO
13	0.43	-4.020
24	0.37	-1.072
69	0.37	-1.072
69	0.37	-1.072
77	0.37	-1.072
Std Dev	0.37	-1.000
69	0.36	-0.536
69	0.36	-0.536
9	0.35	0.000
9	0.35	0.000
15	0.35	0.000
15	0.35	0.000
26	0.35	0.000
34	0.35	0.000

77	0.35	0.000
Median	0.35	0.000
10	0.34	0.536
61	0.34	0.536
61	0.34	0.536
Std Dev	0.33	1.000
51	0.33	1.072
6	0.33	1.340
13	0.32	1.608
6	0.31	2.412
75	0.28	3.781
75	0.27	4.337

503 Other(describe)		
Lab	%	MgO
19	0.37	0.000
Median	0.37	0.000

601 Insoluble-AFPC 9-8		
Lab	%	Al
15	16.38	-4.117
15	16.37	-4.105
Std Dev	13.63	-1.000
69	13.57	-0.931
69	13.57	-0.931
69	13.57	-0.931
69	13.57	-0.931
13	12.92	-0.193
13	12.89	-0.153
61	12.85	-0.114
6	12.85	-0.108
6	12.75	0.000
Median	12.75	0.000
5	12.52	0.261
24	12.41	0.386
51	12.41	0.386
10	12.40	0.397
24	12.39	0.409
9	12.36	0.443
61	12.27	0.545
5	12.23	0.591
Std Dev	11.87	1.000
19	11.70	1.192
9	11.63	1.272

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	
69	45.82		-1.128
69	45.82		-1.128
69	45.81		-1.123
69	45.81		-1.123
Std Dev	45.57		-1.000
75	45.38		-0.907
75	44.38		-0.403
77	43.60		-0.010
61	43.58		0.000
Median	43.58		0.000
34	43.54		0.020
10	43.19		0.196
77	43.00		0.292
26	42.87		0.358
61	42.87		0.360
6	42.81		0.390
6	42.72		0.436

703 Ceric Sulfate volumetric			
Lab	%	CaO	
Median	0.00		0.000

704 Permanganate			
Lab	%	CaO	
241	43.42		-1.340
Std Dev	43.30		-1.000
Median	42.96		0.000
Std Dev	42.62		1.000
60	42.50		1.340

705 EDTA Volumetric			
Lab	%	CaO	
9	43.14		-1.675

Std Dev	43.10	-1.000
51	43.04	0.000
Median	43.04	0.000
Std Dev	42.98	1.000
9	42.98	1.005

706 Other(describe)		
Lab	%	CaO
13	43.38	-1.740
13	43.37	-1.669
Std Dev	43.22	-1.000
24	43.14	-0.611
24	43.01	0.000
Median	43.01	0.000
15	42.99	0.094
15	42.95	0.306
Std Dev	42.80	1.000
19	40.89	9.991

711 Gravimetric sulfate		
Lab	%	CaO
Median	0.00	0.000

712 ICP-induced coupled plasma		
Lab	%	CaO
69	46.15	-1.004
69	46.15	-1.004
69	46.15	-1.003
69	46.15	-1.003
Std Dev	46.14	-1.000
61	43.92	0.000
Median	43.92	0.000
10	43.54	0.173
61	43.18	0.337
6	43.13	0.357
6	43.02	0.408

713 Ceric Sulfate volumetric		
Lab	%	CaO
Median	0.00	0.000

714 Permanganate		
Lab	%	CaO
Median	0.00	0.000

715 EDTA Volumetric			
Lab	%	CaO	dB
9	43.44	-0.772	
51	43.40	0.000	
Median	43.40	0.000	
Std Dev	43.34	1.000	
9	43.29	1.908	

716 Other(describe)			
Lab	%	CaO	dB
13	43.72	-1.766	
13	43.72	-1.744	
Std Dev	43.56	-1.000	
24	43.44	-0.431	
24	43.35	0.000	
Median	43.35	0.000	
15	43.32	0.115	
15	43.26	0.390	
Std Dev	43.13	1.000	
19	40.89	11.575	

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

802 Specific Ion Electrode		
Lab	%	Fluorine, F
24	3.27	-3.304
24	3.22	-2.796
9	3.12	-1.918
Std Dev	3.02	-1.000
75	3.02	-0.993
9	3.00	-0.809
51	3.00	-0.809
75	2.98	-0.624
13	2.95	-0.347
Median	2.91	0.000
13	2.88	0.347
69	2.86	0.485
69	2.86	0.485
69	2.86	0.485
69	2.86	0.485
Std Dev	2.80	1.000

15	2.79	1.178
15	2.75	1.548
36	0.52	22.110

803 Other(describe)		
Lab	%	Fluorine, F
77	3.25	-1.340
Std Dev	3.24	-1.000
Median	3.22	0.000
Std Dev	3.20	1.000
77	3.19	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
69	8.3	-0.022
69	8.3	-0.022
69	8.2	0.000
69	8.2	0.000
Median	8.2	0.000
Std Dev	7.3	1.000
9	6.6	1.765
9	6.3	2.088

913 Other(describe)		
Lab	ppm	Arsenic, As
13	10.7	-1.390
Std Dev	10.0	-1.000
77	8.5	-0.170
Median	8.2	0.000
77	7.9	0.170
Std Dev	6.4	1.000
51	3.0	2.949

921 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Cadmium, Cd
51	91	0.000
Median	91	0.000

922 ICP-induced coupled plasma		
Lab	ppm	Cadmium, Cd

69	105	-1.149
69	104	-1.021
Std Dev	104	-1.000
51	99	-0.319
77	98	-0.255
61	97	-0.083
77	96	0.000
Median	96	0.000
61	95	0.077
Std Dev	88	1.000
75	88	1.021
75	88	1.085
9	84	1.531
9	83	1.710

923 Other(describe)		
Lab	ppm	Cadmium, Cd
13	117	-2.474
Std Dev	110	-1.000
69	105	0.000
Median	105	0.000
69	104	0.206

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

932 ICP-induced coupled plasma		
Lab	ppm	Cobalt, Co
69	<0.05	0.000
69	<.05	0.000
77	2	-0.596
77	2	-0.596
Median	2	0.000
75	1	0.596
75		1.191

933 Other(describe)		
Lab	ppm	Cobalt, Co
69	<0.05	0.000
69	<.05	0.000
13	2	0.000
Median		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
69	<0.05	0.000
69	<0.05	0.000
Median		0.000

943	Other(describe)	
Lab	ppm	Mercury, Hg
69	<0.05	0.000
69	<0.05	0.000
13	0.1	0.000
Median		0.000

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

952	ICP-induced coupled plasma	
Lab	ppm	Molybdenum, Mo
51	18	-9.374
Std Dev	10	-1.000
69	9	-0.260
69	9	-0.237
Median	9	0.000
77	9	0.237
Std Dev	8	1.000
77	8	1.368
24	3	7.192

953	Other(describe)	
Lab	ppm	Molybdenum, Mo
13	12	-2.660
Std Dev	10	-1.000
69	9	0.000
Median	9	0.000
69	9	0.020

961	Atomic Absorption-AFPC 9-12,13	
Lab	ppm	Nickel, Ni
51	89	0.000

Median	89	0.000
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962	ICP-induced coupled plasma	
Lab	ppm	Nickel, Ni
51	99	-3.874
Std Dev	84	-1.000
75	83	-0.756
77	79	-0.094
75	79	0.000
Median	79	0.000
77	76	0.472
Std Dev	73	1.000
69	71	1.357
69	71	1.359

963	Other(describe)	
Lab	ppm	Nickel, Ni
13	107	-4.053
Std Dev	80	-1.000
69	71	-0.001
Median	71	0.000
69	71	0.001
Std Dev	63	1.000
19	60	1.303

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

972	ICP-induced coupled plasma	
Lab	ppm	Lead, Pb
24	15	-2.651
Std Dev	11	-1.000
9	10	-0.474
9	10	-0.282
69	9	0.000
Median	9	0.000
69	9	0.005
Std Dev	7	1.000
77	5	1.919
77	3	2.876

973	Other(describe)	
Lab	ppm	Lead, Pb

69	9	-0.010
69	9	0.000
Median	9	0.000
Std Dev	8	1.000
13	6	2.670

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

982	ICP-induced coupled plasma	
Lab	ppm	Selenium, Se
69	<0.05	0.000
69	<0.05	0.000
Median		0.000

983	Other(describe)	
Lab	ppm	Selenium, Se
69	<0.05	0.000
69	<0.05	0.000
13	24	-1.340
Std Dev	23	-1.000
Median	20	0.000
77		1.340

991	Atomic Absorption-AFPC 9-18,19	
Lab	ppm	Zinc, Zn
60	884	0.000
Median	884	0.000

992	ICP-induced coupled plasma	
Lab	ppm	Zinc, Zn
75	820	-0.890
75	805	-0.750
77	741	-0.150
Median	725	0.000
77	709	0.150
69	625	0.937
69	624	0.946

993	Other(describe)	
Lab	ppm	Zinc, Zn
13	980	-1.716
Std Dev	866	-1.000

19	790	-0.520
Median	708	0.000
69	625	0.520
69	624	0.526

