

AFPC Rock Check Program

Sample No. 2005-01

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	23	0.75	0.183
Other (describe)	102	4	0.76	0.049
Method Group 100		27	0.75	0.16
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	3	26.25	0.030
ICP-induced coupled plasma	202	2	26.18	0.108
Photometric-AFPC 9-6	203	13	26.26	0.172
Automated -AOAC 978.01-15th	204	10	26.27	0.151
Other(describe)	205	2	26.14	0.118
Method Group 200		30	26.26	0.11
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	3	26.46	0.036
ICP-induced coupled plasma	212	2	26.42	0.107
Photometric-AFPC 9-6	213	12	26.48	0.171
Automated -AOAC 978.01-15th	214	10	26.48	0.139
Other(describe)	215			
Method Group 210		15	26.48	0.18
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	8	1.25	0.096
ICP-induced coupled plasma	302	19	1.31	0.037
Other(describe)	303	3	1.18	0.019
Method Group 300		30	1.30	0.08
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	6	0.87	0.071
ICP-induced coupled plasma	402	21	0.90	0.030
Other(describe)	403	1	1.25	0.000
Method Group 400		28	0.89	0.04
MgO				
Atomic Absorption-AFPC 9-18,19	501	9	0.50	0.030
ICP-induced coupled plasma	502	20	0.51	0.021
Other(describe)	503	1	0.52	0.000
Method Group 500		30	0.51	0.02
Acid Insoluble				
Insoluble-AFPC 9-8	601	19	19.16	0.134
Other(describe)	602	1	19.10	0.000
Method Group 600		20	19.15	0.13
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	9	39.64	0.478
Ceric Sulfate volumetric	703	2	40.25	0.231
Permanganate	704	3	39.35	4.843
EDTA Volumetric	705	4	39.92	0.672
Other(describe)	706	7	39.55	0.063
Method Group 700		25	39.59	0.48
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	4	39.81	0.145
Ceric Sulfate volumetric	713			
Permanganate	714	1	39.86	0.000
EDTA Volumetric	715	4	40.23	0.682
Other(describe)	716	7	39.86	0.092
Method Group 710		13	39.86	0.37

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	16	3.12	0.096
Other (describe)	803	2	3.23	0.015
Method Group 800		18	3.14	0.10
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma	912	6	6.2	0.83
Other(describe)	913	5	9.0	4.10
Method Group 900		11	6.3	3.58
Cadmium, Cd				
Atomic Absorption	921	1	8	0.0
ICP-induced coupled plasma	922	12	3	0.3
Other(describe)	923	1	3	0.0
Method Group 910		14	3	0.6
Cobalt, Co				
Atomic Absorption	931			
ICP-induced coupled plasma	932	8	4	3.3
Other(describe)	933	1	5	0.0
Method Group 920		9	4	0.7
Mercury, Hg				
Atomic Absorption	941			
ICP-induced coupled plasma	942	1	0.1	0.00
Other(describe)	943	1	4.5	0.00
Method Group 930		2	2.3	1.64
Molybdenum, Mo				
Atomic Absorption	951	1	7	0.0
ICP-induced coupled plasma	952	6	11	9.0
Other(describe)	953	1	10	0.0
Method Group 940		8	9	4.5
Nickel, Ni				
Atomic Absorption	961	1	16	0.0
ICP-induced coupled plasma	962	9	16	5.3
Other(describe)	963	4	22	8.3
Method Group 950		14	16	6.0
Lead, Pb				
Atomic Absorption	971	1	10	0.0
ICP-induced coupled plasma	972	8	14	10.8
Other(describe)	973	3	12	3.5
Method Group 960		12	13	5.4
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982			
Other(describe)	983			
Method Group 970		0		
Zinc, Zn				
Atomic Absorption	991	1	39	0
ICP-induced coupled plasma	992	9	37	2
Other(describe)	993	3	31	11
Method Group 980		13	37	6

101 Ground Sample AFPC 9-2			
Lab	%	H ₂ O	
13	1.10	-1.914	
13	1.09	-1.832	
10	0.96	-1.121	
10	0.94	-1.012	
Std Dev	0.93	-1.000	
6	0.88	-0.711	
5	0.85	-0.547	
5	0.81	-0.328	
6	0.79	-0.219	
9	0.77	-0.109	
24	0.76	-0.055	
24	0.76	-0.055	
61	0.75	0.000	
Median	0.75	0.000	
9	0.72	0.164	
34	0.71	0.219	
15	0.70	0.273	
15	0.70	0.273	
75	0.61	0.793	
Std Dev	0.57	1.000	
75	0.57	1.012	
77	0.50	1.367	
35	0.45	1.641	
61	0.42	1.805	
77	0.42	1.805	
57	0.40	1.914	

102 Other (describe)			
Lab	%	H ₂ O	
51	0.80	-0.893	
69	0.76	-0.081	
Median	0.76	0.000	
69	0.75	0.081	
Std Dev	0.71	1.000	
241	0.56	3.979	

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
241	26.31	-2.177	
Std Dev	26.27	-1.000	
51	26.25	0.000	
Median	26.25	0.000	

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	26.32	-1.340	
Std Dev	26.28	-1.000	
Median	26.18	0.000	
Std Dev	26.07	1.000	
10	26.03	1.340	

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
5	26.63	-2.156	
5	26.51	-1.457	
Std Dev	26.43	-1.000	
69	26.42	-0.932	
69	26.41	-0.874	
34	26.36	-0.583	
9	26.30	-0.233	
61	26.26	0.000	
Median	26.26	0.000	
35	26.21	0.291	
6	26.19	0.408	
6	26.18	0.466	
9	26.18	0.466	
Std Dev	26.09	1.000	
61	26.04	1.282	
60	25.90	2.097	

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
57	26.60	-2.162	
Std Dev	26.42	-1.000	
75	26.36	-0.578	
75	26.33	-0.380	
15	26.32	-0.314	
15	26.30	-0.149	
Median	26.27	0.000	
77	26.25	0.149	
13	26.20	0.492	
Std Dev	26.12	1.000	
24	26.10	1.139	
24	26.10	1.172	
13	25.98	1.964	

205 Other(describe)			
Lab	%	P2O5	
19	26.30	-1.340	
Std Dev	26.26	-1.000	
Median	26.14	0.000	
Std Dev	26.02	1.000	
51	25.99	1.340	

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
241	26.46	-0.042	
51	26.46	0.000	
Median	26.46	0.000	
Std Dev	26.42	1.000	
77	26.36	2.638	

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
10	26.57	-1.340	
Std Dev	26.53	-1.000	
Median	26.42	0.000	
Std Dev	26.32	1.000	
10	26.28	1.340	

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
5	26.86	-2.203	
5	26.73	-1.433	
Std Dev	26.65	-1.000	
69	26.62	-0.824	
69	26.61	-0.753	
34	26.55	-0.393	
9	26.50	-0.133	
Median	26.48	0.000	
61	26.46	0.133	
6	26.42	0.343	
6	26.39	0.542	
9	26.37	0.651	
35	26.33	0.893	
Std Dev	26.31	1.000	
61	26.15	1.936	

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
57	26.71	-1.608	
Std Dev	26.62	-1.000	
75	26.51	-0.193	
15	26.51	-0.163	
75	26.49	-0.053	
13	26.49	-0.018	
Median	26.48	0.000	
15	26.48	0.018	
77	26.36	0.877	
Std Dev	26.34	1.000	
24	26.30	1.314	
24	26.29	1.350	
13	26.26	1.572	

215 Other(describe)			
Lab	%	P2O5	dB
Median	0.00	0.000	

301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
5	1.32	-0.781	
5	1.32	-0.781	
57	1.26	-0.156	
61	1.25	-0.052	
Median	1.25	0.000	
61	1.24	0.052	
241	1.15	0.989	
Std Dev	1.15	1.000	
51	1.14	1.145	
60	1.13	1.197	

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
77	1.52	-5.628	
77	1.50	-5.092	
51	1.37	-1.474	
34	1.36	-1.206	
Std Dev	1.35	-1.000	
15	1.35	-0.938	
9	1.33	-0.536	
15	1.33	-0.536	
9	1.32	-0.268	

75	1.31	-0.123
6	1.31	0.000
Median	1.31	0.000
13	1.31	0.134
75	1.30	0.254
6	1.30	0.268
35	1.30	0.268
10	1.28	0.938
Std Dev	1.27	1.000
10	1.27	1.072
13	1.27	1.206
24	1.15	4.288
24	1.15	4.422

303 Other(describe)			
Lab	%	Fe2O3	
19	1.21		-1.447
Std Dev	1.20		-1.000
69	1.18		0.000
Median	1.18		0.000
Std Dev	1.16		1.000
69	1.16		1.233

401 Atomic Absorption-AFPC 9-16,17			
Lab	%	Al2O3	
51	0.95		-1.128
Std Dev	0.94		-1.000
5	0.91		-0.564
241	0.88		-0.141
Median	0.87		0.000
5	0.86		0.141
Std Dev	0.80		1.000
61	0.79		1.128
61	0.76		1.552

402 ICP-induced coupled plasma			
Lab	%	Al2O3	
77	1.27		-12.563
77	1.26		-12.228
69	1.07		-5.762
69	1.02		-4.188
51	1.01		-3.685
Std Dev	0.92		-1.000
24	0.92		-0.838

75	0.91	-0.586
35	0.91	-0.503
24	0.91	-0.335
15	0.90	-0.168
15	0.90	0.000
Median	0.90	0.000
13	0.89	0.168
34	0.89	0.235
10	0.89	0.335
9	0.88	0.503
9	0.88	0.503
13	0.88	0.670
10	0.87	0.838
Std Dev	0.87	1.000
75	0.86	1.028
6	0.86	1.173
6	0.86	1.340

403 Other(describe)			
Lab	%	Al2O3	
19	1.25		0.000
Median	1.25		0.000

501 Atomic Absorption-AFPC 9-18,19			
Lab	%	MgO	
241	0.56		-2.010
Std Dev	0.53		-1.000
35	0.52		-0.670
57	0.52		-0.670
5	0.50		0.000
5	0.50		0.000
Median	0.50		0.000
51	0.50		0.168
60	0.48		0.670
61	0.48		0.670
Std Dev	0.47		1.000
61	0.47		1.005

502 ICP-induced coupled plasma			
Lab	%	MgO	
69	0.70		-8.856
69	0.64		-6.059
13	0.58		-3.030
9	0.54		-1.398

9	0.54	-1.398
Std Dev	0.53	-1.000
13	0.53	-0.699
75	0.52	-0.564
34	0.52	-0.513
51	0.52	-0.466
15	0.51	0.000
15	0.51	0.000
Median	0.51	0.000
6	0.51	0.233
75	0.50	0.274
6	0.50	0.466
10	0.50	0.466
10	0.50	0.466
77	0.49	0.932
77	0.49	0.932
Std Dev	0.49	1.000
24	0.48	1.631
24	0.47	2.097

503 Other(describe)			
Lab	%	MgO	
19	0.52		0.000
Median	0.52		0.000

601 Insoluble-AFPC 9-8			
Lab	%	Al	
51	19.43		-2.047
13	19.36		-1.489
13	19.35		-1.452
69	19.30		-1.079
Std Dev	19.29		-1.000
24	19.27		-0.819
69	19.25		-0.707
24	19.24		-0.633
15	19.18		-0.149
10	19.16		-0.037
10	19.16		0.000
Median	19.16		0.000
15	19.15		0.037
5	19.14		0.112
57	19.12		0.261
6	19.09		0.521
9	19.07		0.633

6	19.04	0.856
Std Dev	19.02	1.000
5	18.98	1.303
35	18.97	1.377
9	18.94	1.601

602 Other(describe)			
Lab	%	Al	
19	19.10		0.000
Median	19.10		0.000

701 Gravimetric sulfate			
Lab	%	CaO	
Median	0.00		0.000

702 ICP-induced coupled plasma			
Lab	%	CaO	
75	41.79		-4.502
75	40.22		-1.219
Std Dev	40.12		-1.000
77	40.10		-0.963
77	40.10		-0.963
34	39.64		0.000
Median	39.64		0.000
10	39.59		0.115
6	39.46		0.377
10	39.46		0.377
Std Dev	39.16		1.000
6	39.04		1.267

703 Ceric Sulfate volumetric			
Lab	%	CaO	
61	40.56		-1.340
Std Dev	40.48		-1.000
Median	40.25		0.000
Std Dev	40.02		1.000
61	39.94		1.340

704 Permanganate			
Lab	%	CaO	
57	39.70		-0.072
60	39.35		0.000
Median	39.35		0.000
Std Dev	34.51		1.000

241	26.72	2.608
705 EDTA Volumetric		
Lab	%	CaO
9	40.66	-1.102
Std Dev	40.59	-1.000
9	40.30	-0.566
Median	39.92	0.000
51	39.54	0.566
35	39.34	0.864

706 Other(describe)		
Lab	%	CaO
13	39.89	-5.439
15	39.62	-1.104
Std Dev	39.61	-1.000
24	39.56	-0.236
15	39.55	0.000
Median	39.55	0.000
13	39.53	0.315
Std Dev	39.48	1.000
24	39.48	1.025
19	39.40	2.286

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
10	39.96		-1.045
Std Dev	39.95		-1.000
10	39.84		-0.229
Median	39.81		0.000
6	39.77		0.229
Std Dev	39.66		1.000
6	39.38		2.942

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00		0.000

714 Permanganate			
Lab	%	CaO	dB

57	39.86	0.000
Median	39.86	0.000

715 EDTA Volumetric			
Lab	%	CaO	dB
9	40.98		-1.099
Std Dev	40.91		-1.000
9	40.59		-0.537
Median	40.23		0.000
51	39.86		0.537
Std Dev	39.54		1.000
35	39.52		1.037

716 Other(describe)			
Lab	%	CaO	dB
13	40.33		-5.114
13	39.96		-1.038
Std Dev	39.96		-1.000
15	39.89		-0.340
24	39.86		0.000
Median	39.86		0.000
15	39.82		0.426
24	39.78		0.876
Std Dev	39.77		1.000
19	39.40		5.029

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

802 Specific Ion Electrode		
Lab	%	Fluorine, F
61	3.48	-3.799
51	3.26	-1.457
69	3.25	-1.405
Std Dev	3.21	-1.000
61	3.19	-0.781
69	3.19	-0.781
9	3.18	-0.677
13	3.15	-0.364
9	3.13	-0.156
Median	3.12	0.000
13	3.10	0.156
24	3.10	0.208

24	3.08	0.364
75	3.08	0.416
35	3.02	0.989
Std Dev	3.02	1.000
75	3.00	1.249
15	2.93	1.925
15	2.93	1.977

803 Other(describe)		
Lab	%	Fluorine, F
77	3.25	-1.340
Std Dev	3.24	-1.000
Median	3.23	0.000
Std Dev	3.22	1.000
77	3.21	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	11.4	-6.314
Std Dev	7.0	-1.000
69	6.3	-0.157
69	6.3	-0.145
Median	6.2	0.000
24	6.1	0.145
Std Dev	5.3	1.000
9	4.9	1.533
9	3.9	2.740

913 Other(describe)		
Lab	ppm	Arsenic, As
13	10.5	-0.353
77	10.0	-0.244
77	9.0	0.000
Median	9.0	0.000
Std Dev	4.9	1.000
51	4.5	1.096
57	4.0	1.218

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

51	<5	0.000
57	8	0.000
Median	8	0.000

922 ICP-induced coupled plasma		
Lab	ppm	Cadmium, Cd
69	3486	-10091
69	3474	-10057
77	4	-2.897
Std Dev	3	-1.000
9	3	-0.724
9	3	-0.435
51	3	0.000
75	3	0.000
75	3	0.000
77	3	0.000
Median	3	0.000
24	3	0.290
Std Dev	3	1.000
6	3	1.014
24	2	1.594

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
69	20	-4.764
69	20	-4.764
Std Dev	7	-1.000
6	5	-0.199
75	4	0.000
75	4	0.000
77	4	0.000
77	4	0.000
Median	4	0.000
24	3	0.382

933 Other(describe)			
Lab	ppm	Cobalt, Co	
13	5	0.000	
Median	5	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	<0.2	0.000	
69	<0.2	0.000	
6	<0.02	0.000	
24		0.000	
Median		0.000	

943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	<0.07	0.000	
51	4.5	0.000	
Median	4.5	0.000	

951 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Iolybdenum, Mo	
51	7	0.000	
Median	7	0.000	

952 ICP-induced coupled plasma			
Lab	ppm	Iolybdenum, Mo	
69	24	-1.539	
69	24	-1.508	
Std Dev	20	-1.000	
77	12	-0.164	
Median	11	0.000	
6	9	0.164	
77	9	0.169	
24	9	0.192	

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

961 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Nickel, Ni	
51	16	0.000	
Median	16	0.000	

962 ICP-induced coupled plasma			
Lab	ppm	Nickel, Ni	
6	19	-0.469	
77	17	-0.187	
75	17	-0.094	
75	16	0.000	
77	16	0.000	
Median	16	0.000	
24	12	0.693	
Std Dev	11	1.000	
24	9	1.246	
69	4	2.176	
69	4	2.178	

963 Other(describe)			
Lab	ppm	Nickel, Ni	
19	38	-1.972	
Std Dev	30	-1.000	
57	24	-0.278	
Median	22	0.000	
13	19	0.278	
Std Dev	13	1.000	
51	8	1.718	

971 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Lead, Pb	
51	10	0.000	
Median	10	0.000	

972 ICP-induced coupled plasma			
Lab	ppm	Lead, Pb	
69	51	-3.421	
69	51	-3.394	
Std Dev	25	-1.000	
24	18	-0.355	
77	15	-0.077	
Median	14	0.000	
6	13	0.077	
9	12	0.221	

9	12	0.239
77	11	0.295

973 Other(describe)			
Lab	ppm	Lead, Pb	
51	21	-2.539	
Std Dev	15	-1.000	
13	12	0.000	
Median	12	0.000	
57	11	0.141	

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	<0.2	0.000	
69	<0.2	0.000	
Median		0.000	

983 Other(describe)			
Lab	ppm	Selenium, Se	
13	<0.5	0.000	
Median	0	0.000	

991 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Zinc, Zn	
60	39	0.000	
Median	39	0.000	

992 ICP-induced coupled plasma			
Lab	ppm	Zinc, Zn	
24	48	-6.244	
24	44	-4.100	
Std Dev	38	-1.000	
77	38	-0.804	
6	37	-0.161	
75	37	0.000	
Median	37	0.000	
77	36	0.268	
75	36	0.536	
Std Dev	35	1.000	
69	26	5.499	

993 Other(describe)			
Lab	ppm	Zinc, Zn	
57	53	-2.076	
Std Dev	42	-1.000	
19	31	0.000	
Median	31	0.000	
13	25	0.604	

