

AFPC Rock Check Program

Sample No. 2007-05

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC 9-2	101	17	0.63	0.071
Other (describe)	102	4	0.62	0.192
Method Group 100		21	0.63	0.11
BPL or P₂O₅				
Gravimetric AFPC 9-5	201	2	29.27	0.030
ICP-induced coupled plasma	202	5	29.48	0.090
Photometric-AFPC 9-6	203	9	29.16	0.231
Automated -AOAC 978.01-15th	204	6	29.45	0.140
Other(describe)	205	4	29.43	0.095
Method Group 200		26	29.39	0.15
BPL or P₂O₅ (on Dry Basis)				
Gravimetric AFPC 9-5	211	2	29.40	0.045
ICP-induced coupled plasma	212	4	29.61	0.071
Photometric-AFPC 9-6	213	8	29.45	0.199
Automated -AOAC 978.01-15th	214	6	29.66	0.131
Other(describe)	215	1	29.63	0.000
Method Group 210		21	29.59	0.15
Fe₂O₃				
Atomic Absorption-AFPC 9-12,13	301	2	0.44	0.007
ICP-induced coupled plasma	302	18	0.49	0.030
Other(describe)	303	3	0.51	0.035
Method Group 300		23	0.49	0.04
Al₂O₃				
Atomic Absorption-AFPC 9-16,17	401	1	0.95	0.000
ICP-induced coupled plasma	402	19	0.78	0.073
Other(describe)	403	1	1.53	0.000
Method Group 400		21	0.79	0.08
MgO				
Atomic Absorption-AFPC 9-18,19	501	3	0.32	0.028
ICP-induced coupled plasma	502	19	0.31	0.028
Other(describe)	503	1	0.40	0.000
Method Group 500		23	0.32	0.03
Acid Insoluble				
Insoluble-AFPC 9-8	601	16	12.60	0.532
Other(describe)	602	1	13.30	0.000
Method Group 600		17	12.60	0.54
CaO				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	13	43.87	1.291
Ceric Sulfate volumetric	703			
Permanganate	704	1	42.50	0.000
EDTA Volumetric	705	3	43.53	0.340
Other(describe)	706	6	43.19	0.355
Method Group 700		23	43.53	0.87
CaO (on Dry Basis)				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	9	43.22	1.318
Ceric Sulfate volumetric	713			
Permanganate	714			
EDTA Volumetric	715	3	43.75	0.359
Other(describe)	716	5	43.45	0.062
Method Group 710		20	43.62	0.99

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC 9-37	801			
Specific Ion Electrode	802	13	3.02	0.116
Other (describe)	803			
Method Group 800		13	3.02	0.12
Arsenic, As				
Atomic Absorption	911			
ICP-induced coupled plasma	912	7	12.5	5.71
Other(describe)	913	2	6.2	0.92
Method Group 900		9	11.2	5.97
Cadmium, Cd				
Atomic Absorption	921	1	92	0.0
ICP-induced coupled plasma	922	9	94	8.9
Other(describe)	923	3	122	5.0
Method Group 910		13	96	13.0
Cobalt, Co				
Atomic Absorption	931			
ICP-induced coupled plasma	932	7	3	2.2
Other(describe)	933	3	2	0.2
Method Group 920		10	2	1.4
Mercury, Hg				
Atomic Absorption	941			
ICP-induced coupled plasma	942	1	1.5	0.00
Other(describe)	943	1	0.4	0.00
Method Group 930		2	0.9	0.42
Molybdenum, Mo				
Atomic Absorption	951	1	13	0.0
ICP-induced coupled plasma	952	4	11	0.9
Other(describe)	953	3	13	0.8
Method Group 940		8	12	1.7
Nickel, Ni				
Atomic Absorption	961	1	93	0.0
ICP-induced coupled plasma	962	7	98	9.9
Other(describe)	963	4	123	56.3
Method Group 950		12	96	9.6
Lead, Pb				
Atomic Absorption	971			
ICP-induced coupled plasma	972	5	10	0.7
Other(describe)	973	3	11	1.9
Method Group 960		8	10	1.2
Selenium, Se				
Atomic Absorption	981			
ICP-induced coupled plasma	982	2	27	7.3
Other(describe)	983	1	17	0.0
Method Group 970		3	17	7.5
Zinc, Zn				
Atomic Absorption	991	3	806	45
ICP-induced coupled plasma	992	7	871	44
Other(describe)	993	4	736	52
Method Group 980		14	824	76

101 Ground Sample AFPC 9-2			
Lab	%	H ₂ O	
61	0.79		-2.257
13	0.77		-1.904
61	0.74		-1.552
Std Dev	0.70		-1.000
13	0.68		-0.635
6	0.65		-0.212
24	0.65		-0.212
75	0.64		-0.071
6	0.63		0.000
6	0.63		0.000
Median	0.63		0.000
75	0.62		0.212
24	0.61		0.353
34	0.58		0.705
Std Dev	0.56		1.000
78	0.55		1.128
6	0.53		1.411
78	0.53		1.481
35	0.48		2.116
270	0.34		4.091

102 Other (describe)			
Lab	%	H ₂ O	
69	0.74		-0.624
69	0.73		-0.572
Median	0.62		0.000
51	0.51		0.572
Std Dev	0.43		1.000
26	0.37		1.301

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
51	29.31		-1.340
Std Dev	29.30		-1.000
Median	29.27		0.000
Std Dev	29.24		1.000
26	29.23		1.340

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	29.61		-1.452
Std Dev	29.57		-1.000

6	29.52		-0.447
6	29.48		0.000
Median	29.48		0.000
6	29.40		0.893
Std Dev	29.39		1.000
6	29.30		2.010

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
35	29.94		-3.372
61	29.45		-1.232
78	29.45		-1.232
Std Dev	29.39		-1.000
78	29.36		-0.865
61	29.16		0.000
Median	29.16		0.000
69	29.14		0.086
69	29.14		0.108
60	29.00		0.692
Std Dev	28.93		1.000
270	28.60		2.421

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
75	29.55		-0.733
75	29.55		-0.733
13	29.52		-0.482
Median	29.45		0.000
13	29.38		0.482
24	29.35		0.733
24	29.31		0.983

205 Other(describe)			
Lab	%	P2O5	
19	29.61		-1.944
Std Dev	29.52		-1.000
34	29.46		-0.368
Median	29.43		0.000
51	29.39		0.368
Std Dev	29.33		1.000
26	29.31		1.209

211 Gravimetric AFPC 9-5			
Lab	%	P2O5	dB
34	29.63		0.000

51	29.46		-1.340
Std Dev	29.44		-1.000
Median	29.40		0.000
Std Dev	29.35		1.000
26	29.34		1.340

212 ICP-induced coupled plasma			
Lab	%	P2O5	dB
6	29.71		-1.417
Std Dev	29.68		-1.000
6	29.64		-0.359
Median	29.61		0.000
6	29.59		0.359
Std Dev	29.54		1.000
6	29.49		1.787

213 Photometric-AFPC 9-6			
Lab	%	P2O5	dB
35	30.08		-3.169
61	29.66		-1.060
Std Dev	29.65		-1.000
78	29.61		-0.775
78	29.51		-0.308
Median	29.45		0.000
61	29.39		0.308
69	29.36		0.484
69	29.35		0.524
Std Dev	29.25		1.000
270	28.70		3.797

214 Automated -AOAC 978.01-15th			
Lab	%	P2O5	dB
75	29.74		-0.595
75	29.73		-0.549
13	29.72		-0.417
Median	29.66		0.000
13	29.61		0.417
24	29.54		0.960
Std Dev	29.53		1.000
24	29.49		1.320

215 Other(describe)			
Lab	%	P2O5	dB
34	29.63		0.000

Median	29.63		0.000
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301 Atomic Absorption-AFPC 9-12,13			
Lab	%	Fe2O3	
60	0.45		-1.340
Std Dev	0.45		-1.000
Median	0.44		0.000
Std Dev	0.43		1.000
51	0.43		1.340

302 ICP-induced coupled plasma			
Lab	%	Fe2O3	
78	0.54		-1.486
78	0.53		-1.320
6	0.53		-1.155
Std Dev	0.52		-1.000
34	0.52		-0.989
26	0.51		-0.657
6	0.51		-0.491
35	0.50		-0.325
6	0.50		-0.159
75	0.49		-0.007
Median	0.49		0.000
51	0.49		0.007
10	0.48		0.339
61	0.48		0.339
75	0.48		0.389
61	0.47		0.837
Std Dev	0.46		1.000
13	0.45		1.334
24	0.45		1.334
24	0.44		1.666
13	0.44		1.832

303 Other(describe)			
Lab	%	Fe2O3	
69	0.53		-0.564
69	0.51		0.000
Median	0.51		0.000
Std Dev	0.47		1.000
19	0.43		2.116

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

51	0.95	0.000
Median	0.95	0.000

402 ICP-induced coupled plasma		
Lab	%	Al2O3
78	1.71	-12.782
78	1.68	-12.438
24	0.86	-1.168
Std Dev	0.85	-1.000
75	0.81	-0.528
26	0.81	-0.481
24	0.81	-0.412
75	0.80	-0.353
6	0.80	-0.344
6	0.79	-0.206
6	0.78	0.000
Median	0.78	0.000
35	0.76	0.206
34	0.75	0.344
61	0.73	0.687
69	0.71	0.893
69	0.71	0.893
Std Dev	0.70	1.000
13	0.67	1.443
10	0.67	1.512
61	0.66	1.649
13	0.58	2.749

403 Other(describe)		
Lab	%	Al2O3
19	1.53	0.000
Median	1.53	0.000

501 Atomic Absorption-AFPC 9-18,19		
Lab	%	MgO
51	0.35	-1.072
Std Dev	0.35	-1.000
35	0.32	0.000
Median	0.32	0.000
Std Dev	0.29	1.000
60	0.28	1.608

502 ICP-induced coupled plasma		
Lab	%	MgO

13	0.38	-2.323
13	0.36	-1.787
78	0.35	-1.251
69	0.34	-1.072
78	0.34	-1.072
Std Dev	0.34	-1.000
26	0.33	-0.715
34	0.32	-0.429
51	0.32	-0.357
61	0.32	-0.357
10	0.31	0.000
69	0.31	0.000
Median	0.31	0.000
24	0.31	0.179
24	0.31	0.179
61	0.30	0.357
6	0.30	0.536
6	0.29	0.715
Std Dev	0.28	1.000
6	0.28	1.251
75	0.26	1.657
75	0.26	1.894

503 Other(describe)		
Lab	%	MgO
19	0.40	0.000
Median	0.40	0.000

601 Insoluble-AFPC 9-8		
Lab	%	Al
34	43.40	-57.926
61	13.38	-1.467
26	13.16	-1.044
Std Dev	13.13	-1.000
61	12.97	-0.696
13	12.93	-0.621
6	12.64	-0.066
6	12.62	-0.038
10	12.60	0.000
51	12.60	0.000
Median	12.60	0.000
6	12.50	0.188
13	12.45	0.292
24	12.25	0.668

24	12.18	0.799
Std Dev	12.07	1.000
35	11.90	1.316
69	2.30	19.371
69	2.29	19.399

602 Other(describe)		
Lab	%	Al
19	13.30	0.000
Median	13.30	0.000

701 Gravimetric sulfate		
Lab	%	CaO
Median	0.00	0.000

702 ICP-induced coupled plasma		
Lab	%	CaO
69	50.78	-5.356
69	50.78	-5.352
75	45.51	-1.277
Std Dev	45.16	-1.000
75	44.49	-0.480
61	44.26	-0.306
78	44.06	-0.147
78	43.87	0.000
Median	43.87	0.000
10	43.62	0.194
6	42.95	0.713
6	42.76	0.860
Std Dev	42.57	1.000
6	42.57	1.003
61	42.52	1.046
34	3.02	31.637

703 Ceric Sulfate volumetric		
Lab	%	CaO
Median	0.00	0.000

704 Permanganate		
Lab	%	CaO
60	42.50	0.000
Median	42.50	0.000

705 EDTA Volumetric		
Lab	%	CaO
35	43.82	-0.854
51	43.53	0.000
Median	43.53	0.000
Std Dev	43.19	1.000
26	42.91	1.826

706 Other(describe)		
Lab	%	CaO
19	43.95	-2.152
270	43.73	-1.533
Std Dev	43.54	-1.000
24	43.22	-0.084
Median	43.19	0.000
13	43.16	0.084
24	43.12	0.197
Std Dev	42.83	1.000
13	42.63	1.562

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00	0.000	0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
69	51.16	-6.025	
69	51.15	-6.018	
61	44.61	-1.059	
Std Dev	44.54	-1.000	
10	43.62	-0.302	
6	43.22	0.000	
Median	43.22	0.000	
6	42.98	0.178	
6	42.85	0.281	
61	42.83	0.292	
Std Dev	41.90	1.000	
34	3.04	30.486	

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
35	44.03		-0.775
51	43.75		0.000
Median	43.75		0.000
Std Dev	43.39		1.000
26	43.07		1.905

716 Other(describe)			
Lab	%	CaO	dB
19	43.95		-8.086
Std Dev	43.51		-1.000
24	43.48		-0.480
13	43.45		0.000
Median	43.45		0.000
24	43.39		0.860
Std Dev	43.39		1.000
13	42.96		7.891

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

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
35	3.50		-4.193
Std Dev	3.13		-1.000
51	3.11		-0.821
78	3.07		-0.432
78	3.06		-0.346
75	3.05		-0.259
13	3.03		-0.086
75	3.02		0.000
Median	3.02		0.000
13	3.01		0.043
24	2.99		0.216
24	2.90		0.994
Std Dev	2.90		1.000
69	2.75		2.291
69	2.75		2.334

803 Other(describe)			
Lab	%	Fluorine, F	
Median	0.00		0.000

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	
78	16.5		-0.709
78	16.5		-0.709
270	13.0		-0.096
6	12.5		0.000
Median	12.5		0.000
6	11.2		0.228
Std Dev	6.7		1.000
69	3.0		1.647
69	3.0		1.655

913 Other(describe)			
Lab	ppm	Arsenic, As	
13	7.5		-1.340
Std Dev	7.1		-1.000
Median	6.2		0.000
Std Dev	5.3		1.000
51	5.0		1.340

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
51	92		0.000
Median	92		0.000

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
78	106		-1.312
78	106		-1.312
Std Dev	103		-1.000
61	100		-0.664
6	96		-0.208
6	94		0.000
Median	94		0.000

61	88		0.653
75	88		0.676
75	86		0.901
Std Dev	85		1.000
270	81		1.464

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
69	124		-0.298
69	122		0.000
Median	122		0.000
Std Dev	117		1.000
13	110		2.382

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

932 ICP-induced coupled plasma			
Lab	ppm	Cobalt, Co	
6	1329		#####
Std Dev	5		-1.000
6	5		-0.893
78	3		0.000
78	3		0.000
Median	3		0.000
51	1		0.893
75	1		0.893
75	1		0.893

933 Other(describe)			
Lab	ppm	Cobalt, Co	
69	2		-0.414
69	2		0.000
Median	2		0.000
Std Dev	2		1.000
13	1		2.266

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	1.5		0.000
Median	1.5		0.000

943 Other(describe)			
Lab	ppm	Mercury, Hg	
69	<0.10		0.000
69	<0.10		0.000
13	0.4		0.000
Median			0.000

951 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Iolybdenum, Mo	
51	13		0.000
Median	13		0.000

952 ICP-induced coupled plasma			
Lab	ppm	Iolybdenum, Mo	
51	13		-2.821
Std Dev	11		-1.000
6	11		-0.339
Median	11		0.000
78	10		0.339
78	10		0.508

953 Other(describe)			
Lab	ppm	Iolybdenum, Mo	
69	13		-0.013
69	13		0.000
Median	13		0.000
Std Dev	12		1.000
13	11		2.667

961 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Nickel, Ni	
51	93		0.000
Median	93		0.000

962 ICP-induced coupled plasma			
Lab	ppm	Nickel, Ni	
270	100		-0.202
78	99		-0.051
78	99		-0.051
6	98		0.000
Median	98		0.000

6	93	0.556
Std Dev	88	1.000
75	78	2.023
75	74	2.478

963 Other(describe)		
Lab	ppm	Nickel, Ni
69	159	-0.633
69	158	-0.615
Median	123	0.000
13	89	0.615
Std Dev	67	1.000
19	65	1.036

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

972 ICP-induced coupled plasma			
Lab	ppm	Lead, Pb	
270	11		-2.010
78	11		-1.340
Std Dev	10		-1.000
6	10		0.000
78	10		0.000
Median	10		0.000
6	9		0.469

973 Other(describe)			
Lab	ppm	Lead, Pb	
69	11		-0.065
69	11		0.000
Median	11		0.000
Std Dev	9		1.000
13	6		2.615

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

982 ICP-induced coupled plasma			
Lab	ppm	Selenium, Se	
6	37		-1.340
Std Dev	35		-1.000

Median	27	0.000
Std Dev	20	1.000
6	17	1.340

983 Other(describe)			
Lab	ppm	Selenium, Se	
69	<0.10		0.000
69	<0.10		0.000
13	17		0.000
Median			0.000

991 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Zinc, Zn	
270	924		-2.635
Std Dev	851		-1.000
60	806		0.000
Median	806		0.000
51	804		0.045

992 ICP-induced coupled plasma			
Lab	ppm	Zinc, Zn	
6	912		-0.947
51	872		-0.034
78	871		0.000
78	871		0.000
Median	871		0.000
6	842		0.650
Std Dev	827		1.000
75	783		1.996
75	766		2.383

993 Other(describe)			
Lab	ppm	Zinc, Zn	
13	916		-3.458
Std Dev	788		-1.000
19	750		-0.269
Median	736		0.000
69	722		0.269
69	721		0.288

