AFPC Rock Check Program

Sample No. 2013-04

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	26	0.41	0.143
Other (describe)	102			
Method Group 100		26	0.41	0.14
P_2O_5				
Gravimetric AFPC IX.3.B	201	3	31.34	0.340
ICP-inducted coupled plasma AFPC IX.3.D	202	5	31.50	0.172
Photometric-AFPC IX.3.C	203	17	31.42	0.127
Automated -AOAC 978.01-15th	204	9	31.49	0.127
Other(describe)	205	1	31.28	0.000
Method Group 200		35	31.44	0.15
P_2O_5 (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	2	31.54	0.114
ICP-inducted coupled plasma AFPC IX.3.D	212	4	31.63	0.363
Photometric-AFPC IX.3.C	213	11	31.65	0.209
Automated -AOAC 978.01-15th	214	9	31.62	0.116
Other(describe)	215			
Method Group 210		26	31.63	0.12
Fe_2O_3				
Atomic Absorption-AFPC IX.6.B	301	4	0.89	0.067
ICP-inducted coupled plasma-AFPC IX.6.C	302	25	0.87	0.041
Other(describe)	303	3	0.95	0.045
Method Group 300		32	0.87	0.04
Al_2O_3				
Atomic Absorption-AFPC IX.7.B	401	2	1.45	0.034
ICP-inducted coupled plasma-AFPC IX.7.C	402	25	1.46	0.082
Other(describe)	403	3	1.67	0.104
Method Group 400		30	1.46	0.08
MgO				
Atomic Absorption-AFPC IX.8.A	501	6	0.40	0.030
ICP-inducted coupled plasma-AFPC IX.8.B	502	23	0.40	0.010
Other(describe)	503	3	0.37	0.015
Method Group 500		32	0.40	0.01
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	20	7.70	0.157
Other(describe)	602	4	7.86	0.640
Method Group 600		24	7.70	0.17
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	13	3.46	0.123
Other(describe)	652	5	3.34	3.489
Method Group 650		18	3.46	0.20
CaO				
Gravimetric sulfate-AFPC IX.12.A	701			
ICP-inducted coupled plasma-AFPC IX.12.D	702	16	45.76	0.777
Ceric Sulfate volumetric-AFPC IX.12.B	703			
Permanganate	704	3	46.03	3.293
EDTA Volumetric-AFPC IX.12.C	705	5	45.51	0.463
Other(describe)	706	10	45.32	0.763
Method Group 700		34	45.65	0.70
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-inducted coupled plasma-AFPC IX.12.D	712	10	45.92	0.121
Ceric Sulfate volumetric-AFPC IX.12.B	713			
Permanganate	714	2	50.37	3.122
EDTA Volumetric-AFPC IX.12.C	715	5	45.72	0.462
Other(describe)	716	9	45.52	0.906
Method Group 710		25	45.79	0.42

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801	1	3.63	0.000
Specific Ion Electrode-AFPC IX.14.B	802	19	3.64	0.080
Oher(describe)	803	3	3.80	0.056
Method Group 800		23	3.64	0.07
Arsenic, As				
Atomic Absorption	911			
ICP-inducted coupled plasma-AFPC IX.15.B	912	9	8.3	5.37
Other(describe)	913	1	8.0	0.00
Method Group 900		10	8.2	4.33
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921	1	5	0.0
ICP-inducted coupled plasma-AFPC IX.11.B	922	11	5	0.7
Other(describe)	923			
Method Group 910		12	5	0.7
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931			
ICP-inducted coupled plasma-AFPC IX.16.A	932	10	4	0.6
Other(describe)	933	1	4	0.0
Method Group 920		11	4	0.5
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-inducted coupled plasma-AFPC IX.16.A	942	2	0.1	0.00
Other(describe)	943			
Method Group 930		2	0.1	0.00
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951			
ICP-inducted coupled plasma-AFPC IX.16.A	952	9	24	1.5
Other(describe)	953			
Method Group 940		9	24	1.5
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961	1	7	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	962	9	10	6.0
Other(describe)	963	1	30	0.0
Method Group 950		11	10	6.0
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971	1	2	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	972	10	16	4.0
Other(describe)	973			
Method Group 960		11	15	6.5
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-inducted coupled plasma-AFPC IX.16.A	982	1	4	0.0
Other(describe)	983			
Method Group 970		1	4	0.0
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991	2	76	8
ICP-inducted coupled plasma-AFPC IX.16.A	992	10	68	6
Other(describe)	993	2	72	6
Method Group 980		14	68	7

101	Ground Sample AFPC IX.2.A	
Lab	%	H_2O
16	0.73	-2.225
10	0.71	-2.049
16	0.69	-1.944
10	0.60	-1.314
266	0.60	-1.314
Std Dev	0.56	-1.000
24	0.55	-0.963
9	0.54	-0.858
9	0.52	-0.753
35	0.50	-0.613
35	0.46	-0.333
24	0.46	-0.333
13	0.44	-0.158
13	0.43	-0.088
Median	0.41	0.000
6	0.40	0.088
15	0.36	0.368
21	0.36	0.368
30	0.35	0.438
275	0.35	0.438
275	0.34	0.508
15	0.34	0.508
33	0.33	0.578
21	0.32	0.648
49	0.28	0.928
Std Dev	0.27	1.000
241	0.15	1.829
77	0.14	1.909
77	0.04	2.610

102	Other (describe)	
Lab	%	H_2O
Median	0.00	0.000

201	Gravimetric AFPC IX.3.B	
Lab	%	P2O5
77	31.68	-1.001
Std Dev	31.68	-1.000
241	31.34	0.000
Median	31.34	0.000
Std Dev	31.00	1.000
44	30.77	1.679

202	ICP-inducted coupled plasma AFPC IX.3.D	
Lab	%	P2O5
266	32.92	-8.302
Std Dev	31.67	-1.000
6	31.58	-0.495
10	31.50	0.000
Median	31.50	0.000
16	31.35	0.845
Std Dev	31.32	1.000
10	31.30	1.136

203	Photometric-AFPC IX.3.C	
Lab	%	P2O5
9	31.87	-3.547
9	31.76	-2.680
30	31.72	-2.365
6	31.70	-2.207
35	31.57	-1.182
60	31.55	-1.025
Std Dev	31.55	-1.000
49	31.54	-0.946
33	31.44	-0.158
16	31.42	0.000
Median	31.42	0.000
270	31.42	0.028
35	31.41	0.079
92	31.40	0.158
92	31.40	0.158
Std Dev	31.29	1.000
275	31.22	1.576
275	31.14	2.207
78	30.99	3.389
78	30.42	7.882

204	Automated -AOAC 978.01-15th	
Lab	%	P2O5
15	31.56	-0.512
15	31.55	-0.473
77	31.54	-0.394
24	31.52	-0.236
24	31.49	0.000
Median	31.49	0.000
13	31.49	0.039
13	31.37	0.946
Std Dev	31.36	1.000
21	31.35	1.104
21	31.19	2.404

205	Other(describe)	
Lab	%	P2O5
19	31.28	0.000
Median	31.28	0.000

211	Gravimetric AFPC IX.3.B	
Lab	%	P2O5 dB
77	31.69	-1.340
Std Dev	31.65	-1.000
Median	31.54	0.000
Std Dev	31.43	1.000
241	31.39	1.340

212	ICP-inducted coupled plasma AFPC IX.3.D	
Lab	%	P2O5 dB
266	33.12	-4.105
Std Dev	31.99	-1.000
10	31.69	-0.161
Median	31.63	0.000
16	31.57	0.161
10	31.52	0.287

213	Photometric-AFPC IX.3.C	
Lab	%	P2O5 dB
9	32.04	-1.847
9	31.93	-1.340
Std Dev	31.86	-1.000
30	31.83	-0.864
6	31.83	-0.844
35	31.73	-0.372
16	31.65	0.000
Median	31.65	0.000
49	31.63	0.108
35	31.56	0.459
33	31.54	0.512
Std Dev	31.44	1.000
275	31.33	1.555
275	31.25	1.924

214	Automated -AOAC 978.01-15th	
Lab	%	P2O5 dB
24	31.69	-0.645
15	31.66	-0.384
15	31.66	-0.373
24	31.64	-0.139
13	31.62	0.000
Median	31.62	0.000
77	31.58	0.303
13	31.51	0.967
Std Dev	31.50	1.000
21	31.45	1.453
21	31.30	2.771

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

301	Atomic Absorption-AFPC IX.6.B	
Lab	%	Fe2O3
30	0.95	-0.863
33	0.92	-0.413
Median	0.89	0.000
60	0.87	0.413
Std Dev	0.83	1.000
241	0.76	2.019

302	ICP-inducted coupled plasma-AFPC IX.6.C	
Lab	%	Fe2O3
266	1.02	-3.776
78	0.95	-1.949
78	0.94	-1.705
Std Dev	0.91	-1.000
15	0.90	-0.853
270	0.90	-0.853
6	0.90	-0.731
13	0.89	-0.609
10	0.89	-0.487
10	0.88	-0.365
15	0.88	-0.365
16	0.88	-0.365
16	0.87	-0.122
13	0.87	0.000
Median	0.87	0.000

9	0.86	0.122
9	0.86	0.122
49	0.86	0.122
92	0.86	0.122
92	0.86	0.122
21	0.84	0.731
Std Dev	0.82	1.000
44	0.81	1.261
24	0.81	1.340
21	0.81	1.462
24	0.81	1.462
35	0.79	1.827
35	0.79	1.827

303 Other(describe)

Lab	%	Fe2O3
77	0.97	-0.447
77	0.95	0.000
Median	0.95	0.000
Std Dev	0.91	1.000
19	0.85	2.233

401 Atomic Absorption-AFPC IX.6.B

Lab	%	Al2O3
33	1.49	-1.340
Std Dev	1.48	-1.000
Median	1.45	0.000
Std Dev	1.41	1.000
30	1.40	1.340

402 ICP-inducted coupled plasma-AFPC IX.6.C

Lab	%	Al2O3
266	1.82	-4.446
78	1.72	-3.167
78	1.69	-2.863
24	1.63	-2.071
24	1.62	-2.010
35	1.54	-1.035
92	1.54	-1.035
92	1.54	-1.035
Std Dev	1.54	-1.000
270	1.48	-0.244
13	1.47	-0.122
44	1.46	-0.117
10	1.46	0.000
15	1.46	0.000
Median	1.46	0.000
16	1.45	0.061
16	1.45	0.061
9	1.45	0.122
15	1.44	0.183
49	1.44	0.183
6	1.43	0.305
10	1.43	0.305
13	1.43	0.305
21	1.43	0.305
35	1.43	0.305
9	1.43	0.365
Std Dev	1.37	1.000
21	1.37	1.096

403 Other(describe)

Lab	%	Al2O3
77	1.69	-0.191
77	1.67	0.000
Median	1.67	0.000
Std Dev	1.57	1.000
19	1.41	2.489

501 Atomic Absorption-AFPC IX.8.A

Lab	%	MgO
35	0.47	-2.513
Std Dev	0.42	-1.000
35	0.42	-0.837
30	0.40	-0.168
Median	0.40	0.000
33	0.39	0.168
60	0.37	0.838
Std Dev	0.37	1.000
241	0.37	1.005

502 ICP-inducted coupled plasma-AFPC IX.8.B

Lab	%	MgO
92	0.47	-7.053
13	0.43	-3.023
92	0.43	-3.023
13	0.42	-1.511
16	0.41	-1.008
24	0.41	-1.008
49	0.41	-1.008
Std Dev	0.41	-1.000
6	0.40	0.000
10	0.40	0.000
10	0.40	0.000
15	0.40	0.000
16	0.40	0.000
21	0.40	0.000
24	0.40	0.000
78	0.40	0.000
266	0.40	0.000
Median	0.40	0.000
270	0.40	0.161
15	0.40	0.504
78	0.40	0.504
Std Dev	0.39	1.000
9	0.39	1.008
9	0.39	1.008
21	0.39	1.008
44	0.39	1.133

503 Other(describe)

Lab	%	MgO
77	0.39	-1.340
Std Dev	0.38	-1.000
77	0.37	0.000
Median	0.37	0.000
Std Dev	0.36	1.000
19	0.35	1.340

601 Insoluble-AFPC IX.4.A

Lab	%	Al
21	8.09	-2.457
9	8.06	-2.297
10	7.92	-1.372
Std Dev	7.86	-1.000
16	7.85	-0.957
16	7.83	-0.830
24	7.83	-0.830
21	7.80	-0.638
49	7.80	-0.638
9	7.80	-0.606
15	7.70	0.000
35	7.70	0.000
Median	7.70	0.000
10	7.69	0.096
33	7.67	0.191
30	7.64	0.383
15	7.62	0.510
35	7.62	0.510
24	7.59	0.702
Std Dev	7.54	1.000
13	7.53	1.085
13	7.52	1.149
6	7.29	2.616

602 Other(describe)

Lab	%	Al
19	8.84	-1.539
Std Dev	8.49	-1.000
266	8.20	-0.539
Median	7.86	0.000
275	7.51	0.539
275	7.48	0.586

651 Gasometric-AFPC IX.13.B

Lab	%	CO2
49	3.81	-2.842
21	3.71	-2.030
Std Dev	3.58	-1.000
21	3.57	-0.893
24	3.56	-0.772
15	3.52	-0.447
15	3.51	-0.365
9	3.46	0.000
9	3.46	0.000
Median	3.46	0.000
77	3.41	0.406
33	3.39	0.568
Std Dev	3.34	1.000
30	3.29	1.381
13	3.25	1.705
13	3.21	2.030

652 Other(describe)

Lab	%	CO2
35	7.90	-1.307

35	7.86	-1.296
Std Dev	6.83	-1.000
266	3.34	0.000
Median	3.34	0.000
78	3.19	0.044
78	3.15	0.054

701	Gravimetric sulfate-AFPC IX.12.A	
Lab	%	CaO
Median	0.00	0.000

702	ICP-inducted coupled plasma-AFPC IX.12.D	
Lab	%	CaO
92	47.76	-2.574
44	47.67	-2.463
92	47.53	-2.278
78	46.92	-1.493
Std Dev	46.54	-1.000
78	46.44	-0.875
9	45.82	-0.077
49	45.81	-0.064
10	45.80	-0.051
Median	45.76	0.000
6	45.72	0.051
9	45.69	0.097
16	45.64	0.154
10	45.54	0.290
16	45.47	0.373
21	45.25	0.656
21	45.15	0.785
270	45.11	0.836

703	Ceric Sulfate volumetric-AFPC IX.12.B	
Lab	%	CaO
Median	0.00	0.000

704	Permanganate	
Lab	%	CaO
241	54.48	-2.565
Std Dev	49.32	-1.000
30	46.03	0.000
Median	46.03	0.000
60	45.65	0.115

705	EDTA Volumetric-AFPC IX.12.C	
Lab	%	CaO
275	45.65	-0.303
275	45.56	-0.108
266	45.51	0.000
Median	45.51	0.000
Std Dev	45.05	1.000
35	44.94	1.232
35	44.70	1.751

706	Other(describe)	
Lab	%	CaO
33	46.71	-1.825
15	46.55	-1.609
15	46.26	-1.229
Std Dev	46.08	-1.000
13	45.41	-0.115
13	45.32	-0.003
Median	45.32	0.000
24	45.32	0.003
19	45.20	0.154
24	44.96	0.469
77	44.70	0.809
77	44.60	0.940

711	Gravimetric sulfate-AFPC IX.12.A		
Lab	%	CaO	dB
Median	0.00		0.000

712	ICP-inducted coupled plasma-AFPC IX.12.D		
Lab	%	CaO	dB
10	46.08		-1.315
9	46.06		-1.175
Std Dev	46.04		-1.000
16	45.98		-0.482
49	45.94		-0.177
9	45.93		-0.112
Median	45.92		0.000
6	45.90		0.112
10	45.86		0.486
Std Dev	45.80		1.000
16	45.79		1.083
21	45.41		4.157
21	45.29		5.136

713	Ceric Sulfate volumetric-AFPC IX.12.B		
Lab	%	CaO	dB
Median	0.00		0.000

714	Permanganate		
Lab	%	CaO	dB
241	54.56		-1.340
Std Dev	53.50		-1.000
Median	50.37		0.000
Std Dev	47.25		1.000
30	46.19		1.340

715	EDTA Volumetric-AFPC IX.12.C		
Lab	%	CaO	dB
275	45.81		-0.205
266	45.78		-0.150
275	45.72		0.000
Median	45.72		0.000
Std Dev	45.25		1.000
35	45.17		1.190
35	44.91		1.751

716	Other(describe)		
Lab	%	CaO	dB
33	46.86		-1.480
15	46.70		-1.302
Std Dev	46.43		-1.000
15	46.42		-0.991
13	45.60		-0.087
24	45.52		0.000
Median	45.52		0.000
13	45.51		0.012
24	45.21		0.349
77	44.76		0.841
Std Dev	44.62		1.000
77	44.62		1.001

801	Volumetric-AFPC IX.14.A	
Lab	%	Fluorine, F
33	3.63	0.000
Median	3.63	0.000

802	Specific Ion Electrode-AFPC IX.14.B	
Lab	%	Fluorine, F
35	3.76	-1.496
Std Dev	3.72	-1.000
9	3.72	-0.935
24	3.72	-0.935
9	3.70	-0.748
13	3.70	-0.748
21	3.69	-0.623
21	3.68	-0.499
30	3.67	-0.374
49	3.64	0.000
275	3.64	0.000
Median	3.64	0.000
266	3.63	0.125
6	3.62	0.249
15	3.62	0.249
13	3.59	0.623
24	3.59	0.686
15	3.56	0.997
Std Dev	3.56	1.000
35	3.51	1.620
275	3.51	1.620
270	3.20	5.485

803	Oher(describe)	
Lab	%	Fluorine, F
77	3.81	-0.179
19	3.80	0.000
Median	3.80	0.000
Std Dev	3.74	1.000
77	3.66	2.501

911	Atomic Absorption-AFPC	
Lab	ppm	Arsenic, As
Median	0.0	0.000

912	ICP-inducted coupled plasma-AFPC IX.15.I	
Lab	ppm	Arsenic, As
78	15.0	-1.247
6	14.9	-1.219
78	14.5	-1.154
Std Dev	13.7	-1.000
266	9.6	-0.242

270	8.3	0.000
Median	8.3	0.000
77	8.0	0.056
35	7.3	0.186
24	6.8	0.279
35	6.0	0.428

913 Other(describe)

Lab	ppm	Arsenic, As
77	8.0	0.000
Median	8.0	0.000

921 Atomic Absorption-AFPC IX.11.A

Lab	ppm	Cadmium, Cd
33	5	0.000
Median	5	0.000

922 ICP-inducted coupled plasma-AFPC IX.11.B

Lab	ppm	Cadmium, Cd
78	7	-1.963
78	7	-1.836
Std Dev	6	-1.000
77	6	-0.804
77	6	-0.804
270	6	-0.268
24	5	0.000
Median	5	0.000
24	5	0.067
6	5	0.536
35	5	0.536
266	5	0.884
Std Dev	5	1.000
35	4	1.876

923 Other(describe)

Lab	ppm	Cadmium, Cd
Median	0	0.000

931 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Cobalt, Co
Median	0	0.000

932 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	Cobalt, Co
78	6	-2.436
78	5	-1.624
266	5	-1.624
Std Dev	5	-1.000
270	4	-0.487
35	4	0.000
35	4	0.000
77	4	0.000
77	4	0.000
Median	4	0.000
6	4	0.162
Std Dev	3	1.000
24	2	3.736

933 Other(describe)

Lab	ppm	Cobalt, Co
44	4	0.000
Median	4	0.000

941 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Mercury, Hg
Median	0.0	0.000

942 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	Mercury, Hg
270	0.2	-1.340
Std Dev	0.1	-1.000
Median	0.1	0.000
Std Dev	0.1	1.000
266	0.1	1.340

943 Other(describe)

Lab	ppm	Mercury, Hg
Median	0.0	0.000

951 Atomic Absorption-AFPC IX.16.B

Lab	ppm	lolybdenum, Mo
Median	0	0.000

952 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	lolybdenum, Mo
6	25	-1.206
Std Dev	25	-1.000
77	24	-0.335
266	24	-0.335
270	24	-0.134
78	24	0.000
Median	24	0.000
78	23	0.603
Std Dev	22	1.000
77	22	1.005
44	20	2.060
24	12	7.873

953 Other(describe)

Lab	ppm	Molybdenum, Mo
Median	0	0.000

961 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Nickel, Ni
33	7	0.000
Median	7	0.000

962 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	Nickel, Ni
266	21	-1.910
77	16	-1.089
77	16	-1.089
Std Dev	15	-1.000
78	12	-0.335
270	10	0.000
Median	10	0.000
6	9	0.134
35	8	0.251
35	8	0.251
78	6	0.586

963 Other(describe)

Lab	ppm	Nickel, Ni
19	30	0.000
Median	30	0.000

971 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Lead, Pb
33	2	0.000
Median	2	0.000

972 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	Lead, Pb
6	23	-1.726
Std Dev	20	-1.000
266	20	-0.991
35	17	-0.343
35	17	-0.343
270	16	-0.156
Median	16	0.000
77	15	0.156
77	15	0.156
Std Dev	12	1.000
24	11	1.278
78	6	2.350
78	5	2.661

973 Other(describe)

Lab	ppm	Lead, Pb
Median	0	0.000

981 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Selenium, Se
Median	0	0.000

982 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	Selenium, Se
266	4	0.000
Median	4	0.000

983 Other(describe)

Lab	ppm	Selenium, Se
Median	0	0.000

991 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Zinc, Zn
60	87	-1.340
Std Dev	84	-1.000
Median	76	0.000
Std Dev	69	1.000
33	66	1.340

992 ICP-inducted coupled plasma-AFPC IX.16.A

Lab	ppm	Zinc, Zn
78	75	-1.340

270	74	-1.161
Std Dev	73	-1.000
266	72	-0.766
78	71	-0.533
6	70	-0.453
Median	68	0.000
77	65	0.453
35	64	0.632
77	64	0.632
Std Dev	62	1.000
35	58	1.797
44	50	3.116

993	Other(describe)	
Lab	ppm	Zinc, Zn
19	80	-1.340
Std Dev	78	-1.000
Median	72	0.000
Std Dev	65	1.000
19	63	1.340