AFPC Rock Check Program

Sample No. 2023-01

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	23	1.07	0.165
Other (describe)	102			
Method Group 100		23	1.07	0.16
P_2O_5				
Gravimetric AFPC IX.3.B	201	4	32.84	0.141
ICP-inducted coupled plasma AFPC IX.3.D	202	4	33.00	0.359
AOAC 962.02-15th	203	2	33.03	0.017
Photometric-AFPC IX.3.C	204	22	33.01	0.063
Automated -AOAC 978.01-15th	205	2	32.92	0.123
Method Group 200		34	33.00	0.10
P_2O_5 (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	3	33.09	0.097
ICP-inducted coupled plasma AFPC IX.3.D	212	4	33.32	0.367
AOAC 962.02-15th	213	2	33.39	0.019
Photometric-AFPC IX.3.C	214	13	33.37	0.050
Automated -AOAC 978.01-15th	215	1	33.03	0.000
Method Group 210		23	33.36	0.12
Fe_2O_3				
Atomic Absorption-AFPC IX.6.B	301			
ICP-inducted coupled plasma-AFPC IX.6.C	302	23	1.09	0.034
Other(describe)	303	5	1.19	0.078
Method Group 300		28	1.09	0.07
Al_2O_3				
Atomic Absorption-AFPC IX.7.B	401	2	1.51	0.015
ICP-inducted coupled plasma-AFPC IX.7.C	402	23	1.44	0.063
Other(describe)	403	3	1.59	0.030
Method Group 400		28	1.45	0.08
MgO				
Atomic Absorption-AFPC IX.8.A	501	1	0.42	0.000
ICP-inducted coupled plasma-AFPC IX.8.B	502	24	0.36	0.008
Other(describe)	503	3	0.37	0.019
Method Group 500		28	0.36	0.01
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	20	3.24	0.087
Other(describe)	602	1	3.19	0.000
Method Group 600		21	3.24	0.08
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	15	3.50	0.112
Other(describe)	652	6	4.41	0.831
Method Group 650		21	3.56	0.30
CaO				
Gravimetric sulfate-AFPC IX.12.A	701	4	47.81	0.313
ICP-inducted coupled plasma-AFPC IX.12.D	702	19	47.81	0.227
Ceric Sulfate volumetric-AFPC IX.12.B	703			
Permanganate	704	1	47.93	0.000
EDTA Volumetric-AFPC IX.12.C	705			
Other(describe)	706	6	48.07	0.827
Method Group 700		30	47.84	0.29
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711	2	47.74	0.361
ICP-inducted coupled plasma-AFPC IX.12.D	712	12	48.28	0.121
Ceric Sulfate volumetric-AFPC IX.12.B	713			
Permanganate	714	1	48.30	0.000
EDTA Volumetric-AFPC IX.12.C	715			
Other(describe)	716	6	48.62	0.686
Method Group 710		21	48.29	0.15

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	24	3.76	0.062
Oher(describe)	803	3	3.83	0.144
Method Group 800		27	3.77	0.07
Arsenic, As				
Atomic Absorption	911			
ICP-inducted coupled plasma-AFPC IX.15.B	912	11	7.8	2.47
Other(describe)	913	2	8.3	0.93
Method Group 900		13	7.8	1.72
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921			
ICP-inducted coupled plasma-AFPC IX.11.B	922	14	6	0.4
Other(describe)	923			
Method Group 910		14	6	0.4
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931			
ICP-inducted coupled plasma-AFPC IX.16.A	932	11	3	1.7
Other(describe)	933			
Method Group 920		11	3	1.7
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-inducted coupled plasma-AFPC IX.16.A	942	1	0.1	0.00
Other(describe)	943	1	79.0	0.00
Method Group 930		2	39.5	29.44
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951			
ICP-inducted coupled plasma-AFPC IX.16.A	952	10	8	0.9
Other(describe)	953			
Method Group 940		10	8	0.9
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961	1	7	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	962	10	9	1.3
Other(describe)	963			
Method Group 950		11	9	1.7
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971			
ICP-inducted coupled plasma-AFPC IX.16.A	972	14	18	5.3
Other(describe)	973			
Method Group 960		14	18	5.3
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-inducted coupled plasma-AFPC IX.16.A	982	1		0.0
Other(describe)	983			
Method Group 970		1	0	0.0
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991			
ICP-inducted coupled plasma-AFPC IX.16.A	992	11	68	12
Other(describe)	993	1	62	0
Method Group 980		12	65	10

101	Ground Sample AFPC IX.2.A	
Lab	% H_2O	
55	1.45	-2.304
Std Dev	1.23	-1.000
24	1.16	-0.546
15	1.15	-0.515
15	1.15	-0.515
26	1.13	-0.394
21	1.12	-0.333
26	1.12	-0.333
49	1.11	-0.273
21	1.09	-0.152
9	1.09	-0.121
24	1.09	-0.121
9	1.07	0.000
Median	1.07	0.000
10	1.05	0.091
10	1.03	0.212
13	0.98	0.546
16	0.95	0.673
16	0.90	0.982
Std Dev	0.90	1.000
13	0.90	1.031
77	0.84	1.364
27	0.78	1.728
77	0.64	2.607
113	0.54	3.183
270	0.49	3.486

102	Other (describe)	
Lab	% H_2O	
Median	0.00	0.000

201	Gravimetric AFPC IX.3.B	
Lab	% P2O5	
22	33.04	-1.438
Std Dev	32.98	-1.000
113	32.92	-0.550
Median	32.84	0.000
77	32.76	0.550
55	32.75	0.621

202	ICP-inducted coupled plasma AFPC IX.3.D	
Lab	% P2O5	
10	33.10	-0.292
16	33.07	-0.209
Median	33.00	0.000
10	32.92	0.209
Std Dev	32.64	1.000
270	31.63	3.815

203	AOAC 962.02-15th	
Lab	% P2O5	
9	33.05	-1.340
Std Dev	33.04	-1.000
Median	33.03	0.000
Std Dev	33.01	1.000
9	33.01	1.340

204	Photometric-AFPC IX.3.C	
Lab	% P2O5	
13	33.12	-1.720
10	33.12	-1.720
51	33.09	-1.160
24	33.08	-1.080
Std Dev	33.08	-1.000
24	33.08	-1.000
13	33.07	-0.840
21	33.06	-0.760
10	33.05	-0.600
21	33.05	-0.520
16	33.04	-0.368
49	33.03	-0.280
Median	33.01	0.000
51	33.00	0.280
15	32.99	0.360
15	32.99	0.360
237	32.98	0.520
26	32.98	0.520
26	32.98	0.520
92	32.97	0.760
92	32.95	1.000
Std Dev	32.95	1.000
78	32.85	2.600
78	32.84	2.840
27	32.64	5.960

205	Automated -AOAC 978.01-15th	
Lab	% P2O5	
22	33.08	-1.340
Std Dev	33.04	-1.000
Median	32.92	0.000
Std Dev	32.79	1.000
77	32.75	1.340

211	Gravimetric AFPC IX.3.B		
Lab	% P2O5	dB	
55	33.23	-1.402	
Std Dev	33.19	-1.000	
113	33.09	0.000	
Median	33.09	0.000	
Std Dev	33.00	1.000	
77	32.97	1.278	

212	ICP-inducted coupled plasma AFPC IX.3.D		
Lab	% P2O5	dB	
10	33.44	-0.338	
16	33.37	-0.139	
Median	33.32	0.000	
10	33.27	0.139	
Std Dev	32.95	1.000	
270	31.78	4.189	

213	AOAC 962.02-15th		
Lab	% P2O5	dB	
9	33.41	-1.340	
Std Dev	33.41	-1.000	
Median	33.39	0.000	
Std Dev	33.37	1.000	
9	33.36	1.340	

214	Photometric-AFPC IX.3.C		
Lab	% P2O5	dB	
24	33.46	-1.743	
13	33.45	-1.438	
24	33.44	-1.373	
21	33.42	-1.005	
Std Dev	33.42	-1.000	
21	33.42	-0.905	
49	33.40	-0.536	
15	33.37	0.000	
15	33.37	0.000	
Median	33.37	0.000	
13	33.36	0.203	
26	33.36	0.335	
16	33.35	0.400	
26	33.35	0.402	
Std Dev	33.32	1.000	
27	32.90	9.489	

215	Automated -AOAC 978.01-15th		
Lab	% P2O5	dB	
77	33.03	0.000	
Median	33.03	0.000	

301	Atomic Absorption-AFPC IX.6.B	
Lab	% Fe2O3	
Median	0.00	0.000

302	ICP-inducted coupled plasma-AFPC IX.6.C	
Lab	% Fe2O3	
15	1.35	-7.699
78	1.25	-4.590
15	1.24	-4.294
78	1.18	-2.665
Std Dev	1.12	-1.000
13	1.12	-0.740
13	1.12	-0.740
10	1.11	-0.592
49	1.11	-0.592
51	1.11	-0.444
9	1.10	-0.148
9	1.09	0.000
10	1.09	0.000
21	1.09	0.000
21	1.09	0.000
Median	1.09	0.000
270	1.09	0.000
51	1.08	0.296
16	1.07	0.533
16	1.06	0.814
Std Dev	1.06	1.000
92	1.02	2.221
92	1.01	2.517
24	0.97	3.554

237	0.95	4.146
24	0.92	5.034

303	Other(describe)	
Lab	%	Fe2O3
77	1.29	-1.340
77	1.27	-1.085
Std Dev	1.26	-1.000
22	1.19	0.000
Median	1.19	0.000
22	1.17	0.255
Std Dev	1.11	1.000
27	0.53	8.359

401	Atomic Absorption-AFPC IX.6.B	
Lab	%	Al2O3
22	1.53	-1.340
Std Dev	1.52	-1.000
Median	1.51	0.000
Std Dev	1.50	1.000
55	1.49	1.340

402	ICP-inducted coupled plasma-AFPC IX.6.C	
Lab	%	Al2O3
78	1.71	-4.162
78	1.70	-4.083
51	1.58	-2.112
51	1.51	-1.088
24	1.51	-1.009
Std Dev	1.50	-1.000
92	1.50	-0.930
92	1.48	-0.536
16	1.45	-0.158
13	1.45	-0.142
13	1.45	-0.142
24	1.45	-0.063
16	1.44	0.000
Median	1.44	0.000
9	1.43	0.252
21	1.43	0.252
10	1.42	0.331
9	1.42	0.410
270	1.41	0.568
49	1.40	0.646
21	1.40	0.725
10	1.39	0.804
Std Dev	1.38	1.000
15	1.36	1.356
15	1.36	1.356
237	1.35	1.435

403	Other(describe)	
Lab	%	Al2O3
77	1.63	-1.173
Std Dev	1.62	-1.000
77	1.59	0.000
Median	1.59	0.000
Std Dev	1.56	1.000
22	1.55	1.508

501	Atomic Absorption-AFPC IX.8.A	
Lab	%	MgO
55	0.42	0.000
Median	0.42	0.000

502	ICP-inducted coupled plasma-AFPC IX.8.B	
Lab	%	MgO
27	0.46	-12.507
78	0.38	-2.978
24	0.37	-1.787
49	0.37	-1.787
13	0.37	-1.191
Std Dev	0.36	-1.000
10	0.36	-0.596
21	0.36	-0.596
21	0.36	-0.596
78	0.36	-0.596
13	0.36	0.000
15	0.36	0.000
15	0.36	0.000
51	0.36	0.000
92	0.36	0.000
Median	0.36	0.000
9	0.35	0.596
9	0.35	0.596
10	0.35	0.596
24	0.35	0.596
Std Dev	0.35	1.000
51	0.35	1.191
92	0.35	1.191
16	0.34	1.846
16	0.34	1.906
270	0.32	4.169
237	0.31	5.956

503	Other(describe)	
Lab	%	MgO
77	0.37	-0.268
77	0.37	0.000
Median	0.37	0.000
Std Dev	0.35	1.000
22	0.32	2.412

601	Insoluble-AFPC IX.4.A	
Lab	%	AI
55	4.10	-9.971
22	3.47	-2.651
10	3.37	-1.556
24	3.33	-1.037
Std Dev	3.32	-1.000
26	3.31	-0.865
9	3.30	-0.749
26	3.30	-0.749
24	3.26	-0.288
16	3.25	-0.115
15	3.24	0.000
15	3.24	0.000
Median	3.24	0.000
9	3.22	0.173
21	3.22	0.231
51	3.21	0.346
16	3.20	0.461
49	3.16	0.865
51	3.16	0.865
Std Dev	3.15	1.000
10	3.13	1.210
13	2.98	2.997
13	2.92	3.689

602	Other(describe)	
Lab	%	AI
21	3.19	0.000
Median	3.19	0.000

651	Gasometric-AFPC IX.13.B	
Lab	%	CO2
24	3.93	-3.797
24	3.91	-3.618
55	3.88	-3.350
Std Dev	3.61	-1.000
16	3.58	-0.715
9	3.56	-0.536
9	3.54	-0.357
13	3.53	-0.223
16	3.50	0.000
21	3.50	0.000
21	3.50	0.000
Median	3.50	0.000
13	3.43	0.625
77	3.41	0.804
49	3.41	0.849
Std Dev	3.39	1.000
15	3.28	1.965
15	3.28	1.965

652	Other(describe)	
Lab	%	CO2
237	5.23	-0.987
78	4.95	-0.644
78	4.89	-0.578
Median	4.41	0.000
51	3.93	0.578
51	3.78	0.758
22	3.66	0.908

701	Gravimetric sulfate-AFPC IX.12.A	
Lab	%	CaO
113	47.97	-0.488
113	47.86	-0.152
Median	47.81	0.000
22	47.77	0.152
Std Dev	47.50	1.000
55	46.58	3.960

702	ICP-inducted coupled plasma-AFPC IX.12.I	
Lab	%	CaO

78	51.01	-14.060
78	49.37	-6.865
92	48.16	-1.518
92	48.15	-1.474
16	48.12	-1.382
Std Dev	48.04	-1.000
10	47.92	-0.484
51	47.92	-0.484
21	47.88	-0.286
16	47.83	-0.073
10	47.81	0.000
Median	47.81	0.000
13	47.80	0.066
49	47.79	0.088
51	47.78	0.154
9	47.75	0.286
13	47.69	0.528
9	47.68	0.594
21	47.66	0.660
Std Dev	47.58	1.000
270	47.32	2.156
237	46.88	4.093

703 Ceric Sulfate volumetric-AFPC IX.12.B

Lab	%	CaO
Median	0.00	0.000

704 Permanganate

Lab	%	CaO
27	47.93	0.000
Median	47.93	0.000

705 EDTA Volumetric-AFPC IX.12.C

Lab	%	CaO
Median	0.00	0.000

706 Other(describe)

Lab	%	CaO
77	49.70	-1.967
77	49.15	-1.302
Std Dev	48.90	-1.000
24	48.10	-0.033
Median	48.07	0.000
24	48.05	0.033
15	47.69	0.462
15	47.69	0.462

711 Gravimetric sulfate-AFPC IX.12.A

Lab	%	CaO	dB
113	48.23		-1.340
Std Dev	48.10		-1.000
Median	47.74		0.000
Std Dev	47.38		1.000
55	47.26		1.340

712 ICP-inducted coupled plasma-AFPC IX.12.D

Lab	%	CaO	dB
16	48.56		-2.359
10	48.43		-1.248
21	48.42		-1.155
Std Dev	48.40		-1.000
49	48.33		-0.402
10	48.31		-0.246
16	48.29		-0.076
Median	48.28		0.000
9	48.27		0.076
13	48.27		0.102
9	48.19		0.744
21	48.19		0.768
Std Dev	48.16		1.000
13	48.12		1.303
270	47.55		6.008

713 Ceric Sulfate volumetric-AFPC IX.12.B

Lab	%	CaO	dB
Median	0.00		0.000

714 Permanganate

Lab	%	CaO	dB
27	48.30		0.000
Median	48.30		0.000

715 EDTA Volumetric-AFPC IX.12.C

Lab	%	CaO	dB
Median	0.00		0.000

716 Other(describe)

Lab	%	CaO	dB
77	50.12		-2.191
77	49.46		-1.234
Std Dev	49.30		-1.000
24	48.63		-0.015
Median	48.62		0.000
24	48.61		0.015
15	48.24		0.542
15	48.24		0.542

801 Volumetric-AFPC IX.14.A

Lab	%	Fluorine, F
Median	0.00	0.000

802 Specific Ion Electrode-AFPC IX.14.B

Lab	%	Fluorine, F
22	3.97	-3.370
27	3.89	-1.990
26	3.86	-1.584
Std Dev	3.82	-1.000
21	3.80	-0.609
16	3.79	-0.447
26	3.79	-0.447
9	3.78	-0.284
9	3.78	-0.284
24	3.78	-0.284
49	3.78	-0.203
16	3.78	-0.203
21	3.77	-0.122
Median	3.76	0.000
51	3.76	0.122
13	3.74	0.365
237	3.73	0.609
13	3.71	0.853
51	3.71	0.934
Std Dev	3.70	1.000
113	3.70	1.015
270	3.70	1.015
113	3.60	2.639
55	3.42	5.563
24	3.38	6.294
15	3.04	11.768
15	3.04	11.768

803 Oher(describe)

Lab	%	Fluorine, F
22	4.09	-1.845
Std Dev	3.97	-1.000
77	3.83	0.000
Median	3.83	0.000
77	3.71	0.835

911 Atomic Absorption-AFPC

Lab	ppm	Arsenic, As
Median	0.0	0.000

912 ICP-inducted coupled plasma-AFPC IX.15.

Lab	ppm	Arsenic, As
113	24.6	-6.753
24	10.6	-1.093
Std Dev	10.3	-1.000
24	9.3	-0.588
270	9.0	-0.467
51	8.5	-0.265
16	7.8	0.000
Median	7.8	0.000
51	7.5	0.139
16	7.2	0.247
Std Dev	5.4	1.000
237	4.4	1.378
78	3.8	1.635
78	3.4	1.817

913 Other(describe)

Lab	ppm	Arsenic, As
77	9.5	-1.340
Std Dev	9.2	-1.000
Median	8.3	0.000
Std Dev	7.3	1.000
77	7.0	1.340

921 Atomic Absorption-AFPC IX.11.A

Lab	ppm	Cadmium, Cd
Median	0	0.000

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

Lab	ppm	Cadmium, Cd
78	8	-5.956

77	8	-5.672
78	8	-5.204
Std Dev	6	-1.000
16	6	-0.255
16	6	-0.199
51	6	0.000
77	6	0.000
270	6	0.000
Median	6	0.000
55	6	0.142
113	6	0.142
Std Dev	6	1.000
51	6	1.418
24	5	3.261
24	3	8.508
237	3	8.721

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
77	8	-2.651
78	6	-1.473
78	5	-1.178
Std Dev	5	-1.000
16	3	-0.227
16	3	-0.127
55	3	0.000
270	3	0.000
Median	3	0.000
237	2	0.333
24	1	0.942
24	1	0.972
Std Dev	1	1.000
77	1	1.178

933 Other(describe)

Lab	ppm	Cobalt, Co
Median	0	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	0.1	0.000
Median	0.1	0.000

943 Other(describe)

Lab	ppm	Mercury, Hg
24	79.0	0.000
Median	79.0	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
77	11	-3.617
77	11	-3.617
Std Dev	9	-1.000
55	9	-0.837
78	8	-0.003
78	8	-0.003
Median	8	0.000
16	8	0.003
16	8	0.186
24	7	0.887
Std Dev	7	1.000
24	6	1.832
237	4	4.184

953 Other(describe)

Lab	ppm	lolybdenum, Mo
Median	0	0.000

961 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Nickel, Ni
77	7	0.000
Median	7	0.000

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

Lab	ppm	Nickel, Ni
77	13	-3.373
16	10	-1.027
Std Dev	10	-1.000
16	10	-0.750
55	10	-0.750
78	9	0.000
78	9	0.000
Median	9	0.000
24	8	0.112
270	8	0.750
Std Dev	7	1.000
24	7	1.387
237	2	5.240

963 Other(describe)

Lab	ppm	Nickel, Ni
Median	0	0.000

971 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Lead, Pb
Median	0	0.000

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

Lab	ppm	Lead, Pb
16	21	-0.510
270	20	-0.345
51	20	-0.317
55	20	-0.317
51	19	-0.128
16	18	-0.079
113	18	-0.061
Median	18	0.000
77	18	0.061
77	17	0.156
Std Dev	13	1.000
78	12	1.035
78	12	1.082
24	11	1.271
24	9	1.621
237	4	2.625

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-inducte coupled plasma-AFPC IX.16.A

Lab	ppm	Selenium, Se
237	0	0.000
Median	0	0.000

983 Other(describe)

Lab	ppm	Selenium, Se
Median	0	0.000

991 Atomic Absorption-AFPC IX.16.B

Lab	ppm	Zinc, Zn
Median	0	0.000

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

Lab	ppm	Zinc, Zn
24	104	-3.149
24	90	-1.924
78	80	-1.074
Std Dev	79	-1.000
78	73	-0.473
77	69	-0.086
77	68	0.000
Median	68	0.000
16	62	0.458
16	62	0.489
55	60	0.644
Std Dev	56	1.000
270	51	1.418
237	37	2.616

993 Other(describe)

Lab	ppm	Zinc, Zn
22	62	0.000
Median	62	0.000