AFPC Rock Check Program

Sample No. 2020-05

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	28	0.73	0.137
Other (describe)	102			
Method Group 100		28	0.73	0.14
P_2O_5				
Gravimetric AFPC IX.3.B	201	3	28.27	0.090
ICP-inducted coupled plasma AFPC IX.3.D	202	3	28.12	0.213
AOAC 962.02-15th	203	10	28.22	0.212
Photometric-AFPC IX.3.C	204	16	28.16	0.104
Automated-AOAC 978.01-15th	205	2	28.09	0.149
Method Group 200		34	28.16	0.17
P_2O_5 (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	3	28.38	0.061
ICP-inducted coupled plasma AFPC IX.3.D	212	3	28.33	0.203
AOAC 962.02-15th	213	8	28.39	0.264
Photometric-AFPC IX.3.C	214	12	28.37	0.108
Automated-AOAC 978.01-15th	215	2	28.29	0.159
Method Group 210		28	28.37	0.14
Fe_2O_3				
Atomic Absorption-AFPC IX.6.B	301	1	0.70	0.000
ICP-inducted coupled plasma-AFPC IX.6.C	302	24	0.60	0.136
Other(describe)	303	2	0.78	0.011
Method Group 300		27	0.64	0.14
Al_2O_3				
Atomic Absorption-AFPC IX.7.B	401	1	0.88	0.000
ICP-inducted coupled plasma-AFPC IX.7.C	402	24	0.93	0.082
Other(describe)	403	2	1.72	0.021
Method Group 400		27	0.94	0.08
MgO				
Atomic Absorption-AFPC IX.8.A	501	4	0.52	0.012
ICP-inducted coupled plasma-AFPC IX.8.B	502	24	0.50	0.035
Other(describe)	503	2	0.52	0.004
Method Group 500		30	0.51	0.03
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	18	12.41	0.196
Other(describe)	602	5	12.21	0.440
Method Group 600		23	12.40	0.25
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	13	3.83	0.239
Other(describe)	652	5	3.82	3.716
Method Group 650		18	3.83	0.29
CaO				
Gravimetric sulfate-AFPC IX.12.A	701			
ICP-inducted coupled plasma-AFPC IX.12.D	702	17	42.60	0.354
Ceric Sulfate volumetric-AFPC IX.12.B	703			
Permanganate	704	3	42.60	0.181
EDTA Volumetric-AFPC IX.12.C	705	1	43.48	0.000
Other(describe)	706	6	42.69	0.621
Method Group 700		27	42.60	0.39
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-inducted coupled plasma-AFPC IX.12.D	712	13	42.79	0.392
Ceric Sulfate volumetric-AFPC IX.12.B	713			
Permanganate	714	3	42.82	0.174
EDTA Volumetric-AFPC IX.12.C	715	1	43.74	0.000
Other(describe)	716	6	43.02	0.503
Method Group 710		23	42.86	0.44

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	23	2.91	0.112
Oher(describe)	803	2	2.93	0.007
Method Group 800		25	2.91	0.08
Arsenic, As				
Atomic Absorption	911			
ICP-inducted coupled plasma-AFPC IX.15.B	912	10	9.5	1.74
Other(describe)	913			
Method Group 900		10	9.5	1.74
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921			
ICP-inducted coupled plasma-AFPC IX.11.B	922	13	70	7.6
Other(describe)	923			
Method Group 910		13	70	7.6
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931			
ICP-inducted coupled plasma-AFPC IX.16.A	932	8	1	0.5
Other(describe)	933			
Method Group 920		8	1	0.5
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941	1	0.1	0.00
ICP-inducted coupled plasma-AFPC IX.16.A	942	2	0.1	0.09
Other(describe)	943			
Method Group 930		3	0.1	0.09
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951			
ICP-inducted coupled plasma-AFPC IX.16.A	952	6	13	2.4
Other(describe)	953			
Method Group 940		6	13	2.4
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961	1	83	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	962	10	90	9.4
Other(describe)	963			
Method Group 950		11	89	8.7
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971	1	6	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	972	11	8	2.4
Other(describe)	973			
Method Group 960		12	7	2.4
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-inducted coupled plasma-AFPC IX.16.A	982	2	10	7.5
Other(describe)	983			
Method Group 970		2	10	7.5
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991			
ICP-inducted coupled plasma-AFPC IX.16.A	992	10	808	60
Other(describe)	993	1	729	0
Method Group 980		11	801	69

101	Ground Sample AFPC IX.2.A	
Lab	% H_2O	
16	0.90	-1.240
49	0.88	-1.094
Std Dev	0.87	-1.000
21	0.87	-0.984
21	0.86	-0.912
13	0.85	-0.839
13	0.84	-0.802
24	0.81	-0.547
15	0.77	-0.292
15	0.76	-0.182
26	0.75	-0.146
9	0.74	-0.073
26	0.74	-0.073
69	0.74	-0.036
10	0.73	0.000
24	0.73	0.000
Median	0.73	0.000
9	0.72	0.109
10	0.70	0.219
52	0.69	0.292
77	0.65	0.583
118	0.63	0.729
266	0.60	0.948
Std Dev	0.59	1.000
275	0.58	1.094
27	0.53	1.459
27	0.49	1.750
55	0.44	2.115
35	0.41	2.334
35	0.34	2.844
77	0.30	3.172

102	Other (describe)	
Lab	% H_2O	
Median	0.00	0.000

201	Gravimetric AFPC IX.3.B	
Lab	% P2O5	
77	28.30	-0.278
55	28.27	0.000
Median	28.27	0.000
Std Dev	28.18	1.000
118	28.05	2.402

202	ICP-inducted coupled plasma AFPC IX.3.D	
Lab	% P2O5	
266	28.54	-1.975
Std Dev	28.33	-1.000
10	28.12	0.000
Median	28.12	0.000
10	27.97	0.705

203	AOAC 962.02-15th	
Lab	% P2O5	
10	28.59	-1.736
9	28.58	-1.712
Std Dev	28.43	-1.000
9	28.37	-0.697
49	28.32	-0.484
27	28.28	-0.295
Median	28.22	0.000
10	28.16	0.295
21	28.10	0.555
21	28.06	0.744
Std Dev	28.01	1.000
27	27.82	1.877
52	27.00	5.750

204	Photometric-AFPC IX.3.C	
Lab	% P2O5	
15	28.43	-2.656
15	28.42	-2.511
35	28.27	-1.111
Std Dev	28.26	-1.000
26	28.22	-0.628
13	28.19	-0.338
13	28.18	-0.193
51	28.18	-0.193
26	28.16	-0.048
Median	28.16	0.000
51	28.15	0.048
275	28.13	0.275
35	28.06	0.917
24	28.06	0.917
16	28.06	0.966
Std Dev	28.05	1.000
92	28.04	1.159
92	28.03	1.255
24	27.88	2.704

205	Automated-AOAC 978.01-15th	
Lab	% P2O5	
69	28.29	-1.340
Std Dev	28.24	-1.000
Median	28.09	0.000
Std Dev	27.94	1.000
77	27.89	1.340

211	Gravimetric AFPC IX.3.B		
Lab	% P2O5	dB	
55	28.39	-0.266	
77	28.38	0.000	
Median	28.38	0.000	
Std Dev	28.32	1.000	
118	28.23	2.414	

212	ICP-inducted coupled plasma AFPC IX.3.D		
Lab	% P2O5	dB	
266	28.71	-1.895	
Std Dev	28.53	-1.000	
10	28.33	0.000	
Median	28.33	0.000	
10	28.17	0.785	

213	AOAC 962.02-15th		
Lab	% P2O5	dB	
9	28.79	-1.533	
Std Dev	28.65	-1.000	
49	28.57	-0.694	
9	28.57	-0.686	
27	28.43	-0.162	
Median	28.39	0.000	
21	28.35	0.162	
21	28.30	0.325	
Std Dev	28.12	1.000	
27	27.96	1.631	
52	27.19	4.543	

214	Photometric-AFPC IX.3.C		
Lab	% P2O5	dB	
15	28.65	-2.563	
15	28.64	-2.464	
Std Dev	28.48	-1.000	
26	28.43	-0.600	
13	28.43	-0.559	
13	28.42	-0.432	
26	28.37	-0.016	
Median	28.37	0.000	
35	28.37	0.016	
16	28.31	0.538	
275	28.29	0.715	
24	28.27	0.939	
Std Dev	28.26	1.000	
35	28.18	1.776	
24	28.10	2.461	

215	Automated-AOAC 978.01-15th		
Lab	% P2O5	dB	
69	28.50	-1.340	
Std Dev	28.45	-1.000	
Median	28.29	0.000	
Std Dev	28.13	1.000	
77	28.07	1.340	

301	Atomic Absorption-AFPC IX.6.B	
Lab	% Fe2O3	
55	0.70	0.000
Median	0.70	0.000

302	ICP-inducted coupled plasma-AFPC IX.6.C	
Lab	% Fe2O3	
266	0.74	-1.010
Std Dev	0.74	-1.000
15	0.72	-0.826
15	0.71	-0.789
51	0.71	-0.753
275	0.70	-0.716
51	0.70	-0.679
69	0.69	-0.642
16	0.66	-0.450
52	0.65	-0.349
92	0.64	-0.275
92	0.64	-0.239
24	0.61	-0.055

Median	0.60	0.000
24	0.60	0.055
35	0.60	0.055
35	0.59	0.092
21	0.52	0.606
9	0.51	0.679
49	0.51	0.679
9	0.51	0.716
10	0.51	0.716
21	0.51	0.716
10	0.50	0.753
13	0.49	0.826
13	0.48	0.936

303 Other(describe)		
Lab	%	Fe2O3
77	0.79	-1.340
Std Dev	0.79	-1.000
Median	0.78	0.000
Std Dev	0.76	1.000
77	0.76	1.340

401 Atomic Absorption-AFPC IX.6.B		
Lab	%	Al2O3
55	0.88	0.000
Median	0.88	0.000

402 ICP-inducted coupled plasma-AFPC IX.6.C		
Lab	%	Al2O3
52	1.95	-12.349
266	1.76	-10.043
35	1.15	-2.579
35	1.12	-2.276
Std Dev	1.01	-1.000
92	0.99	-0.698
16	0.99	-0.657
92	0.98	-0.576
275	0.98	-0.576
9	0.96	-0.273
51	0.95	-0.152
49	0.94	-0.091
21	0.94	-0.030
Median	0.93	0.000
15	0.93	0.030
15	0.91	0.273
24	0.90	0.394
21	0.90	0.394
24	0.88	0.637
51	0.88	0.637
Std Dev	0.85	1.000
13	0.85	1.062
9	0.80	1.669
13	0.78	1.911
10	0.74	2.336
10	0.74	2.336
69	0.27	8.040

403 Other(describe)		
Lab	%	Al2O3
77	1.75	-1.340
Std Dev	1.74	-1.000
Median	1.72	0.000
Std Dev	1.70	1.000
77	1.70	1.340

501 Atomic Absorption-AFPC IX.8.A		
Lab	%	MgO
55	0.55	-2.803
Std Dev	0.53	-1.000
27	0.52	-0.348
Median	0.52	0.000
275	0.51	0.348
27	0.51	0.471

502 ICP-inducted coupled plasma-AFPC IX.8.B		
Lab	%	MgO
275	0.57	-2.045
9	0.55	-1.340
9	0.54	-1.199
69	0.54	-1.058
Std Dev	0.53	-1.000
13	0.53	-0.917
13	0.53	-0.776
35	0.52	-0.635
21	0.51	-0.353
49	0.51	-0.353
266	0.51	-0.353
21	0.51	-0.212
15	0.50	-0.071
Median	0.50	0.000
51	0.50	0.071
15	0.49	0.212
92	0.49	0.212
10	0.48	0.494
92	0.48	0.494
51	0.48	0.635
10	0.47	0.776
24	0.47	0.776
35	0.47	0.776
Std Dev	0.46	1.000
52	0.46	1.058
16	0.46	1.083
24	0.45	1.340

503 Other(describe)		
Lab	%	MgO
77	0.52	-1.340
Std Dev	0.52	-1.000
Median	0.52	0.000
Std Dev	0.51	1.000
77	0.51	1.340

601 Insoluble-AFPC IX.4.A		
Lab	%	AI
9	13.64	-6.304
9	12.87	-2.374
13	12.72	-1.582
26	12.62	-1.098
Std Dev	12.60	-1.000
26	12.58	-0.893
69	12.57	-0.842
10	12.57	-0.817
10	12.43	-0.128
15	12.41	0.000
15	12.41	0.000
Median	12.41	0.000
16	12.40	0.013
51	12.35	0.306
49	12.33	0.383
24	12.31	0.485
51	12.28	0.664
55	12.25	0.791
13	12.22	0.944
Std Dev	12.21	1.000
24	12.04	1.863

602 Other(describe)		
Lab	%	AI
266	13.10	-2.033
Std Dev	12.65	-1.000
21	12.22	-0.034
21	12.21	0.000
Median	12.21	0.000
Std Dev	11.76	1.000
35	11.63	1.306
35	10.91	2.953

651 Gasometric-AFPC IX.13.B		
Lab	%	CO2
9	4.40	-2.387
9	4.39	-2.345
15	4.09	-1.089
15	4.08	-1.047
Std Dev	4.07	-1.000
13	4.04	-0.879
13	3.92	-0.377
21	3.83	0.000
21	3.83	0.000
Median	3.83	0.000
77	3.77	0.272
24	3.76	0.293
24	3.67	0.670
Std Dev	3.59	1.000
49	3.31	2.178
69	3.20	2.638

652 Other(describe)		
Lab	%	CO2
35	8.59	-1.283
35	8.56	-1.275
Std Dev	7.54	-1.000
55	3.82	0.000
Median	3.82	0.000
275	3.58	0.065
266	2.90	0.248

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
51	43.27	-1.904
35	43.25	-1.834
Std Dev	42.95	-1.000
51	42.90	-0.846
69	42.86	-0.748
21	42.84	-0.691
9	42.80	-0.564
35	42.64	-0.127
92	42.60	-0.014
21	42.60	0.000
Median	42.60	0.000
92	42.58	0.056
13	42.50	0.282
10	42.41	0.522
9	42.37	0.649
10	42.29	0.860
Std Dev	42.24	1.000
13	42.17	1.213
49	41.96	1.791
16	41.82	2.184

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

704 Permanganate		
Lab	%	CaO
55	42.71	-0.635
27	42.60	0.000
Median	42.60	0.000
Std Dev	42.41	1.000
27	42.23	2.045

705 EDTA Volumetric-AFPC IX.12.C		
Lab	%	CaO
266	43.48	0.000
Median	43.48	0.000

706 Other(describe)		
Lab	%	CaO
77	43.32	-1.014
Std Dev	43.31	-1.000
77	43.23	-0.869
15	42.72	-0.048
Median	42.69	0.000
15	42.66	0.048
24	42.14	0.885
24	42.11	0.934

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
35	43.42		-1.624
21	43.21		-1.091
Std Dev	43.18		-1.000
69	43.18		-0.998
9	43.11		-0.837
21	42.96		-0.451
13	42.86		-0.183
35	42.79		0.000
Median	42.79		0.000
10	42.72		0.162
9	42.67		0.294
10	42.59		0.503
13	42.52		0.671
Std Dev	42.39		1.000
49	42.33		1.154
16	42.20		1.490

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

714 Permanganate			
Lab	%	CaO	dB
55	42.90		-0.442
27	42.82		0.000
Median	42.82		0.000
Std Dev	42.65		1.000
27	42.43		2.238

715 EDTA Volumetric-AFPC IX.12.C			
Lab	%	CaO	dB
266	43.74		0.000
Median	43.74		0.000

716 Other(describe)			
Lab	%	CaO	dB
77	43.60		-1.164
Std Dev	43.52		-1.000
77	43.36		-0.676
15	43.05		-0.067
Median	43.02		0.000
15	42.98		0.067
Std Dev	42.52		1.000
24	42.48		1.066
24	42.42		1.190

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
69	3.35	-3.931
9	3.07	-1.429
9	3.07	-1.429
21	3.07	-1.385
21	3.05	-1.206
Std Dev	3.02	-1.000
49	2.99	-0.715
51	2.97	-0.491
24	2.94	-0.268
26	2.94	-0.268
24	2.93	-0.179
13	2.91	0.000
35	2.91	0.000
Median	2.91	0.000
13	2.90	0.134
26	2.89	0.179
15	2.88	0.313
15	2.88	0.313
35	2.86	0.491
55	2.80	0.983
Std Dev	2.80	1.000
51	2.80	1.027
52	2.75	1.429
27	2.71	1.787
266	2.69	1.965
27	2.61	2.725

803 Oher(describe)		
Lab	%	Fluorine, F
77	2.94	-1.340
Std Dev	2.94	-1.000
Median	2.93	0.000
Std Dev	2.92	1.000
77	2.92	1.340

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
24	12.1	-1.513
Std Dev	11.2	-1.000
24	10.2	-0.418
266	10.1	-0.360
52	10.0	-0.303
35	10.0	-0.274
Median	9.5	0.000
51	9.0	0.274
35	8.5	0.562
Std Dev	7.7	1.000
51	7.5	1.138
69	4.5	2.893
118	0.0	5.461

913 Other(describe)		
Lab	ppm	Arsenic, As
Median	0.0	0.000

921 Atomic Absorption-AFPC IX.11.A		
Lab	ppm	Cadmium, Cd
Median	0	0.000

922	ICP-inducted coupled plasma-AFPC IX.11.B	
Lab	ppm	Cadmium, Cd
52	83	-1.774
77	78	-1.117
Std Dev	77	-1.000
266	76	-0.867
77	76	-0.854
69	76	-0.801
118	73	-0.440
51	70	0.000
Median	70	0.000
51	69	0.066
24	68	0.184
275	66	0.486
24	66	0.512
Std Dev	62	1.000
35	62	1.051
35	62	1.051

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
69	3	-3.544
Std Dev	2	-1.000
77	2	-0.744
266	1	-0.546
35	1	-0.248
Median	1	0.000
35	1	0.248
77	1	0.248
Std Dev	1	1.000
24	0	2.233
24	0	2.233

933	Other(describe)	
Lab	ppm	Cobalt, Co
Median	0	0.000

941	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Mercury, Hg
118	0.1	0.000
Median	0.1	0.000

942	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Mercury, Hg
266	0.2	-1.340
Std Dev	0.2	-1.000
Median	0.1	0.000
Std Dev	0.0	1.000
69	0.0	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
69	18	-1.818
Std Dev	16	-1.000
266	15	-0.599
24	13	-0.032
Median	13	0.000
24	13	0.032
Std Dev	11	1.000
77	11	1.167
77	11	1.167

953	Other(describe)	
Lab	ppm	lolybdenum, Mo
Median	0	0.000

961	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Nickel, Ni
77	83	0.000
Median	83	0.000

962	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Nickel, Ni
52	112	-2.363
35	111	-2.256
35	100	-1.029
Std Dev	99	-1.000
118	94	-0.448
24	90	-0.059
Median	90	0.000
69	89	0.059
24	86	0.368
266	85	0.485
77	85	0.517
Std Dev	80	1.000
275	77	1.371

963	Other(describe)	
Lab	ppm	Nickel, Ni
Median	0	0.000

971	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Lead, Pb
35	6	0.000
Median	6	0.000

972	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Lead, Pb
266	9	-0.701
51	9	-0.412
51	8	-0.206
77	8	-0.206
35	8	-0.144
77	8	0.000
Median	8	0.000
275	6	0.454
Std Dev	5	1.000
24	5	1.134
24	5	1.134
118	4	1.239
69	0	3.092

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
266	20	-1.340
Std Dev	17	-1.000
Median	10	0.000
Std Dev	3	1.000
69	0	1.340

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	863	-0.919
24	855	-0.786
52	853	-0.749
77	817	-0.145
77	815	-0.112
Median	808	0.000
266	801	0.112
69	800	0.128
275	751	0.947
Std Dev	747	1.000
35	734	1.220
35	708	1.658

993	Other(describe)	
Lab	ppm	Zinc, Zn
118	729	0.000
Median	729	0.000