AFPC Rock Check Program

Sample No. 2020-09

	Method #	# of Anal.	Grand Median	Std Dev
Moisture				
Ground Sample AFPC IX.2.A	101	22	1.86	0.334
Other (describe)	102	3	1.60	0.034
Method Group 100		25	1.70	0.31
P_2O_5				
Gravimetric AFPC IX.3.B	201	3	29.08	0.144
ICP-inducted coupled plasma AFPC IX.3.D	202	3	29.13	0.049
AOAC 962.02-15th	203	9	29.35	0.172
Photometric-AFPC IX.3.C	204	17	29.08	0.127
Automated -AOAC 978.01-15th	205	4	29.10	0.396
Method Group 200		36	29.11	0.20
P_2O_5 (on Dry Basis)				
Gravimetric AFPC IX.3.B	211	2	29.35	0.072
ICP-inducted coupled plasma AFPC IX.3.D	212	3	29.69	0.016
AOAC 962.02-15th	213	7	29.99	0.215
Photometric-AFPC IX.3.C	214	11	29.65	0.063
Automated -AOAC 978.01-15th	215	2	29.15	0.199
Method Group 210		25	29.67	0.19
Fe_2O_3				
Atomic Absorption-AFPC IX.6.B	301	1	0.71	0.000
ICP-inducted coupled plasma-AFPC IX.6.C	302	23	0.73	0.054
Other(describe)	303	4	0.81	0.048
Method Group 300		28	0.73	0.06
Al_2O_3				
Atomic Absorption-AFPC IX.7.B	401	1	0.73	0.000
ICP-inducted coupled plasma-AFPC IX.7.C	402	23	0.65	0.075
Other(describe)	403	4	0.89	0.300
Method Group 400		28	0.66	0.08
MgO				
Atomic Absorption-AFPC IX.8.A	501	3	0.61	0.035
ICP-inducted coupled plasma-AFPC IX.8.B	502	23	0.68	0.019
Other(describe)	503	4	0.65	0.035
Method Group 500		30	0.68	0.02
Acid Insoluble				
Insoluble-AFPC IX.4.A	601	17	4.38	0.340
Other(describe)	602	5	4.39	0.097
Method Group 600		22	4.39	0.33
Carbon Dioxide				
Gasometric-AFPC IX.13.B	651	12	4.26	0.555
Other(describe)	652	9	4.82	1.201
Method Group 650		21	4.48	0.79
CaO				
Gravimetric sulfate-AFPC IX.12.A	701			
ICP-inducted coupled plasma-AFPC IX.12.D	702	18	44.61	0.504
Ceric Sulfate volumetric-AFPC IX.12.B	703			
Permanganate	704	3	44.15	0.698
EDTA Volumetric-AFPC IX.12.C	705	1	46.28	0.000
Other(describe)	706	8	44.58	0.400
Method Group 700		30	44.61	0.65
CaO (on Dry Basis)				
Gravimetric sulfate-AFPC IX.12.A	711			
ICP-inducted coupled plasma-AFPC IX.12.D	712	12	45.47	0.495
Ceric Sulfate volumetric-AFPC IX.12.B	713			
Permanganate	714	3	44.90	0.607
EDTA Volumetric-AFPC IX.12.C	715	1	47.08	0.000
Other(describe)	716	6	45.22	0.325
Method Group 710		21	45.41	0.59

	Method #	# of Anal.	Grand Median	Std Dev
Fluorine, F				
Volumetric-AFPC IX.14.A	801			
Specific Ion Electrode-AFPC IX.14.B	802	22	2.67	0.111
Oher(describe)	803	3	2.63	0.108
Method Group 800		25	2.65	0.12
Arsenic, As				
Atomic Absorption	911	1	11.0	0.00
ICP-inducted coupled plasma-AFPC IX.15.B	912	9	6.8	1.31
Other(describe)	913	2	4.9	1.03
Method Group 900		12	6.8	1.62
Cadmium, Cd				
Atomic Absorption-AFPC IX.11.A	921	1	22	0.0
ICP-inducted coupled plasma-AFPC IX.11.B	922	12	40	4.7
Other(describe)	923			
Method Group 910		13	39	5.1
Cobalt, Co				
Atomic Absorption-AFPC IX.16.B	931	1	8	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	932	6	1	0.7
Other(describe)	933			
Method Group 920		7	1	0.6
Mercury, Hg				
Atomic Absorption-AFPC IX.16.B	941			
ICP-inducted coupled plasma-AFPC IX.16.A	942	1	0.0	0.00
Other(describe)	943			
Method Group 930		1	0.0	0.00
Molybdenum, Mo				
Atomic Absorption-AFPC IX.16.B	951	3	7	4.8
ICP-inducted coupled plasma-AFPC IX.16.A	952	6	6	3.1
Other(describe)	953			
Method Group 940		9	6	2.2
Nickel, Ni				
Atomic Absorption-AFPC IX.16.B	961	2	12	0.4
ICP-inducted coupled plasma-AFPC IX.16.A	962	9	14	1.0
Other(describe)	963	1	20	0.0
Method Group 950		12	14	3.1
Lead, Pb				
Atomic Absorption-AFPC IX.16.B	971	1	21	0.0
ICP-inducted coupled plasma-AFPC IX.16.A	972	11	5	2.2
Other(describe)	973			
Method Group 960		12	5	1.8
Selenium, Se				
Atomic Absorption-AFPC IX.16.B	981			
ICP-inducted coupled plasma-AFPC IX.16.A	982	1	2	0.0
Other(describe)	983	2	4	0.3
Method Group 970		3	4	0.9
Zinc, Zn				
Atomic Absorption-AFPC IX.16.B	991	1	84	0
ICP-inducted coupled plasma-AFPC IX.16.A	992	10	74	10
Other(describe)	993	1	91	0
Method Group 980		12	79	11

101	Ground Sample AFPC IX.2.A		
Lab	%	H_2O	
21	2.40		-1.617
21	2.37		-1.542
49	2.25		-1.183
Std Dev	2.19		-1.000
13	2.09		-0.704
13	2.05		-0.584
24	2.05		-0.569
10	2.00		-0.434
24	1.99		-0.404
237	1.89		-0.100
10	1.89		-0.090
26	1.86		-0.015
Median	1.86		0.000
26	1.85		0.015
266	1.70		0.464
27	1.68		0.539
27	1.63		0.689
9	1.59		0.794
9	1.59		0.808
Std Dev	1.52		1.000
77	1.46		1.198
15	1.42		1.318
15	1.42		1.318
77	1.26		1.782
55	1.04		2.440

102	Other (describe)		
Lab	%	H_2O	
275	1.64		-1.042
Std Dev	1.63		-1.000
35	1.60		0.000
Median	1.60		0.000
Std Dev	1.57		1.000
35	1.55		1.638

201	Gravimetric AFPC IX.3.B		
Lab	%	P2O5	
56	29.34		-1.810
Std Dev	29.22		-1.000
77	29.08		0.000
Median	29.08		0.000
55	28.95		0.870

202	ICP-inducted coupled plasma AFPC IX.3.D		
Lab	%	P2O5	
266	29.22		-1.855
Std Dev	29.18		-1.000
10	29.13		0.000
Median	29.13		0.000
10	29.09		0.825

203	AOAC 962.02-15th		
Lab	%	P2O5	
21	29.70		-2.039
Std Dev	29.52		-1.000
9	29.51		-0.961
9	29.49		-0.845
49	29.36		-0.087
21	29.35		0.000
Median	29.35		0.000
78	29.30		0.262
78	29.26		0.495
Std Dev	29.17		1.000
27	29.08		1.544
27	28.92		2.505

204	Photometric-AFPC IX.3.C		
Lab	%	P2O5	
275	29.41		-2.601
35	29.36		-2.207
10	29.33		-1.971
15	29.30		-1.734
15	29.23		-1.182
Std Dev	29.21		-1.000
35	29.15		-0.512
92	29.10		-0.118
92	29.09		-0.039
13	29.08		0.000
Median	29.08		0.000
10	29.07		0.079
26	29.07		0.079
51	29.07		0.118
24	29.06		0.158
51	29.03		0.394
13	29.03		0.434
26	29.02		0.473
24	29.01		0.591

205	Automated -AOAC 978.01-15th		
Lab	%	P2O5	
19	29.75		-1.637
Std Dev	29.50		-1.000
56	29.22		-0.297
Median	29.10		0.000
77	28.99		0.297
Std Dev	28.71		1.000
237	28.34		1.940

211	Gravimetric AFPC IX.3.B		
Lab	%	P2O5	dB
77	29.45		-1.340
Std Dev	29.42		-1.000
Median	29.35		0.000
Std Dev	29.28		1.000
55	29.25		1.340

212	ICP-inducted coupled plasma AFPC IX.3.D		
Lab	%	P2O5	dB
266	29.73		-2.296
Std Dev	29.71		-1.000
10	29.69		0.000
Median	29.69		0.000
10	29.68		0.384

213	AOAC 962.02-15th		
Lab	%	P2O5	dB
21	30.42		-1.998
Std Dev	30.20		-1.000
21	30.07		-0.364
49	30.04		-0.228
9	29.99		0.000
Median	29.99		0.000
9	29.96		0.102
Std Dev	29.77		1.000
27	29.56		1.986
27	29.41		2.697

214	Photometric-AFPC IX.3.C		
Lab	%	P2O5	dB
275	29.90		-3.946
35	29.82		-2.710
15	29.72		-1.124
Std Dev	29.71		-1.000
13	29.69		-0.619
24	29.67		-0.271
15	29.65		0.000
Median	29.65		0.000
13	29.64		0.079
26	29.62		0.453
35	29.62		0.485
24	29.59		0.880
Std Dev	29.59		1.000
26	29.57		1.307

215	Automated -AOAC 978.01-15th		
Lab	%	P2O5	dB
77	29.41		-1.340
Std Dev	29.35		-1.000
Median	29.15		0.000
Std Dev	28.95		1.000
237	28.88		1.340

301	Atomic Absorption-AFPC IX.6.B		
Lab	%	Fe2O3	
55	0.71		0.000
Median	0.71		0.000

302	ICP-inducted coupled plasma-AFPC IX.6.C		
Lab	%	Fe2O3	
35	0.94		-3.789
35	0.93		-3.697
266	0.82		-1.663
51	0.80		-1.201
Std Dev	0.78		-1.000
51	0.78		-0.924
78	0.78		-0.832
78	0.77		-0.647
92	0.74		-0.092
92	0.74		-0.092
15	0.73		0.000
15	0.73		0.000
21	0.73		0.000
Median	0.73		0.000
10	0.72		0.277

24	0.71	0.370
24	0.71	0.462
10	0.70	0.554
13	0.70	0.554
13	0.70	0.647
9	0.69	0.739
9	0.69	0.832
Std Dev	0.68	1.000
21	0.67	1.109
49	0.65	1.571
237	0.36	6.779

303	Other(describe)	
Lab	%	Fe2O3
77	0.85	-0.893
77	0.83	-0.368
Median	0.81	0.000
19	0.79	0.368
Std Dev	0.76	1.000
56	0.70	2.260

401	Atomic Absorption-AFPC IX.6.B	
Lab	%	Al2O3
55	0.73	0.000
Median	0.73	0.000

402	ICP-inducted coupled plasma-AFPC IX.6.C	
Lab	%	Al2O3
266	1.13	-6.499
78	1.10	-6.030
78	1.03	-5.159
Std Dev	0.72	-1.000
49	0.71	-0.871
92	0.71	-0.871
92	0.71	-0.871
35	0.70	-0.670
35	0.70	-0.670
51	0.68	-0.402
237	0.66	-0.196
24	0.65	0.000
51	0.65	0.000
Median	0.65	0.000
24	0.63	0.201
10	0.63	0.268
10	0.61	0.469
15	0.61	0.469
13	0.61	0.536
9	0.60	0.603
13	0.60	0.603
15	0.60	0.670
9	0.59	0.737
Std Dev	0.57	1.000
21	0.52	1.742
21	0.51	1.876

403	Other(describe)	
Lab	%	Al2O3
77	1.16	-0.916
77	1.07	-0.616
Median	0.89	0.000
19	0.70	0.616
56	0.66	0.749

501	Atomic Absorption-AFPC IX.8.A	
Lab	%	MgO
55	0.68	-1.975
Std Dev	0.65	-1.000
27	0.61	0.000
Median	0.61	0.000
27	0.59	0.705

502	ICP-inducted coupled plasma-AFPC IX.8.B	
Lab	%	MgO
21	0.71	-1.340
92	0.71	-1.340
92	0.71	-1.340
51	0.70	-1.072
Std Dev	0.70	-1.000
49	0.70	-0.804
9	0.70	-0.804
35	0.70	-0.804
10	0.69	-0.536
51	0.69	-0.536
9	0.69	-0.268
35	0.69	-0.268
24	0.68	0.000
Median	0.68	0.000
10	0.68	0.000
13	0.68	0.000
21	0.68	0.268
237	0.67	0.295
78	0.67	0.536
266	0.67	0.536
13	0.67	0.804
15	0.67	0.804
15	0.67	0.804
24	0.67	0.804
Std Dev	0.66	1.000
78	0.64	2.144

503	Other(describe)	
Lab	%	MgO
77	0.79	-3.911
Std Dev	0.68	-1.000
56	0.65	0.000
77	0.65	0.000
Median	0.65	0.000
Std Dev	0.62	1.000
19	0.60	1.449

601	Insoluble-AFPC IX.4.A	
Lab	%	AI
10	4.82	-1.281
10	4.80	-1.237
Std Dev	4.72	-1.000
49	4.66	-0.825
9	4.64	-0.751
13	4.64	-0.751
9	4.61	-0.677
13	4.45	-0.191
55	4.40	-0.059
24	4.38	0.000
Median	4.38	0.000
51	4.29	0.265
26	4.27	0.324
15	4.22	0.471
15	4.18	0.589
26	4.18	0.589
24	4.17	0.633
51	4.15	0.692
Std Dev	4.04	1.000
35	3.78	1.767

602	Other(describe)	
Lab	%	AI
19	5.00	-6.288
Std Dev	4.49	-1.000
266	4.47	-0.825
21	4.39	0.000
Median	4.39	0.000
21	4.34	0.515
Std Dev	4.29	1.000
35	3.83	5.824

651	Gasometric-AFPC IX.13.B	
Lab	%	CO2
78	7.48	-5.792
78	7.38	-5.621
Std Dev	4.82	-1.000
77	4.65	-0.703
21	4.48	-0.396
21	4.48	-0.396
9	4.28	-0.027
Median	4.26	0.000
9	4.25	0.027
49	3.91	0.640
13	3.78	0.865
13	3.78	0.874
15	3.71	0.991
15	3.71	0.991

652	Other(describe)	
Lab	%	CO2
35	9.67	-4.037
35	9.64	-4.016
Std Dev	6.02	-1.000
266	5.77	-0.795
55	4.96	-0.121
51	4.82	0.000
Median	4.82	0.000
51	4.74	0.067
275	4.16	0.545
56	4.03	0.653
Std Dev	3.61	1.000
237	2.32	2.077

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	45.63	-2.025
51	45.58	-1.926
35	45.45	-1.668
35	45.17	-1.102
Std Dev	45.11	-1.000
21	44.81	-0.397
10	44.74	-0.248
9	44.69	-0.159
9	44.68	-0.129
10	44.62	-0.020
Median	44.61	0.000
21	44.60	0.020
92	44.34	0.536
92	44.28	0.655
78	44.14	0.943
13	44.11	0.993
Std Dev	44.11	1.000
49	44.07	1.072
237	44.05	1.114
13	43.91	1.390
78	43.60	2.005

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

704	Permanganate	
Lab	%	CaO
55	45.50	-1.942
Std Dev	44.84	-1.000
27	44.15	0.000
Median	44.15	0.000
27	43.63	0.738

705	EDTA Volumetric-AFPC IX.12.C	
Lab	%	CaO
266	46.28	0.000
Median	46.28	0.000

706	Other(describe)	
Lab	%	CaO
77	45.57	-2.474
19	45.02	-1.099
77	45.00	-1.050
Std Dev	44.98	-1.000
56	44.66	-0.200
Median	44.58	0.000
15	44.50	0.200
15	44.50	0.200
24	44.38	0.512
Std Dev	44.18	1.000
24	44.06	1.312

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	46.19		-1.450
Std Dev	45.97		-1.000
21	45.90		-0.862
35	45.87		-0.813
21	45.69		-0.451
10	45.59		-0.249
10	45.53		-0.120
Median	45.47		0.000
9	45.41		0.120
9	45.39		0.155
49	45.08		0.782
13	45.05		0.848
Std Dev	44.98		1.000
237	44.90		1.161
13	44.83		1.298

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

714	Permanganate		
Lab	%	CaO	dB
55	45.98		-1.780
Std Dev	45.50		-1.000
27	44.90		0.000
Median	44.90		0.000
27	44.35		0.900

715	EDTA Volumetric-AFPC IX.12.C		
Lab	%	CaO	dB
266	47.08		0.000
Median	47.08		0.000

716	Other(describe)		
Lab	%	CaO	dB
77	46.15		-2.870
77	45.66		-1.369
Std Dev	45.54		-1.000
24	45.30		-0.251
Median	45.22		0.000
15	45.14		0.251
15	45.14		0.251
24	44.95		0.834

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
55	2.90	-2.117
21	2.81	-1.306
Std Dev	2.78	-1.000
21	2.77	-0.946
24	2.77	-0.901
13	2.76	-0.856
24	2.74	-0.631
49	2.73	-0.586
51	2.73	-0.541
51	2.71	-0.360
13	2.69	-0.225
26	2.68	-0.135
Median	2.67	0.000
26	2.65	0.135
9	2.63	0.315
9	2.62	0.405
27	2.62	0.450
27	2.62	0.450
35	2.58	0.811
237	2.57	0.901
35	2.56	0.946
Std Dev	2.55	1.000
15	2.52	1.351
15	2.52	1.351
266	2.47	1.757

803	Oher(describe)	
Lab	%	Fluorine, F
77	2.75	-1.109
Std Dev	2.74	-1.000
77	2.63	0.000
Median	2.63	0.000
Std Dev	2.52	1.000
19	2.46	1.571

911	Atomic Absorption-AFPC	
Lab	ppm	Arsenic, As
55	11.0	0.000
Median	11.0	0.000

912	ICP-inducted coupled plasma-AFPC IX.15.I	
Lab	ppm	Arsenic, As
266	9.6	-2.144
35	8.5	-1.302
78	8.2	-1.034
Std Dev	8.1	-1.000
35	8.0	-0.919
24	6.8	0.000
Median	6.8	0.000
24	6.8	0.038
78	6.4	0.306
51	5.5	0.995
Std Dev	5.5	1.000
51	4.5	1.761

913	Other(describe)	
Lab	ppm	Arsenic, As
77	6.3	-1.340
Std Dev	5.9	-1.000
Median	4.9	0.000
Std Dev	3.8	1.000

77	3.5	1.340

921	Atomic Absorption-AFPC IX.11.A	
Lab	ppm	Cadmium, Cd
55	22	0.000
Median	22	0.000

922	ICP-inducted coupled plasma-AFPC IX.11.B	
Lab	ppm	Cadmium, Cd
78	45	-1.274
Std Dev	44	-1.000
35	44	-0.962
78	43	-0.783
77	43	-0.749
266	40	-0.150
77	40	-0.107
Median	40	0.000
35	39	0.107
237	38	0.368
51	37	0.535
24	36	0.727
51	36	0.749
Std Dev	35	1.000
24	31	1.765

923	Other(describe)	
Lab	ppm	Cadmium, Cd
Median	0	0.000

931	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Cobalt, Co
55	8	0.000
Median	8	0.000

932	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Cobalt, Co
35	<1	0.000
35	<1	0.000
77	<1	0.000
77	<1	0.000
78	1	-0.447
78	1	-0.447
237	1	-0.447
Median	1	0.000
266		0.447
24		1.042
24		1.042

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
35	<1	0.000
35	<1	0.000
266	0.0	0.000
Median		0.000

943	Other(describe)	
Lab	ppm	Mercury, Hg
Median	0.0	0.000

951	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	lolybdenum, Mo
55	18	-2.396
Std Dev	11	-1.000
78	7	0.000
Median	7	0.000
78	5	0.284

952	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	lolybdenum, Mo
24	8	-0.719
237	8	-0.717
24	6	-0.129
Median	6	0.000
266	6	0.129
77	3	0.984
77	3	0.984

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

961	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Nickel, Ni
55	12	-1.340
Std Dev	12	-1.000
Median	12	0.000
Std Dev	11	1.000
77	11	1.340

962	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Nickel, Ni
35	20	-6.005
35	20	-5.509
78	15	-1.042
Std Dev	15	-1.000
78	15	-0.546
24	14	0.000
Median	14	0.000
237	14	0.159
24	14	0.298
Std Dev	13	1.000
77	12	1.936
266	10	4.119

963	Other(describe)	
Lab	ppm	Nickel, Ni
19	20	0.000
Median	20	0.000

971	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Lead, Pb
55	21	0.000
Median	21	0.000

972	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Lead, Pb
266	7	-1.050
Std Dev	7	-1.000
35	6	-0.558
78	6	-0.558
35	6	-0.335
51	6	-0.335
77	5	0.000
Median	5	0.000
51	5	0.112
77	5	0.112
Std Dev	3	1.000
78	1	1.675
24	0	2.122
24	0	2.122

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	2	0.000
Median	2	0.000

983	Other(describe)	
Lab	ppm	Selenium, Se
77	4	-1.340
Std Dev	4	-1.000
Median	4	0.000
Std Dev	4	1.000
77	4	1.340

991	Atomic Absorption-AFPC IX.16.B	
Lab	ppm	Zinc, Zn
55	84	0.000
Median	84	0.000

992	ICP-inducted coupled plasma-AFPC IX.16.A	
Lab	ppm	Zinc, Zn
24	114	-4.134
24	109	-3.697
Std Dev	83	-1.000
78	83	-0.903
78	82	-0.851
237	75	-0.138
Median	74	0.000
77	73	0.138
35	71	0.294

77	69	0.502
35	69	0.554
266	67	0.752

993	Other(describe)		
Lab	ppm	Zinc, Zn	
19	91		0.000
Median	91		0.000