

# AFPC Rock Check Program

Sample No. 2008-01

	Method #	# of Anal.	Grand Median	Std Dev
<b>Moisture</b>				
Ground Sample AFPC 9-2	101	20	1.08	0.130
Other (describe)	102	2	1.07	0.071
Method Group 100		22	1.08	0.14
<b>BPL or P<sub>2</sub>O<sub>5</sub></b>				
Gravimetric AFPC 9-5	201	4	31.88	0.101
ICP-induced coupled plasma	202	3	31.63	0.097
Photometric-AFPC 9-6	203	12	31.46	0.351
Automated -AOAC 978.01-15th	204	9	31.79	0.134
Other(describe)	205	4	31.36	0.239
Method Group 200		32	31.60	0.30
<b>BPL or P<sub>2</sub>O<sub>5</sub> (on Dry Basis)</b>				
Gravimetric AFPC 9-5	211	4	32.15	0.172
ICP-induced coupled plasma	212	3	31.96	0.091
Photometric-AFPC 9-6	213	5	31.88	0.046
Automated -AOAC 978.01-15th	214	9	32.11	0.125
Other(describe)	215	1	32.05	0.000
Method Group 210		22	32.05	0.20
<b>Fe<sub>2</sub>O<sub>3</sub></b>				
Atomic Absorption-AFPC 9-12,13	301	6	1.20	0.193
ICP-induced coupled plasma	302	20	1.21	0.071
Other(describe)	303	1	1.20	0.000
Method Group 300		27	1.21	0.09
<b>Al<sub>2</sub>O<sub>3</sub></b>				
Atomic Absorption-AFPC 9-16,17	401	5	1.26	0.172
ICP-induced coupled plasma	402	20	1.24	0.049
Other(describe)	403	1	1.63	0.000
Method Group 400		26	1.24	0.11
<b>MgO</b>				
Atomic Absorption-AFPC 9-18,19	501	7	0.42	0.080
ICP-induced coupled plasma	502	19	0.41	0.015
Other(describe)	503	1	0.45	0.000
Method Group 500		27	0.41	0.01
<b>Acid Insoluble</b>				
Insoluble-AFPC 9-8	601	15	6.71	0.278
Other(describe)	602	2	7.29	0.011
Method Group 600		17	6.73	0.32
<b>CaO</b>				
Gravimetric sulfate	701			
ICP-induced coupled plasma	702	8	46.14	0.919
Ceric Sulfate volumetric	703			
Permanganate	704	2	45.20	0.599
EDTA Volumetric	705	8	46.06	0.284
Other(describe)	706	7	45.88	0.250
Method Group 700		25	46.01	0.35
<b>CaO (on Dry Basis)</b>				
Gravimetric sulfate	711			
ICP-induced coupled plasma	712	1	46.50	0.000
Ceric Sulfate volumetric	713			
Permanganate	714	1	45.01	0.000
EDTA Volumetric	715	6	46.43	0.234
Other(describe)	716	6	46.54	0.243
Method Group 710		20	46.53	0.35

	Method #	# of Anal.	Grand Median	Std Dev
<b>Fluorine, F</b>				
Volumetric-AFPC 9-37	801	1	3.72	0.000
Specific Ion Electrode	802	15	3.59	0.144
Other( describe)	803	2	3.60	0.026
Method Group 800		18	3.59	0.09
<b>Arsenic, As</b>				
Atomic Absorption	911	2	5.4	2.54
ICP-induced coupled plasma	912	4	12.3	1.96
Other(describe)	913	4	10.3	2.60
Method Group 900		10	10.4	2.86
<b>Cadmium, Cd</b>				
Atomic Absorption	921	2	9	2.5
ICP-induced coupled plasma	922	9	6	0.3
Other(describe)	923	1	6	0.0
Method Group 910		12	6	0.5
<b>Cobalt, Co</b>				
Atomic Absorption	931	2	11	4.5
ICP-induced coupled plasma	932	9	6	1.5
Other(describe)	933	1	6	0.0
Method Group 920		12	6	1.9
<b>Mercury, Hg</b>				
Atomic Absorption	941	1	0.1	0.00
ICP-induced coupled plasma	942	1		0.00
Other(describe)	943			
Method Group 930		2	0.0	0.03
<b>Molybdenum, Mo</b>				
Atomic Absorption	951			
ICP-induced coupled plasma	952	5	11	0.7
Other(describe)	953	2	8	0.1
Method Group 940		7	10	1.6
<b>Nickel, Ni</b>				
Atomic Absorption	961	3	17	11.6
ICP-induced coupled plasma	962	9	16	2.6
Other(describe)	963	2	32	5.6
Method Group 950		14	17	4.0
<b>Lead, Pb</b>				
Atomic Absorption	971	3	17	12.7
ICP-induced coupled plasma	972	6	16	4.3
Other(describe)	973	1	14	0.0
Method Group 960		10	16	4.4
<b>Selenium, Se</b>				
Atomic Absorption	981			
ICP-induced coupled plasma	982	1	2	0.0
Other(describe)	983	2	37	25.4
Method Group 970		3	3	25.7
<b>Zinc, Zn</b>				
Atomic Absorption	991	3	69	7
ICP-induced coupled plasma	992	7	66	9
Other(describe)	993	2	67	8
Method Group 980		12	68	11

101 Ground Sample AFPC 9-2			
Lab	%	H <sub>2</sub> O	
27	1.38		-2.270
13	1.36		-2.116
55	1.35		-2.078
55	1.29		-1.616
<b>Std Dev</b>	<b>1.21</b>		<b>-1.000</b>
13	1.21		-0.973
9	1.17		-0.693
49	1.14		-0.462
9	1.10		-0.154
6	1.09		-0.077
15	1.09		-0.038
<b>Median</b>	<b>1.08</b>		<b>0.000</b>
15	1.08		0.038
6	1.04		0.308
61	1.04		0.346
10	1.03		0.385
61	1.02		0.500
75	0.98		0.808
<b>Std Dev</b>	<b>0.95</b>		<b>1.000</b>
75	0.86		1.732
77	0.63		3.463
77	0.46		4.771
35	0.11		7.465

102 Other (describe)			
Lab	%	H <sub>2</sub> O	
51	1.16		-1.340
<b>Std Dev</b>	<b>1.14</b>		<b>-1.000</b>
<b>Median</b>	<b>1.07</b>		<b>0.000</b>
<b>Std Dev</b>	<b>0.99</b>		<b>1.000</b>
33	0.97		1.340

201 Gravimetric AFPC 9-5			
Lab	%	P2O5	
77	31.92		-0.397
55	31.90		-0.199
<b>Median</b>	<b>31.88</b>		<b>0.000</b>
51	31.86		0.199
<b>Std Dev</b>	<b>31.78</b>		<b>1.000</b>
55	31.50		3.772

202 ICP-induced coupled plasma			
Lab	%	P2O5	
10	31.81		-1.855
<b>Std Dev</b>	<b>31.73</b>		<b>-1.000</b>
6	31.63		0.000
<b>Median</b>	<b>31.63</b>		<b>0.000</b>
6	31.55		0.825

203 Photometric-AFPC 9-6			
Lab	%	P2O5	
60	32.00		-1.547
<b>Std Dev</b>	<b>31.81</b>		<b>-1.000</b>
9	31.77		-0.891
78	31.69		-0.663
9	31.57		-0.321
33	31.55		-0.264
78	31.48		-0.050
<b>Median</b>	<b>31.46</b>		<b>0.000</b>
27	31.44		0.050
70	31.43		0.078
70	31.39		0.192
<b>Std Dev</b>	<b>31.11</b>		<b>1.000</b>
35	30.35		3.158
244	30.29		3.329
270	15.83		44.555

204 Automated -AOAC 978.01-15th			
Lab	%	P2O5	
15	31.89		-0.744
75	31.87		-0.558
15	31.85		-0.447
77	31.81		-0.149
13	31.79		0.000
75	31.79		0.000
<b>Median</b>	<b>31.79</b>		<b>0.000</b>
13	31.67		0.893
<b>Std Dev</b>	<b>31.66</b>		<b>1.000</b>
61	28.71		22.929
61	28.66		23.338

205 Other(describe)			
Lab	%	P2O5	
49	31.68		-1.340
<b>Std Dev</b>	<b>31.60</b>		<b>-1.000</b>

19	31.41		-0.209
<b>Median</b>	<b>31.36</b>		<b>0.000</b>
51	31.31		0.209
<b>Std Dev</b>	<b>31.12</b>		<b>1.000</b>
57	30.70		2.764

211 Gravimetric AFPC 9-5				
Lab	%	P2O5	dB	
55	32.34			-1.078
<b>Std Dev</b>	<b>32.32</b>			<b>-1.000</b>
51	32.23			-0.483
<b>Median</b>	<b>32.15</b>			<b>0.000</b>
77	32.07			0.483
<b>Std Dev</b>	<b>31.98</b>			<b>1.000</b>
55	31.91			1.387

212 ICP-induced coupled plasma				
Lab	%	P2O5	dB	
10	32.14			-1.967
<b>Std Dev</b>	<b>32.05</b>			<b>-1.000</b>
6	31.96			0.000
<b>Median</b>	<b>31.96</b>			<b>0.000</b>
6	31.90			0.713

213 Photometric-AFPC 9-6				
Lab	%	P2O5	dB	
9	32.15			-5.778
<b>Std Dev</b>	<b>31.92</b>			<b>-1.000</b>
9	31.92			-0.924
27	31.88			0.000
<b>Median</b>	<b>31.88</b>			<b>0.000</b>
33	31.86			0.416
<b>Std Dev</b>	<b>31.83</b>			<b>1.000</b>
35	30.38			32.257

214 Automated -AOAC 978.01-15th				
Lab	%	P2O5	dB	
15	32.24			-1.055
<b>Std Dev</b>	<b>32.23</b>			<b>-1.000</b>
15	32.20			-0.757
75	32.18			-0.591
13	32.18			-0.587
13	32.11			0.000
<b>Median</b>	<b>32.11</b>			<b>0.000</b>

75	32.06		0.328
77	32.01		0.749
<b>Std Dev</b>	<b>31.98</b>		<b>1.000</b>
61	29.00		24.869
61	28.95		25.268

215 Other(describe)				
Lab	%	P2O5	dB	
49	32.05			0.000
<b>Median</b>	<b>32.05</b>			<b>0.000</b>

301 Atomic Absorption-AFPC 9-12,13				
Lab	%	Fe2O3		
55	1.93			-3.806
<b>Std Dev</b>	<b>1.39</b>			<b>-1.000</b>
55	1.37			-0.906
33	1.27			-0.388
<b>Median</b>	<b>1.20</b>			<b>0.000</b>
51	1.12			0.388
60	1.08			0.621
27	1.06			0.699

302 ICP-induced coupled plasma				
Lab	%	Fe2O3		
77	1.38			-2.398
77	1.37			-2.257
78	1.32			-1.481
78	1.29			-1.128
<b>Std Dev</b>	<b>1.28</b>			<b>-1.000</b>
49	1.27			-0.846
15	1.26			-0.635
15	1.26			-0.635
6	1.23			-0.282
75	1.22			-0.190
6	1.21			0.000
270	1.21			0.000
<b>Median</b>	<b>1.21</b>			<b>0.000</b>
75	1.20			0.073
9	1.18			0.423
10	1.17			0.635
13	1.17			0.635
9	1.16			0.705
13	1.14			0.987
<b>Std Dev</b>	<b>1.14</b>			<b>1.000</b>

61	1.10	1.622
61	1.09	1.693
35	0.80	5.783

303 Other(describe)		
Lab	%	Fe2O3
19	1.20	0.000
<b>Median</b>	<b>1.20</b>	<b>0.000</b>

401 Atomic Absorption-AFPC 9-16,17		
Lab	%	Al2O3
55	1.65	-2.272
<b>Std Dev</b>	<b>1.43</b>	<b>-1.000</b>
51	1.30	-0.233
33	1.26	0.000
<b>Median</b>	<b>1.26</b>	<b>0.000</b>
<b>Std Dev</b>	<b>1.09</b>	<b>1.000</b>
55	1.07	1.107
27	1.03	1.340

402 ICP-induced coupled plasma		
Lab	%	Al2O3
77	1.71	-9.741
77	1.69	-9.328
78	1.47	-4.690
78	1.46	-4.587
270	1.39	-3.144
<b>Std Dev</b>	<b>1.29</b>	<b>-1.000</b>
61	1.26	-0.361
9	1.25	-0.258
61	1.25	-0.258
9	1.24	-0.052
15	1.24	-0.052
<b>Median</b>	<b>1.24</b>	<b>0.000</b>
10	1.24	0.052
15	1.24	0.052
6	1.23	0.155
75	1.23	0.232
13	1.23	0.258
49	1.22	0.361
13	1.22	0.464
75	1.21	0.497
6	1.20	0.773
<b>Std Dev</b>	<b>1.19</b>	<b>1.000</b>

35	0.42	16.853
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403 Other(describe)		
Lab	%	Al2O3
19	1.63	0.000
<b>Median</b>	<b>1.63</b>	<b>0.000</b>

501 Atomic Absorption-AFPC 9-18,19			
Lab	%	MgO	
55	0.68	-3.241	
35	0.59	-2.119	
<b>Std Dev</b>	<b>0.50</b>	<b>-1.000</b>	
51	0.44	-0.249	
55	0.42	0.000	
<b>Median</b>	<b>0.42</b>	<b>0.000</b>	
33	0.41	0.125	
27	0.41	0.187	
60	0.36	0.748	

502 ICP-induced coupled plasma			
Lab	%	MgO	
6	0.43	-1.340	
<b>Std Dev</b>	<b>0.42</b>	<b>-1.000</b>	
15	0.42	-0.670	
15	0.42	-0.670	
51	0.42	-0.670	
77	0.42	-0.670	
78	0.42	-0.335	
9	0.41	0.000	
9	0.41	0.000	
10	0.41	0.000	
13	0.41	0.000	
49	0.41	0.000	
78	0.41	0.000	
<b>Median</b>	<b>0.41</b>	<b>0.000</b>	
6	0.40	0.670	
77	0.40	0.670	
<b>Std Dev</b>	<b>0.40</b>	<b>1.000</b>	
13	0.40	1.005	
61	0.39	1.340	
61	0.39	1.340	
75	0.34	4.464	
75	0.34	4.497	

503 Other(describe)		
Lab	%	MgO
19	0.45	0.000
<b>Median</b>	<b>0.45</b>	<b>0.000</b>

601 Insoluble-AFPC 9-8			
Lab	%	Al	
27	14.04	-26.350	
35	10.02	-11.907	
70	7.02	-1.115	
<b>Std Dev</b>	<b>6.99</b>	<b>-1.000</b>	
51	6.97	-0.935	
9	6.94	-0.827	
70	6.93	-0.791	
9	6.73	-0.072	
33	6.71	0.000	
<b>Median</b>	<b>6.71</b>	<b>0.000</b>	
15	6.65	0.216	
13	6.60	0.414	
15	6.59	0.450	
6	6.58	0.468	
6	6.55	0.576	
10	6.52	0.683	
13	6.51	0.737	

602 Other(describe)		
Lab	%	Al
57	7.30	-1.340
<b>Std Dev</b>	<b>7.30</b>	<b>-1.000</b>
<b>Median</b>	<b>7.29</b>	<b>0.000</b>
<b>Std Dev</b>	<b>7.27</b>	<b>1.000</b>
19	7.27	1.340

701 Gravimetric sulfate		
Lab	%	CaO
<b>Median</b>	<b>0.00</b>	<b>0.000</b>

702 ICP-induced coupled plasma		
Lab	%	CaO
75	48.17	-2.203
75	47.71	-1.701
<b>Std Dev</b>	<b>47.06</b>	<b>-1.000</b>
78	46.98	-0.906
49	46.26	-0.128

Median		
Lab	%	CaO
10	46.03	0.128
78	45.94	0.226
77	45.90	0.264
77	45.30	0.917

703 Ceric Sulfate volumetric		
Lab	%	CaO
<b>Median</b>	<b>0.00</b>	<b>0.000</b>

704 Permanganate		
Lab	%	CaO
60	46.00	-1.340
<b>Std Dev</b>	<b>45.80</b>	<b>-1.000</b>
<b>Median</b>	<b>45.20</b>	<b>0.000</b>
<b>Std Dev</b>	<b>44.60</b>	<b>1.000</b>
27	44.40	1.340

705 EDTA Volumetric		
Lab	%	CaO
55	47.83	-6.259
9	46.38	-1.146
<b>Std Dev</b>	<b>46.34</b>	<b>-1.000</b>
55	46.10	-0.159
51	46.06	-0.018
<b>Median</b>	<b>46.06</b>	<b>0.000</b>
9	46.05	0.018
6	45.79	0.934
6	45.79	0.934
<b>Std Dev</b>	<b>45.77</b>	<b>1.000</b>
35	43.09	10.456

706 Other(describe)		
Lab	%	CaO
19	47.00	-4.500
33	46.26	-1.540
<b>Std Dev</b>	<b>46.13</b>	<b>-1.000</b>
13	46.01	-0.540
13	45.88	0.000
<b>Median</b>	<b>45.88</b>	<b>0.000</b>
15	45.85	0.120
15	45.76	0.480
<b>Std Dev</b>	<b>45.63</b>	<b>1.000</b>
270	22.67	92.820

711 Gravimetric sulfate			
Lab	%	CaO	dB
Median	0.00		0.000

712 ICP-induced coupled plasma			
Lab	%	CaO	dB
10	46.50		0.000
Median	46.50		0.000

713 Ceric Sulfate volumetric			
Lab	%	CaO	dB
Median	0.00		0.000

714 Permanganate			
Lab	%	CaO	dB
27	45.01		0.000
Median	45.01		0.000

715 EDTA Volumetric			
Lab	%	CaO	dB
9	46.93		-2.137
Std Dev	46.66		-1.000
51	46.60		-0.735
9	46.56		-0.571
Median	46.43		0.000

6	46.29		0.571
6	46.27		0.671
Std Dev	46.19		1.000
35	43.14		14.049

716 Other(describe)			
Lab	%	CaO	dB
19	47.00		-1.899
Std Dev	46.78		-1.000
33	46.71		-0.718
13	46.64		-0.425
Median	46.54		0.000
13	46.44		0.425
15	46.35		0.785
Std Dev	46.30		1.000
15	46.25		1.179

801 Volumetric-AFPC 9-37			
Lab	%	Fluorine, F	
33	3.72		0.000
Median	3.72		0.000

802 Specific Ion Electrode			
Lab	%	Fluorine, F	
35	3.78		-1.323
49	3.77		-1.253
Std Dev	3.73		-1.000
13	3.67		-0.522
270	3.65		-0.418
51	3.62		-0.209
75	3.61		-0.139
6	3.59		0.000
6	3.59		0.000
27	3.59		0.000
Median	3.59		0.000
75	3.58		0.104
13	3.52		0.487
Std Dev	3.45		1.000
15	3.37		1.566
15	3.30		2.054
9	3.26		2.297
9	3.21		2.645

803 Other( describe)			
Lab	%	Fluorine, F	
77	3.63		-1.340
Std Dev	3.62		-1.000
Median	3.60		0.000
Std Dev	3.57		1.000
77	3.56		1.340

911 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Arsenic, As	
33	8.8		-1.340
Std Dev	7.9		-1.000
Median	5.4		0.000
Std Dev	2.9		1.000
27	2.0		1.340

912 ICP-induced coupled plasma			
Lab	ppm	Arsenic, As	

270	16.0		-1.914
Std Dev	14.2		-1.000
78	12.5		-0.128
Median	12.3		0.000
6	12.0		0.128
Std Dev	10.3		1.000
78	7.0		2.680

913 Other(describe)			
Lab	ppm	Arsenic, As	
77	12.0		-0.637
77	12.0		-0.637
Median	10.3		0.000
13	8.7		0.637
51	8.0		0.900

921 Atomic Absorption-AFPC 9-12,13			
Lab	ppm	Cadmium, Cd	
27	12		-1.340
Std Dev	11		-1.000
Median	9		0.000
Std Dev	6		1.000
33	5		1.340

922 ICP-induced coupled plasma			
Lab	ppm	Cadmium, Cd	
51	7		-2.978
270	7		-2.620
Std Dev	6		-1.000
78	6		-0.298
6	6		0.000
75	6		0.000
75	6		0.000
Median	6		0.000
Std Dev	6		1.000
78	6		1.042
77	5		2.978
77	5		2.978

923 Other(describe)			
Lab	ppm	Cadmium, Cd	
13	6		0.000
Median	6		0.000

931 Atomic Absorption-AFPC 9-16,17			
Lab	ppm	Cobalt, Co	
27	17		-1.340
Std Dev	15		-1.000
Median	11		0.000
Std Dev	7		1.000
33	5		1.340

932 ICP-induced coupled plasma			
Lab	ppm	Cobalt, Co	
78	10		-3.015
78	9		-2.345
51	7		-1.005
Std Dev	7		-1.000
270	6		-0.302
6	6		0.000
Median	6		0.000
75	5		0.335
75	5		0.335
77	5		0.335
77	5		0.335

933 Other(describe)			
Lab	ppm	Cobalt, Co	
13	6		0.000
Median	6		0.000

941 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Mercury, Hg	
33	0.1		0.000
Median	0.1		0.000

942 ICP-induced coupled plasma			
Lab	ppm	Mercury, Hg	
270	0.0		0.000
Median	0.0		0.000

943 Other(describe)			
Lab	ppm	Mercury, Hg	
13	<0.12		0.000
Median	0.0		0.000

951 Atomic Absorption-AFPC 9-18,19			
Lab	ppm	Iolybdenum, Mo	

Median	0	0.000
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952 ICP-induced coupled plasma		
Lab	ppm	lolybdenum, Mo
78	12	-1.742
Std Dev	12	-1.000
77	11	-0.201
78	11	0.000
Median	11	0.000
Std Dev	10	1.000
77	10	1.139
270	9	2.479

953 Other(describe)		
Lab	ppm	lolybdenum, Mo
6	9	-1.340
Std Dev	9	-1.000
Median	8	0.000
Std Dev	8	1.000
13	8	1.340

961 Atomic Absorption-AFPC 9-12,13		
Lab	ppm	Nickel, Ni
27	48	-2.680
Std Dev	29	-1.000
33	17	0.000
51	17	0.000
Median	17	0.000

962 ICP-induced coupled plasma		
Lab	ppm	Nickel, Ni
270	22	-2.106
51	21	-1.914
78	20	-1.340
Std Dev	19	-1.000
6	18	-0.574
75	16	0.000
75	16	0.000
77	16	0.000
77	16	0.000
Median	16	0.000
78	14	0.766

963 Other(describe)		
Lab	ppm	Nickel, Ni
19	40	-1.340
Std Dev	38	-1.000
Median	32	0.000
Std Dev	27	1.000
13	25	1.340

971 Atomic Absorption-AFPC 9-16,17		
Lab	ppm	Lead, Pb
27	45	-2.207
Std Dev	30	-1.000
33	17	0.000
Median	17	0.000
51	11	0.473

972 ICP-induced coupled plasma		
Lab	ppm	Lead, Pb
78	33	-3.962
78	21	-1.165
Std Dev	20	-1.000
270	17	-0.233
Median	16	0.000
77	15	0.233
6	14	0.466
77	13	0.699

973 Other(describe)		
Lab	ppm	Lead, Pb
13	14	0.000
Median	14	0.000

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

982 ICP-induced coupled plasma		
Lab	ppm	Selenium, Se
270	2	0.000
Median	2	0.000

983 Other(describe)		
Lab	ppm	Selenium, Se
51	71	-1.340

Std Dev	62	-1.000
Median	37	0.000
Std Dev	12	1.000
13	3	1.340

991 Atomic Absorption-AFPC 9-18,19		
Lab	ppm	Zinc, Zn
27	83	-2.067
Std Dev	76	-1.000
33	69	0.000
Median	69	0.000
60	65	0.613

992 ICP-induced coupled plasma		
Lab	ppm	Zinc, Zn
78	80	-1.447
78	80	-1.447
Std Dev	75	-1.000
6	70	-0.429
75	66	0.000
Median	66	0.000
75	64	0.268
77	61	0.536
77	60	0.643

993 Other(describe)		
Lab	ppm	Zinc, Zn
13	78	-1.340
Std Dev	75	-1.000
Median	67	0.000
Std Dev	60	1.000
19	57	1.340

