

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 180511

Grade 46-0-0

Statistical Summary

Analytes: 28

Labs Reporting: 91

Issue Date : 06/30/2018

Analyte Code	Analyte Sample # 180511	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Analyte Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Analyte IA Ratio	Average Range (R-bar)	Honwitz %RSD
001	Ammoniacal Nitrogen (%)	3	3	9.414	9.820	9.414		9.820	7.087	104.31%		0.0777	2.85%
005	Urea Nitrogen (%)	8	8	44.92	3.070	45.61		1.559	0.6891	3.42%		0.1284	2.25%
006	Biuret Nitrogen (%)	3	3	0.7595	0.1716	0.7595		0.1716	0.1239	22.60%		0.0843	4.17%
008	Biuret (%)	13	13	0.7778	0.2107	0.7852		0.1601	0.0555	20.39%		0.0347	4.15%
010	Total Nitrogen (46%)	88	87	46.21	0.6365	46.19	0.8800	0.4682	0.0627	1.01%	1.24	0.2469	2.25%
020	Total Phosphorus as P2O5 (%)	3	3	15.35	26.59	15.35		26.59	19.19	173.20%		0.1434	2.65%
041	Direct Available Phosphorus as P2O5 (%)	2	2	0.0605	0.0559								
050	Soluble Potassium as K2O (%)	3	3	0.0410	0.0515	0.0410	0.4100	0.0515	0.0372	125.71%	0.29	0.0006	6.47%
060	Water (Free) (%)	15	14	0.2128	0.0911	0.2095		0.0955	0.0319	45.58%		0.0176	5.06%
101	Acid Soluble Calcium (%)	2	2	6.183	8.581								
121	Acid Soluble Magnesium (%)	4	4	0.1744	0.3215	0.1744	0.2087	0.3215	0.2010	184.43%	3.59	0.0186	5.20%
148	Total Sulfur (%)	2	1	0.0100									
149	Sulfur - HNO3 soluble (%)	1		0.0004									
151	Acid Soluble Arsenic (ppm)	3	1	0.1750		0.1744		0.3215	0.4019	184.43%		0.0100	20.81%
165	Acid Soluble Boron (%)	2	1	0.0100									
181	Acid Soluble Cadmium (ppm)	5	3	26.74	46.30	26.74		46.30	33.41	173.12%		1.534	9.76%
191	Acid Soluble Chromium (ppm)	4	3	129.1	220.8	129.1		220.8	159.3	171.06%		8.457	7.70%
202	Acid Soluble Cobalt (ppm)	5	3	1.115	1.883	1.115	1.3346	1.883	1.359	168.87%	3.29	0.1815	15.74%
221	Acid Soluble Copper (%)	4	2	0.0076	0.0034	0.0076	0.0058	0.0034	0.0030	44.66%	1.37	0.0001	8.34%
241	Acid Soluble Iron (%)	4	4	0.1811	0.3526	0.1811	0.0231	0.3526	0.2204	194.67%	35.55	0.0086	5.17%
251	Acid Soluble Lead (ppm)	5	4	3.477	6.131	3.477		6.131	3.832	176.31%		0.7635	13.26%
261	Acid Soluble Manganese (%)	4	2	0.0102	0.0066	0.0102	0.0060	0.0066	0.0058	64.98%	2.56	0.0056	7.98%
281	Acid Soluble Mercury (ppm)	2	1	0.0100									
289	Acid Soluble Molybdenum (ppm)	4	2	7.291	10.27	7.291	3.1872	10.27	9.074	140.82%	7.51	1.556	11.86%
291	Acid Soluble Nickel (ppm)	5	3	45.95	78.85	45.95		78.85	56.91	171.60%		0.6796	8.99%
301	Acid Soluble Selenium (ppm)	4	2	0.7313	1.013	0.7313		1.013	0.8953	138.52%		0.0175	16.77%
311	Sodium (%)	2	2	0.0788	0.0477								
321	Acid Soluble Zinc (%)	4	2	0.2200	0.2970	0.2200	0.0270	0.2970	0.2625	134.99%	25.63	0.0190	5.02%

The Analyte IA Ratio = 2.33 * Robust SD / IA at the Analyte Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting.

Howitz %RSD	
Average Range (R-bar)	
Analyte IA Ratio	
Robust % RSD	
Robust Uncertainty (U)	
Robust sd	
IA at Analyte Value	
Assigned Value Robust Mean	
Raw SD	
Raw Mean	
# Tests in Robust Calculations	
# Tests Submitted	
Analyte Sample # 180511	
Analyte Code	

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Analyte Proficiency From All Labs

Analytes: 28

Sample # 180511

Lab Values

Labs Reporting: 91

Grade 46-0-0

Issue Date : 06/30/2018

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001	Ammoniacal Nitrogen (%)	0524	0.4515	0.0130	9.414	9.820	0.0777	3	-0.91	001.99	0
001	Ammoniacal Nitrogen (%)	0545	7.880	0.0200	9.414	9.820	0.0777	3	-0.16	001.99	0
001	Ammoniacal Nitrogen (%)	0541	19.91	0.2000	9.414	9.820	0.0777	3	1.07	001.99	0
005	Urea Nitrogen (%)	0545	37.74	0.0300	45.61	1.559	0.1284	8	-4.62	005.99	0
005	Urea Nitrogen (%)	0027	44.36	0.2700	45.61	1.559	0.1284	8	-0.74	005.99	0
005	Urea Nitrogen (%)	0394	45.05	0.0970	45.61	1.559	0.1284	8	-0.33	005.99	0
005	Urea Nitrogen (%)	0389	45.68	0.1600	45.61	1.559	0.1284	8	0.04	005.00	0
005	Urea Nitrogen (%)	0169	46.15	0.1000	45.61	1.559	0.1284	8	0.32	005.00	0
005	Urea Nitrogen (%)	0513	46.27	0.0500	45.61	1.559	0.1284	8	0.38	005.99	0
005	Urea Nitrogen (%)	0027	46.37	0.0200	45.61	1.559	0.1284	8	0.44	005.00	0
005	Urea Nitrogen (%)	0451	47.75	0.3000	45.61	1.559	0.1284	8	1.25	005.99	0
006	Biuret Nitrogen (%)	0356	0.6335	0.0630	0.7595	0.1716	0.0843	3	-0.73	006.99	0
006	Biuret Nitrogen (%)	0234	0.6900	0.0000	0.7595	0.1716	0.0843	3	-0.40	006.99	0
006	Biuret Nitrogen (%)	0550	0.9550	0.1900	0.7595	0.1716	0.0843	3	1.14	006.10	0
008	Biuret (%)	0546	0.2870	0.0420	0.7852	0.1601	0.0347	13	-3.11	008.10	0
008	Biuret (%)	0394	0.6785	0.0450	0.7852	0.1601	0.0347	13	-0.67	008.99	0
008	Biuret (%)	0498	0.6900	0.0200	0.7852	0.1601	0.0347	13	-0.59	008.10	0
008	Biuret (%)	0520	0.7050	0.0300	0.7852	0.1601	0.0347	13	-0.50	008.99	0
008	Biuret (%)	0371	0.7100	0.0400	0.7852	0.1601	0.0347	13	-0.47	008.10	0
008	Biuret (%)	0513	0.7150	0.0300	0.7852	0.1601	0.0347	13	-0.44	008.10	0
008	Biuret (%)	0444	0.7300	0.0800	0.7852	0.1601	0.0347	13	-0.34	008.10	0
008	Biuret (%)	0405	0.7800	0.0200	0.7852	0.1601	0.0347	13	-0.03	008.10	0
008	Biuret (%)	0493	0.8250	0.0500	0.7852	0.1601	0.0347	13	0.25	008.10	0
008	Biuret (%)	0510	0.8535	0.0020	0.7852	0.1601	0.0347	13	0.43	008.10	0
008	Biuret (%)	0415	0.9252	0.0453	0.7852	0.1601	0.0347	13	0.87	008.10	0
008	Biuret (%)	0486	1.025	0.0300	0.7852	0.1601	0.0347	13	1.50	008.99	0
008	Biuret (%)	0476	1.187	0.0173	0.7852	0.1601	0.0347	13	2.51	008.10	0
010	Total Nitrogen (46%)	0476	44.61†	0.1024	46.19	0.4682	0.2469	87	-3.37	010.99	0
010	Total Nitrogen (46%)	0309	44.96†	1.110	46.19	0.4682	0.2469	87	-2.63	010.11	0
010	Total Nitrogen (46%)	0354	45.10†	0.2000	46.19	0.4682	0.2469	87	-2.32	010.60	0
010	Total Nitrogen (46%)	0483	45.21†	0.0400	46.19	0.4682	0.2469	87	-2.08	010.60	0
010	Total Nitrogen (46%)	0292	45.23†	0.4100	46.19	0.4682	0.2469	87	-2.05	010.60	0
010	Total Nitrogen (46%)	0422	45.29†	2.210	46.19	0.4682	0.2469	87	-1.92	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010	Total Nitrogen (46%)	0544	45.41	0.1000	46.19	0.4682	0.2469	87	-1.66	010.12	0
010	Total Nitrogen (46%)	0539	45.43	0.0600	46.19	0.4682	0.2469	87	-1.61	010.11	0
010	Total Nitrogen (46%)	0532	45.49	0.0600	46.19	0.4682	0.2469	87	-1.49	010.99	0
010	Total Nitrogen (46%)	0482	45.60	0.0000	46.19	0.4682	0.2469	87	-1.25	010.60	0
010	Total Nitrogen (46%)	0025	45.61	0.0300	46.19	0.4682	0.2469	87	-1.23	010.60	0
010	Total Nitrogen (46%)	0545	45.62	0.0500	46.19	0.4682	0.2469	87	-1.22	010.99	0
010	Total Nitrogen (46%)	0117	45.70	0.0000	46.19	0.4682	0.2469	87	-1.04	010.12	0
010	Total Nitrogen (46%)	0325	45.75	0.1000	46.19	0.4682	0.2469	87	-0.93	010.60	0
010	Total Nitrogen (46%)	0550	45.78	0.7600	46.19	0.4682	0.2469	87	-0.87	010.60	0
010	Total Nitrogen (46%)	0472	45.79	0.3300	46.19	0.4682	0.2469	87	-0.86	010.60	0
010	Total Nitrogen (46%)	0451	45.80	1.200	46.19	0.4682	0.2469	87	-0.82	010.60	0
010	Total Nitrogen (46%)	0307	45.81	0.4800	46.19	0.4682	0.2469	87	-0.80	010.60	0
010	Total Nitrogen (46%)	0535	45.85	0.1000	46.19	0.4682	0.2469	87	-0.72	010.11	0
010	Total Nitrogen (46%)	0055	45.85	0.0600	46.19	0.4682	0.2469	87	-0.72	010.60	0
010	Total Nitrogen (46%)	0255	45.89	0.6220	46.19	0.4682	0.2469	87	-0.63	010.60	0
010	Total Nitrogen (46%)	0324	45.90	0.2000	46.19	0.4682	0.2469	87	-0.61	010.60	0
010	Total Nitrogen (46%)	0493	45.90	0.1000	46.19	0.4682	0.2469	87	-0.61	010.99	0
010	Total Nitrogen (46%)	0520	45.91	0.2600	46.19	0.4682	0.2469	87	-0.59	010.99	0
010	Total Nitrogen (46%)	0519	45.92	0.0400	46.19	0.4682	0.2469	87	-0.57	010.99	0
010	Total Nitrogen (46%)	0041	45.95	0.4700	46.19	0.4682	0.2469	87	-0.51	010.60	0
010	Total Nitrogen (46%)	0114	45.97	1.400	46.19	0.4682	0.2469	87	-0.46	010.60	0
010	Total Nitrogen (46%)	0234	45.97	0.0400	46.19	0.4682	0.2469	87	-0.46	010.60	0
010	Total Nitrogen (46%)	0416	45.99	0.0300	46.19	0.4682	0.2469	87	-0.43	010.11	0
010	Total Nitrogen (46%)	0537	46.01	0.0148	46.19	0.4682	0.2469	87	-0.38	010.99	0
010	Total Nitrogen (46%)	0531	46.02	0.0100	46.19	0.4682	0.2469	87	-0.36	010.11	0
010	Total Nitrogen (46%)	0538	46.03	0.1500	46.19	0.4682	0.2469	87	-0.34	010.11	0
010	Total Nitrogen (46%)	0498	46.05	0.5000	46.19	0.4682	0.2469	87	-0.29	010.12	0
010	Total Nitrogen (46%)	0157	46.05	0.1000	46.19	0.4682	0.2469	87	-0.29	010.60	0
010	Total Nitrogen (46%)	0521	46.06	0.0000	46.19	0.4682	0.2469	87	-0.26	010.60	0
010	Total Nitrogen (46%)	0415	46.08	0.4014	46.19	0.4682	0.2469	87	-0.22	010.11	0
010	Total Nitrogen (46%)	0549	46.10	0.1000	46.19	0.4682	0.2469	87	-0.18	010.11	0
010	Total Nitrogen (46%)	0522	46.11	0.1000	46.19	0.4682	0.2469	87	-0.16	010.99	0
010	Total Nitrogen (46%)	0389	46.12	0.2500	46.19	0.4682	0.2469	87	-0.15	010.60	0
010	Total Nitrogen (46%)	0070	46.12	0.2200	46.19	0.4682	0.2469	87	-0.14	010.60	0
010	Total Nitrogen (46%)	0371	46.15	0.1000	46.19	0.4682	0.2469	87	-0.08	010.11	0
010	Total Nitrogen (46%)	0508	46.16	0.3300	46.19	0.4682	0.2469	87	-0.07	010.99	0
010	Total Nitrogen (46%)	0231	46.16	0.0400	46.19	0.4682	0.2469	87	-0.05	010.60	0
010	Total Nitrogen (46%)	0494	46.17	0.0200	46.19	0.4682	0.2469	87	-0.03	010.60	0
010	Total Nitrogen (46%)	0096	46.19	0.0500	46.19	0.4682	0.2469	87	0.00	010.60	0
010	Total Nitrogen (46%)	0523	46.20	0.2000	46.19	0.4682	0.2469	87	0.03	010.60	0
010	Total Nitrogen (46%)	0547	46.22	0.1500	46.19	0.4682	0.2469	87	0.06	010.60	0
010	Total Nitrogen (46%)	0356	46.23	0.6240	46.19	0.4682	0.2469	87	0.10	010.99	0
010	Total Nitrogen (46%)	0501	46.25	0.1000	46.19	0.4682	0.2469	87	0.14	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010	Total Nitrogen (46%)	0106	46.28	0.1500	46.19	0.4682	0.2469	87	0.19	010.60	0
010	Total Nitrogen (46%)	0086	46.31	0.3660	46.19	0.4682	0.2469	87	0.27	010.60	0
010	Total Nitrogen (46%)	0105	46.32	0.0500	46.19	0.4682	0.2469	87	0.28	010.11	0
010	Total Nitrogen (46%)	0546	46.32	0.1400	46.19	0.4682	0.2469	87	0.29	010.11	0
010	Total Nitrogen (46%)	0402	46.34	0.0300	46.19	0.4682	0.2469	87	0.32	010.60	0
010	Total Nitrogen (46%)	0510	46.36	0.0179	46.19	0.4682	0.2469	87	0.38	010.11	0
010	Total Nitrogen (46%)	0043	46.37	0.0700	46.19	0.4682	0.2469	87	0.38	010.60	0
010	Total Nitrogen (46%)	0233	46.40	0.0100	46.19	0.4682	0.2469	87	0.45	010.60	0
010	Total Nitrogen (46%)	0007	46.40	0.6000	46.19	0.4682	0.2469	87	0.46	010.60	0
010	Total Nitrogen (46%)	0524	46.42	0.0400	46.19	0.4682	0.2469	87	0.50	010.99	0
010	Total Nitrogen (46%)	0534	46.43	0.0300	46.19	0.4682	0.2469	87	0.51	010.60	0
010	Total Nitrogen (46%)	0035	46.43	0.0200	46.19	0.4682	0.2469	87	0.52	010.60	0
010	Total Nitrogen (46%)	0368	46.44	0.4380	46.19	0.4682	0.2469	87	0.53	010.60	0
010	Total Nitrogen (46%)	0177	46.44	0.1200	46.19	0.4682	0.2469	87	0.54	010.60	0
010	Total Nitrogen (46%)	0360	46.45	0.0900	46.19	0.4682	0.2469	87	0.55	010.60	0
010	Total Nitrogen (46%)	0095	46.46	0.0500	46.19	0.4682	0.2469	87	0.58	010.60	0
010	Total Nitrogen (46%)	0486	46.49	0.2800	46.19	0.4682	0.2469	87	0.65	010.60	0
010	Total Nitrogen (46%)	0072	46.53	0.1000	46.19	0.4682	0.2469	87	0.74	010.60	0
010	Total Nitrogen (46%)	0423	46.53	0.4200	46.19	0.4682	0.2469	87	0.74	010.60	0
010	Total Nitrogen (46%)	0040	46.55	0.1000	46.19	0.4682	0.2469	87	0.78	010.60	0
010	Total Nitrogen (46%)	0105	46.56	0.0800	46.19	0.4682	0.2469	87	0.80	010.60	0
010	Total Nitrogen (46%)	0419	46.59	0.5500	46.19	0.4682	0.2469	87	0.85	010.60	0
010	Total Nitrogen (46%)	0444	46.61	0.2000	46.19	0.4682	0.2469	87	0.91	010.60	0
010	Total Nitrogen (46%)	0073	46.63	0.0900	46.19	0.4682	0.2469	87	0.94	010.60	0
010	Total Nitrogen (46%)	0029	46.65	0.5100	46.19	0.4682	0.2469	87	0.98	010.60	0
010	Total Nitrogen (46%)	0136	46.65	0.1000	46.19	0.4682	0.2469	87	0.99	010.60	0
010	Total Nitrogen (46%)	0027	46.70	0.2000	46.19	0.4682	0.2469	87	1.10	010.60	0
010	Total Nitrogen (46%)	0542	46.71	0.0270	46.19	0.4682	0.2469	87	1.12	010.60	0
010	Total Nitrogen (46%)	0042	46.75	0.3000	46.19	0.4682	0.2469	87	1.21	010.60	0
010	Total Nitrogen (46%)	0049	46.76	0.0300	46.19	0.4682	0.2469	87	1.22	010.60	0
010	Total Nitrogen (46%)	0377	46.76	0.3900	46.19	0.4682	0.2469	87	1.22	010.60	0
010	Total Nitrogen (46%)	0034	46.89	0.1400	46.19	0.4682	0.2469	87	1.50	010.60	0
010	Total Nitrogen (46%)	0102	46.98	0.1200	46.19	0.4682	0.2469	87	1.70	010.60	0
010	Total Nitrogen (46%)	0452	47.00	0.0500	46.19	0.4682	0.2469	87	1.73	010.60	0
010	Total Nitrogen (46%)	0485	47.19‡	1.126	46.19	0.4682	0.2469	87	2.13	010.60	0
010	Total Nitrogen (46%)	0527	47.47‡	0.2200	46.19	0.4682	0.2469	87	2.74	010.60	0
010	Total Nitrogen (46%)	0117	47.65‡	0.1000	46.19	0.4682	0.2469	87	3.13	010.60	0
010	Total Nitrogen (46%)	0230	49.65‡	0.1000	46.19	0.4682	0.2469	87	7.40	010.60	0
010	Total Nitrogen (46%)	0405	31.17†	29.96	46.19	0.4682	0.2469	87	-32.07	010.60	2
020	Total Phosphorus as P2O5 (%)	0515	0.0004	0.0002	15.35	26.59	0.1434	3	-0.58	020.99	0
020	Total Phosphorus as P2O5 (%)	0524	0.0004	0.0000	15.35	26.59	0.1434	3	-0.58	020.50	0
020	Total Phosphorus as P2O5 (%)	0035	46.06	0.4300	15.35	26.59	0.1434	3	1.15	020.40	0
041	Direct Available Phosphorus as P2O5 (%)	0354	0.0210	0.0020				2		041.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
041	Direct Available Phosphorus as P2O5 (%)	0325	0.1000	0.0000				2		041.50	0
050	Soluble Potassium as K2O (%)	0354	0.0050	0.0000	0.0410	0.0515	0.0006	3	-0.70	050.52	0
050	Soluble Potassium as K2O (%)	0524	0.0180	0.0017	0.0410	0.0515	0.0006	3	-0.45	050.99	0
050	Soluble Potassium as K2O (%)	0325	0.1000	0.0000	0.0410	0.0515	0.0006	3	1.15	050.99	0
060	Water (Free) (%)	0007	0.0800	0.0400	0.2095	0.0955	0.0176	14	-1.36	060.00	0
060	Water (Free) (%)	0356	0.0985	0.0310	0.2095	0.0955	0.0176	14	-1.16	060.10	0
060	Water (Free) (%)	0405	0.1050	0.0100	0.2095	0.0955	0.0176	14	-1.09	060.00	0
060	Water (Free) (%)	0096	0.1450	0.0300	0.2095	0.0955	0.0176	14	-0.68	060.00	0
060	Water (Free) (%)	0055	0.1750	0.0500	0.2095	0.0955	0.0176	14	-0.36	060.99	0
060	Water (Free) (%)	0234	0.2000	0.0000	0.2095	0.0955	0.0176	14	-0.10	060.20	0
060	Water (Free) (%)	0394	0.2050	0.0100	0.2095	0.0955	0.0176	14	-0.05	060.20	0
060	Water (Free) (%)	0513	0.2080	0.0020	0.2095	0.0955	0.0176	14	-0.02	060.99	0
060	Water (Free) (%)	0416	0.2395	0.0109	0.2095	0.0955	0.0176	14	0.31	060.00	0
060	Water (Free) (%)	0510	0.2439	0.0022	0.2095	0.0955	0.0176	14	0.36	060.99	0
060	Water (Free) (%)	0371	0.2500	0.0200	0.2095	0.0955	0.0176	14	0.42	060.20	0
060	Water (Free) (%)	0520	0.3050	0.0300	0.2095	0.0955	0.0176	14	1.00	060.99	0
060	Water (Free) (%)	0493	0.3250	0.0100	0.2095	0.0955	0.0176	14	1.21	060.20	0
060	Water (Free) (%)	0055	0.4000	0.0000	0.2095	0.0955	0.0176	14	2.00	060.30	0
060	Water (Free) (%)	0550	0.9100	0.1800	0.2095	0.0955	0.0176	14	7.34	060.99	1
101	Acid Soluble Calcium (%)	0354	0.1150	0.0100				2		101.30	0
101	Acid Soluble Calcium (%)	0035	12.25	0.3000				2		101.30	0
121	Acid Soluble Magnesium (%)	0515	0.0054	0.0062	0.1744	0.3215	0.0186	4	-0.53	121.33	0
121	Acid Soluble Magnesium (%)	0354	0.0100	0.0000	0.1744	0.3215	0.0186	4	-0.51	121.30	0
121	Acid Soluble Magnesium (%)	0515	0.0255	0.0030	0.1744	0.3215	0.0186	4	-0.46	121.99	0
121	Acid Soluble Magnesium (%)	0035	0.6565	0.0650	0.1744	0.3215	0.0186	4	1.50	121.30	0
148	Total Sulfur (%)	0354	0.0100	0.0000				1		148.99	0
148	Total Sulfur (%)	0515	0.0002	0.0004				1		148.07	4
149	Sulfur - HNO3 soluble (%)	0524	0.0004	0.0001				1		149.04	0
151	Acid Soluble Arsenic (ppm)	0519	0.1750	0.0100				1		151.99	0
151	Acid Soluble Arsenic (ppm)	0515	0.0000	0.0000				1		151.33	4
151	Acid Soluble Arsenic (ppm)	0515	0.0000	0.0000				1		151.34	4
165	Acid Soluble Boron (%)	0354	0.0100	0.0000				1		165.30	0
165	Acid Soluble Boron (%)	0515	0.0000	0.0000				1		165.99	4
181	Acid Soluble Cadmium (ppm)	0519	0.0100	0.0000	26.74	46.30	1.534	3	-0.58	181.99	0
181	Acid Soluble Cadmium (ppm)	0524	0.0154	0.0007	26.74	46.30	1.534	3	-0.58	181.30	0
181	Acid Soluble Cadmium (ppm)	0035	80.20	4.600	26.74	46.30	1.534	3	1.15	181.30	0
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	26.74	46.30	1.534	3		181.33	4
181	Acid Soluble Cadmium (ppm)	0515	0.1255	0.2510	26.74	46.30	1.534	3		181.34	4
191	Acid Soluble Chromium (ppm)	0515	1.159	1.340	129.1	220.8	8.457	3	-0.58	191.34	0
191	Acid Soluble Chromium (ppm)	0519	2.045	0.0300	129.1	220.8	8.457	3	-0.58	191.99	0
191	Acid Soluble Chromium (ppm)	0035	384.0	24.00	129.1	220.8	8.457	3	1.15	191.30	0
191	Acid Soluble Chromium (ppm)	0515	0.0000	0.0000	129.1	220.8	8.457	3		191.33	4
202	Acid Soluble Cobalt (ppm)	0519	0.0100	0.0000	1.115	1.883	0.1815	3	-0.59	202.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
202	Acid Soluble Cobalt (ppm)	0524	0.0460	0.0645	1.115	1.883	0.1815	3	-0.57	202.30	0
202	Acid Soluble Cobalt (ppm)	0035	3.290	0.4800	1.115	1.883	0.1815	3	1.15	202.30	0
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000	1.115	1.883	0.1815	3		202.33	4
202	Acid Soluble Cobalt (ppm)	0515	0.6695	1.339	1.115	1.883	0.1815	3		202.34	4
221	Acid Soluble Copper (%)	0035	0.0052	0.0002				2		221.30	0
221	Acid Soluble Copper (%)	0354	0.0100	0.0000				2		221.30	0
221	Acid Soluble Copper (%)	0515	0.0000	0.0000				2		221.99	4
221	Acid Soluble Copper (%)	0515	0.0002	0.0003				2		221.33	4
241	Acid Soluble Iron (%)	0515	0.0014	0.0004	0.1811	0.3526	0.0086	4	-0.51	241.33	0
241	Acid Soluble Iron (%)	0515	0.0031	0.0058	0.1811	0.3526	0.0086	4	-0.50	241.99	0
241	Acid Soluble Iron (%)	0354	0.0100	0.0000	0.1811	0.3526	0.0086	4	-0.49	241.30	0
241	Acid Soluble Iron (%)	0035	0.7100	0.0280	0.1811	0.3526	0.0086	4	1.50	241.30	0
251	Acid Soluble Lead (ppm)	0524	0.0860	0.0050	3.477	6.131	0.7635	4	-0.55	251.30	0
251	Acid Soluble Lead (ppm)	0519	0.1350	0.0300	3.477	6.131	0.7635	4	-0.55	251.99	0
251	Acid Soluble Lead (ppm)	0515	1.038	0.7190	3.477	6.131	0.7635	4	-0.40	251.33	0
251	Acid Soluble Lead (ppm)	0035	12.65	2.300	3.477	6.131	0.7635	4	1.50	251.30	0
251	Acid Soluble Lead (ppm)	0515	0.4905	0.9810	3.477	6.131	0.7635	4		251.34	4
261	Acid Soluble Manganese (%)	0354	0.0055	0.0090				2		261.30	0
261	Acid Soluble Manganese (%)	0035	0.0149	0.0021				2		261.30	0
261	Acid Soluble Manganese (%)	0515	0.0000	0.0000				2		261.35	4
261	Acid Soluble Manganese (%)	0515	0.0000	0.0000				2		261.99	4
281	Acid Soluble Mercury (ppm)	0519	0.0100	0.0000				1		281.99	0
281	Acid Soluble Mercury (ppm)	0515	0.0000	0.0000				1		281.30	4
289	Acid Soluble Molybdenum (ppm)	0524	0.0313	0.0115				2		289.30	0
289	Acid Soluble Molybdenum (ppm)	0035	14.55	3.100				2		289.30	0
289	Acid Soluble Molybdenum (ppm)	0515	0.0000	0.0000				2		289.33	4
289	Acid Soluble Molybdenum (ppm)	0515	0.4025	0.8050				2		289.34	4
291	Acid Soluble Nickel (ppm)	0524	0.2451	0.0289	45.95	78.85	0.6796	3	-0.58	291.99	0
291	Acid Soluble Nickel (ppm)	0519	0.6050	0.0100	45.95	78.85	0.6796	3	-0.58	291.99	0
291	Acid Soluble Nickel (ppm)	0035	137.0	2.000	45.95	78.85	0.6796	3	1.15	291.30	0
291	Acid Soluble Nickel (ppm)	0515	0.0000	0.0000	45.95	78.85	0.6796	3		291.33	4
291	Acid Soluble Nickel (ppm)	0515	0.1645	0.3290	45.95	78.85	0.6796	3		291.34	4
301	Acid Soluble Selenium (ppm)	0519	0.0150	0.0100				2		301.99	0
301	Acid Soluble Selenium (ppm)	0524	1.448	0.0250				2		301.30	0
301	Acid Soluble Selenium (ppm)	0515	0.0000	0.0000				2		301.33	4
301	Acid Soluble Selenium (ppm)	0515	0.0000	0.0000				2		301.34	4
311	Sodium (%)	0354	0.0450	0.0100				2		311.99	0
311	Sodium (%)	0035	0.1125	0.0550				2		311.33	0
321	Acid Soluble Zinc (%)	0354	0.0100	0.0000				2		321.30	0
321	Acid Soluble Zinc (%)	0035	0.4300	0.0380				2		321.30	0
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000				2		321.33	4
321	Acid Soluble Zinc (%)	0515	0.0001	0.0001				2		321.99	4

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at

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95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are grey and included for information only. Your offset values are higher (‡) or lower (†) than the Robust Analyte value ± Investigational Allowance. Analyte codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.