

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 190111

Grade 21-0-0

Statistical Summary

Analytes: 29

Labs Reporting: 90

Issue Date : 02/28/2019

Analyte Code	Analyte Sample # 190111	# 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)	Hornitz %RSD
001	Ammoniacal Nitrogen (%)	37	37	20.91	0.3620	20.92		0.2018	0.0415	0.96%		0.0770	2.53%
009	Ammoniacal Plus Nitrate Nitrogen (%)	1		21.03									
010	Total Nitrogen (21%)	71	69	21.08	0.2823	21.10	0.7410	0.2130	0.0321	1.01%	0.67	0.1427	2.53%
020	Total Phosphorus as P2O5 (%)	6	3	0.0048	0.0046	0.0048		0.0046	0.0033	96.37%		0.0001	8.94%
041	Direct Available Phosphorus as P2O5 (%)	2	0	0.0000									
050	Soluble Potassium as K2O (%)	7	2	0.0149	0.0031	0.0149	0.4100	0.0031	0.0027	20.68%	0.02	0.0024	7.53%
060	Water (Free) (%)	4	4	0.4345	0.3226	0.4345		0.3226	0.2016	74.25%		0.0340	4.53%
101	Acid Soluble Calcium (%)	4	3	0.0380	0.0278	0.0380	0.2019	0.0278	0.0200	73.20%	0.32	0.0011	6.54%
121	Acid Soluble Magnesium (%)	7	4	0.0056	0.0057	0.0056	0.2003	0.0057	0.0036	101.71%	0.07	0.0042	8.73%
143	Elemental Sulfur (%)	7	6	19.54	9.596	22.50		3.040	1.551	13.51%		0.1372	2.50%
145	Sulfate Sulfur, HCl soluble (%)	13	13	24.61	0.3766	24.58		0.3534	0.1225	1.44%		0.0757	2.47%
148	Total Sulfur (24%)	53	51	24.25	0.6332	24.31	1.0000	0.4573	0.0800	1.88%	1.07	0.2514	2.47%
149	Sulfur - HNO3 soluble (%)	4	4	23.47	0.7855	23.47		0.7855	0.4909	3.35%		0.1657	2.49%
151	Acid Soluble Arsenic (ppm)	13	4	246.6	492.0	246.6		492.0	307.5	199.49%		77.77	6.98%
165	Acid Soluble Boron (%)	4	1	0.0009		246.6	1.0000	492.0	615.0	199.49%	1146.43	0.0000	1.75%
181	Acid Soluble Cadmium (ppm)	18	7	0.1493	0.1790	0.1493		0.2030	0.0959	135.95%		0.0443	21.30%
191	Acid Soluble Chromium (ppm)	18	13	0.7952	0.4855	0.7599		0.4687	0.1625	61.68%		0.2704	16.67%
202	Acid Soluble Cobalt (ppm)	17	7	0.1336	0.0675	0.1327	1.0398	0.0746	0.0352	56.21%	0.17	0.0263	21.68%
221	Acid Soluble Copper (%)	17	8	0.0008	0.0007	0.0007	0.0051	0.0007	0.0003	99.86%	0.33	0.0003	11.87%
241	Acid Soluble Iron (%)	8	5	0.0898	0.1595	0.0898	0.0140	0.1595	0.0892	177.71%	26.59	0.1537	5.75%
251	Acid Soluble Lead (ppm)	18	6	0.5213	0.8190	0.3843		0.5874	0.2998	152.87%		0.0060	18.47%
261	Acid Soluble Manganese (%)	7	1	0.0004		0.3843	0.0434	0.5874	0.7343	152.87%	31.52	0.0000	4.62%
281	Acid Soluble Mercury (ppm)	9	1	0.0200		0.3843		0.5874	0.7343	152.87%		0.0000	18.47%
289	Acid Soluble Molybdenum (ppm)	14	8	8.979	11.80	8.979	3.6936	13.38	5.911	148.98%	8.44	0.5536	11.50%
291	Acid Soluble Nickel (ppm)	19	12	1.120	0.6667	1.120		0.7560	0.2728	67.47%		0.4382	15.73%
301	Acid Soluble Selenium (ppm)	14	4	0.5314	0.2926	0.5314		0.2926	0.1829	55.06%		0.2718	17.59%
311	Sodium (%)	2	1	0.0200									
321	Acid Soluble Zinc (%)	19	8	0.0014	0.0026	0.0006	0.0051	0.0005	0.0002	85.65%	0.23	0.0001	12.26%
325	Water Soluble Zinc (%)	1		40.00									

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 # 190111	
Analyte Code	

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Analyte Proficiency From All Labs

Analytes: 29

Sample # 190111

Lab Values

Labs Reporting: 90

Grade 21-0-0

Issue Date : 02/28/2019

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 (%)	0546	19.81	0.0600	20.92	0.2018	0.0770	37	-5.52	001.99	0
001	Ammoniacal Nitrogen (%)	0231	20.11	0.0300	20.92	0.2018	0.0770	37	-4.06	001.10	0
001	Ammoniacal Nitrogen (%)	0553	20.28	0.1900	20.92	0.2018	0.0770	37	-3.22	001.99	0
001	Ammoniacal Nitrogen (%)	0309	20.54	0.0300	20.92	0.2018	0.0770	37	-1.93	001.10	0
001	Ammoniacal Nitrogen (%)	0368	20.57	0.2800	20.92	0.2018	0.0770	37	-1.75	001.99	0
001	Ammoniacal Nitrogen (%)	0520	20.67	0.0600	20.92	0.2018	0.0770	37	-1.26	001.99	0
001	Ammoniacal Nitrogen (%)	0498	20.75	0.1000	20.92	0.2018	0.0770	37	-0.86	001.10	0
001	Ammoniacal Nitrogen (%)	0544	20.79	0.0200	20.92	0.2018	0.0770	37	-0.67	001.99	0
001	Ammoniacal Nitrogen (%)	0535	20.80	0.0300	20.92	0.2018	0.0770	37	-0.64	001.99	0
001	Ammoniacal Nitrogen (%)	0451	20.81	0.0600	20.92	0.2018	0.0770	37	-0.57	001.10	0
001	Ammoniacal Nitrogen (%)	0476	20.81	0.0127	20.92	0.2018	0.0770	37	-0.55	001.99	0
001	Ammoniacal Nitrogen (%)	0371	20.87	0.0800	20.92	0.2018	0.0770	37	-0.27	001.99	0
001	Ammoniacal Nitrogen (%)	0027	20.88	0.2760	20.92	0.2018	0.0770	37	-0.23	001.99	0
001	Ammoniacal Nitrogen (%)	0423	20.90	0.1000	20.92	0.2018	0.0770	37	-0.12	001.99	0
001	Ammoniacal Nitrogen (%)	0510	20.92	0.0330	20.92	0.2018	0.0770	37	-0.03	001.99	0
001	Ammoniacal Nitrogen (%)	0513	20.92	0.0200	20.92	0.2018	0.0770	37	-0.02	001.99	0
001	Ammoniacal Nitrogen (%)	0220	20.93	0.0100	20.92	0.2018	0.0770	37	0.00	001.99	0
001	Ammoniacal Nitrogen (%)	0169	20.94	0.1300	20.92	0.2018	0.0770	37	0.05	001.10	0
001	Ammoniacal Nitrogen (%)	0531	20.94	0.0200	20.92	0.2018	0.0770	37	0.08	001.10	0
001	Ammoniacal Nitrogen (%)	0177	20.94	0.0180	20.92	0.2018	0.0770	37	0.08	001.10	0
001	Ammoniacal Nitrogen (%)	0531	20.95	0.0400	20.92	0.2018	0.0770	37	0.13	001.99	0
001	Ammoniacal Nitrogen (%)	0539	20.97	0.0200	20.92	0.2018	0.0770	37	0.23	001.99	0
001	Ammoniacal Nitrogen (%)	0533	20.99	0.0700	20.92	0.2018	0.0770	37	0.30	001.99	0
001	Ammoniacal Nitrogen (%)	0536	21.00	0.1000	20.92	0.2018	0.0770	37	0.38	001.99	0
001	Ammoniacal Nitrogen (%)	0096	21.02	0.0500	20.92	0.2018	0.0770	37	0.45	001.99	0
001	Ammoniacal Nitrogen (%)	0522	21.02	0.0800	20.92	0.2018	0.0770	37	0.47	001.99	0
001	Ammoniacal Nitrogen (%)	0444	21.04	0.0400	20.92	0.2018	0.0770	37	0.57	001.10	0
001	Ammoniacal Nitrogen (%)	0405	21.04	0.0600	20.92	0.2018	0.0770	37	0.57	001.99	0
001	Ammoniacal Nitrogen (%)	0394	21.05	0.0320	20.92	0.2018	0.0770	37	0.62	001.99	0
001	Ammoniacal Nitrogen (%)	0169	21.05	0.0200	20.92	0.2018	0.0770	37	0.62	001.99	0
001	Ammoniacal Nitrogen (%)	0518	21.05	0.3000	20.92	0.2018	0.0770	37	0.62	001.99	0
001	Ammoniacal Nitrogen (%)	0556	21.05	0.1000	20.92	0.2018	0.0770	37	0.62	001.99	0
001	Ammoniacal Nitrogen (%)	0532	21.11	0.0600	20.92	0.2018	0.0770	37	0.92	001.99	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				
001	Ammoniacal Nitrogen (%)	0550	21.26	0.0000	20.92	0.2018	0.0770	37	1.66	001.99	0
001	Ammoniacal Nitrogen (%)	0549	21.45	0.1000	20.92	0.2018	0.0770	37	2.60	001.99	0
001	Ammoniacal Nitrogen (%)	0527	21.70	0.2000	20.92	0.2018	0.0770	37	3.84	001.99	0
001	Ammoniacal Nitrogen (%)	0524	21.82	0.0187	20.92	0.2018	0.0770	37	4.45	001.99	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0519	21.03	0.0100				1		009.99	0
010	Total Nitrogen (21%)	0481	20.02†	0.1500	21.10	0.2130	0.1427	69	-5.11	010.99	0
010	Total Nitrogen (21%)	0117	20.05†	0.1000	21.10	0.2130	0.1427	69	-4.95	010.60	0
010	Total Nitrogen (21%)	0524	20.53	0.0330	21.10	0.2130	0.1427	69	-2.69	010.99	0
010	Total Nitrogen (21%)	0307	20.63	0.8600	21.10	0.2130	0.1427	69	-2.22	010.60	0
010	Total Nitrogen (21%)	0325	20.65	0.9000	21.10	0.2130	0.1427	69	-2.13	010.60	0
010	Total Nitrogen (21%)	0498	20.75	0.1000	21.10	0.2130	0.1427	69	-1.66	010.12	0
010	Total Nitrogen (21%)	0520	20.79	0.1800	21.10	0.2130	0.1427	69	-1.47	010.99	0
010	Total Nitrogen (21%)	0055	20.81	0.1000	21.10	0.2130	0.1427	69	-1.38	010.60	0
010	Total Nitrogen (21%)	0482	20.85	0.1000	21.10	0.2130	0.1427	69	-1.19	010.60	0
010	Total Nitrogen (21%)	0105	20.88	0.0100	21.10	0.2130	0.1427	69	-1.07	010.11	0
010	Total Nitrogen (21%)	0220	20.90	0.0600	21.10	0.2130	0.1427	69	-0.96	010.11	0
010	Total Nitrogen (21%)	0493	20.90	0.1000	21.10	0.2130	0.1427	69	-0.96	010.99	0
010	Total Nitrogen (21%)	0451	20.93	0.7500	21.10	0.2130	0.1427	69	-0.84	010.60	0
010	Total Nitrogen (21%)	0157	20.95	0.1000	21.10	0.2130	0.1427	69	-0.72	010.60	0
010	Total Nitrogen (21%)	0324	20.95	0.1000	21.10	0.2130	0.1427	69	-0.72	010.60	0
010	Total Nitrogen (21%)	0452	20.96	0.0300	21.10	0.2130	0.1427	69	-0.70	010.60	0
010	Total Nitrogen (21%)	0356	20.96	0.0600	21.10	0.2130	0.1427	69	-0.68	010.60	0
010	Total Nitrogen (21%)	0443	20.99	0.4100	21.10	0.2130	0.1427	69	-0.56	010.60	0
010	Total Nitrogen (21%)	0234	21.00	0.2000	21.10	0.2130	0.1427	69	-0.49	010.60	0
010	Total Nitrogen (21%)	0486	21.00	0.0600	21.10	0.2130	0.1427	69	-0.49	010.60	0
010	Total Nitrogen (21%)	0177	21.01	0.1700	21.10	0.2130	0.1427	69	-0.46	010.60	0
010	Total Nitrogen (21%)	0309	21.01	0.0600	21.10	0.2130	0.1427	69	-0.44	010.11	0
010	Total Nitrogen (21%)	0472	21.01	0.3800	21.10	0.2130	0.1427	69	-0.44	010.60	0
010	Total Nitrogen (21%)	0481	21.01	0.0600	21.10	0.2130	0.1427	69	-0.44	010.60	0
010	Total Nitrogen (21%)	0519	21.04	0.0200	21.10	0.2130	0.1427	69	-0.30	010.99	0
010	Total Nitrogen (21%)	0501	21.05	0.0510	21.10	0.2130	0.1427	69	-0.26	010.60	0
010	Total Nitrogen (21%)	0394	21.05	0.0320	21.10	0.2130	0.1427	69	-0.26	010.99	0
010	Total Nitrogen (21%)	0523	21.05	0.1000	21.10	0.2130	0.1427	69	-0.25	010.60	0
010	Total Nitrogen (21%)	0231	21.06	0.0200	21.10	0.2130	0.1427	69	-0.21	010.60	0
010	Total Nitrogen (21%)	0041	21.07	0.0700	21.10	0.2130	0.1427	69	-0.18	010.60	0
010	Total Nitrogen (21%)	0423	21.07	0.0400	21.10	0.2130	0.1427	69	-0.16	010.60	0
010	Total Nitrogen (21%)	0510	21.08	0.0151	21.10	0.2130	0.1427	69	-0.12	010.11	0
010	Total Nitrogen (21%)	0354	21.10	0.0000	21.10	0.2130	0.1427	69	-0.02	010.60	0
010	Total Nitrogen (21%)	0483	21.11	0.1100	21.10	0.2130	0.1427	69	0.01	010.60	0
010	Total Nitrogen (21%)	0043	21.12	0.0300	21.10	0.2130	0.1427	69	0.05	010.60	0
010	Total Nitrogen (21%)	0555	21.12	0.0800	21.10	0.2130	0.1427	69	0.08	010.60	0
010	Total Nitrogen (21%)	0292	21.13	0.0100	21.10	0.2130	0.1427	69	0.10	010.60	0
010	Total Nitrogen (21%)	0095	21.13	0.1200	21.10	0.2130	0.1427	69	0.12	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 (21%)	0527	21.13	0.0400	21.10	0.2130	0.1427	69	0.14	010.60	0
010	Total Nitrogen (21%)	0049	21.14	0.0500	21.10	0.2130	0.1427	69	0.15	010.60	0
010	Total Nitrogen (21%)	0389	21.14	0.0100	21.10	0.2130	0.1427	69	0.15	010.60	0
010	Total Nitrogen (21%)	0007	21.15	0.1000	21.10	0.2130	0.1427	69	0.22	010.60	0
010	Total Nitrogen (21%)	0405	21.17	0.0100	21.10	0.2130	0.1427	69	0.29	010.60	0
010	Total Nitrogen (21%)	0136	21.17	0.1000	21.10	0.2130	0.1427	69	0.31	010.60	0
010	Total Nitrogen (21%)	0114	21.18	0.0400	21.10	0.2130	0.1427	69	0.36	010.60	0
010	Total Nitrogen (21%)	0360	21.20	0.1700	21.10	0.2130	0.1427	69	0.43	010.60	0
010	Total Nitrogen (21%)	0029	21.20	0.0800	21.10	0.2130	0.1427	69	0.45	010.60	0
010	Total Nitrogen (21%)	0040	21.20	0.0000	21.10	0.2130	0.1427	69	0.45	010.60	0
010	Total Nitrogen (21%)	0042	21.20	0.0000	21.10	0.2130	0.1427	69	0.45	010.60	0
010	Total Nitrogen (21%)	0377	21.20	0.0800	21.10	0.2130	0.1427	69	0.45	010.60	0
010	Total Nitrogen (21%)	0096	21.21	0.0300	21.10	0.2130	0.1427	69	0.48	010.60	0
010	Total Nitrogen (21%)	0291	21.23	0.0100	21.10	0.2130	0.1427	69	0.57	010.60	0
010	Total Nitrogen (21%)	0105	21.24	0.3100	21.10	0.2130	0.1427	69	0.62	010.60	0
010	Total Nitrogen (21%)	0102	21.25	0.1000	21.10	0.2130	0.1427	69	0.69	010.60	0
010	Total Nitrogen (21%)	0131	21.25	0.0060	21.10	0.2130	0.1427	69	0.70	010.60	0
010	Total Nitrogen (21%)	0550	21.26	0.0000	21.10	0.2130	0.1427	69	0.73	010.60	0
010	Total Nitrogen (21%)	0402	21.28	0.5490	21.10	0.2130	0.1427	69	0.83	010.60	0
010	Total Nitrogen (21%)	0073	21.32	0.1000	21.10	0.2130	0.1427	69	1.02	010.60	0
010	Total Nitrogen (21%)	0534	21.34	0.1100	21.10	0.2130	0.1427	69	1.09	010.60	0
010	Total Nitrogen (21%)	0542	21.34	0.1570	21.10	0.2130	0.1427	69	1.10	010.60	0
010	Total Nitrogen (21%)	0547	21.34	0.2200	21.10	0.2130	0.1427	69	1.11	010.60	0
010	Total Nitrogen (21%)	0485	21.39	0.3110	21.10	0.2130	0.1427	69	1.32	010.60	0
010	Total Nitrogen (21%)	0230	21.40	0.0000	21.10	0.2130	0.1427	69	1.39	010.60	0
010	Total Nitrogen (21%)	0444	21.41	0.1200	21.10	0.2130	0.1427	69	1.44	010.60	0
010	Total Nitrogen (21%)	0027	21.45	0.5000	21.10	0.2130	0.1427	69	1.63	010.60	0
010	Total Nitrogen (21%)	0421	21.45	0.1000	21.10	0.2130	0.1427	69	1.63	010.60	0
010	Total Nitrogen (21%)	0025	21.60	0.2900	21.10	0.2130	0.1427	69	2.31	010.60	0
010	Total Nitrogen (21%)	0023	21.60	0.3820	21.10	0.2130	0.1427	69	2.32	010.60	0
010	Total Nitrogen (21%)	0368	21.62	0.0990	21.10	0.2130	0.1427	69	2.44	010.60	0
010	Total Nitrogen (21%)	0255	24.09‡	1.538	21.10	0.2130	0.1427	69	14.04	010.60	1
010	Total Nitrogen (21%)	0422	13.82‡	0.2100	21.10	0.2130	0.1427	69	-34.22	010.60	2
020	Total Phosphorus as P2O5 (%)	0515	0.0014	0.0000	0.0048	0.0046	0.0001	3	-0.59	020.99	0
020	Total Phosphorus as P2O5 (%)	0524	0.0029	0.0004	0.0048	0.0046	0.0001	3	-0.33	020.50	0
020	Total Phosphorus as P2O5 (%)	0292	0.0100	0.0000	0.0048	0.0046	0.0001	3	0.92	020.20	0
020	Total Phosphorus as P2O5 (%)	0421	0.0000	0.0000	0.0048	0.0046	0.0001	3		020.50	4
020	Total Phosphorus as P2O5 (%)	0527	< 0.05		0.0048	0.0046	0.0001	3		020.50	5
020	Total Phosphorus as P2O5 (%)	0547	< 0.1		0.0048	0.0046	0.0001	3		020.50	5
041	Direct Available Phosphorus as P2O5 (%)	0325	0.0000	0.0000				0		041.50	4
041	Direct Available Phosphorus as P2O5 (%)	0354	< 0.01					0		041.60	5
050	Soluble Potassium as K2O (%)	0389	0.0127	0.0018				2		050.99	0
050	Soluble Potassium as K2O (%)	0524	0.0171	0.0029				2		050.99	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				
050	Soluble Potassium as K2O (%)	0325	0.0000	0.0000				2		050.99	4
050	Soluble Potassium as K2O (%)	0421	0.0000	0.0000				2		050.99	4
050	Soluble Potassium as K2O (%)	0354	< 0.01					2		050.52	5
050	Soluble Potassium as K2O (%)	0527	< 0.05					2		050.99	5
050	Soluble Potassium as K2O (%)	0547	< 0.1					2		050.51	5
060	Water (Free) (%)	0007	0.1200	0.0400	0.4345	0.3226	0.0340	4	-0.97	060.00	0
060	Water (Free) (%)	0510	0.1928	0.0060	0.4345	0.3226	0.0340	4	-0.75	060.99	0
060	Water (Free) (%)	0518	0.7000	0.0400	0.4345	0.3226	0.0340	4	0.82	060.30	0
060	Water (Free) (%)	0009	0.7250	0.0500	0.4345	0.3226	0.0340	4	0.90	060.99	0
101	Acid Soluble Calcium (%)	0527	0.0208	0.0024	0.0380	0.0278	0.0011	3	-0.62	101.33	0
101	Acid Soluble Calcium (%)	0389	0.0231	0.0009	0.0380	0.0278	0.0011	3	-0.54	101.99	0
101	Acid Soluble Calcium (%)	0354	0.0700	0.0000	0.0380	0.0278	0.0011	3	1.15	101.30	0
101	Acid Soluble Calcium (%)	0421	0.0000	0.0000	0.0380	0.0278	0.0011	3		101.33	4
121	Acid Soluble Magnesium (%)	0524	0.0007	0.0002	0.0056	0.0057	0.0042	4	-0.73	121.99	0
121	Acid Soluble Magnesium (%)	0389	0.0008	0.0001	0.0056	0.0057	0.0042	4	-0.72	121.99	0
121	Acid Soluble Magnesium (%)	0515	0.0095	0.0083	0.0056	0.0057	0.0042	4	0.57	121.33	0
121	Acid Soluble Magnesium (%)	0515	0.0116	0.0081	0.0056	0.0057	0.0042	4	0.88	121.99	0
121	Acid Soluble Magnesium (%)	0421	0.0000	0.0000	0.0056	0.0057	0.0042	4		121.33	4
121	Acid Soluble Magnesium (%)	0527	< 0.001		0.0056	0.0057	0.0042	4		121.33	5
121	Acid Soluble Magnesium (%)	0354	< 0.01		0.0056	0.0057	0.0042	4		121.30	5
143	Elemental Sulfur (%)	0095	0.1900	0.1400	22.50	3.040	0.1372	6	-6.54	143.00	0
143	Elemental Sulfur (%)	0472	21.20	0.0000	22.50	3.040	0.1372	6	-0.38	143.99	0
143	Elemental Sulfur (%)	0389	22.15	0.1000	22.50	3.040	0.1372	6	-0.10	143.99	0
143	Elemental Sulfur (%)	0481	24.11	0.1400	22.50	3.040	0.1372	6	0.47	143.99	0
143	Elemental Sulfur (%)	0291	24.56	0.0100	22.50	3.040	0.1372	6	0.60	143.99	0
143	Elemental Sulfur (%)	0255	25.05	0.4330	22.50	3.040	0.1372	6	0.75	143.99	0
143	Elemental Sulfur (%)	0485	0.0000	0.0000	22.50	3.040	0.1372	6		143.00	4
145	Sulfate Sulfur, HCl soluble (%)	0539	24.05	0.1000	24.58	0.3534	0.0757	13	-1.50	145.99	0
145	Sulfate Sulfur, HCl soluble (%)	0444	24.24	0.0800	24.58	0.3534	0.0757	13	-0.96	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0498	24.30	0.2000	24.58	0.3534	0.0757	13	-0.79	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0510	24.41	0.0206	24.58	0.3534	0.0757	13	-0.47	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0544	24.46	0.0100	24.58	0.3534	0.0757	13	-0.35	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0095	24.50	0.0900	24.58	0.3534	0.0757	13	-0.24	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0177	24.53	0.1087	24.58	0.3534	0.0757	13	-0.13	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0405	24.56	0.0600	24.58	0.3534	0.0757	13	-0.05	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0522	24.61	0.0400	24.58	0.3534	0.0757	13	0.09	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0485	24.89	0.0853	24.58	0.3534	0.0757	13	0.89	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0027	24.92	0.0100	24.58	0.3534	0.0757	13	0.95	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0550	24.96	0.0000	24.58	0.3534	0.0757	13	1.08	145.00	0
145	Sulfate Sulfur, HCl soluble (%)	0220	25.49	0.1800	24.58	0.3534	0.0757	13	2.58	145.00	0
148	Total Sulfur (24%)	0542	21.65†	1.110	24.31	0.4573	0.2514	51	-5.82	148.07	0
148	Total Sulfur (24%)	0292	22.61†	0.5600	24.31	0.4573	0.2514	51	-3.71	148.07	0
148	Total Sulfur (24%)	0377	23.16†	0.2600	24.31	0.4573	0.2514	51	-2.51	148.99	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				
148	Total Sulfur (24%)	0131	23.40	0.3300	24.31	0.4573	0.2514	51	-1.99	148.00	0
148	Total Sulfur (24%)	0534	23.56	0.4200	24.31	0.4573	0.2514	51	-1.63	148.01	0
148	Total Sulfur (24%)	0394	23.81	0.1400	24.31	0.4573	0.2514	51	-1.09	148.07	0
148	Total Sulfur (24%)	0493	23.90	0.1000	24.31	0.4573	0.2514	51	-0.89	148.99	0
148	Total Sulfur (24%)	0231	23.95	0.1000	24.31	0.4573	0.2514	51	-0.78	148.01	0
148	Total Sulfur (24%)	0040	23.95	0.5000	24.31	0.4573	0.2514	51	-0.78	148.07	0
148	Total Sulfur (24%)	0555	23.98	0.0100	24.31	0.4573	0.2514	51	-0.73	148.00	0
148	Total Sulfur (24%)	0433	23.98	0.0030	24.31	0.4573	0.2514	51	-0.71	148.99	0
148	Total Sulfur (24%)	0371	23.99	0.0900	24.31	0.4573	0.2514	51	-0.70	148.01	0
148	Total Sulfur (24%)	0486	24.01	0.0600	24.31	0.4573	0.2514	51	-0.65	148.07	0
148	Total Sulfur (24%)	0556	24.05	0.5000	24.31	0.4573	0.2514	51	-0.56	148.99	0
148	Total Sulfur (24%)	0546	24.06	0.2370	24.31	0.4573	0.2514	51	-0.54	148.07	0
148	Total Sulfur (24%)	0419	24.09	0.0800	24.31	0.4573	0.2514	51	-0.47	148.99	0
148	Total Sulfur (24%)	0023	24.09	0.0910	24.31	0.4573	0.2514	51	-0.47	148.07	0
148	Total Sulfur (24%)	0230	24.10	0.6000	24.31	0.4573	0.2514	51	-0.45	148.01	0
148	Total Sulfur (24%)	0354	24.10	0.0000	24.31	0.4573	0.2514	51	-0.45	148.99	0
148	Total Sulfur (24%)	0520	24.12	0.0300	24.31	0.4573	0.2514	51	-0.42	148.99	0
148	Total Sulfur (24%)	0444	24.16	0.5600	24.31	0.4573	0.2514	51	-0.32	148.01	0
148	Total Sulfur (24%)	0073	24.18	0.0300	24.31	0.4573	0.2514	51	-0.29	148.01	0
148	Total Sulfur (24%)	0029	24.19	0.3900	24.31	0.4573	0.2514	51	-0.27	148.00	0
148	Total Sulfur (24%)	0043	24.21	0.2700	24.31	0.4573	0.2514	51	-0.22	148.07	0
148	Total Sulfur (24%)	0096	24.23	0.0200	24.31	0.4573	0.2514	51	-0.17	148.99	0
148	Total Sulfur (24%)	0177	24.27	0.0004	24.31	0.4573	0.2514	51	-0.09	148.07	0
148	Total Sulfur (24%)	0114	24.28	0.0600	24.31	0.4573	0.2514	51	-0.06	148.00	0
148	Total Sulfur (24%)	0483	24.30	0.4000	24.31	0.4573	0.2514	51	-0.02	148.07	0
148	Total Sulfur (24%)	0102	24.31	0.0000	24.31	0.4573	0.2514	51	0.01	148.07	0
148	Total Sulfur (24%)	0422	24.32	0.4700	24.31	0.4573	0.2514	51	0.02	148.99	0
148	Total Sulfur (24%)	0025	24.39	0.3700	24.31	0.4573	0.2514	51	0.17	148.00	0
148	Total Sulfur (24%)	0501	24.43	0.2600	24.31	0.4573	0.2514	51	0.27	148.99	0
148	Total Sulfur (24%)	0421	24.45	0.1000	24.31	0.4573	0.2514	51	0.31	148.07	0
148	Total Sulfur (24%)	0368	24.52	0.2312	24.31	0.4573	0.2514	51	0.47	148.99	0
148	Total Sulfur (24%)	0177	24.53	0.1087	24.31	0.4573	0.2514	51	0.49	148.01	0
148	Total Sulfur (24%)	0405	24.58	0.0600	24.31	0.4573	0.2514	51	0.60	148.01	0
148	Total Sulfur (24%)	0513	24.59	0.0700	24.31	0.4573	0.2514	51	0.61	148.01	0
148	Total Sulfur (24%)	0029	24.59	0.0200	24.31	0.4573	0.2514	51	0.62	148.01	0
148	Total Sulfur (24%)	0055	24.63	0.4000	24.31	0.4573	0.2514	51	0.71	148.01	0
148	Total Sulfur (24%)	0523	24.63	0.1000	24.31	0.4573	0.2514	51	0.71	148.99	0
148	Total Sulfur (24%)	0527	24.67	0.0181	24.31	0.4573	0.2514	51	0.79	148.07	0
148	Total Sulfur (24%)	0095	24.69	0.2300	24.31	0.4573	0.2514	51	0.83	148.01	0
148	Total Sulfur (24%)	0049	24.77	0.0400	24.31	0.4573	0.2514	51	1.01	148.00	0
148	Total Sulfur (24%)	0402	24.79	0.3000	24.31	0.4573	0.2514	51	1.06	148.07	0
148	Total Sulfur (24%)	0476	24.85	0.3675	24.31	0.4573	0.2514	51	1.19	148.99	0
148	Total Sulfur (24%)	0485	24.89	0.0853	24.31	0.4573	0.2514	51	1.28	148.01	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				
148	Total Sulfur (24%)	0451	25.00	0.4000	24.31	0.4573	0.2514	51	1.52	148.00	0
148	Total Sulfur (24%)	0553	25.10	0.2400	24.31	0.4573	0.2514	51	1.73	148.99	0
148	Total Sulfur (24%)	0324	25.20	0.6000	24.31	0.4573	0.2514	51	1.95	148.01	0
148	Total Sulfur (24%)	0482	25.30	0.2000	24.31	0.4573	0.2514	51	2.17	148.99	0
148	Total Sulfur (24%)	0157	25.40‡	1.200	24.31	0.4573	0.2514	51	2.39	148.00	0
148	Total Sulfur (24%)	0307	24.38	2.270	24.31	0.4573	0.2514	51	0.15	148.99	1
148	Total Sulfur (24%)	0515	16.47†	1.244	24.31	0.4573	0.2514	51	-17.14	148.07	2
149	Sulfur - HNO3 soluble (%)	0524	22.35	0.0229	23.47	0.7855	0.1657	4	-1.42	149.04	0
149	Sulfur - HNO3 soluble (%)	0423	23.51	0.3800	23.47	0.7855	0.1657	4	0.05	149.04	0
149	Sulfur - HNO3 soluble (%)	0518	23.93	0.2500	23.47	0.7855	0.1657	4	0.58	149.02	0
149	Sulfur - HNO3 soluble (%)	0519	24.10	0.0100	23.47	0.7855	0.1657	4	0.80	149.04	0
151	Acid Soluble Arsenic (ppm)	0255	0.1295	0.0210	246.6	492.0	77.77	4	-0.50	151.30	0
151	Acid Soluble Arsenic (ppm)	0524	0.7535	0.1650	246.6	492.0	77.77	4	-0.50	151.30	0
151	Acid Soluble Arsenic (ppm)	0519	1.020	0.0200	246.6	492.0	77.77	4	-0.50	151.99	0
151	Acid Soluble Arsenic (ppm)	0555	984.7	310.9	246.6	492.0	77.77	4	1.50	151.30	0
151	Acid Soluble Arsenic (ppm)	0368	0.1839	0.3677	246.6	492.0	77.77	4		151.34	4
151	Acid Soluble Arsenic (ppm)	0527	< 0.0001		246.6	492.0	77.77	4		151.33	5
151	Acid Soluble Arsenic (ppm)	0520	< 0.04		246.6	492.0	77.77	4		151.99	5
151	Acid Soluble Arsenic (ppm)	0550	< 0.08		246.6	492.0	77.77	4		151.00	5
151	Acid Soluble Arsenic (ppm)	0481	< 0.5		246.6	492.0	77.77	4		151.99	5
151	Acid Soluble Arsenic (ppm)	0405	< 1		246.6	492.0	77.77	4		151.30	5
151	Acid Soluble Arsenic (ppm)	0220	< 1		246.6	492.0	77.77	4		151.99	5
151	Acid Soluble Arsenic (ppm)	0117	< 10		246.6	492.0	77.77	4		151.33	5
151	Acid Soluble Arsenic (ppm)	0547	< 10		246.6	492.0	77.77	4		151.34	5
165	Acid Soluble Boron (%)	0542	0.0009	0.0000				1		165.30	0
165	Acid Soluble Boron (%)	0421	0.0000	0.0000				1		165.99	4
165	Acid Soluble Boron (%)	0354	< 0.01					1		165.30	5
165	Acid Soluble Boron (%)	0527	< 0.05					1		165.99	5
181	Acid Soluble Cadmium (ppm)	0394	0.0020	0.0020	0.1493	0.2030	0.0443	7	-0.73	181.30	0
181	Acid Soluble Cadmium (ppm)	0524	0.0070	0.0016	0.1493	0.2030	0.0443	7	-0.70	181.30	0
181	Acid Soluble Cadmium (ppm)	0255	0.0140	0.0080	0.1493	0.2030	0.0443	7	-0.67	181.30	0
181	Acid Soluble Cadmium (ppm)	0419	0.0926	0.0883	0.1493	0.2030	0.0443	7	-0.28	181.30	0
181	Acid Soluble Cadmium (ppm)	0550	0.1248	0.0000	0.1493	0.2030	0.0443	7	-0.12	181.00	0
181	Acid Soluble Cadmium (ppm)	0220	0.4000	0.2000	0.1493	0.2030	0.0443	7	1.23	181.99	0
181	Acid Soluble Cadmium (ppm)	0519	0.4050	0.0100	0.1493	0.2030	0.0443	7	1.26	181.99	0
181	Acid Soluble Cadmium (ppm)	0555	26.46	13.48	0.1493	0.2030	0.0443	7	129.60	181.30	2
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.1493	0.2030	0.0443	7		181.33	4
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.1493	0.2030	0.0443	7		181.34	4
181	Acid Soluble Cadmium (ppm)	0368	0.0085	0.0170	0.1493	0.2030	0.0443	7		181.34	4
181	Acid Soluble Cadmium (ppm)	0527	< 0.0001		0.1493	0.2030	0.0443	7		181.33	5
181	Acid Soluble Cadmium (ppm)	0405	< 0.01		0.1493	0.2030	0.0443	7		181.30	5
181	Acid Soluble Cadmium (ppm)	0520	< 0.04		0.1493	0.2030	0.0443	7		181.99	5
181	Acid Soluble Cadmium (ppm)	0389	< 0.05		0.1493	0.2030	0.0443	7		181.30	5

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
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181	Acid Soluble Cadmium (ppm)	0547	< 0.5		0.1493	0.2030	0.0443	7		181.34	5
181	Acid Soluble Cadmium (ppm)	0481	< 0.5		0.1493	0.2030	0.0443	7		181.99	5
181	Acid Soluble Cadmium (ppm)	0117	< 5		0.1493	0.2030	0.0443	7		181.33	5
191	Acid Soluble Chromium (ppm)	0520	0.2300	0.1000	0.7599	0.4687	0.2704	13	-1.13	191.99	0
191	Acid Soluble Chromium (ppm)	0523	0.3900	0.0460	0.7599	0.4687	0.2704	13	-0.79	191.30	0
191	Acid Soluble Chromium (ppm)	0524	0.4200	0.0400	0.7599	0.4687	0.2704	13	-0.73	191.30	0
191	Acid Soluble Chromium (ppm)	0550	0.5493	0.0000	0.7599	0.4687	0.2704	13	-0.45	191.00	0
191	Acid Soluble Chromium (ppm)	0389	0.5505	0.0290	0.7599	0.4687	0.2704	13	-0.45	191.30	0
191	Acid Soluble Chromium (ppm)	0519	0.5950	0.0100	0.7599	0.4687	0.2704	13	-0.35	191.99	0
191	Acid Soluble Chromium (ppm)	0368	0.6078	0.0271	0.7599	0.4687	0.2704	13	-0.32	191.34	0
191	Acid Soluble Chromium (ppm)	0527	0.6339	0.0568	0.7599	0.4687	0.2704	13	-0.27	191.33	0
191	Acid Soluble Chromium (ppm)	0394	0.7140	0.0500	0.7599	0.4687	0.2704	13	-0.10	191.30	0
191	Acid Soluble Chromium (ppm)	0419	0.9128	0.1805	0.7599	0.4687	0.2704	13	0.33	191.30	0
191	Acid Soluble Chromium (ppm)	0220	1.350	0.5000	0.7599	0.4687	0.2704	13	1.26	191.99	0
191	Acid Soluble Chromium (ppm)	0444	1.540	0.0800	0.7599	0.4687	0.2704	13	1.66	191.30	0
191	Acid Soluble Chromium (ppm)	0515	1.844	2.396	0.7599	0.4687	0.2704	13	2.31	191.34	0
191	Acid Soluble Chromium (ppm)	0515	3.603	3.017	0.7599	0.4687	0.2704	13	6.06	191.33	1
191	Acid Soluble Chromium (ppm)	0555	0.0000	0.0000	0.7599	0.4687	0.2704	13		191.30	4
191	Acid Soluble Chromium (ppm)	0405	< 1		0.7599	0.4687	0.2704	13		191.30	5
191	Acid Soluble Chromium (ppm)	0547	< 1		0.7599	0.4687	0.2704	13		191.34	5
191	Acid Soluble Chromium (ppm)	0481	< 20		0.7599	0.4687	0.2704	13		191.99	5
202	Acid Soluble Cobalt (ppm)	0523	0.0743	0.0139	0.1327	0.0746	0.0263	7	-0.78	202.30	0
202	Acid Soluble Cobalt (ppm)	0524	0.0852	0.0134	0.1327	0.0746	0.0263	7	-0.64	202.30	0
202	Acid Soluble Cobalt (ppm)	0255	0.0855	0.0030	0.1327	0.0746	0.0263	7	-0.63	202.99	0
202	Acid Soluble Cobalt (ppm)	0389	0.0950	0.0060	0.1327	0.0746	0.0263	7	-0.51	202.30	0
202	Acid Soluble Cobalt (ppm)	0550	0.1500	0.0000	0.1327	0.0746	0.0263	7	0.23	202.33	0
202	Acid Soluble Cobalt (ppm)	0546	0.1945	0.1470	0.1327	0.0746	0.0263	7	0.83	202.33	0
202	Acid Soluble Cobalt (ppm)	0519	0.2505	0.0010	0.1327	0.0746	0.0263	7	1.58	202.99	0
202	Acid Soluble Cobalt (ppm)	0555	0.0000	0.0000	0.1327	0.0746	0.0263	7		202.30	4
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000	0.1327	0.0746	0.0263	7		202.33	4
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000	0.1327	0.0746	0.0263	7		202.34	4
202	Acid Soluble Cobalt (ppm)	0368	0.0957	0.1914	0.1327	0.0746	0.0263	7		202.34	4
202	Acid Soluble Cobalt (ppm)	0527	< 0.0001		0.1327	0.0746	0.0263	7		202.33	5
202	Acid Soluble Cobalt (ppm)	0405	< 0.01		0.1327	0.0746	0.0263	7		202.30	5
202	Acid Soluble Cobalt (ppm)	0520	< 0.04		0.1327	0.0746	0.0263	7		202.99	5
202	Acid Soluble Cobalt (ppm)	0220	< 0.1		0.1327	0.0746	0.0263	7		202.99	5
202	Acid Soluble Cobalt (ppm)	0547	< 1		0.1327	0.0746	0.0263	7		202.34	5
202	Acid Soluble Cobalt (ppm)	0481	< 20		0.1327	0.0746	0.0263	7		202.99	5
221	Acid Soluble Copper (%)	0394	0.0001	0.0000	0.0007	0.0007	0.0003	8	-0.86	221.32	0
221	Acid Soluble Copper (%)	0389	0.0003	0.0001	0.0007	0.0007	0.0003	8	-0.66	221.99	0
221	Acid Soluble Copper (%)	0220	0.0004	0.0001	0.0007	0.0007	0.0003	8	-0.52	221.32	0
221	Acid Soluble Copper (%)	0515	0.0004	0.0001	0.0007	0.0007	0.0003	8	-0.52	221.99	0
221	Acid Soluble Copper (%)	0419	0.0006	0.0000	0.0007	0.0007	0.0003	8	-0.17	221.99	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				
221	Acid Soluble Copper (%)	0515	0.0008	0.0003	0.0007	0.0007	0.0003	8	0.03	221.33	0
221	Acid Soluble Copper (%)	0550	0.0016	0.0000	0.0007	0.0007	0.0003	8	1.20	221.00	0
221	Acid Soluble Copper (%)	0255	0.0020	0.0020	0.0007	0.0007	0.0003	8	1.75	221.30	0
221	Acid Soluble Copper (%)	0555	136.7	50.33	0.0007	0.0007	0.0003	8	188345.95	221.33	1
221	Acid Soluble Copper (%)	0444	495.0	10.00	0.0007	0.0007	0.0003	8	681891.41	221.30	2
221	Acid Soluble Copper (%)	0421	0.0000	0.0000	0.0007	0.0007	0.0003	8		221.33	4
221	Acid Soluble Copper (%)	0368	0.0000	0.0000	0.0007	0.0007	0.0003	8		221.99	4
221	Acid Soluble Copper (%)	0527	< 0.0001		0.0007	0.0007	0.0003	8		221.33	5
221	Acid Soluble Copper (%)	0519	< 0.0001		0.0007	0.0007	0.0003	8		221.99	5
221	Acid Soluble Copper (%)	0547	< 0.0001		0.0007	0.0007	0.0003	8		221.99	5
221	Acid Soluble Copper (%)	0481	< 0.001		0.0007	0.0007	0.0003	8		221.99	5
221	Acid Soluble Copper (%)	0354	< 0.01		0.0007	0.0007	0.0003	8		221.30	5
241	Acid Soluble Iron (%)	0527	0.0018	0.0009	0.0898	0.1595	0.1537	5	-0.48	241.33	0
241	Acid Soluble Iron (%)	0524	0.0018	0.0000	0.0898	0.1595	0.1537	5	-0.48	241.99	0
241	Acid Soluble Iron (%)	0389	0.0021	0.0000	0.0898	0.1595	0.1537	5	-0.48	241.99	0
241	Acid Soluble Iron (%)	0515	0.0735	0.0460	0.0898	0.1595	0.1537	5	-0.09	241.33	0
241	Acid Soluble Iron (%)	0515	0.3697	0.7216	0.0898	0.1595	0.1537	5	1.53	241.99	0
241	Acid Soluble Iron (%)	0421	0.0000	0.0000	0.0898	0.1595	0.1537	5		241.33	4
241	Acid Soluble Iron (%)	0027	< 0.002		0.0898	0.1595	0.1537	5		241.99	5
241	Acid Soluble Iron (%)	0354	< 0.01		0.0898	0.1595	0.1537	5		241.30	5
251	Acid Soluble Lead (ppm)	0255	0.0205	0.0090	0.3843	0.5874	0.0060	6	-0.62	251.30	0
251	Acid Soluble Lead (ppm)	0524	0.0243	0.0040	0.3843	0.5874	0.0060	6	-0.61	251.30	0
251	Acid Soluble Lead (ppm)	0523	0.0818	0.0112	0.3843	0.5874	0.0060	6	-0.51	251.30	0
251	Acid Soluble Lead (ppm)	0394	0.1395	0.0070	0.3843	0.5874	0.0060	6	-0.42	251.30	0
251	Acid Soluble Lead (ppm)	0550	0.7741	0.0000	0.3843	0.5874	0.0060	6	0.66	251.00	0
251	Acid Soluble Lead (ppm)	0519	2.088	0.0050	0.3843	0.5874	0.0060	6	2.90	251.99	0
251	Acid Soluble Lead (ppm)	0481	1.280	0.1400	0.3843	0.5874	0.0060	6	1.52	251.99	1
251	Acid Soluble Lead (ppm)	0555	0.0000	0.0000	0.3843	0.5874	0.0060	6		251.30	4
251	Acid Soluble Lead (ppm)	0515	0.0000	0.0000	0.3843	0.5874	0.0060	6		251.33	4
251	Acid Soluble Lead (ppm)	0368	0.0000	0.0000	0.3843	0.5874	0.0060	6		251.34	4
251	Acid Soluble Lead (ppm)	0515	0.0000	0.0000	0.3843	0.5874	0.0060	6		251.34	4
251	Acid Soluble Lead (ppm)	0527	< 0.0001		0.3843	0.5874	0.0060	6		251.33	5
251	Acid Soluble Lead (ppm)	0389	< 0.05		0.3843	0.5874	0.0060	6		251.30	5
251	Acid Soluble Lead (ppm)	0520	< 0.06		0.3843	0.5874	0.0060	6		251.99	5
251	Acid Soluble Lead (ppm)	0405	< 0.2		0.3843	0.5874	0.0060	6		251.30	5
251	Acid Soluble Lead (ppm)	0220	< 1		0.3843	0.5874	0.0060	6		251.99	5
251	Acid Soluble Lead (ppm)	0117	< 5		0.3843	0.5874	0.0060	6		251.33	5
251	Acid Soluble Lead (ppm)	0547	< 5		0.3843	0.5874	0.0060	6		251.34	5
261	Acid Soluble Manganese (%)	0542	0.0004	0.0000				1		261.34	0
261	Acid Soluble Manganese (%)	0421	0.0000	0.0000				1		261.35	4
261	Acid Soluble Manganese (%)	0515	0.0000	0.0000				1		261.35	4
261	Acid Soluble Manganese (%)	0515	0.0000	0.0000				1		261.99	4
261	Acid Soluble Manganese (%)	0527	< 0.0001					1		261.35	5

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				
261	Acid Soluble Manganese (%)	0027	< 0.002					1		261.99	5
261	Acid Soluble Manganese (%)	0354	< 0.01					1		261.30	5
281	Acid Soluble Mercury (ppm)	0519	0.0200	0.0000				1		281.99	0
281	Acid Soluble Mercury (ppm)	0515	0.0000	0.0000				1		281.30	4
281	Acid Soluble Mercury (ppm)	0527	0.0000	0.0000				1		281.30	4
281	Acid Soluble Mercury (ppm)	0550	< 0.001					1		281.00	5
281	Acid Soluble Mercury (ppm)	0405	< 0.01					1		281.30	5
281	Acid Soluble Mercury (ppm)	0520	< 0.01					1		281.99	5
281	Acid Soluble Mercury (ppm)	0009	< 0.044					1		281.99	5
281	Acid Soluble Mercury (ppm)	0534	< 0.05					1		281.00	5
281	Acid Soluble Mercury (ppm)	0481	< 0.5					1		281.99	5
289	Acid Soluble Molybdenum (ppm)	0524	0.0385	0.0015	8.979	13.38	0.5536	8	-0.67	289.30	0
289	Acid Soluble Molybdenum (ppm)	0546	0.1680	0.0540	8.979	13.38	0.5536	8	-0.66	289.33	0
289	Acid Soluble Molybdenum (ppm)	0220	1.000	0.4000	8.979	13.38	0.5536	8	-0.60	289.99	0
289	Acid Soluble Molybdenum (ppm)	0419	1.173	0.0240	8.979	13.38	0.5536	8	-0.58	289.30	0
289	Acid Soluble Molybdenum (ppm)	0255	2.239	0.9480	8.979	13.38	0.5536	8	-0.50	289.30	0
289	Acid Soluble Molybdenum (ppm)	0519	14.01	0.0010	8.979	13.38	0.5536	8	0.38	289.30	0
289	Acid Soluble Molybdenum (ppm)	0096	26.50	3.000	8.979	13.38	0.5536	8	1.31	289.30	0
289	Acid Soluble Molybdenum (ppm)	0550	26.70	0.0000	8.979	13.38	0.5536	8	1.32	289.00	0
289	Acid Soluble Molybdenum (ppm)	0368	0.1306	0.2612	8.979	13.38	0.5536	8		289.34	4
289	Acid Soluble Molybdenum (ppm)	0555	8.690	17.38	8.979	13.38	0.5536	8		289.30	4
289	Acid Soluble Molybdenum (ppm)	0527	< 0.0001		8.979	13.38	0.5536	8		289.33	5
289	Acid Soluble Molybdenum (ppm)	0405	< 0.05		8.979	13.38	0.5536	8		289.30	5
289	Acid Soluble Molybdenum (ppm)	0547	< 1		8.979	13.38	0.5536	8		289.34	5
289	Acid Soluble Molybdenum (ppm)	0481	< 125		8.979	13.38	0.5536	8		289.99	5
291	Acid Soluble Nickel (ppm)	0524	0.2534	0.0258	1.120	0.7560	0.4382	12	-1.15	291.30	0
291	Acid Soluble Nickel (ppm)	0389	0.3175	0.0010	1.120	0.7560	0.4382	12	-1.06	291.30	0
291	Acid Soluble Nickel (ppm)	0368	0.3905	0.0280	1.120	0.7560	0.4382	12	-0.97	291.34	0
291	Acid Soluble Nickel (ppm)	0394	0.4020	0.0320	1.120	0.7560	0.4382	12	-0.95	291.30	0
291	Acid Soluble Nickel (ppm)	0255	1.204	0.3250	1.120	0.7560	0.4382	12	0.11	291.99	0
291	Acid Soluble Nickel (ppm)	0520	1.205	0.0100	1.120	0.7560	0.4382	12	0.11	291.99	0
291	Acid Soluble Nickel (ppm)	0444	1.240	0.0400	1.120	0.7560	0.4382	12	0.16	291.30	0
291	Acid Soluble Nickel (ppm)	0519	1.241	0.0010	1.120	0.7560	0.4382	12	0.16	291.99	0
291	Acid Soluble Nickel (ppm)	0220	1.400	0.8000	1.120	0.7560	0.4382	12	0.37	291.99	0
291	Acid Soluble Nickel (ppm)	0515	1.452	0.6484	1.120	0.7560	0.4382	12	0.44	291.33	0
291	Acid Soluble Nickel (ppm)	0515	2.113	3.245	1.120	0.7560	0.4382	12	1.31	291.34	0
291	Acid Soluble Nickel (ppm)	0419	2.228	0.1020	1.120	0.7560	0.4382	12	1.47	291.30	0
291	Acid Soluble Nickel (ppm)	0555	11.93	23.85	1.120	0.7560	0.4382	12		291.30	4
291	Acid Soluble Nickel (ppm)	0527	< 0.0001		1.120	0.7560	0.4382	12		291.33	5
291	Acid Soluble Nickel (ppm)	0405	< 0.5		1.120	0.7560	0.4382	12		291.30	5
291	Acid Soluble Nickel (ppm)	0550	< 0.6		1.120	0.7560	0.4382	12		291.00	5
291	Acid Soluble Nickel (ppm)	0547	< 1		1.120	0.7560	0.4382	12		291.34	5
291	Acid Soluble Nickel (ppm)	0117	< 5		1.120	0.7560	0.4382	12		291.33	5

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				
291	Acid Soluble Nickel (ppm)	0481	< 10		1.120	0.7560	0.4382	12		291.99	5
301	Acid Soluble Selenium (ppm)	0519	0.2005	0.0010	0.5314	0.2926	0.2718	4	-1.13	301.99	0
301	Acid Soluble Selenium (ppm)	0515	0.4515	0.8432	0.5314	0.2926	0.2718	4	-0.27	301.33	0
301	Acid Soluble Selenium (ppm)	0255	0.5685	0.1130	0.5314	0.2926	0.2718	4	0.13	301.99	0
301	Acid Soluble Selenium (ppm)	0524	0.9050	0.1300	0.5314	0.2926	0.2718	4	1.28	301.30	0
301	Acid Soluble Selenium (ppm)	0555	0.0000	0.0000	0.5314	0.2926	0.2718	4		301.30	4
301	Acid Soluble Selenium (ppm)	0368	0.4460	0.8919	0.5314	0.2926	0.2718	4		301.34	4
301	Acid Soluble Selenium (ppm)	0515	0.9960	1.992	0.5314	0.2926	0.2718	4		301.34	4
301	Acid Soluble Selenium (ppm)	0527	< 0.001		0.5314	0.2926	0.2718	4		301.33	5
301	Acid Soluble Selenium (ppm)	0520	< 0.04		0.5314	0.2926	0.2718	4		301.99	5
301	Acid Soluble Selenium (ppm)	0550	< 0.08		0.5314	0.2926	0.2718	4		301.00	5
301	Acid Soluble Selenium (ppm)	0481	< 0.15		0.5314	0.2926	0.2718	4		301.99	5
301	Acid Soluble Selenium (ppm)	0220	< 0.3		0.5314	0.2926	0.2718	4		301.99	5
301	Acid Soluble Selenium (ppm)	0405	< 1		0.5314	0.2926	0.2718	4		301.30	5
301	Acid Soluble Selenium (ppm)	0547	< 10		0.5314	0.2926	0.2718	4		301.34	5
311	Sodium (%)	0354	0.0200	0.0000				1		311.99	0
311	Sodium (%)	0527	< 0.001					1		311.33	5
321	Acid Soluble Zinc (%)	0389	0.0001	0.0000	0.0006	0.0005	0.0001	8	-0.97	321.99	0
321	Acid Soluble Zinc (%)	0524	0.0001	0.0000	0.0006	0.0005	0.0001	8	-0.97	321.99	0
321	Acid Soluble Zinc (%)	0394	0.0004	0.0001	0.0006	0.0005	0.0001	8	-0.47	321.32	0
321	Acid Soluble Zinc (%)	0542	0.0004	0.0000	0.0006	0.0005	0.0001	8	-0.37	321.32	0
321	Acid Soluble Zinc (%)	0553	0.0006	0.0000	0.0006	0.0005	0.0001	8	0.03	321.00	0
321	Acid Soluble Zinc (%)	0419	0.0008	0.0003	0.0006	0.0005	0.0001	8	0.33	321.99	0
321	Acid Soluble Zinc (%)	0220	0.0011	0.0003	0.0006	0.0005	0.0001	8	0.92	321.99	0
321	Acid Soluble Zinc (%)	0550	0.0079	0.0000	0.0006	0.0005	0.0001	8	14.57	321.00	0
321	Acid Soluble Zinc (%)	0444	1,325	30.00	0.0006	0.0005	0.0001	8	2639591.20	321.30	2
321	Acid Soluble Zinc (%)	0421	0.0000	0.0000	0.0006	0.0005	0.0001	8		321.33	4
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000	0.0006	0.0005	0.0001	8		321.33	4
321	Acid Soluble Zinc (%)	0368	0.0000	0.0000	0.0006	0.0005	0.0001	8		321.99	4
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000	0.0006	0.0005	0.0001	8		321.99	4
321	Acid Soluble Zinc (%)	0519	< 0.0001		0.0006	0.0005	0.0001	8		321.99	5
321	Acid Soluble Zinc (%)	0547	< 0.0002		0.0006	0.0005	0.0001	8		321.99	5
321	Acid Soluble Zinc (%)	0527	< 0.001		0.0006	0.0005	0.0001	8		321.33	5
321	Acid Soluble Zinc (%)	0481	< 0.001		0.0006	0.0005	0.0001	8		321.99	5
321	Acid Soluble Zinc (%)	0027	< 0.002		0.0006	0.0005	0.0001	8		321.99	5
321	Acid Soluble Zinc (%)	0354	< 0.01		0.0006	0.0005	0.0001	8		321.30	5
325	Water Soluble Zinc (%)	0555	40.00	80.00				0		325.30	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 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.