

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 190812

0-0-60 Potash

Statistical Summary

Analytes: 27

Labs Reporting: 85

Issue Date : 09/30/2019

Analyte Code	Analyte Sample # 190812	# 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)	Horwitz %RSD
001	Ammoniacal Nitrogen (%)	1		0.0195									
010	Total Nitrogen (%)	6	5	4.523	6.055	4.523	0.5005	6.055	3.385	133.89%	28.19	0.0227	3.19%
020	Total Phosphorus as P2O5 (%)	6	4	12.94	25.71	12.94		25.71	16.07	198.69%		0.0323	2.72%
041	Direct Available Phosphorus as P2O5 (%)	3	3	17.37	29.96	17.37	0.7069	29.96	21.62	172.48%	98.77	0.0100	2.60%
048	Water Soluble Phosphorus as P2O5 (%)	1		46.48									
050	Soluble Potassium as K2O (60%)	87	84	61.88	2.669	61.98	1.7998	1.652	0.2253	2.67%	2.14	0.5508	2.15%
060	Water (Free) (%)	5	5	0.0418	0.0172	0.0418		0.0172	0.0096	41.21%		0.0040	6.45%
101	Acid Soluble Calcium (%)	2	1	0.0900									
121	Acid Soluble Magnesium (%)	5	3	0.0247	0.0348	0.0247	0.2012	0.0348	0.0251	140.88%	0.40	0.0102	6.98%
148	Total Sulfur (%)	2	1	0.0928									
149	Sulfur - HNO3 soluble (%)	1		0.0030									
151	Acid Soluble Arsenic (ppm)	4	2	0.3929	0.0455	0.3929		0.0455	0.0402	11.57%		0.0437	18.41%
165	Acid Soluble Boron (%)	4	1	0.0420		0.3929	0.0619	0.0455	0.0568	11.57%	1.71	0.0065	4.60%
181	Acid Soluble Cadmium (ppm)	5	3	14.10	24.42	14.10		24.42	17.62	173.12%		0.9345	10.74%
190	Water Soluble Chlorine (%)	19	18	48.26	3.438	47.61	1.0000	1.815	0.5348	3.81%	4.23	0.3167	2.24%
191	Acid Soluble Chromium (ppm)	5	5	97.94	116.7	97.94		116.7	65.26	119.20%		26.38	8.02%
202	Acid Soluble Cobalt (ppm)	5	2	0.3025	0.4137	0.3025	1.0908	0.4137	0.3656	136.75%	0.88	0.0550	19.15%
221	Acid Soluble Copper (%)	5	2	0.0014	0.0002	0.0014	0.0051	0.0002	0.0002	15.71%	0.10	0.0005	10.81%
241	Acid Soluble Iron (%)	5	3	0.0292	0.0264	0.0292	0.0079	0.0264	0.0190	90.45%	7.77	0.0156	6.81%
251	Acid Soluble Lead (ppm)	5	3	0.3937	0.1095	0.3937		0.1095	0.0790	27.82%		0.0292	18.41%
261	Acid Soluble Manganese (%)	4	1	0.0165		0.3937	0.0444	0.1095	0.1369	27.82%	5.75	0.0051	4.60%
281	Acid Soluble Mercury (ppm)	2	1	0.0400									
289	Acid Soluble Molybdenum (ppm)	4	1	2.890		0.3937	1.1181	0.1095	0.1369	27.82%	0.23	0.2600	18.41%
291	Acid Soluble Nickel (ppm)	5	2	2.270	3.154	2.270		3.154	2.788	138.93%		0.8000	14.14%
301	Acid Soluble Selenium (ppm)	4	2	0.2700	0.0495	0.2700		0.0495	0.0438	18.33%		0.0100	19.48%
311	Sodium (%)	17	15	0.0910	0.0733	0.0751	0.0125	0.0403	0.0130	53.69%	7.51	0.0277	5.91%
321	Acid Soluble Zinc (%)	5	1	0.0018		0.0751	0.0125	0.0403	0.0504	53.69%	7.51	0.0010	5.91%

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.

Horwitz %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 # 190812	
Analyte Code	

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 190812

0-0-60 Potash

Lab Values

Analytes: 27

Labs Reporting: 85

Issue Date : 09/30/2019

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 (%)	0524	0.0195	0.0023				1		001.99	0
010	Total Nitrogen (%)	0354	0.0955	0.0190	4.523	6.055	0.0227	5	-0.64	010.60	0
010	Total Nitrogen (%)	0325	0.1000	0.0000	4.523	6.055	0.0227	5	-0.64	010.60	0
010	Total Nitrogen (%)	0524	0.1073	0.0347	4.523	6.055	0.0227	5	-0.64	010.99	0
010	Total Nitrogen (%)	0560	11.01	0.0600	4.523	6.055	0.0227	5	0.94	010.99	0
010	Total Nitrogen (%)	0534	11.30	0.0000	4.523	6.055	0.0227	5	0.98	010.60	0
010	Total Nitrogen (%)	0422	0.0000	0.0000	4.523	6.055	0.0227	5		010.60	4
020	Total Phosphorus as P2O5 (%)	0515	0.0080	0.0002	12.94	25.71	0.0323	4	-0.43	020.99	0
020	Total Phosphorus as P2O5 (%)	0524	0.0324	0.0391	12.94	25.71	0.0323	4	-0.43	020.50	0
020	Total Phosphorus as P2O5 (%)	0542	0.2150	0.0900	12.94	25.71	0.0323	4	-0.42	020.50	0
020	Total Phosphorus as P2O5 (%)	0534	51.50	0.0000	12.94	25.71	0.0323	4	1.27	020.20	0
020	Total Phosphorus as P2O5 (%)	0552	0.0000	0.0000	12.94	25.71	0.0323	4		020.50	4
020	Total Phosphorus as P2O5 (%)	0422	0.0950	0.1900	12.94	25.71	0.0323	4		020.50	4
041	Direct Available Phosphorus as P2O5 (%)	0354	0.0450	0.0100	17.37	29.96	0.0100	3	-0.58	041.21	0
041	Direct Available Phosphorus as P2O5 (%)	0325	0.1000	0.0000	17.37	29.96	0.0100	3	-0.58	041.50	0
041	Direct Available Phosphorus as P2O5 (%)	0560	51.97	0.0200	17.37	29.96	0.0100	3	1.15	041.99	0
048	Water Soluble Phosphorus as P2O5 (%)	0560	46.48	0.0200				1		048.99	0
050	Soluble Potassium as K2O (60%)	0389	48.57†	0.1300	61.98	1.652	0.5508	84	-8.12	050.99	0
050	Soluble Potassium as K2O (60%)	0292	53.68†	0.8500	61.98	1.652	0.5508	84	-5.03	050.50	0
050	Soluble Potassium as K2O (60%)	0309	53.83†	2.740	61.98	1.652	0.5508	84	-4.93	050.30	0
050	Soluble Potassium as K2O (60%)	0102	59.50†	0.2000	61.98	1.652	0.5508	84	-1.50	050.00	0
050	Soluble Potassium as K2O (60%)	0472	59.75†	1.500	61.98	1.652	0.5508	84	-1.35	050.31	0
050	Soluble Potassium as K2O (60%)	0325	59.90†	1.000	61.98	1.652	0.5508	84	-1.26	050.99	0
050	Soluble Potassium as K2O (60%)	0371	59.95†	0.7000	61.98	1.652	0.5508	84	-1.23	050.99	0
050	Soluble Potassium as K2O (60%)	0560	60.00†	0.0700	61.98	1.652	0.5508	84	-1.20	050.99	0
050	Soluble Potassium as K2O (60%)	0558	60.05†	0.1000	61.98	1.652	0.5508	84	-1.17	050.99	0
050	Soluble Potassium as K2O (60%)	0519	60.06†	0.0800	61.98	1.652	0.5508	84	-1.16	050.99	0
050	Soluble Potassium as K2O (60%)	0537	60.07†	2.050	61.98	1.652	0.5508	84	-1.16	050.99	0
050	Soluble Potassium as K2O (60%)	0476	60.09†	0.1514	61.98	1.652	0.5508	84	-1.14	050.99	0
050	Soluble Potassium as K2O (60%)	0354	60.15†	0.1000	61.98	1.652	0.5508	84	-1.11	050.52	0
050	Soluble Potassium as K2O (60%)	0546	60.25	0.0800	61.98	1.652	0.5508	84	-1.05	050.99	0
050	Soluble Potassium as K2O (60%)	0523	60.25	0.1000	61.98	1.652	0.5508	84	-1.05	050.99	0
050	Soluble Potassium as K2O (60%)	0096	60.35	0.3800	61.98	1.652	0.5508	84	-0.99	050.99	0
050	Soluble Potassium as K2O (60%)	0551	60.40	0.2000	61.98	1.652	0.5508	84	-0.96	050.99	0
050	Soluble Potassium as K2O (60%)	0531	60.55	0.1000	61.98	1.652	0.5508	84	-0.87	050.99	0
050	Soluble Potassium as K2O (60%)	0513	60.63	0.1300	61.98	1.652	0.5508	84	-0.82	050.62	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 (60%)	0377	60.65	0.2900	61.98	1.652	0.5508	84	-0.81	050.52	0
050	Soluble Potassium as K2O (60%)	0533	60.67	0.2400	61.98	1.652	0.5508	84	-0.79	050.99	0
050	Soluble Potassium as K2O (60%)	0451	60.74	1.300	61.98	1.652	0.5508	84	-0.75	050.99	0
050	Soluble Potassium as K2O (60%)	0522	60.80	0.0600	61.98	1.652	0.5508	84	-0.72	050.00	0
050	Soluble Potassium as K2O (60%)	0433	60.84	0.0300	61.98	1.652	0.5508	84	-0.69	050.99	0
050	Soluble Potassium as K2O (60%)	0520	60.87	0.6200	61.98	1.652	0.5508	84	-0.67	050.99	0
050	Soluble Potassium as K2O (60%)	0550	61.09	0.0200	61.98	1.652	0.5508	84	-0.54	050.00	0
050	Soluble Potassium as K2O (60%)	0390	61.18	0.6600	61.98	1.652	0.5508	84	-0.49	050.50	0
050	Soluble Potassium as K2O (60%)	0518	61.20	0.0000	61.98	1.652	0.5508	84	-0.47	050.99	0
050	Soluble Potassium as K2O (60%)	0420	61.23	0.3800	61.98	1.652	0.5508	84	-0.46	050.50	0
050	Soluble Potassium as K2O (60%)	0421	61.35	0.1000	61.98	1.652	0.5508	84	-0.38	050.99	0
050	Soluble Potassium as K2O (60%)	0394	61.36	0.0860	61.98	1.652	0.5508	84	-0.38	050.99	0
050	Soluble Potassium as K2O (60%)	0482	61.40	2.400	61.98	1.652	0.5508	84	-0.35	050.99	0
050	Soluble Potassium as K2O (60%)	0055	61.41	0.2600	61.98	1.652	0.5508	84	-0.35	050.00	0
050	Soluble Potassium as K2O (60%)	0456	61.42	0.3300	61.98	1.652	0.5508	84	-0.34	050.61	0
050	Soluble Potassium as K2O (60%)	0234	61.60	0.4000	61.98	1.652	0.5508	84	-0.23	050.99	0
050	Soluble Potassium as K2O (60%)	0493	61.60	0.1000	61.98	1.652	0.5508	84	-0.23	050.99	0
050	Soluble Potassium as K2O (60%)	0169	61.62	0.2000	61.98	1.652	0.5508	84	-0.22	050.60	0
050	Soluble Potassium as K2O (60%)	0025	61.70	0.8000	61.98	1.652	0.5508	84	-0.17	050.52	0
050	Soluble Potassium as K2O (60%)	0042	61.75	0.5000	61.98	1.652	0.5508	84	-0.14	050.99	0
050	Soluble Potassium as K2O (60%)	0043	61.77	1.950	61.98	1.652	0.5508	84	-0.13	050.52	0
050	Soluble Potassium as K2O (60%)	0157	61.85	0.3000	61.98	1.652	0.5508	84	-0.08	050.30	0
050	Soluble Potassium as K2O (60%)	0018	62.15	0.1000	61.98	1.652	0.5508	84	0.10	050.62	0
050	Soluble Potassium as K2O (60%)	0220	62.18	0.0600	61.98	1.652	0.5508	84	0.12	050.00	0
050	Soluble Potassium as K2O (60%)	0452	62.21	0.1000	61.98	1.652	0.5508	84	0.14	050.51	0
050	Soluble Potassium as K2O (60%)	0360	62.21	0.1600	61.98	1.652	0.5508	84	0.14	050.52	0
050	Soluble Potassium as K2O (60%)	0444	62.30	0.3200	61.98	1.652	0.5508	84	0.19	050.00	0
050	Soluble Potassium as K2O (60%)	0105	62.41	0.6100	61.98	1.652	0.5508	84	0.26	050.62	0
050	Soluble Potassium as K2O (60%)	0532	62.45	0.3700	61.98	1.652	0.5508	84	0.28	050.99	0
050	Soluble Potassium as K2O (60%)	0481	62.55	0.3000	61.98	1.652	0.5508	84	0.34	050.99	0
050	Soluble Potassium as K2O (60%)	0037	62.56	0.3300	61.98	1.652	0.5508	84	0.35	050.62	0
050	Soluble Potassium as K2O (60%)	0524	62.67	3.749	61.98	1.652	0.5508	84	0.41	050.99	0
050	Soluble Potassium as K2O (60%)	0231	62.68	0.1100	61.98	1.652	0.5508	84	0.42	050.00	0
050	Soluble Potassium as K2O (60%)	0040	62.70	2.200	61.98	1.652	0.5508	84	0.43	050.30	0
050	Soluble Potassium as K2O (60%)	0105	62.72	0.0200	61.98	1.652	0.5508	84	0.45	050.60	0
050	Soluble Potassium as K2O (60%)	0356	62.77	0.5100	61.98	1.652	0.5508	84	0.47	050.30	0
050	Soluble Potassium as K2O (60%)	0416	62.78	0.0000	61.98	1.652	0.5508	84	0.48	050.00	0
050	Soluble Potassium as K2O (60%)	0324	62.80	3.000	61.98	1.652	0.5508	84	0.50	050.50	0
050	Soluble Potassium as K2O (60%)	0485	62.82	0.3300	61.98	1.652	0.5508	84	0.50	050.52	0
050	Soluble Potassium as K2O (60%)	0055	62.84	0.3100	61.98	1.652	0.5508	84	0.52	050.50	0
050	Soluble Potassium as K2O (60%)	0547	62.91	0.0400	61.98	1.652	0.5508	84	0.56	050.51	0
050	Soluble Potassium as K2O (60%)	0553	62.95	0.9000	61.98	1.652	0.5508	84	0.59	050.99	0
050	Soluble Potassium as K2O (60%)	0405	63.06	0.0500	61.98	1.652	0.5508	84	0.65	050.00	0
050	Soluble Potassium as K2O (60%)	0559	63.09	0.0200	61.98	1.652	0.5508	84	0.67	050.99	0
050	Soluble Potassium as K2O (60%)	0095	63.18	1.180	61.98	1.652	0.5508	84	0.73	050.62	0
050	Soluble Potassium as K2O (60%)	0526	63.22	0.0000	61.98	1.652	0.5508	84	0.75	050.60	0
050	Soluble Potassium as K2O (60%)	0552	63.25	0.4900	61.98	1.652	0.5508	84	0.76	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 (60%)	0494	63.28	0.2600	61.98	1.652	0.5508	84	0.79	050.00	0
050	Soluble Potassium as K2O (60%)	0555	63.29	0.1200	61.98	1.652	0.5508	84	0.79	050.99	0
050	Soluble Potassium as K2O (60%)	0023	63.31	0.0400	61.98	1.652	0.5508	84	0.80	050.52	0
050	Soluble Potassium as K2O (60%)	0117	63.36	0.6313	61.98	1.652	0.5508	84	0.84	050.52	0
050	Soluble Potassium as K2O (60%)	0561	63.37	0.0600	61.98	1.652	0.5508	84	0.84	050.99	0
050	Soluble Potassium as K2O (60%)	0117	63.45	0.2692	61.98	1.652	0.5508	84	0.89	050.50	0
050	Soluble Potassium as K2O (60%)	0177	63.53	0.0625	61.98	1.652	0.5508	84	0.93	050.99	0
050	Soluble Potassium as K2O (60%)	0086	63.79‡	0.6935	61.98	1.652	0.5508	84	1.09	050.50	0
050	Soluble Potassium as K2O (60%)	0029	63.87‡	1.150	61.98	1.652	0.5508	84	1.14	050.62	0
050	Soluble Potassium as K2O (60%)	0542	64.14‡	0.9100	61.98	1.652	0.5508	84	1.30	050.99	0
050	Soluble Potassium as K2O (60%)	0255	64.16‡	1.662	61.98	1.652	0.5508	84	1.32	050.99	0
050	Soluble Potassium as K2O (60%)	0049	64.26‡	0.7500	61.98	1.652	0.5508	84	1.38	050.00	0
050	Soluble Potassium as K2O (60%)	0527	64.49‡	0.4019	61.98	1.652	0.5508	84	1.52	050.99	0
050	Soluble Potassium as K2O (60%)	0027	65.10‡	0.5200	61.98	1.652	0.5508	84	1.89	050.99	0
050	Soluble Potassium as K2O (60%)	0070	65.44‡	0.2300	61.98	1.652	0.5508	84	2.09	050.51	0
050	Soluble Potassium as K2O (60%)	0422	68.11‡	0.0400	61.98	1.652	0.5508	84	3.71	050.50	0
050	Soluble Potassium as K2O (60%)	0556	68.20‡	0.2000	61.98	1.652	0.5508	84	3.76	050.99	0
050	Soluble Potassium as K2O (60%)	0073	69.17‡	1.320	61.98	1.652	0.5508	84	4.35	050.00	0
050	Soluble Potassium as K2O (60%)	0515	54.26†	4.178	61.98	1.652	0.5508	84	-4.67	050.99	1
050	Soluble Potassium as K2O (60%)	0450	63.38	5.820	61.98	1.652	0.5508	84	0.85	050.99	1
050	Soluble Potassium as K2O (60%)	0230	70.70‡	4.800	61.98	1.652	0.5508	84	5.28	050.50	1
060	Water (Free) (%)	0416	0.0199	0.0000	0.0418	0.0172	0.0040	5	-1.27	060.00	0
060	Water (Free) (%)	0456	0.0275	0.0150	0.0418	0.0172	0.0040	5	-0.83	060.00	0
060	Water (Free) (%)	0481	0.0500	0.0000	0.0418	0.0172	0.0040	5	0.48	060.20	0
060	Water (Free) (%)	0513	0.0510	0.0020	0.0418	0.0172	0.0040	5	0.54	060.30	0
060	Water (Free) (%)	0513	0.0605	0.0030	0.0418	0.0172	0.0040	5	1.09	060.99	0
101	Acid Soluble Calcium (%)	0354	0.0900	0.0000				1		101.30	0
101	Acid Soluble Calcium (%)	0552	0.0000	0.0000				1		101.99	4
121	Acid Soluble Magnesium (%)	0524	0.0010	0.0001	0.0247	0.0348	0.0102	3	-0.68	121.99	0
121	Acid Soluble Magnesium (%)	0553	0.0085	0.0010	0.0247	0.0348	0.0102	3	-0.47	121.00	0
121	Acid Soluble Magnesium (%)	0515	0.0646	0.0296	0.0247	0.0348	0.0102	3	1.15	121.33	0
121	Acid Soluble Magnesium (%)	0552	0.0000	0.0000	0.0247	0.0348	0.0102	3		121.99	4
121	Acid Soluble Magnesium (%)	0354	< 0.01		0.0247	0.0348	0.0102	3		121.30	5
148	Total Sulfur (%)	0515	0.0928	0.0025				1		148.07	0
148	Total Sulfur (%)	0354	< 0.01					1		148.99	5
149	Sulfur - HNO3 soluble (%)	0524	0.0030	0.0015				1		149.04	0
151	Acid Soluble Arsenic (ppm)	0524	0.3607	0.0774				2		151.30	0
151	Acid Soluble Arsenic (ppm)	0519	0.4250	0.0100				2		151.99	0
151	Acid Soluble Arsenic (ppm)	0515	0.0000	0.0000				2		151.33	4
151	Acid Soluble Arsenic (ppm)	0515	0.0000	0.0000				2		151.34	4
165	Acid Soluble Boron (%)	0515	0.0420	0.0065				1		165.99	0
165	Acid Soluble Boron (%)	0524	0.0000	0.0000				1		165.99	4
165	Acid Soluble Boron (%)	0552	0.0000	0.0000				1		165.99	4
165	Acid Soluble Boron (%)	0354	< 0.01					1		165.30	5
181	Acid Soluble Cadmium (ppm)	0524	0.0031	0.0034	14.10	24.42	0.9345	3	-0.58	181.30	0
181	Acid Soluble Cadmium (ppm)	0519	0.0100	0.0000	14.10	24.42	0.9345	3	-0.58	181.99	0
181	Acid Soluble Cadmium (ppm)	0389	42.30	2.800	14.10	24.42	0.9345	3	1.15	181.30	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				
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	14.10	24.42	0.9345	3		181.33	4
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	14.10	24.42	0.9345	3		181.34	4
190	Water Soluble Chlorine (%)	0513	44.67	0.1100	47.61	1.815	0.3167	18	-1.62	190.99	0
190	Water Soluble Chlorine (%)	0558	45.05	0.3000	47.61	1.815	0.3167	18	-1.41	190.00	0
190	Water Soluble Chlorine (%)	0117	45.73	0.1400	47.61	1.815	0.3167	18	-1.04	190.00	0
190	Water Soluble Chlorine (%)	0523	46.14	0.9900	47.61	1.815	0.3167	18	-0.81	190.00	0
190	Water Soluble Chlorine (%)	0029	46.28	0.5700	47.61	1.815	0.3167	18	-0.74	190.00	0
190	Water Soluble Chlorine (%)	0553	46.90	0.2000	47.61	1.815	0.3167	18	-0.39	190.99	0
190	Water Soluble Chlorine (%)	0444	47.60	0.4900	47.61	1.815	0.3167	18	-0.01	190.00	0
190	Water Soluble Chlorine (%)	0444	47.60	0.4900	47.61	1.815	0.3167	18	-0.01	190.99	0
190	Water Soluble Chlorine (%)	0546	47.67	0.1400	47.61	1.815	0.3167	18	0.03	190.00	0
190	Water Soluble Chlorine (%)	0550	47.73	0.0600	47.61	1.815	0.3167	18	0.06	190.00	0
190	Water Soluble Chlorine (%)	0220	47.80	0.1500	47.61	1.815	0.3167	18	0.10	190.00	0
190	Water Soluble Chlorine (%)	0405	47.86	0.0400	47.61	1.815	0.3167	18	0.14	190.00	0
190	Water Soluble Chlorine (%)	0029	47.92	1.120	47.61	1.815	0.3167	18	0.17	190.99	0
190	Water Soluble Chlorine (%)	0494	48.78	0.0710	47.61	1.815	0.3167	18	0.64	190.00	0
190	Water Soluble Chlorine (%)	0561	49.08	0.1100	47.61	1.815	0.3167	18	0.81	190.00	0
190	Water Soluble Chlorine (%)	0481	49.35	0.3000	47.61	1.815	0.3167	18	0.96	190.00	0
190	Water Soluble Chlorine (%)	0555	52.38	0.4000	47.61	1.815	0.3167	18	2.63	190.99	0
190	Water Soluble Chlorine (%)	0519	60.09	0.0200	47.61	1.815	0.3167	18	6.87	190.99	0
190	Water Soluble Chlorine (%)	0526	0.2687	0.0017	47.61	1.815	0.3167	18	-26.08	190.00	2
191	Acid Soluble Chromium (ppm)	0524	0.1103	0.0338	97.94	116.7	26.38	5	-0.84	191.30	0
191	Acid Soluble Chromium (ppm)	0519	0.2850	0.0300	97.94	116.7	26.38	5	-0.84	191.99	0
191	Acid Soluble Chromium (ppm)	0389	47.25	2.300	97.94	116.7	26.38	5	-0.43	191.30	0
191	Acid Soluble Chromium (ppm)	0515	185.4	38.38	97.94	116.7	26.38	5	0.75	191.33	0
191	Acid Soluble Chromium (ppm)	0515	256.6	91.14	97.94	116.7	26.38	5	1.36	191.34	0
202	Acid Soluble Cobalt (ppm)	0519	0.0100	0.0000				2		202.99	0
202	Acid Soluble Cobalt (ppm)	0389	0.5950	0.1100				2		202.30	0
202	Acid Soluble Cobalt (ppm)	0524	0.0000	0.0000				2		202.30	4
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000				2		202.33	4
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000				2		202.34	4
221	Acid Soluble Copper (%)	0515	0.0012	0.0004				2		221.33	0
221	Acid Soluble Copper (%)	0515	0.0015	0.0006				2		221.99	0
221	Acid Soluble Copper (%)	0552	0.0000	0.0000				2		221.30	4
221	Acid Soluble Copper (%)	0524	0.0004	0.0008				2		221.99	4
221	Acid Soluble Copper (%)	0354	< 0.01					2		221.30	5
241	Acid Soluble Iron (%)	0524	0.0018	0.0023	0.0292	0.0264	0.0156	3	-1.04	241.99	0
241	Acid Soluble Iron (%)	0515	0.0314	0.0258	0.0292	0.0264	0.0156	3	0.08	241.33	0
241	Acid Soluble Iron (%)	0515	0.0544	0.0188	0.0292	0.0264	0.0156	3	0.96	241.99	0
241	Acid Soluble Iron (%)	0552	0.0000	0.0000	0.0292	0.0264	0.0156	3		241.30	4
241	Acid Soluble Iron (%)	0354	< 0.01		0.0292	0.0264	0.0156	3		241.30	5
251	Acid Soluble Lead (ppm)	0524	0.3260	0.0176	0.3937	0.1095	0.0292	3	-0.62	251.30	0
251	Acid Soluble Lead (ppm)	0389	0.3350	0.0700	0.3937	0.1095	0.0292	3	-0.54	251.30	0
251	Acid Soluble Lead (ppm)	0519	0.5200	0.0000	0.3937	0.1095	0.0292	3	1.15	251.99	0
251	Acid Soluble Lead (ppm)	0515	0.0000	0.0000	0.3937	0.1095	0.0292	3		251.33	4
251	Acid Soluble Lead (ppm)	0515	0.0000	0.0000	0.3937	0.1095	0.0292	3		251.34	4
261	Acid Soluble Manganese (%)	0515	0.0165	0.0051				1		261.99	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				
261	Acid Soluble Manganese (%)	0552	0.0000	0.0000				1	261.32	4	
261	Acid Soluble Manganese (%)	0524	0.0002	0.0004				1	261.99	4	
261	Acid Soluble Manganese (%)	0354	< 0.01					1	261.30	5	
281	Acid Soluble Mercury (ppm)	0519	0.0400	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)	0389	2.890	0.2600				1	289.30	0	
289	Acid Soluble Molybdenum (ppm)	0524	0.0000	0.0000				1	289.30	4	
289	Acid Soluble Molybdenum (ppm)	0515	0.0000	0.0000				1	289.33	4	
289	Acid Soluble Molybdenum (ppm)	0515	0.0000	0.0000				1	289.34	4	
291	Acid Soluble Nickel (ppm)	0519	0.0400	0.0000				2	291.99	0	
291	Acid Soluble Nickel (ppm)	0389	4.500	1.600				2	291.30	0	
291	Acid Soluble Nickel (ppm)	0524	0.0000	0.0000				2	291.30	4	
291	Acid Soluble Nickel (ppm)	0515	0.0000	0.0000				2	291.33	4	
291	Acid Soluble Nickel (ppm)	0515	0.0000	0.0000				2	291.34	4	
301	Acid Soluble Selenium (ppm)	0524	0.2350	0.0100				2	301.30	0	
301	Acid Soluble Selenium (ppm)	0519	0.3050	0.0100				2	301.99	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 (%)	0255	0.0380	0.0040	0.0751	0.0403	0.0277	15	-0.92	311.99	0
311	Sodium (%)	0096	0.0395	0.0050	0.0751	0.0403	0.0277	15	-0.88	311.99	0
311	Sodium (%)	0546	0.0464	0.0014	0.0751	0.0403	0.0277	15	-0.71	311.33	0
311	Sodium (%)	0481	0.0495	0.0010	0.0751	0.0403	0.0277	15	-0.63	311.00	0
311	Sodium (%)	0482	0.0500	0.0000	0.0751	0.0403	0.0277	15	-0.62	311.99	0
311	Sodium (%)	0550	0.0513	0.0003	0.0751	0.0403	0.0277	15	-0.59	311.00	0
311	Sodium (%)	0527	0.0558	0.0038	0.0751	0.0403	0.0277	15	-0.48	311.33	0
311	Sodium (%)	0405	0.0565	0.0030	0.0751	0.0403	0.0277	15	-0.46	311.00	0
311	Sodium (%)	0513	0.0575	0.0010	0.0751	0.0403	0.0277	15	-0.44	311.30	0
311	Sodium (%)	0394	0.0807	0.0129	0.0751	0.0403	0.0277	15	0.14	311.32	0
311	Sodium (%)	0354	0.0950	0.0100	0.0751	0.0403	0.0277	15	0.49	311.99	0
311	Sodium (%)	0519	0.1150	0.0100	0.0751	0.0403	0.0277	15	0.99	311.99	0
311	Sodium (%)	0444	0.1200	0.0000	0.0751	0.0403	0.0277	15	1.11	311.33	0
311	Sodium (%)	0526	0.2097	0.0027	0.0751	0.0403	0.0277	15	3.34	311.30	0
311	Sodium (%)	0450	0.3000	0.3600	0.0751	0.0403	0.0277	15	5.58	311.99	0
311	Sodium (%)	0102	581.3	86.79	0.0751	0.0403	0.0277	15	14416.64	311.33	2
311	Sodium (%)	0555	< 0.5		0.0751	0.0403	0.0277	15		311.33	5
321	Acid Soluble Zinc (%)	0524	0.0018	0.0010				1	321.99	0	
321	Acid Soluble Zinc (%)	0552	0.0000	0.0000				1	321.30	4	
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000				1	321.33	4	
321	Acid Soluble Zinc (%)	0515	0.0000	0.0000				1	321.99	4	
321	Acid Soluble Zinc (%)	0354	< 0.01					1	321.30	5	

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.