

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 181011

Grade 0-45-45

Statistical Summary

Analytes: 33

Labs Reporting: 99

Issue Date : 11/30/2018

Analyte Code	Analyte Sample # 181011	# 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 (%)	1		0.0562									
010	Total Nitrogen (%)	4	4	4.466	8.834	4.466	0.4993	8.834	5.521	197.81%	41.22	0.0190	3.19%
020	Total Phosphorus as P2O5 (%)	57	56	44.93	1.571	44.93		0.8614	0.1439	1.92%		0.5343	2.26%
030	Citrate Insoluble Phosphorus as P2O5 (%)	1		0.0100									
040	Indirect Available Phosphorus as P2O5 (45%)	3	3	44.64	0.2323	44.64	0.9728	0.2323	0.1676	0.52%	0.56	0.1967	2.26%
041	Direct Available Phosphorus as P2O5 (45%)	51	50	44.90	0.7689	44.97	0.9794	0.5721	0.1011	1.27%	1.36	0.3383	2.26%
042	Water Soluble OrthoP as P2O5 (%)	1		43.45									
048	Water Soluble Phosphorus as P2O5 (%)	4	4	44.93	1.156	44.93		1.156	0.7228	2.57%		0.2918	2.26%
050	Soluble Potassium as K2O (45%)	100	98	44.76	1.728	44.86	1.5929	0.8743	0.1104	1.95%	1.28	0.4555	2.26%
060	Water (Free) (%)	6	6	1.207	0.4726	1.210		0.5304	0.2707	43.84%		0.0999	3.89%
101	Acid Soluble Calcium (%)	6	5	0.1554	0.1894	0.1554	0.2078	0.1894	0.1059	121.87%	2.12	0.0084	5.29%
121	Acid Soluble Magnesium (%)	10	7	0.0273	0.0313	0.0273	0.2014	0.0355	0.0168	130.07%	0.41	0.0029	6.88%
143	Elemental Sulfur (%)	2	2	0.1018	0.0166								
148	Total Sulfur (%)	6	5	0.1115	0.0178	0.1115	0.2056	0.0178	0.0100	15.98%	0.20	0.0075	5.56%
149	Sulfur - HNO3 soluble (%)	1		0.1055									
151	Acid Soluble Arsenic (ppm)	11	9	0.5435	0.2101	0.5435		0.2383	0.0993	43.84%		0.0358	17.53%
165	Acid Soluble Boron (%)	7	7	1.129	2.699	0.2134	0.0350	0.4005	0.1892	187.69%	26.66	0.0201	5.05%
181	Acid Soluble Cadmium (ppm)	11	7	0.0463	0.0412	0.0463		0.0467	0.0221	100.99%		0.0121	25.40%
190	Water Soluble Chlorine (%)	1		46.93									
191	Acid Soluble Chromium (ppm)	15	14	3.945	5.256	2.845		2.931	0.9791	103.03%		0.6818	13.67%
202	Acid Soluble Cobalt (ppm)	8	6	1.541	2.306	1.240	1.3719	1.876	0.9571	151.29%	3.19	0.2302	15.49%
221	Acid Soluble Copper (%)	12	7	0.0211	0.0504	0.0036	0.0054	0.0061	0.0029	169.86%	2.66	0.0017	9.33%
241	Acid Soluble Iron (%)	18	17	0.0092	0.0183	0.0039	0.0054	0.0041	0.0012	105.36%	1.78	0.0064	9.21%
251	Acid Soluble Lead (ppm)	11	7	0.6385	1.422	0.1482		0.1828	0.0864	123.30%		0.2323	21.32%
261	Acid Soluble Manganese (%)	9	5	0.0131	0.0238	0.0131	0.0063	0.0238	0.0133	180.97%	8.78	0.0062	7.68%
271	Water Soluble Manganese (%)	1		0.0007									
281	Acid Soluble Mercury (ppm)	4	3	0.0122	0.0083	0.0122		0.0083	0.0060	68.34%		0.0020	31.04%
289	Acid Soluble Molybdenum (ppm)	15	14	1.616	0.4075	1.594	1.4781	0.3938	0.1316	24.71%	0.62	0.1704	14.91%
291	Acid Soluble Nickel (ppm)	13	10	4.947	8.647	2.887		4.518	1.786	156.48%		0.1251	13.64%
301	Acid Soluble Selenium (ppm)	7	6	0.5791	0.4835	0.5521		0.4843	0.2472	87.72%		0.2182	17.49%
311	Sodium (%)	6	6	0.2508	0.4371	0.0845	0.0134	0.0400	0.0204	47.37%	6.93	0.0056	5.80%

Analyte Code	Analyte Sample # 181011	# 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)	Howitz %RSD
321	Acid Soluble Zinc (%)	15	11	0.0030	0.0042	0.0018	0.0052	0.0018	0.0007	103.85%	0.83	0.0014	10.38%
325	Water Soluble Zinc (%)	1		0.0007									

The Analyte IA Ratio = $2.33 * \text{Robust SD} / \text{IA at the Analyte Assigned Value}$. 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.

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Analyte Proficiency From All Labs

Analytes: 33

Sample # 181011

Lab Values

Labs Reporting: 99

Grade 0-45-45

Issue Date : 11/30/2018

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	0.0562	0.0077				1		001.99	0
010	Total Nitrogen (%)	0527	0.0260	0.0080	4.466	8.834	0.0190	4	-0.50	010.60	0
010	Total Nitrogen (%)	0524	0.0381	0.0029	4.466	8.834	0.0190	4	-0.50	010.99	0
010	Total Nitrogen (%)	0354	0.0825	0.0210	4.466	8.834	0.0190	4	-0.50	010.60	0
010	Total Nitrogen (%)	0037	17.72	0.0440	4.466	8.834	0.0190	4	1.50	010.60	0
020	Total Phosphorus as P2O5 (%)	0389	38.79	0.9800	44.93	0.8614	0.5343	56	-7.13	020.50	0
020	Total Phosphorus as P2O5 (%)	0552	42.16	0.8000	44.93	0.8614	0.5343	56	-3.21	020.50	0
020	Total Phosphorus as P2O5 (%)	0472	42.24	0.4700	44.93	0.8614	0.5343	56	-3.13	020.50	0
020	Total Phosphorus as P2O5 (%)	0307	42.51	2.380	44.93	0.8614	0.5343	56	-2.81	020.50	0
020	Total Phosphorus as P2O5 (%)	0451	43.64	0.1400	44.93	0.8614	0.5343	56	-1.50	020.50	0
020	Total Phosphorus as P2O5 (%)	0324	43.75	0.1000	44.93	0.8614	0.5343	56	-1.37	020.20	0
020	Total Phosphorus as P2O5 (%)	0543	43.81	1.917	44.93	0.8614	0.5343	56	-1.30	020.50	0
020	Total Phosphorus as P2O5 (%)	0513	43.96	0.0400	44.93	0.8614	0.5343	56	-1.13	020.99	0
020	Total Phosphorus as P2O5 (%)	0234	44.00	1.000	44.93	0.8614	0.5343	56	-1.08	020.50	0
020	Total Phosphorus as P2O5 (%)	0049	44.03	0.4000	44.93	0.8614	0.5343	56	-1.04	020.10	0
020	Total Phosphorus as P2O5 (%)	0292	44.23	0.1500	44.93	0.8614	0.5343	56	-0.82	020.20	0
020	Total Phosphorus as P2O5 (%)	0419	44.25	0.1000	44.93	0.8614	0.5343	56	-0.79	020.20	0
020	Total Phosphorus as P2O5 (%)	0483	44.34	0.6900	44.93	0.8614	0.5343	56	-0.69	020.50	0
020	Total Phosphorus as P2O5 (%)	0231	44.44	0.0800	44.93	0.8614	0.5343	56	-0.57	020.20	0
020	Total Phosphorus as P2O5 (%)	0114	44.47	2.080	44.93	0.8614	0.5343	56	-0.53	020.10	0
020	Total Phosphorus as P2O5 (%)	0481	44.57	0.4100	44.93	0.8614	0.5343	56	-0.42	020.20	0
020	Total Phosphorus as P2O5 (%)	0405	44.59	0.1000	44.93	0.8614	0.5343	56	-0.39	020.20	0
020	Total Phosphorus as P2O5 (%)	0356	44.60	0.1600	44.93	0.8614	0.5343	56	-0.38	020.20	0
020	Total Phosphorus as P2O5 (%)	0096	44.63	0.0400	44.93	0.8614	0.5343	56	-0.35	020.40	0
020	Total Phosphorus as P2O5 (%)	0433	44.64	0.5200	44.93	0.8614	0.5343	56	-0.34	020.50	0
020	Total Phosphorus as P2O5 (%)	0105	44.78	0.2600	44.93	0.8614	0.5343	56	-0.17	020.10	0
020	Total Phosphorus as P2O5 (%)	0169	44.78	0.1800	44.93	0.8614	0.5343	56	-0.17	020.20	0
020	Total Phosphorus as P2O5 (%)	0506	44.80	0.0000	44.93	0.8614	0.5343	56	-0.15	020.20	0
020	Total Phosphorus as P2O5 (%)	0105	44.83	0.2500	44.93	0.8614	0.5343	56	-0.12	020.40	0
020	Total Phosphorus as P2O5 (%)	0493	44.85	0.1000	44.93	0.8614	0.5343	56	-0.09	020.20	0
020	Total Phosphorus as P2O5 (%)	0476	44.87	0.1115	44.93	0.8614	0.5343	56	-0.07	020.20	0
020	Total Phosphorus as P2O5 (%)	0394	44.90	0.0000	44.93	0.8614	0.5343	56	-0.03	020.20	0
020	Total Phosphorus as P2O5 (%)	0547	44.90	0.0000	44.93	0.8614	0.5343	56	-0.03	020.50	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				
020	Total Phosphorus as P2O5 (%)	0493	44.90	0.1000	44.93	0.8614	0.5343	56	-0.03	020.10	0
020	Total Phosphorus as P2O5 (%)	0443	44.96	0.1900	44.93	0.8614	0.5343	56	0.03	020.99	0
020	Total Phosphorus as P2O5 (%)	0309	45.02	0.0600	44.93	0.8614	0.5343	56	0.11	020.20	0
020	Total Phosphorus as P2O5 (%)	0444	45.03	0.3800	44.93	0.8614	0.5343	56	0.12	020.10	0
020	Total Phosphorus as P2O5 (%)	0371	45.05	0.3000	44.93	0.8614	0.5343	56	0.14	020.20	0
020	Total Phosphorus as P2O5 (%)	0523	45.05	0.1000	44.93	0.8614	0.5343	56	0.14	020.50	0
020	Total Phosphorus as P2O5 (%)	0534	45.10	0.0000	44.93	0.8614	0.5343	56	0.20	020.20	0
020	Total Phosphorus as P2O5 (%)	0522	45.15	0.7700	44.93	0.8614	0.5343	56	0.25	020.20	0
020	Total Phosphorus as P2O5 (%)	0421	45.15	0.1000	44.93	0.8614	0.5343	56	0.26	020.50	0
020	Total Phosphorus as P2O5 (%)	0501	45.19	0.1300	44.93	0.8614	0.5343	56	0.30	020.50	0
020	Total Phosphorus as P2O5 (%)	0291	45.33	0.0200	44.93	0.8614	0.5343	56	0.47	020.50	0
020	Total Phosphorus as P2O5 (%)	0527	45.34	0.0394	44.93	0.8614	0.5343	56	0.48	020.50	0
020	Total Phosphorus as P2O5 (%)	0456	45.40	0.2000	44.93	0.8614	0.5343	56	0.55	020.40	0
020	Total Phosphorus as P2O5 (%)	0444	45.41	0.5500	44.93	0.8614	0.5343	56	0.55	020.50	0
020	Total Phosphorus as P2O5 (%)	0550	45.41	3.780	44.93	0.8614	0.5343	56	0.56	020.20	0
020	Total Phosphorus as P2O5 (%)	0390	45.53	0.4200	44.93	0.8614	0.5343	56	0.70	020.50	0
020	Total Phosphorus as P2O5 (%)	0402	45.64	1.200	44.93	0.8614	0.5343	56	0.83	020.50	0
020	Total Phosphorus as P2O5 (%)	0035	45.65	1.100	44.93	0.8614	0.5343	56	0.84	020.40	0
020	Total Phosphorus as P2O5 (%)	0416	45.70	0.0200	44.93	0.8614	0.5343	56	0.89	020.20	0
020	Total Phosphorus as P2O5 (%)	0510	45.77	0.0533	44.93	0.8614	0.5343	56	0.98	020.20	0
020	Total Phosphorus as P2O5 (%)	0516	45.79	0.4140	44.93	0.8614	0.5343	56	1.00	020.50	0
020	Total Phosphorus as P2O5 (%)	0368	45.97	0.4412	44.93	0.8614	0.5343	56	1.21	020.50	0
020	Total Phosphorus as P2O5 (%)	0255	46.22	0.5730	44.93	0.8614	0.5343	56	1.50	020.50	0
020	Total Phosphorus as P2O5 (%)	0546	46.23	0.4540	44.93	0.8614	0.5343	56	1.51	020.50	0
020	Total Phosphorus as P2O5 (%)	0482	46.55	0.1000	44.93	0.8614	0.5343	56	1.88	020.50	0
020	Total Phosphorus as P2O5 (%)	0042	48.09	0.2200	44.93	0.8614	0.5343	56	3.67	020.50	0
020	Total Phosphorus as P2O5 (%)	0524	49.01	0.1175	44.93	0.8614	0.5343	56	4.74	020.50	0
020	Total Phosphorus as P2O5 (%)	0422	50.37	4.630	44.93	0.8614	0.5343	56	6.31	020.50	0
020	Total Phosphorus as P2O5 (%)	0515	50.96	27.18	44.93	0.8614	0.5343	56	7.00	020.99	1
030	Citrate Insoluble Phosphorus as P2O5 (%)	0405	0.0100	0.0000				1		030.20	0
040	Indirect Available Phosphorus as P2O5 (45%)	0498	44.45	0.5000	44.64	0.2323	0.1967	3	-0.83	040.20	0
040	Indirect Available Phosphorus as P2O5 (45%)	0405	44.58	0.0900	44.64	0.2323	0.1967	3	-0.29	040.20	0
040	Indirect Available Phosphorus as P2O5 (45%)	0394	44.90	0.0000	44.64	0.2323	0.1967	3	1.11	040.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0472	42.26†	0.0600	44.97	0.5721	0.3383	50	-4.73	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0377	42.88†	1.510	44.97	0.5721	0.3383	50	-3.66	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0230	43.35†	0.7000	44.97	0.5721	0.3383	50	-2.83	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0041	43.49†	0.5400	44.97	0.5721	0.3383	50	-2.58	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0106	43.95†	1.090	44.97	0.5721	0.3383	50	-1.79	041.21	0
041	Direct Available Phosphorus as P2O5 (45%)	0513	44.06	0.0700	44.97	0.5721	0.3383	50	-1.60	041.11	0
041	Direct Available Phosphorus as P2O5 (45%)	0394	44.25	0.1030	44.97	0.5721	0.3383	50	-1.25	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0177	44.52	0.2236	44.97	0.5721	0.3383	50	-0.79	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0405	44.55	0.0700	44.97	0.5721	0.3383	50	-0.74	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0117	44.56	0.3340	44.97	0.5721	0.3383	50	-0.71	041.51	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 (45%)	0105	44.57	0.4000	44.97	0.5721	0.3383	50	-0.70	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0102	44.60	0.0000	44.97	0.5721	0.3383	50	-0.64	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0037	44.67	0.6860	44.97	0.5721	0.3383	50	-0.53	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0136	44.68	0.1700	44.97	0.5721	0.3383	50	-0.51	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0231	44.68	0.2000	44.97	0.5721	0.3383	50	-0.50	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0360	44.69	0.0200	44.97	0.5721	0.3383	50	-0.49	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0105	44.70	0.5800	44.97	0.5721	0.3383	50	-0.47	041.11	0
041	Direct Available Phosphorus as P2O5 (45%)	0131	44.78	0.5660	44.97	0.5721	0.3383	50	-0.33	041.50	0
041	Direct Available Phosphorus as P2O5 (45%)	0233	44.82	1.570	44.97	0.5721	0.3383	50	-0.27	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0354	44.90	0.2000	44.97	0.5721	0.3383	50	-0.12	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0040	44.90	0.4000	44.97	0.5721	0.3383	50	-0.12	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0519	44.92	0.0300	44.97	0.5721	0.3383	50	-0.09	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0220	44.96	0.0200	44.97	0.5721	0.3383	50	-0.01	041.11	0
041	Direct Available Phosphorus as P2O5 (45%)	0055	44.97	0.0200	44.97	0.5721	0.3383	50	0.00	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0549	44.98	0.1500	44.97	0.5721	0.3383	50	0.01	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0531	45.00	0.0300	44.97	0.5721	0.3383	50	0.05	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0494	45.00	0.3400	44.97	0.5721	0.3383	50	0.06	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0177	45.00	0.0070	44.97	0.5721	0.3383	50	0.06	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0538	45.05	0.0700	44.97	0.5721	0.3383	50	0.13	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0185	45.06	0.3100	44.97	0.5721	0.3383	50	0.15	041.11	0
041	Direct Available Phosphorus as P2O5 (45%)	0023	45.10	0.4700	44.97	0.5721	0.3383	50	0.22	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0086	45.11	0.4832	44.97	0.5721	0.3383	50	0.24	041.10	0
041	Direct Available Phosphorus as P2O5 (45%)	0043	45.13	0.0500	44.97	0.5721	0.3383	50	0.27	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0532	45.15	0.0600	44.97	0.5721	0.3383	50	0.32	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0055	45.18	0.2100	44.97	0.5721	0.3383	50	0.36	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0522	45.19	0.6000	44.97	0.5721	0.3383	50	0.39	041.21	0
041	Direct Available Phosphorus as P2O5 (45%)	0537	45.22	0.6800	44.97	0.5721	0.3383	50	0.44	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0486	45.25	0.0800	44.97	0.5721	0.3383	50	0.49	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0494	45.30	0.3500	44.97	0.5721	0.3383	50	0.57	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0452	45.38	0.0700	44.97	0.5721	0.3383	50	0.71	041.50	0
041	Direct Available Phosphorus as P2O5 (45%)	0034	45.44	0.1412	44.97	0.5721	0.3383	50	0.82	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0533	45.48	0.0200	44.97	0.5721	0.3383	50	0.89	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0539	45.49	0.0300	44.97	0.5721	0.3383	50	0.90	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0025	45.70	1.000	44.97	0.5721	0.3383	50	1.28	041.51	0
041	Direct Available Phosphorus as P2O5 (45%)	0073	45.77	0.8100	44.97	0.5721	0.3383	50	1.39	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0007	46.00‡	0.8000	44.97	0.5721	0.3383	50	1.80	041.50	0
041	Direct Available Phosphorus as P2O5 (45%)	0535	46.05‡	0.1000	44.97	0.5721	0.3383	50	1.89	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0540	46.05‡	0.1000	44.97	0.5721	0.3383	50	1.89	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0545	46.11‡	0.0700	44.97	0.5721	0.3383	50	1.99	041.99	0
041	Direct Available Phosphorus as P2O5 (45%)	0029	46.28‡	0.3200	44.97	0.5721	0.3383	50	2.29	041.60	0
041	Direct Available Phosphorus as P2O5 (45%)	0095	44.52	2.020	44.97	0.5721	0.3383	50	-0.78	041.40	1
042	Water Soluble OrthoP as P2O5 (%)	0553	43.45	0.4500				1		042.10	0
048	Water Soluble Phosphorus as P2O5 (%)	0513	43.23	0.0500	44.93	1.156	0.2918	4	-1.47	048.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
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048	Water Soluble Phosphorus as P2O5 (%)	0394	45.19	0.4270	44.93	1.156	0.2918	4	0.22	048.20	0
048	Water Soluble Phosphorus as P2O5 (%)	0444	45.58	0.6100	44.93	1.156	0.2918	4	0.56	048.10	0
048	Water Soluble Phosphorus as P2O5 (%)	0444	45.72	0.0800	44.93	1.156	0.2918	4	0.69	048.50	0
050	Soluble Potassium as K2O (45%)	0543	35.66†	1.567	44.86	0.8743	0.4555	98	-10.53	050.52	0
050	Soluble Potassium as K2O (45%)	0472	39.80†	0.6000	44.86	0.8743	0.4555	98	-5.78	050.31	0
050	Soluble Potassium as K2O (45%)	0255	40.47†	1.709	44.86	0.8743	0.4555	98	-5.02	050.99	0
050	Soluble Potassium as K2O (45%)	0552	41.61†	0.9700	44.86	0.8743	0.4555	98	-3.72	050.99	0
050	Soluble Potassium as K2O (45%)	0553	41.66†	0.7800	44.86	0.8743	0.4555	98	-3.66	050.99	0
050	Soluble Potassium as K2O (45%)	0402	41.79†	2.410	44.86	0.8743	0.4555	98	-3.51	050.99	0
050	Soluble Potassium as K2O (45%)	0451	42.83†	0.1800	44.86	0.8743	0.4555	98	-2.32	050.99	0
050	Soluble Potassium as K2O (45%)	0234	42.95†	0.5000	44.86	0.8743	0.4555	98	-2.18	050.99	0
050	Soluble Potassium as K2O (45%)	0419	43.10†	0.4000	44.86	0.8743	0.4555	98	-2.01	050.50	0
050	Soluble Potassium as K2O (45%)	0095	43.16†	1.100	44.86	0.8743	0.4555	98	-1.94	050.62	0
050	Soluble Potassium as K2O (45%)	0481	43.16†	0.5600	44.86	0.8743	0.4555	98	-1.94	050.99	0
050	Soluble Potassium as K2O (45%)	0510	43.37	0.6101	44.86	0.8743	0.4555	98	-1.70	050.60	0
050	Soluble Potassium as K2O (45%)	0513	43.54	0.1100	44.86	0.8743	0.4555	98	-1.51	050.62	0
050	Soluble Potassium as K2O (45%)	0421	43.55	0.1000	44.86	0.8743	0.4555	98	-1.50	050.99	0
050	Soluble Potassium as K2O (45%)	0433	43.73	0.7000	44.86	0.8743	0.4555	98	-1.29	050.99	0
050	Soluble Potassium as K2O (45%)	0483	43.79	0.3600	44.86	0.8743	0.4555	98	-1.22	050.51	0
050	Soluble Potassium as K2O (45%)	0307	43.82	1.410	44.86	0.8743	0.4555	98	-1.19	050.99	0
050	Soluble Potassium as K2O (45%)	0545	43.91	0.0000	44.86	0.8743	0.4555	98	-1.08	050.99	0
050	Soluble Potassium as K2O (45%)	0040	43.95	0.7000	44.86	0.8743	0.4555	98	-1.04	050.30	0
050	Soluble Potassium as K2O (45%)	0136	44.03	0.1500	44.86	0.8743	0.4555	98	-0.95	050.30	0
050	Soluble Potassium as K2O (45%)	0482	44.15	0.7000	44.86	0.8743	0.4555	98	-0.81	050.99	0
050	Soluble Potassium as K2O (45%)	0105	44.32	0.1200	44.86	0.8743	0.4555	98	-0.62	050.62	0
050	Soluble Potassium as K2O (45%)	0309	44.33	0.0000	44.86	0.8743	0.4555	98	-0.60	050.30	0
050	Soluble Potassium as K2O (45%)	0096	44.36	2.420	44.86	0.8743	0.4555	98	-0.57	050.99	0
050	Soluble Potassium as K2O (45%)	0456	44.40	0.2000	44.86	0.8743	0.4555	98	-0.52	050.61	0
050	Soluble Potassium as K2O (45%)	0506	44.40	0.6000	44.86	0.8743	0.4555	98	-0.52	050.99	0
050	Soluble Potassium as K2O (45%)	0169	44.46	0.1200	44.86	0.8743	0.4555	98	-0.46	050.60	0
050	Soluble Potassium as K2O (45%)	0220	44.55	0.1000	44.86	0.8743	0.4555	98	-0.35	050.00	0
050	Soluble Potassium as K2O (45%)	0105	44.55	0.4200	44.86	0.8743	0.4555	98	-0.35	050.60	0
050	Soluble Potassium as K2O (45%)	0043	44.57	0.1400	44.86	0.8743	0.4555	98	-0.33	050.52	0
050	Soluble Potassium as K2O (45%)	0049	44.59	0.3100	44.86	0.8743	0.4555	98	-0.31	050.00	0
050	Soluble Potassium as K2O (45%)	0034	44.60	0.1440	44.86	0.8743	0.4555	98	-0.30	050.62	0
050	Soluble Potassium as K2O (45%)	0230	44.60	1.000	44.86	0.8743	0.4555	98	-0.29	050.00	0
050	Soluble Potassium as K2O (45%)	0494	44.60	0.4200	44.86	0.8743	0.4555	98	-0.29	050.00	0
050	Soluble Potassium as K2O (45%)	0523	44.60	0.2000	44.86	0.8743	0.4555	98	-0.29	050.99	0
050	Soluble Potassium as K2O (45%)	0231	44.64	0.5400	44.86	0.8743	0.4555	98	-0.25	050.00	0
050	Soluble Potassium as K2O (45%)	0416	44.67	0.0600	44.86	0.8743	0.4555	98	-0.21	050.00	0
050	Soluble Potassium as K2O (45%)	0494	44.74	0.3700	44.86	0.8743	0.4555	98	-0.14	050.52	0
050	Soluble Potassium as K2O (45%)	0476	44.79	0.0023	44.86	0.8743	0.4555	98	-0.08	050.99	0
050	Soluble Potassium as K2O (45%)	0519	44.87	0.0600	44.86	0.8743	0.4555	98	0.01	050.99	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
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050	Soluble Potassium as K2O (45%)	0405	44.89	0.0300	44.86	0.8743	0.4555	98	0.03	050.00	0
050	Soluble Potassium as K2O (45%)	0117	44.91	0.0520	44.86	0.8743	0.4555	98	0.06	050.52	0
050	Soluble Potassium as K2O (45%)	0536	44.98	0.1500	44.86	0.8743	0.4555	98	0.13	050.99	0
050	Soluble Potassium as K2O (45%)	0522	44.99	0.0100	44.86	0.8743	0.4555	98	0.15	050.00	0
050	Soluble Potassium as K2O (45%)	0360	44.99	0.4200	44.86	0.8743	0.4555	98	0.15	050.52	0
050	Soluble Potassium as K2O (45%)	0291	45.00	0.0000	44.86	0.8743	0.4555	98	0.16	050.51	0
050	Soluble Potassium as K2O (45%)	0531	45.01	0.0300	44.86	0.8743	0.4555	98	0.17	050.99	0
050	Soluble Potassium as K2O (45%)	0535	45.03	0.1500	44.86	0.8743	0.4555	98	0.19	050.61	0
050	Soluble Potassium as K2O (45%)	0549	45.03	0.0700	44.86	0.8743	0.4555	98	0.19	050.99	0
050	Soluble Potassium as K2O (45%)	0544	45.03	0.0200	44.86	0.8743	0.4555	98	0.20	050.00	0
050	Soluble Potassium as K2O (45%)	0354	45.05	0.1000	44.86	0.8743	0.4555	98	0.22	050.52	0
050	Soluble Potassium as K2O (45%)	0535	45.05	0.1000	44.86	0.8743	0.4555	98	0.22	050.99	0
050	Soluble Potassium as K2O (45%)	0055	45.07	0.0100	44.86	0.8743	0.4555	98	0.24	050.00	0
050	Soluble Potassium as K2O (45%)	0533	45.09	0.1400	44.86	0.8743	0.4555	98	0.27	050.99	0
050	Soluble Potassium as K2O (45%)	0086	45.10	0.5582	44.86	0.8743	0.4555	98	0.28	050.50	0
050	Soluble Potassium as K2O (45%)	0540	45.10	0.2000	44.86	0.8743	0.4555	98	0.28	050.99	0
050	Soluble Potassium as K2O (45%)	0524	45.11	0.8219	44.86	0.8743	0.4555	98	0.28	050.99	0
050	Soluble Potassium as K2O (45%)	0055	45.13	0.0200	44.86	0.8743	0.4555	98	0.31	050.50	0
050	Soluble Potassium as K2O (45%)	0368	45.14	1.065	44.86	0.8743	0.4555	98	0.32	050.99	0
050	Soluble Potassium as K2O (45%)	0452	45.17	0.0900	44.86	0.8743	0.4555	98	0.35	050.51	0
050	Soluble Potassium as K2O (45%)	0131	45.17	0.7510	44.86	0.8743	0.4555	98	0.35	050.51	0
050	Soluble Potassium as K2O (45%)	0389	45.18	0.2800	44.86	0.8743	0.4555	98	0.37	050.99	0
050	Soluble Potassium as K2O (45%)	0486	45.19	0.0500	44.86	0.8743	0.4555	98	0.37	050.52	0
050	Soluble Potassium as K2O (45%)	0037	45.20	0.0300	44.86	0.8743	0.4555	98	0.39	050.62	0
050	Soluble Potassium as K2O (45%)	0444	45.21	0.0200	44.86	0.8743	0.4555	98	0.40	050.50	0
050	Soluble Potassium as K2O (45%)	0377	45.23	0.2600	44.86	0.8743	0.4555	98	0.43	050.52	0
050	Soluble Potassium as K2O (45%)	0106	45.25	0.4000	44.86	0.8743	0.4555	98	0.45	050.50	0
050	Soluble Potassium as K2O (45%)	0025	45.25	1.100	44.86	0.8743	0.4555	98	0.45	050.52	0
050	Soluble Potassium as K2O (45%)	0035	45.25	0.1000	44.86	0.8743	0.4555	98	0.45	050.61	0
050	Soluble Potassium as K2O (45%)	0538	45.25	0.1000	44.86	0.8743	0.4555	98	0.45	050.99	0
050	Soluble Potassium as K2O (45%)	0397	45.26	0.2846	44.86	0.8743	0.4555	98	0.46	050.50	0
050	Soluble Potassium as K2O (45%)	0177	45.28	0.1540	44.86	0.8743	0.4555	98	0.48	050.99	0
050	Soluble Potassium as K2O (45%)	0537	45.30	0.2500	44.86	0.8743	0.4555	98	0.50	050.99	0
050	Soluble Potassium as K2O (45%)	0102	45.30	0.8000	44.86	0.8743	0.4555	98	0.51	050.00	0
050	Soluble Potassium as K2O (45%)	0493	45.30	0.1000	44.86	0.8743	0.4555	98	0.51	050.99	0
050	Soluble Potassium as K2O (45%)	0539	45.32	0.0000	44.86	0.8743	0.4555	98	0.53	050.99	0
050	Soluble Potassium as K2O (45%)	0547	45.35	0.1000	44.86	0.8743	0.4555	98	0.56	050.51	0
050	Soluble Potassium as K2O (45%)	0501	45.36	0.2800	44.86	0.8743	0.4555	98	0.57	050.99	0
050	Soluble Potassium as K2O (45%)	0532	45.36	0.0800	44.86	0.8743	0.4555	98	0.57	050.99	0
050	Soluble Potassium as K2O (45%)	0550	45.40	1.030	44.86	0.8743	0.4555	98	0.61	050.00	0
050	Soluble Potassium as K2O (45%)	0007	45.45	0.3000	44.86	0.8743	0.4555	98	0.68	050.51	0
050	Soluble Potassium as K2O (45%)	0516	45.47	0.5760	44.86	0.8743	0.4555	98	0.70	050.99	0
050	Soluble Potassium as K2O (45%)	0356	45.50	0.9100	44.86	0.8743	0.4555	98	0.73	050.30	0

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050	Soluble Potassium as K2O (45%)	0023	45.58	0.1000	44.86	0.8743	0.4555	98	0.83	050.52	0
050	Soluble Potassium as K2O (45%)	0527	45.68	0.0483	44.86	0.8743	0.4555	98	0.94	050.99	0
050	Soluble Potassium as K2O (45%)	0114	45.81	1.860	44.86	0.8743	0.4555	98	1.09	050.00	0
050	Soluble Potassium as K2O (45%)	0443	45.81	0.6200	44.86	0.8743	0.4555	98	1.09	050.60	0
050	Soluble Potassium as K2O (45%)	0444	45.82	0.0900	44.86	0.8743	0.4555	98	1.09	050.00	0
050	Soluble Potassium as K2O (45%)	0498	45.90	0.8000	44.86	0.8743	0.4555	98	1.19	050.31	0
050	Soluble Potassium as K2O (45%)	0185	45.93	0.2100	44.86	0.8743	0.4555	98	1.22	050.32	0
050	Soluble Potassium as K2O (45%)	0042	46.10	0.8000	44.86	0.8743	0.4555	98	1.42	050.99	0
050	Soluble Potassium as K2O (45%)	0371	46.15	0.1000	44.86	0.8743	0.4555	98	1.48	050.99	0
050	Soluble Potassium as K2O (45%)	0546	46.28	0.3080	44.86	0.8743	0.4555	98	1.62	050.99	0
050	Soluble Potassium as K2O (45%)	0029	47.40‡	0.6200	44.86	0.8743	0.4555	98	2.91	050.62	0
050	Soluble Potassium as K2O (45%)	0292	48.53‡	0.2600	44.86	0.8743	0.4555	98	4.20	050.50	0
050	Soluble Potassium as K2O (45%)	0073	48.57‡	0.6200	44.86	0.8743	0.4555	98	4.25	050.30	0
050	Soluble Potassium as K2O (45%)	0233	49.25‡	1.640	44.86	0.8743	0.4555	98	5.02	050.52	0
050	Soluble Potassium as K2O (45%)	0422	50.35‡	1.730	44.86	0.8743	0.4555	98	6.28	050.50	0
050	Soluble Potassium as K2O (45%)	0390	41.55†	4.260	44.86	0.8743	0.4555	98	-3.78	050.50	1
050	Soluble Potassium as K2O (45%)	0324	45.15	2.700	44.86	0.8743	0.4555	98	0.33	050.50	1
060	Water (Free) (%)	0007	0.4000	0.3200	1.210	0.5304	0.0999	6	-1.36	060.00	0
060	Water (Free) (%)	0416	1.020	0.0998	1.210	0.5304	0.0999	6	-0.32	060.00	0
060	Water (Free) (%)	0510	1.120	0.0098	1.210	0.5304	0.0999	6	-0.15	060.99	0
060	Water (Free) (%)	0456	1.425	0.0500	1.210	0.5304	0.0999	6	0.36	060.00	0
060	Water (Free) (%)	0513	1.630	0.0200	1.210	0.5304	0.0999	6	0.71	060.99	0
060	Water (Free) (%)	0055	1.650	0.1000	1.210	0.5304	0.0999	6	0.74	060.30	0
101	Acid Soluble Calcium (%)	0389	0.0145	0.0030	0.1554	0.1894	0.0084	5	-0.65	101.99	0
101	Acid Soluble Calcium (%)	0096	0.0180	0.0060	0.1554	0.1894	0.0084	5	-0.63	101.30	0
101	Acid Soluble Calcium (%)	0354	0.0750	0.0100	0.1554	0.1894	0.0084	5	-0.37	101.30	0
101	Acid Soluble Calcium (%)	0483	0.2045	0.0130	0.1554	0.1894	0.0084	5	0.23	101.30	0
101	Acid Soluble Calcium (%)	0552	0.4650	0.0100	0.1554	0.1894	0.0084	5	1.43	101.99	0
101	Acid Soluble Calcium (%)	0527	0.0000	0.0000	0.1554	0.1894	0.0084	5		101.33	4
121	Acid Soluble Magnesium (%)	0527	0.0004	0.0001	0.0273	0.0355	0.0029	7	-0.69	121.33	0
121	Acid Soluble Magnesium (%)	0524	0.0007	0.0000	0.0273	0.0355	0.0029	7	-0.68	121.99	0
121	Acid Soluble Magnesium (%)	0389	0.0008	0.0001	0.0273	0.0355	0.0029	7	-0.68	121.99	0
121	Acid Soluble Magnesium (%)	0354	0.0100	0.0000	0.0273	0.0355	0.0029	7	-0.44	121.30	0
121	Acid Soluble Magnesium (%)	0483	0.0488	0.0002	0.0273	0.0355	0.0029	7	0.55	121.30	0
121	Acid Soluble Magnesium (%)	0515	0.0580	0.0102	0.0273	0.0355	0.0029	7	0.78	121.99	0
121	Acid Soluble Magnesium (%)	0515	0.0724	0.0094	0.0273	0.0355	0.0029	7	1.15	121.33	0
121	Acid Soluble Magnesium (%)	0037	1.643	0.0400	0.0273	0.0355	0.0029	7	41.16	121.33	2
121	Acid Soluble Magnesium (%)	0516	0.0000	0.0000	0.0273	0.0355	0.0029	7		121.00	4
121	Acid Soluble Magnesium (%)	0552	0.0150	0.0300	0.0273	0.0355	0.0029	7		121.99	4
143	Elemental Sulfur (%)	0472	0.0900	0.0000				2		143.99	0
143	Elemental Sulfur (%)	0389	0.1135	0.0050				2		143.99	0
148	Total Sulfur (%)	0354	0.0900	0.0000	0.1115	0.0178	0.0075	5	-1.05	148.99	0
148	Total Sulfur (%)	0515	0.0956	0.0254	0.1115	0.0178	0.0075	5	-0.78	148.07	0

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148	Total Sulfur (%)	0096	0.1170	0.0000	0.1115	0.0178	0.0075	5	0.27	148.99	0
148	Total Sulfur (%)	0482	0.1250	0.0100	0.1115	0.0178	0.0075	5	0.66	148.99	0
148	Total Sulfur (%)	0483	0.1300	0.0020	0.1115	0.0178	0.0075	5	0.91	148.07	0
148	Total Sulfur (%)	0527	0.0000	0.0000	0.1115	0.0178	0.0075	5		148.07	4
149	Sulfur - HNO3 soluble (%)	0524	0.1055	0.0006				1		149.04	0
151	Acid Soluble Arsenic (ppm)	0255	0.2870	0.0440	0.5435	0.2383	0.0358	9	-0.99	151.30	0
151	Acid Soluble Arsenic (ppm)	0527	0.3470	0.1045	0.5435	0.2383	0.0358	9	-0.76	151.33	0
151	Acid Soluble Arsenic (ppm)	0524	0.3793	0.0685	0.5435	0.2383	0.0358	9	-0.64	151.30	0
151	Acid Soluble Arsenic (ppm)	0136	0.4400	0.0200	0.5435	0.2383	0.0358	9	-0.40	151.00	0
151	Acid Soluble Arsenic (ppm)	0476	0.4967	0.0249	0.5435	0.2383	0.0358	9	-0.18	151.99	0
151	Acid Soluble Arsenic (ppm)	0519	0.5500	0.0200	0.5435	0.2383	0.0358	9	0.03	151.99	0
151	Acid Soluble Arsenic (ppm)	0220	0.7000	0.0000	0.5435	0.2383	0.0358	9	0.61	151.99	0
151	Acid Soluble Arsenic (ppm)	0498	0.8200	0.0400	0.5435	0.2383	0.0358	9	1.07	151.00	0
151	Acid Soluble Arsenic (ppm)	0550	0.8720	0.0000	0.5435	0.2383	0.0358	9	1.27	151.00	0
151	Acid Soluble Arsenic (ppm)	0515	0.7803	0.2796	0.5435	0.2383	0.0358	9	0.92	151.34	1
151	Acid Soluble Arsenic (ppm)	0368	0.0000	0.0000	0.5435	0.2383	0.0358	9		151.34	4
165	Acid Soluble Boron (%)	0515	0.0006	0.0002	0.2134	0.4005	0.0201	7	-0.48	165.99	0
165	Acid Soluble Boron (%)	0524	0.0010	0.0000	0.2134	0.4005	0.0201	7	-0.48	165.99	0
165	Acid Soluble Boron (%)	0483	0.0034	0.0015	0.2134	0.4005	0.0201	7	-0.47	165.99	0
165	Acid Soluble Boron (%)	0354	0.0100	0.0000	0.2134	0.4005	0.0201	7	-0.46	165.30	0
165	Acid Soluble Boron (%)	0527	0.0295	0.0032	0.2134	0.4005	0.0201	7	-0.42	165.99	0
165	Acid Soluble Boron (%)	0552	0.6350	0.0700	0.2134	0.4005	0.0201	7	0.95	165.99	0
165	Acid Soluble Boron (%)	0389	7.227	0.0660	0.2134	0.4005	0.0201	7	15.84	165.30	0
181	Acid Soluble Cadmium (ppm)	0524	0.0032	0.0028	0.0463	0.0467	0.0121	7	-0.83	181.30	0
181	Acid Soluble Cadmium (ppm)	0527	0.0046	0.0032	0.0463	0.0467	0.0121	7	-0.81	181.33	0
181	Acid Soluble Cadmium (ppm)	0519	0.0100	0.0000	0.0463	0.0467	0.0121	7	-0.70	181.99	0
181	Acid Soluble Cadmium (ppm)	0550	0.0567	0.0534	0.0463	0.0467	0.0121	7	0.20	181.00	0
181	Acid Soluble Cadmium (ppm)	0389	0.0670	0.0040	0.0463	0.0467	0.0121	7	0.40	181.30	0
181	Acid Soluble Cadmium (ppm)	0394	0.0725	0.0010	0.0463	0.0467	0.0121	7	0.51	181.30	0
181	Acid Soluble Cadmium (ppm)	0136	0.1100	0.0200	0.0463	0.0467	0.0121	7	1.23	181.00	0
181	Acid Soluble Cadmium (ppm)	0220	0.4500	0.3000	0.0463	0.0467	0.0121	7	7.81	181.99	1
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.0463	0.0467	0.0121	7		181.33	4
181	Acid Soluble Cadmium (ppm)	0368	0.0000	0.0000	0.0463	0.0467	0.0121	7		181.34	4
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.0463	0.0467	0.0121	7		181.34	4
190	Water Soluble Chlorine (%)	0524	46.93	0.6396				1		190.00	0
191	Acid Soluble Chromium (ppm)	0368	0.4500	0.3000	2.845	2.931	0.6818	14	-0.82	191.34	0
191	Acid Soluble Chromium (ppm)	0527	0.4879	0.0627	2.845	2.931	0.6818	14	-0.80	191.33	0
191	Acid Soluble Chromium (ppm)	0394	0.5850	0.0100	2.845	2.931	0.6818	14	-0.77	191.30	0
191	Acid Soluble Chromium (ppm)	0550	0.9120	0.5960	2.845	2.931	0.6818	14	-0.66	191.00	0
191	Acid Soluble Chromium (ppm)	0519	1.195	0.0100	2.845	2.931	0.6818	14	-0.56	191.99	0
191	Acid Soluble Chromium (ppm)	0476	1.228	0.0502	2.845	2.931	0.6818	14	-0.55	191.99	0
191	Acid Soluble Chromium (ppm)	0498	1.725	0.1500	2.845	2.931	0.6818	14	-0.38	191.00	0
191	Acid Soluble Chromium (ppm)	0037	1.924	0.0900	2.845	2.931	0.6818	14	-0.31	191.33	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				
191	Acid Soluble Chromium (ppm)	0230	2.205	0.0900	2.845	2.931	0.6818	14	-0.22	191.34	0
191	Acid Soluble Chromium (ppm)	0506	2.747	0.8660	2.845	2.931	0.6818	14	-0.03	191.99	0
191	Acid Soluble Chromium (ppm)	0515	5.235	6.010	2.845	2.931	0.6818	14	0.82	191.34	0
191	Acid Soluble Chromium (ppm)	0482	6.650	0.1000	2.845	2.931	0.6818	14	1.30	191.30	0
191	Acid Soluble Chromium (ppm)	0389	10.76	1.210	2.845	2.931	0.6818	14	2.70	191.30	0
191	Acid Soluble Chromium (ppm)	0444	19.13	0.0000	2.845	2.931	0.6818	14	5.56	191.30	0
191	Acid Soluble Chromium (ppm)	0515	10.86	15.52	2.845	2.931	0.6818	14	2.73	191.33	1
202	Acid Soluble Cobalt (ppm)	0519	0.0100	0.0000	1.240	1.876	0.2302	6	-0.58	202.99	0
202	Acid Soluble Cobalt (ppm)	0389	0.1370	0.0380	1.240	1.876	0.2302	6	-0.52	202.30	0
202	Acid Soluble Cobalt (ppm)	0550	0.2000	0.1000	1.240	1.876	0.2302	6	-0.49	202.33	0
202	Acid Soluble Cobalt (ppm)	0524	0.5710	0.0453	1.240	1.876	0.2302	6	-0.32	202.30	0
202	Acid Soluble Cobalt (ppm)	0515	2.467	0.6860	1.240	1.876	0.2302	6	0.58	202.34	0
202	Acid Soluble Cobalt (ppm)	0515	5.862	0.5120	1.240	1.876	0.2302	6	2.20	202.33	0
202	Acid Soluble Cobalt (ppm)	0527	0.0000	0.0000	1.240	1.876	0.2302	6		202.33	4
202	Acid Soluble Cobalt (ppm)	0368	0.0000	0.0000	1.240	1.876	0.2302	6		202.34	4
221	Acid Soluble Copper (%)	0519	0.0001	0.0000	0.0036	0.0061	0.0017	7	-0.57	221.99	0
221	Acid Soluble Copper (%)	0368	0.0002	0.0000	0.0036	0.0061	0.0017	7	-0.56	221.99	0
221	Acid Soluble Copper (%)	0041	0.0003	0.0001	0.0036	0.0061	0.0017	7	-0.55	221.30	0
221	Acid Soluble Copper (%)	0035	0.0005	0.0001	0.0036	0.0061	0.0017	7	-0.52	221.30	0
221	Acid Soluble Copper (%)	0550	0.0015	0.0019	0.0036	0.0061	0.0017	7	-0.35	221.00	0
221	Acid Soluble Copper (%)	0354	0.0100	0.0000	0.0036	0.0061	0.0017	7	1.04	221.30	0
221	Acid Soluble Copper (%)	0552	0.1350	0.0100	0.0036	0.0061	0.0017	7	21.45	221.30	0
221	Acid Soluble Copper (%)	0394	1.030	0.4200	0.0036	0.0061	0.0017	7	167.56	221.32	2
221	Acid Soluble Copper (%)	0515	0.0000	0.0000	0.0036	0.0061	0.0017	7		221.33	4
221	Acid Soluble Copper (%)	0527	0.0000	0.0000	0.0036	0.0061	0.0017	7		221.33	4
221	Acid Soluble Copper (%)	0515	0.0000	0.0000	0.0036	0.0061	0.0017	7		221.99	4
221	Acid Soluble Copper (%)	0255	0.0005	0.0010	0.0036	0.0061	0.0017	7		221.30	4
241	Acid Soluble Iron (%)	0519	0.0001	0.0000	0.0039	0.0041	0.0064	17	-0.92	241.99	0
241	Acid Soluble Iron (%)	0493	0.0005	0.0001	0.0039	0.0041	0.0064	17	-0.84	241.20	0
241	Acid Soluble Iron (%)	0527	0.0006	0.0003	0.0039	0.0041	0.0064	17	-0.82	241.33	0
241	Acid Soluble Iron (%)	0524	0.0007	0.0001	0.0039	0.0041	0.0064	17	-0.79	241.99	0
241	Acid Soluble Iron (%)	0476	0.0012	0.0001	0.0039	0.0041	0.0064	17	-0.67	241.99	0
241	Acid Soluble Iron (%)	0255	0.0015	0.0010	0.0039	0.0041	0.0064	17	-0.58	241.30	0
241	Acid Soluble Iron (%)	0515	0.0019	0.0017	0.0039	0.0041	0.0064	17	-0.50	241.99	0
241	Acid Soluble Iron (%)	0533	0.0025	0.0001	0.0039	0.0041	0.0064	17	-0.35	241.00	0
241	Acid Soluble Iron (%)	0550	0.0029	0.0021	0.0039	0.0041	0.0064	17	-0.26	241.00	0
241	Acid Soluble Iron (%)	0481	0.0030	0.0000	0.0039	0.0041	0.0064	17	-0.22	241.99	0
241	Acid Soluble Iron (%)	0035	0.0033	0.0019	0.0039	0.0041	0.0064	17	-0.16	241.30	0
241	Acid Soluble Iron (%)	0368	0.0034	0.0030	0.0039	0.0041	0.0064	17	-0.12	241.99	0
241	Acid Soluble Iron (%)	0041	0.0070	0.0080	0.0039	0.0041	0.0064	17	0.75	241.30	0
241	Acid Soluble Iron (%)	0515	0.0081	0.0103	0.0039	0.0041	0.0064	17	1.01	241.33	0
241	Acid Soluble Iron (%)	0354	0.0100	0.0000	0.0039	0.0041	0.0064	17	1.48	241.30	0
241	Acid Soluble Iron (%)	0234	0.0400	0.0000	0.0039	0.0041	0.0064	17	8.77	241.30	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				
241	Acid Soluble Iron (%)	0552	0.0700	0.0800	0.0039	0.0041	0.0064	17	16.06	241.30	0
241	Acid Soluble Iron (%)	0389	6.729	0.5540	0.0039	0.0041	0.0064	17	1633.99	241.99	2
251	Acid Soluble Lead (ppm)	0524	0.0057	0.0001	0.1482	0.1828	0.2323	7	-0.71	251.30	0
251	Acid Soluble Lead (ppm)	0389	0.0135	0.0050	0.1482	0.1828	0.2323	7	-0.67	251.30	0
251	Acid Soluble Lead (ppm)	0527	0.0212	0.0057	0.1482	0.1828	0.2323	7	-0.63	251.33	0
251	Acid Soluble Lead (ppm)	0519	0.0750	0.0100	0.1482	0.1828	0.2323	7	-0.36	251.99	0
251	Acid Soluble Lead (ppm)	0405	0.2500	0.1000	0.1482	0.1828	0.2323	7	0.50	251.30	0
251	Acid Soluble Lead (ppm)	0220	0.2500	0.1000	0.1482	0.1828	0.2323	7	0.50	251.99	0
251	Acid Soluble Lead (ppm)	0515	3.854	1.405	0.1482	0.1828	0.2323	7	18.33	251.33	0
251	Acid Soluble Lead (ppm)	0550	3.063	4.760	0.1482	0.1828	0.2323	7	14.42	251.00	1
251	Acid Soluble Lead (ppm)	0394	0.0000	0.0000	0.1482	0.1828	0.2323	7		251.30	4
251	Acid Soluble Lead (ppm)	0515	0.0000	0.0000	0.1482	0.1828	0.2323	7		251.34	4
251	Acid Soluble Lead (ppm)	0368	1.300	2.600	0.1482	0.1828	0.2323	7		251.34	4
261	Acid Soluble Manganese (%)	0519	0.0001	0.0000	0.0131	0.0238	0.0062	5	-0.48	261.99	0
261	Acid Soluble Manganese (%)	0041	0.0002	0.0001	0.0131	0.0238	0.0062	5	-0.48	261.30	0
261	Acid Soluble Manganese (%)	0368	0.0005	0.0007	0.0131	0.0238	0.0062	5	-0.47	261.99	0
261	Acid Soluble Manganese (%)	0354	0.0100	0.0000	0.0131	0.0238	0.0062	5	-0.12	261.30	0
261	Acid Soluble Manganese (%)	0552	0.0550	0.0300	0.0131	0.0238	0.0062	5	1.54	261.32	0
261	Acid Soluble Manganese (%)	0515	0.0000	0.0000	0.0131	0.0238	0.0062	5		261.35	4
261	Acid Soluble Manganese (%)	0527	0.0000	0.0000	0.0131	0.0238	0.0062	5		261.35	4
261	Acid Soluble Manganese (%)	0255	0.0000	0.0000	0.0131	0.0238	0.0062	5		261.99	4
261	Acid Soluble Manganese (%)	0515	0.0000	0.0000	0.0131	0.0238	0.0062	5		261.99	4
271	Water Soluble Manganese (%)	0553	0.0007	0.0000				1		271.00	0
281	Acid Soluble Mercury (ppm)	0550	0.0052	0.0028	0.0122	0.0083	0.0020	3	-0.84	281.00	0
281	Acid Soluble Mercury (ppm)	0519	0.0100	0.0000	0.0122	0.0083	0.0020	3	-0.27	281.99	0
281	Acid Soluble Mercury (ppm)	0527	0.0215	0.0033	0.0122	0.0083	0.0020	3	1.11	281.30	0
281	Acid Soluble Mercury (ppm)	0515	0.0000	0.0000	0.0122	0.0083	0.0020	3		281.30	4
289	Acid Soluble Molybdenum (ppm)	0368	0.9500	0.1000	1.594	0.3938	0.1704	14	-1.63	289.34	0
289	Acid Soluble Molybdenum (ppm)	0519	1.240	0.0400	1.594	0.3938	0.1704	14	-0.90	289.99	0
289	Acid Soluble Molybdenum (ppm)	0389	1.316	0.0870	1.594	0.3938	0.1704	14	-0.71	289.30	0
289	Acid Soluble Molybdenum (ppm)	0433	1.345	0.0300	1.594	0.3938	0.1704	14	-0.63	289.30	0
289	Acid Soluble Molybdenum (ppm)	0255	1.439	0.8770	1.594	0.3938	0.1704	14	-0.39	289.30	0
289	Acid Soluble Molybdenum (ppm)	0524	1.457	0.0556	1.594	0.3938	0.1704	14	-0.35	289.30	0
289	Acid Soluble Molybdenum (ppm)	0476	1.491	0.0667	1.594	0.3938	0.1704	14	-0.26	289.99	0
289	Acid Soluble Molybdenum (ppm)	0096	1.500	0.0000	1.594	0.3938	0.1704	14	-0.24	289.30	0
289	Acid Soluble Molybdenum (ppm)	0546	1.635	0.2800	1.594	0.3938	0.1704	14	0.11	289.99	0
289	Acid Soluble Molybdenum (ppm)	0037	1.746	0.0360	1.594	0.3938	0.1704	14	0.39	289.33	0
289	Acid Soluble Molybdenum (ppm)	0230	1.875	0.0500	1.594	0.3938	0.1704	14	0.71	289.34	0
289	Acid Soluble Molybdenum (ppm)	0405	1.895	0.0700	1.594	0.3938	0.1704	14	0.77	289.30	0
289	Acid Soluble Molybdenum (ppm)	0527	2.247	0.6938	1.594	0.3938	0.1704	14	1.66	289.33	0
289	Acid Soluble Molybdenum (ppm)	0550	2.490	0.0000	1.594	0.3938	0.1704	14	2.28	289.00	0
289	Acid Soluble Molybdenum (ppm)	0515	4.513	5.826	1.594	0.3938	0.1704	14	7.41	289.33	1
291	Acid Soluble Nickel (ppm)	0524	0.0611	0.0884	2.887	4.518	0.1251	10	-0.63	291.30	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				
291	Acid Soluble Nickel (ppm)	0389	0.1370	0.0160	2.887	4.518	0.1251	10	-0.61	291.30	0
291	Acid Soluble Nickel (ppm)	0519	0.1450	0.0100	2.887	4.518	0.1251	10	-0.61	291.99	0
291	Acid Soluble Nickel (ppm)	0476	0.2871	0.1011	2.887	4.518	0.1251	10	-0.58	291.99	0
291	Acid Soluble Nickel (ppm)	0037	0.3060	0.1540	2.887	4.518	0.1251	10	-0.57	291.33	0
291	Acid Soluble Nickel (ppm)	0394	0.6750	0.1500	2.887	4.518	0.1251	10	-0.49	291.30	0
291	Acid Soluble Nickel (ppm)	0515	2.058	0.3210	2.887	4.518	0.1251	10	-0.18	291.34	0
291	Acid Soluble Nickel (ppm)	0506	5.875	0.1500	2.887	4.518	0.1251	10	0.66	291.99	0
291	Acid Soluble Nickel (ppm)	0550	13.60	0.0000	2.887	4.518	0.1251	10	2.37	291.00	0
291	Acid Soluble Nickel (ppm)	0444	26.33	0.2600	2.887	4.518	0.1251	10	5.19	291.30	0
291	Acid Soluble Nickel (ppm)	0515	6.034	1.546	2.887	4.518	0.1251	10	0.70	291.33	1
291	Acid Soluble Nickel (ppm)	0527	0.0000	0.0000	2.887	4.518	0.1251	10		291.33	4
291	Acid Soluble Nickel (ppm)	0368	0.0000	0.0000	2.887	4.518	0.1251	10		291.34	4
301	Acid Soluble Selenium (ppm)	0519	0.1150	0.0100	0.5521	0.4843	0.2182	6	-0.80	301.99	0
301	Acid Soluble Selenium (ppm)	0220	0.1500	0.1000	0.5521	0.4843	0.2182	6	-0.74	301.99	0
301	Acid Soluble Selenium (ppm)	0524	0.4550	0.1900	0.5521	0.4843	0.2182	6	-0.18	301.30	0
301	Acid Soluble Selenium (ppm)	0515	0.6527	0.7307	0.5521	0.4843	0.2182	6	0.18	301.34	0
301	Acid Soluble Selenium (ppm)	0255	0.6615	0.1870	0.5521	0.4843	0.2182	6	0.20	301.99	0
301	Acid Soluble Selenium (ppm)	0527	1.440	0.0912	0.5521	0.4843	0.2182	6	1.63	301.33	0
301	Acid Soluble Selenium (ppm)	0368	1.500	3.000	0.5521	0.4843	0.2182	6		301.34	4
311	Sodium (%)	0527	0.0549	0.0016	0.0845	0.0400	0.0056	6	-0.66	311.33	0
311	Sodium (%)	0482	0.0600	0.0000	0.0845	0.0400	0.0056	6	-0.54	311.99	0
311	Sodium (%)	0035	0.0675	0.0090	0.0845	0.0400	0.0056	6	-0.38	311.33	0
311	Sodium (%)	0096	0.0700	0.0000	0.0845	0.0400	0.0056	6	-0.32	311.99	0
311	Sodium (%)	0354	0.1100	0.0000	0.0845	0.0400	0.0056	6	0.57	311.99	0
311	Sodium (%)	0524	1.142	0.0231	0.0845	0.0400	0.0056	6	23.54	311.99	0
321	Acid Soluble Zinc (%)	0515	0.0001	0.0000	0.0018	0.0018	0.0014	11	-0.91	321.99	0
321	Acid Soluble Zinc (%)	0368	0.0002	0.0002	0.0018	0.0018	0.0014	11	-0.85	321.99	0
321	Acid Soluble Zinc (%)	0515	0.0006	0.0003	0.0018	0.0018	0.0014	11	-0.66	321.33	0
321	Acid Soluble Zinc (%)	0519	0.0008	0.0000	0.0018	0.0018	0.0014	11	-0.53	321.99	0
321	Acid Soluble Zinc (%)	0096	0.0010	0.0001	0.0018	0.0018	0.0014	11	-0.45	321.30	0
321	Acid Soluble Zinc (%)	0550	0.0011	0.0005	0.0018	0.0018	0.0014	11	-0.39	321.00	0
321	Acid Soluble Zinc (%)	0035	0.0013	0.0014	0.0018	0.0018	0.0014	11	-0.25	321.30	0
321	Acid Soluble Zinc (%)	0533	0.0025	0.0001	0.0018	0.0018	0.0014	11	0.37	321.00	0
321	Acid Soluble Zinc (%)	0255	0.0030	0.0040	0.0018	0.0018	0.0014	11	0.67	321.30	0
321	Acid Soluble Zinc (%)	0354	0.0100	0.0000	0.0018	0.0018	0.0014	11	4.49	321.30	0
321	Acid Soluble Zinc (%)	0041	0.0125	0.0090	0.0018	0.0018	0.0014	11	5.85	321.30	0
321	Acid Soluble Zinc (%)	0394	2.425	0.7300	0.0018	0.0018	0.0014	11	1320.30	321.32	2
321	Acid Soluble Zinc (%)	0516	0.0000	0.0000	0.0018	0.0018	0.0014	11		321.00	4
321	Acid Soluble Zinc (%)	0527	0.0000	0.0000	0.0018	0.0018	0.0014	11		321.33	4
321	Acid Soluble Zinc (%)	0552	0.0150	0.0300	0.0018	0.0018	0.0014	11		321.30	4
325	Water Soluble Zinc (%)	0553	0.0007	0.0000				1		325.00	0

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

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				

= 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.