

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 200511

Grade 8-5-5 Organic

### Statistical Summary

# Analytes: 31

# Labs Reporting: 70

Issue Date : 06/30/2020

Analyte Code	Analyte Sample # 200511	# 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 N (%)	14	13	0.3865	0.3421	0.3865		0.3879	0.1345	100.37%		0.0196	4.61%
003	Water Insoluble N (%)	8	8	7.185	0.3015	7.185		0.3420	0.1511	4.76%		0.1575	2.97%
010	Total N (8%)	60	59	8.619	0.2574	8.635	0.5627	0.1339	0.0218	1.55%	0.55	0.0797	2.89%
020	Total P2O5 (%)	37	35	4.632	0.4354	4.618		0.4540	0.0959	9.83%		0.1487	3.18%
030	Citrate Insoluble P2O5 (%)	1		0.7400									
040	Indirect Available P2O5 (5%)	1		3.870									
041	Direct Available P2O5 (5%)	34	34	4.102	0.7718	4.193	0.6700	0.5776	0.1238	13.77%	2.01	0.0870	3.22%
048	Water Soluble P2O5 (%)	2	2	2.888	3.150								
050	Soluble K2O (5%)	63	61	6.607	0.9878	6.706	0.5123	0.8018	0.1283	11.96%	3.65	0.1489	3.00%
060	Water (Free) (%)	2	2	3.573	1.998								
101	Acid Soluble Ca (4.5%)	40	39	3.857	0.3321	3.824	0.3912	0.2615	0.0523	6.84%	1.56	0.0968	3.27%
121	Acid Soluble Mg (%)	17	16	0.1963	0.0248	0.1968	0.2098	0.0235	0.0073	11.95%	0.26	0.0071	5.11%
143	Elemental S (%)	4	4	2.763	0.3971	2.763		0.3971	0.2482	14.37%		0.0635	3.43%
145	Sulfate S, HCl soluble (%)	2	2	2.345	0.1273								
148	Total S (1%)	35	35	2.726	0.5649	2.751	0.3375	0.5485	0.1159	19.94%	3.79	0.0532	3.43%
149	S - HNO3 soluble (%)	3	3	3.106	0.1293	3.106		0.1293	0.0933	4.16%		0.0535	3.37%
151	Acid Soluble As (ppm)	10	5	0.8508	0.7697	0.8508		0.7697	0.4303	90.47%		0.1108	16.39%
165	Acid Soluble B (%)	7	4	0.0004	0.0004	0.0004	0.0031	0.0004	0.0003	94.85%	0.31	0.0001	12.87%
181	Acid Soluble Cd (ppm)	10	6	0.2603	0.4149	0.2055		0.3361	0.1715	163.53%		0.1504	20.30%
191	Acid Soluble Cr (ppm)	12	11	5.833	2.748	5.870		2.833	1.068	48.27%		0.8899	12.26%
202	Acid Soluble Co (ppm)	15	13	2.005	1.054	1.943	1.5828	0.8205	0.2845	42.23%	1.21	0.2605	14.48%
221	Acid Soluble Cu (%)	20	16	0.0027	0.0046	0.0014	0.0051	0.0005	0.0001	33.05%	0.21	0.0024	10.71%
241	Acid Soluble Fe (%)	16	15	0.0454	0.0128	0.0446	0.0095	0.0125	0.0040	28.15%	3.09	0.0112	6.39%
251	Acid Soluble Pb (ppm)	14	12	3.508	1.662	3.382		1.132	0.4086	33.48%		0.7522	13.32%
261	Acid Soluble Mn (%)	14	12	0.0019	0.0009	0.0018	0.0052	0.0007	0.0002	38.11%	0.31	0.0003	10.35%
281	Acid Soluble Hg (ppm)	4	0	0.0000		0.0018		0.0007		38.11%		0.0000	41.41%
289	Acid Soluble Mo (ppm)	12	10	10.47	18.76	4.599	2.3796	7.499	2.964	163.07%	7.34	1.508	12.71%
291	Acid Soluble Ni (ppm)	12	11	2.883	0.8501	2.852		0.8938	0.3369	31.34%		0.7523	13.66%
301	Acid Soluble Se (ppm)	8	6	2.790	4.536	1.377		1.393	0.7107	101.13%		0.1648	15.24%
311	Sodium (%)	5	5	0.7257	0.0688	0.7257	0.0776	0.0688	0.0385	9.48%	2.07	0.0090	4.20%
321	Acid Soluble Zn (%)	24	21	0.0095	0.0009	0.0095	0.0060	0.0009	0.0002	9.43%	0.35	0.0007	8.06%

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 # 200511	
Analyte Code	

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 200511

Grade 8-5-5 Organic

### Lab Values

# Analytes: 31

# Labs Reporting: 70

Issue Date : 06/30/2020

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 N (%)	0423	0.0200	0.0000	0.3865	0.3879	0.0196	13	-0.94	001.99	0
001	Ammoniacal N (%)	0524	0.0340	0.0000	0.3865	0.3879	0.0196	13	-0.91	001.99	0
001	Ammoniacal N (%)	0230	0.0350	0.0100	0.3865	0.3879	0.0196	13	-0.91	001.10	0
001	Ammoniacal N (%)	0546	0.0750	0.0100	0.3865	0.3879	0.0196	13	-0.80	001.99	0
001	Ammoniacal N (%)	0136	0.1000	0.0000	0.3865	0.3879	0.0196	13	-0.74	001.10	0
001	Ammoniacal N (%)	0096	0.2800	0.0600	0.3865	0.3879	0.0196	13	-0.27	001.99	0
001	Ammoniacal N (%)	0564	0.3850	0.0300	0.3865	0.3879	0.0196	13	0.00	001.99	0
001	Ammoniacal N (%)	0565	0.3900	0.0200	0.3865	0.3879	0.0196	13	0.01	001.99	0
001	Ammoniacal N (%)	0553	0.3925	0.0530	0.3865	0.3879	0.0196	13	0.02	001.99	0
001	Ammoniacal N (%)	0255	0.6630	0.0120	0.3865	0.3879	0.0196	13	0.71	001.99	0
001	Ammoniacal N (%)	0405	0.7850	0.0100	0.3865	0.3879	0.0196	13	1.03	001.99	0
001	Ammoniacal N (%)	0117	0.9250	0.0500	0.3865	0.3879	0.0196	13	1.39	001.10	0
001	Ammoniacal N (%)	0220	0.9400	0.0000	0.3865	0.3879	0.0196	13	1.43	001.99	0
001	Ammoniacal N (%)	0513	8.340	0.0200	0.3865	0.3879	0.0196	13	20.50	001.99	2
003	Water Insoluble N (%)	0230	6.875	0.0300	7.185	0.3420	0.1575	8	-0.83	003.99	0
003	Water Insoluble N (%)	0029	6.920	0.2200	7.185	0.3420	0.1575	8	-0.71	003.10	0
003	Water Insoluble N (%)	0565	6.920	0.0400	7.185	0.3420	0.1575	8	-0.71	003.99	0
003	Water Insoluble N (%)	0564	6.925	0.0500	7.185	0.3420	0.1575	8	-0.70	003.99	0
003	Water Insoluble N (%)	0451	7.325	0.1500	7.185	0.3420	0.1575	8	0.37	003.10	0
003	Water Insoluble N (%)	0136	7.450	0.5000	7.185	0.3420	0.1575	8	0.71	003.10	0
003	Water Insoluble N (%)	0027	7.510	0.2600	7.185	0.3420	0.1575	8	0.87	003.10	0
003	Water Insoluble N (%)	0220	7.555	0.0100	7.185	0.3420	0.1575	8	0.99	003.10	0
010	Total N (8%)	0023	7.900†	0.2000	8.635	0.1339	0.0797	59	-5.49	010.60	0
010	Total N (8%)	0538	8.040†	0.1200	8.635	0.1339	0.0797	59	-4.44	010.99	0
010	Total N (8%)	0117	8.060†	0.1400	8.635	0.1339	0.0797	59	-4.29	010.12	0
010	Total N (8%)	0564	8.150	0.1000	8.635	0.1339	0.0797	59	-3.62	010.99	0
010	Total N (8%)	0556	8.175	0.0500	8.635	0.1339	0.0797	59	-3.43	010.99	0
010	Total N (8%)	0565	8.205	0.0100	8.635	0.1339	0.0797	59	-3.21	010.99	0
010	Total N (8%)	0537	8.260	0.2400	8.635	0.1339	0.0797	59	-2.80	010.99	0
010	Total N (8%)	0444	8.445	0.1100	8.635	0.1339	0.0797	59	-1.42	010.60	0
010	Total N (8%)	0546	8.490	0.0400	8.635	0.1339	0.0797	59	-1.08	010.11	0
010	Total N (8%)	0095	8.525	0.0100	8.635	0.1339	0.0797	59	-0.82	010.60	0
010	Total N (8%)	0231	8.530	0.0200	8.635	0.1339	0.0797	59	-0.78	010.60	0
010	Total N (8%)	0055	8.530	0.0400	8.635	0.1339	0.0797	59	-0.78	010.60	0
010	Total N (8%)	0114	8.535	0.0100	8.635	0.1339	0.0797	59	-0.74	010.60	0
010	Total N (8%)	0220	8.545	0.0100	8.635	0.1339	0.0797	59	-0.67	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 N (8%)	0567	8.550	0.1000	8.635	0.1339	0.0797	59	-0.63	010.99	0
010	Total N (8%)	0524	8.555	0.0608	8.635	0.1339	0.0797	59	-0.60	010.99	0
010	Total N (8%)	0018	8.565	0.0300	8.635	0.1339	0.0797	59	-0.52	010.60	0
010	Total N (8%)	0485	8.567	0.0679	8.635	0.1339	0.0797	59	-0.50	010.60	0
010	Total N (8%)	0035	8.570	0.0600	8.635	0.1339	0.0797	59	-0.48	010.60	0
010	Total N (8%)	0390	8.575	0.1100	8.635	0.1339	0.0797	59	-0.45	010.60	0
010	Total N (8%)	0545	8.575	0.1500	8.635	0.1339	0.0797	59	-0.45	010.99	0
010	Total N (8%)	0230	8.600	0.0000	8.635	0.1339	0.0797	59	-0.26	010.60	0
010	Total N (8%)	0029	8.602	0.1370	8.635	0.1339	0.0797	59	-0.25	010.60	0
010	Total N (8%)	0542	8.614	0.0740	8.635	0.1339	0.0797	59	-0.15	010.60	0
010	Total N (8%)	0043	8.615	0.0900	8.635	0.1339	0.0797	59	-0.15	010.60	0
010	Total N (8%)	0472	8.620	0.0200	8.635	0.1339	0.0797	59	-0.11	010.60	0
010	Total N (8%)	0561	8.635	0.0700	8.635	0.1339	0.0797	59	0.00	010.60	0
010	Total N (8%)	0096	8.640	0.0200	8.635	0.1339	0.0797	59	0.04	010.60	0
010	Total N (8%)	0354	8.645	0.0100	8.635	0.1339	0.0797	59	0.08	010.60	0
010	Total N (8%)	0049	8.650	0.1000	8.635	0.1339	0.0797	59	0.12	010.60	0
010	Total N (8%)	0389	8.650	0.0600	8.635	0.1339	0.0797	59	0.12	010.60	0
010	Total N (8%)	0073	8.665	0.0100	8.635	0.1339	0.0797	59	0.23	010.60	0
010	Total N (8%)	0024	8.670	0.0600	8.635	0.1339	0.0797	59	0.26	010.60	0
010	Total N (8%)	0255	8.674	0.0500	8.635	0.1339	0.0797	59	0.29	010.60	0
010	Total N (8%)	0547	8.675	0.0700	8.635	0.1339	0.0797	59	0.30	010.60	0
010	Total N (8%)	0177	8.679	0.0500	8.635	0.1339	0.0797	59	0.33	010.60	0
010	Total N (8%)	0324	8.680	0.0800	8.635	0.1339	0.0797	59	0.34	010.60	0
010	Total N (8%)	0527	8.681	0.0470	8.635	0.1339	0.0797	59	0.34	010.60	0
010	Total N (8%)	0292	8.690	0.0000	8.635	0.1339	0.0797	59	0.41	010.60	0
010	Total N (8%)	0025	8.692	0.1240	8.635	0.1339	0.0797	59	0.43	010.60	0
010	Total N (8%)	0443	8.695	0.0100	8.635	0.1339	0.0797	59	0.45	010.60	0
010	Total N (8%)	0136	8.700	0.0000	8.635	0.1339	0.0797	59	0.49	010.60	0
010	Total N (8%)	0422	8.700	0.2000	8.635	0.1339	0.0797	59	0.49	010.60	0
010	Total N (8%)	0523	8.700	0.2000	8.635	0.1339	0.0797	59	0.49	010.60	0
010	Total N (8%)	0233	8.712	0.0950	8.635	0.1339	0.0797	59	0.57	010.60	0
010	Total N (8%)	0360	8.715	0.0300	8.635	0.1339	0.0797	59	0.60	010.60	0
010	Total N (8%)	0405	8.725	0.0100	8.635	0.1339	0.0797	59	0.68	010.60	0
010	Total N (8%)	0562	8.735	0.2300	8.635	0.1339	0.0797	59	0.75	010.99	0
010	Total N (8%)	0377	8.740	0.0800	8.635	0.1339	0.0797	59	0.79	010.60	0
010	Total N (8%)	0402	8.745	0.0500	8.635	0.1339	0.0797	59	0.82	010.60	0
010	Total N (8%)	0027	8.758	0.1030	8.635	0.1339	0.0797	59	0.92	010.60	0
010	Total N (8%)	0423	8.758	0.0250	8.635	0.1339	0.0797	59	0.92	010.60	0
010	Total N (8%)	0040	8.800	0.0000	8.635	0.1339	0.0797	59	1.24	010.60	0
010	Total N (8%)	0543	8.822	0.0680	8.635	0.1339	0.0797	59	1.40	010.60	0
010	Total N (8%)	0041	8.827	0.0250	8.635	0.1339	0.0797	59	1.43	010.60	0
010	Total N (8%)	0325	8.860	0.0600	8.635	0.1339	0.0797	59	1.68	010.60	0
010	Total N (8%)	0451	9.042	0.3980	8.635	0.1339	0.0797	59	3.04	010.60	0
010	Total N (8%)	0516	9.115	0.1300	8.635	0.1339	0.0797	59	3.59	010.60	0
010	Total N (8%)	0102	9.660‡	0.2400	8.635	0.1339	0.0797	59	7.66	010.60	0
010	Total N (8%)	0560	6.610†	3.380	8.635	0.1339	0.0797	59	-15.13	010.99	2
020	Total P2O5 (%)	0524	3.887	0.0179	4.618	0.4540	0.1487	35	-1.61	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 P2O5 (%)	0422	3.900	0.2000	4.618	0.4540	0.1487	35	-1.58	020.50	0
020	Total P2O5 (%)	0516	3.964	0.6600	4.618	0.4540	0.1487	35	-1.44	020.50	0
020	Total P2O5 (%)	0523	4.150	0.1000	4.618	0.4540	0.1487	35	-1.03	020.50	0
020	Total P2O5 (%)	0049	4.240	0.1000	4.618	0.4540	0.1487	35	-0.83	020.10	0
020	Total P2O5 (%)	0405	4.245	0.0500	4.618	0.4540	0.1487	35	-0.82	020.20	0
020	Total P2O5 (%)	0027	4.260	0.1200	4.618	0.4540	0.1487	35	-0.79	020.20	0
020	Total P2O5 (%)	0472	4.260	0.0200	4.618	0.4540	0.1487	35	-0.79	020.50	0
020	Total P2O5 (%)	0552	4.290	0.3000	4.618	0.4540	0.1487	35	-0.72	020.50	0
020	Total P2O5 (%)	0114	4.365	0.0900	4.618	0.4540	0.1487	35	-0.56	020.10	0
020	Total P2O5 (%)	0390	4.375	0.0900	4.618	0.4540	0.1487	35	-0.53	020.50	0
020	Total P2O5 (%)	0513	4.375	0.0100	4.618	0.4540	0.1487	35	-0.53	020.99	0
020	Total P2O5 (%)	0231	4.400	0.0000	4.618	0.4540	0.1487	35	-0.48	020.20	0
020	Total P2O5 (%)	0543	4.428	0.3780	4.618	0.4540	0.1487	35	-0.42	020.50	0
020	Total P2O5 (%)	0561	4.450	0.0600	4.618	0.4540	0.1487	35	-0.37	020.20	0
020	Total P2O5 (%)	0177	4.454	0.0790	4.618	0.4540	0.1487	35	-0.36	020.20	0
020	Total P2O5 (%)	0423	4.560	0.0600	4.618	0.4540	0.1487	35	-0.13	020.50	0
020	Total P2O5 (%)	0444	4.585	0.0300	4.618	0.4540	0.1487	35	-0.07	020.50	0
020	Total P2O5 (%)	0324	4.615	0.4700	4.618	0.4540	0.1487	35	-0.01	020.20	0
020	Total P2O5 (%)	0096	4.615	0.4300	4.618	0.4540	0.1487	35	-0.01	020.40	0
020	Total P2O5 (%)	0547	4.705	0.0300	4.618	0.4540	0.1487	35	0.19	020.50	0
020	Total P2O5 (%)	0231	4.765	0.0500	4.618	0.4540	0.1487	35	0.32	020.50	0
020	Total P2O5 (%)	0292	4.800	0.0200	4.618	0.4540	0.1487	35	0.40	020.20	0
020	Total P2O5 (%)	0389	4.815	0.0100	4.618	0.4540	0.1487	35	0.43	020.50	0
020	Total P2O5 (%)	0565	4.910	0.0200	4.618	0.4540	0.1487	35	0.64	020.99	0
020	Total P2O5 (%)	0564	4.925	0.0500	4.618	0.4540	0.1487	35	0.68	020.99	0
020	Total P2O5 (%)	0546	4.927	0.0310	4.618	0.4540	0.1487	35	0.68	020.50	0
020	Total P2O5 (%)	0035	4.955	0.3700	4.618	0.4540	0.1487	35	0.74	020.40	0
020	Total P2O5 (%)	0562	4.975	0.1500	4.618	0.4540	0.1487	35	0.79	020.99	0
020	Total P2O5 (%)	0567	4.985	0.0500	4.618	0.4540	0.1487	35	0.81	020.99	0
020	Total P2O5 (%)	0527	5.163	0.1543	4.618	0.4540	0.1487	35	1.20	020.50	0
020	Total P2O5 (%)	0443	5.340	0.1200	4.618	0.4540	0.1487	35	1.59	020.99	0
020	Total P2O5 (%)	0255	5.442	0.7760	4.618	0.4540	0.1487	35	1.82	020.50	0
020	Total P2O5 (%)	0553	5.445	0.0700	4.618	0.4540	0.1487	35	1.82	020.20	0
020	Total P2O5 (%)	0402	5.540	0.0400	4.618	0.4540	0.1487	35	2.03	020.50	0
020	Total P2O5 (%)	0515	5.783	1.447	4.618	0.4540	0.1487	35	2.57	020.99	1
020	Total P2O5 (%)	0433	13.42	0.0200	4.618	0.4540	0.1487	35	19.39	020.50	2
030	Citrate Insoluble P2O5 (%)	0096	0.7400	0.0600				1		030.40	0
040	Indirect Available P2O5 (5%)	0096	3.870‡	0.4800				1		040.40	0
041	Direct Available P2O5 (5%)	0095	1.840†	0.0600	4.193	0.5776	0.0870	34	-4.07	041.40	0
041	Direct Available P2O5 (5%)	0027	1.845†	0.1300	4.193	0.5776	0.0870	34	-4.07	041.20	0
041	Direct Available P2O5 (5%)	0055	2.970†	0.0200	4.193	0.5776	0.0870	34	-2.12	041.11	0
041	Direct Available P2O5 (5%)	0325	3.150†	0.1000	4.193	0.5776	0.0870	34	-1.81	041.50	0
041	Direct Available P2O5 (5%)	0025	3.395†	0.0100	4.193	0.5776	0.0870	34	-1.38	041.51	0
041	Direct Available P2O5 (5%)	0023	3.750	0.1000	4.193	0.5776	0.0870	34	-0.77	041.51	0
041	Direct Available P2O5 (5%)	0423	3.805	0.0700	4.193	0.5776	0.0870	34	-0.67	041.51	0
041	Direct Available P2O5 (5%)	0102	3.850	0.1000	4.193	0.5776	0.0870	34	-0.59	041.10	0
041	Direct Available P2O5 (5%)	0231	3.880	0.0400	4.193	0.5776	0.0870	34	-0.54	041.21	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 P2O5 (5%)	0024	3.920	0.0200	4.193	0.5776	0.0870	34	-0.47	041.40	0
041	Direct Available P2O5 (5%)	0513	3.985	0.0700	4.193	0.5776	0.0870	34	-0.36	041.11	0
041	Direct Available P2O5 (5%)	0472	4.010	0.0800	4.193	0.5776	0.0870	34	-0.32	041.21	0
041	Direct Available P2O5 (5%)	0231	4.045	0.0100	4.193	0.5776	0.0870	34	-0.26	041.50	0
041	Direct Available P2O5 (5%)	0117	4.119	0.0457	4.193	0.5776	0.0870	34	-0.13	041.51	0
041	Direct Available P2O5 (5%)	0351	4.120	0.2000	4.193	0.5776	0.0870	34	-0.13	041.11	0
041	Direct Available P2O5 (5%)	0029	4.135	0.0500	4.193	0.5776	0.0870	34	-0.10	041.40	0
041	Direct Available P2O5 (5%)	0377	4.225	0.0700	4.193	0.5776	0.0870	34	0.06	041.51	0
041	Direct Available P2O5 (5%)	0485	4.247	0.1023	4.193	0.5776	0.0870	34	0.09	041.11	0
041	Direct Available P2O5 (5%)	0405	4.290	0.2000	4.193	0.5776	0.0870	34	0.17	041.21	0
041	Direct Available P2O5 (5%)	0040	4.300	0.2000	4.193	0.5776	0.0870	34	0.18	041.51	0
041	Direct Available P2O5 (5%)	0230	4.325	0.1700	4.193	0.5776	0.0870	34	0.23	041.21	0
041	Direct Available P2O5 (5%)	0136	4.350	0.1000	4.193	0.5776	0.0870	34	0.27	041.51	0
041	Direct Available P2O5 (5%)	0055	4.360	0.0200	4.193	0.5776	0.0870	34	0.29	041.21	0
041	Direct Available P2O5 (5%)	0360	4.360	0.0200	4.193	0.5776	0.0870	34	0.29	041.51	0
041	Direct Available P2O5 (5%)	0018	4.420	0.0800	4.193	0.5776	0.0870	34	0.39	041.40	0
041	Direct Available P2O5 (5%)	0220	4.450	0.0200	4.193	0.5776	0.0870	34	0.44	041.11	0
041	Direct Available P2O5 (5%)	0073	4.455	0.1500	4.193	0.5776	0.0870	34	0.45	041.11	0
041	Direct Available P2O5 (5%)	0043	4.675	0.1100	4.193	0.5776	0.0870	34	0.83	041.51	0
041	Direct Available P2O5 (5%)	0537	4.815	0.1500	4.193	0.5776	0.0870	34	1.08	041.99	0
041	Direct Available P2O5 (5%)	0562	4.850	0.1000	4.193	0.5776	0.0870	34	1.14	041.99	0
041	Direct Available P2O5 (5%)	0538	4.985‡	0.0500	4.193	0.5776	0.0870	34	1.37	041.99	0
041	Direct Available P2O5 (5%)	0531	5.020‡	0.0200	4.193	0.5776	0.0870	34	1.43	041.99	0
041	Direct Available P2O5 (5%)	0560	5.205‡	0.0500	4.193	0.5776	0.0870	34	1.75	041.99	0
041	Direct Available P2O5 (5%)	0354	5.300‡	0.2400	4.193	0.5776	0.0870	34	1.92	041.21	0
048	Water Soluble P2O5 (%)	0096	0.6600	0.0200				2		048.40	0
048	Water Soluble P2O5 (%)	0556	5.115	0.0300				2		048.99	0
050	Soluble K2O (5%)	0433	2.415†	0.0300	6.706	0.8018	0.1489	61	-5.35	050.99	0
050	Soluble K2O (5%)	0220	4.715†	0.2100	6.706	0.8018	0.1489	61	-2.48	050.00	0
050	Soluble K2O (5%)	0443	4.815†	0.1300	6.706	0.8018	0.1489	61	-2.36	050.60	0
050	Soluble K2O (5%)	0102	5.000†	0.0000	6.706	0.8018	0.1489	61	-2.13	050.00	0
050	Soluble K2O (5%)	0049	5.030†	0.1400	6.706	0.8018	0.1489	61	-2.09	050.00	0
050	Soluble K2O (5%)	0531	5.075†	0.0500	6.706	0.8018	0.1489	61	-2.03	050.99	0
050	Soluble K2O (5%)	0515	5.212†	0.0998	6.706	0.8018	0.1489	61	-1.86	050.99	0
050	Soluble K2O (5%)	0556	5.295†	0.0700	6.706	0.8018	0.1489	61	-1.76	050.99	0
050	Soluble K2O (5%)	0560	5.300†	0.0800	6.706	0.8018	0.1489	61	-1.75	050.99	0
050	Soluble K2O (5%)	0537	5.505†	0.3700	6.706	0.8018	0.1489	61	-1.50	050.99	0
050	Soluble K2O (5%)	0405	5.745†	0.0300	6.706	0.8018	0.1489	61	-1.20	050.00	0
050	Soluble K2O (5%)	0538	5.930†	0.1600	6.706	0.8018	0.1489	61	-0.97	050.99	0
050	Soluble K2O (5%)	0547	6.200	0.1200	6.706	0.8018	0.1489	61	-0.63	050.99	0
050	Soluble K2O (5%)	0231	6.220	0.0200	6.706	0.8018	0.1489	61	-0.61	050.00	0
050	Soluble K2O (5%)	0543	6.229	0.3600	6.706	0.8018	0.1489	61	-0.59	050.52	0
050	Soluble K2O (5%)	0023	6.275	0.0500	6.706	0.8018	0.1489	61	-0.54	050.52	0
050	Soluble K2O (5%)	0390	6.300	0.5000	6.706	0.8018	0.1489	61	-0.51	050.50	0
050	Soluble K2O (5%)	0565	6.350	0.0200	6.706	0.8018	0.1489	61	-0.44	050.99	0
050	Soluble K2O (5%)	0422	6.355	0.1300	6.706	0.8018	0.1489	61	-0.44	050.50	0
050	Soluble K2O (5%)	0564	6.380	0.0400	6.706	0.8018	0.1489	61	-0.41	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 K2O (5%)	0523	6.400	0.0000	6.706	0.8018	0.1489	61	-0.38	050.99	0
050	Soluble K2O (5%)	0055	6.500	0.2600	6.706	0.8018	0.1489	61	-0.26	050.00	0
050	Soluble K2O (5%)	0524	6.595	0.2002	6.706	0.8018	0.1489	61	-0.14	050.99	0
050	Soluble K2O (5%)	0552	6.645	0.0500	6.706	0.8018	0.1489	61	-0.08	050.99	0
050	Soluble K2O (5%)	0472	6.655	0.3300	6.706	0.8018	0.1489	61	-0.06	050.31	0
050	Soluble K2O (5%)	0516	6.769	0.8380	6.706	0.8018	0.1489	61	0.08	050.99	0
050	Soluble K2O (5%)	0096	6.805	0.0100	6.706	0.8018	0.1489	61	0.12	050.99	0
050	Soluble K2O (5%)	0177	6.845	0.0154	6.706	0.8018	0.1489	61	0.17	050.99	0
050	Soluble K2O (5%)	0025	6.905	0.0500	6.706	0.8018	0.1489	61	0.25	050.52	0
050	Soluble K2O (5%)	0035	6.910	0.2600	6.706	0.8018	0.1489	61	0.25	050.61	0
050	Soluble K2O (5%)	0567	6.925	0.0500	6.706	0.8018	0.1489	61	0.27	050.99	0
050	Soluble K2O (5%)	0485	6.940	0.1460	6.706	0.8018	0.1489	61	0.29	050.52	0
050	Soluble K2O (5%)	0292	6.945	0.0100	6.706	0.8018	0.1489	61	0.30	050.50	0
050	Soluble K2O (5%)	0562	6.950	0.2000	6.706	0.8018	0.1489	61	0.30	050.99	0
050	Soluble K2O (5%)	0024	6.985	0.0500	6.706	0.8018	0.1489	61	0.35	050.62	0
050	Soluble K2O (5%)	0389	7.010	0.0200	6.706	0.8018	0.1489	61	0.38	050.99	0
050	Soluble K2O (5%)	0561	7.025	0.0100	6.706	0.8018	0.1489	61	0.40	050.99	0
050	Soluble K2O (5%)	0255	7.032	0.2750	6.706	0.8018	0.1489	61	0.41	050.99	0
050	Soluble K2O (5%)	0136	7.050	0.1000	6.706	0.8018	0.1489	61	0.43	050.52	0
050	Soluble K2O (5%)	0546	7.070	0.1590	6.706	0.8018	0.1489	61	0.45	050.99	0
050	Soluble K2O (5%)	0043	7.070	0.3400	6.706	0.8018	0.1489	61	0.45	050.52	0
050	Soluble K2O (5%)	0018	7.070	0.1000	6.706	0.8018	0.1489	61	0.45	050.62	0
050	Soluble K2O (5%)	0423	7.099	0.0420	6.706	0.8018	0.1489	61	0.49	050.52	0
050	Soluble K2O (5%)	0029	7.132	0.0940	6.706	0.8018	0.1489	61	0.53	050.62	0
050	Soluble K2O (5%)	0117	7.167	0.0882	6.706	0.8018	0.1489	61	0.58	050.52	0
050	Soluble K2O (5%)	0354	7.185	0.2300	6.706	0.8018	0.1489	61	0.60	050.52	0
050	Soluble K2O (5%)	0377	7.185	0.0500	6.706	0.8018	0.1489	61	0.60	050.52	0
050	Soluble K2O (5%)	0501	7.200	0.0000	6.706	0.8018	0.1489	61	0.62	050.99	0
050	Soluble K2O (5%)	0220	7.205	0.4100	6.706	0.8018	0.1489	61	0.62	050.99	0
050	Soluble K2O (5%)	0073	7.230‡	0.1200	6.706	0.8018	0.1489	61	0.65	050.30	0
050	Soluble K2O (5%)	0360	7.235‡	0.0100	6.706	0.8018	0.1489	61	0.66	050.52	0
050	Soluble K2O (5%)	0324	7.245‡	0.4500	6.706	0.8018	0.1489	61	0.67	050.50	0
050	Soluble K2O (5%)	0553	7.260‡	0.1800	6.706	0.8018	0.1489	61	0.69	050.99	0
050	Soluble K2O (5%)	0095	7.440‡	0.1200	6.706	0.8018	0.1489	61	0.92	050.62	0
050	Soluble K2O (5%)	0444	7.455‡	0.0100	6.706	0.8018	0.1489	61	0.93	050.50	0
050	Soluble K2O (5%)	0040	7.650‡	0.1000	6.706	0.8018	0.1489	61	1.18	050.30	0
050	Soluble K2O (5%)	0027	7.755‡	0.0100	6.706	0.8018	0.1489	61	1.31	050.99	0
050	Soluble K2O (5%)	0513	7.760‡	0.0800	6.706	0.8018	0.1489	61	1.32	050.62	0
050	Soluble K2O (5%)	0527	8.013‡	0.3339	6.706	0.8018	0.1489	61	1.63	050.99	0
050	Soluble K2O (5%)	0055	8.110‡	0.5800	6.706	0.8018	0.1489	61	1.75	050.50	0
050	Soluble K2O (5%)	0402	8.225‡	0.0900	6.706	0.8018	0.1489	61	1.90	050.99	0
050	Soluble K2O (5%)	0114	6.290	1.040	6.706	0.8018	0.1489	61	-0.52	050.00	1
050	Soluble K2O (5%)	0325	6.550	0.9000	6.706	0.8018	0.1489	61	-0.19	050.99	1
060	Water (Free) (%)	0513	2.160	0.1000				2		060.00	0
060	Water (Free) (%)	0096	4.985	0.6900				2		060.00	0
101	Acid Soluble Ca (4.5%)	0405	3.175†	0.3100	3.824	0.2615	0.0968	39	-2.48	101.99	0
101	Acid Soluble Ca (4.5%)	0177	3.366†	0.0769	3.824	0.2615	0.0968	39	-1.75	101.33	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				
101	Acid Soluble Ca (4.5%)	0543	3.492	0.1640	3.824	0.2615	0.0968	39	-1.27	101.33	0
101	Acid Soluble Ca (4.5%)	0220	3.515	0.1300	3.824	0.2615	0.0968	39	-1.18	101.30	0
101	Acid Soluble Ca (4.5%)	0561	3.540	0.0800	3.824	0.2615	0.0968	39	-1.08	101.33	0
101	Acid Soluble Ca (4.5%)	0501	3.545	0.0500	3.824	0.2615	0.0968	39	-1.07	101.99	0
101	Acid Soluble Ca (4.5%)	0552	3.605	0.1900	3.824	0.2615	0.0968	39	-0.84	101.99	0
101	Acid Soluble Ca (4.5%)	0136	3.635	0.0100	3.824	0.2615	0.0968	39	-0.72	101.33	0
101	Acid Soluble Ca (4.5%)	0157	3.640	0.1400	3.824	0.2615	0.0968	39	-0.70	101.00	0
101	Acid Soluble Ca (4.5%)	0055	3.640	0.0600	3.824	0.2615	0.0968	39	-0.70	101.33	0
101	Acid Soluble Ca (4.5%)	0390	3.640	0.0600	3.824	0.2615	0.0968	39	-0.70	101.99	0
101	Acid Soluble Ca (4.5%)	0292	3.645	0.0500	3.824	0.2615	0.0968	39	-0.68	101.33	0
101	Acid Soluble Ca (4.5%)	0117	3.691	0.0732	3.824	0.2615	0.0968	39	-0.51	101.33	0
101	Acid Soluble Ca (4.5%)	0043	3.695	0.0100	3.824	0.2615	0.0968	39	-0.49	101.33	0
101	Acid Soluble Ca (4.5%)	0231	3.710	0.0400	3.824	0.2615	0.0968	39	-0.43	101.31	0
101	Acid Soluble Ca (4.5%)	0377	3.720	0.2400	3.824	0.2615	0.0968	39	-0.40	101.30	0
101	Acid Soluble Ca (4.5%)	0360	3.740	0.0400	3.824	0.2615	0.0968	39	-0.32	101.30	0
101	Acid Soluble Ca (4.5%)	0423	3.765	0.0100	3.824	0.2615	0.0968	39	-0.22	101.32	0
101	Acid Soluble Ca (4.5%)	0354	3.825	0.0100	3.824	0.2615	0.0968	39	0.01	101.30	0
101	Acid Soluble Ca (4.5%)	0096	3.840	0.0700	3.824	0.2615	0.0968	39	0.06	101.30	0
101	Acid Soluble Ca (4.5%)	0040	3.845	0.1100	3.824	0.2615	0.0968	39	0.08	101.33	0
101	Acid Soluble Ca (4.5%)	0073	3.845	0.4500	3.824	0.2615	0.0968	39	0.08	101.30	0
101	Acid Soluble Ca (4.5%)	0444	3.865	0.0100	3.824	0.2615	0.0968	39	0.16	101.30	0
101	Acid Soluble Ca (4.5%)	0472	3.875	0.0100	3.824	0.2615	0.0968	39	0.20	101.30	0
101	Acid Soluble Ca (4.5%)	0433	3.908	0.0150	3.824	0.2615	0.0968	39	0.32	101.30	0
101	Acid Soluble Ca (4.5%)	0389	3.925	0.0100	3.824	0.2615	0.0968	39	0.39	101.99	0
101	Acid Soluble Ca (4.5%)	0546	3.955	0.0605	3.824	0.2615	0.0968	39	0.50	101.03	0
101	Acid Soluble Ca (4.5%)	0029	3.957	0.1520	3.824	0.2615	0.0968	39	0.51	101.00	0
101	Acid Soluble Ca (4.5%)	0035	3.985	0.4100	3.824	0.2615	0.0968	39	0.62	101.30	0
101	Acid Soluble Ca (4.5%)	0324	3.995	0.0500	3.824	0.2615	0.0968	39	0.66	101.30	0
101	Acid Soluble Ca (4.5%)	0095	4.000	0.0800	3.824	0.2615	0.0968	39	0.67	101.32	0
101	Acid Soluble Ca (4.5%)	0027	4.020	0.1100	3.824	0.2615	0.0968	39	0.75	101.99	0
101	Acid Soluble Ca (4.5%)	0041	4.035	0.0900	3.824	0.2615	0.0968	39	0.81	101.30	0
101	Acid Soluble Ca (4.5%)	0553	4.085	0.1100	3.824	0.2615	0.0968	39	1.00	101.00	0
101	Acid Soluble Ca (4.5%)	0564	4.375‡	0.0500	3.824	0.2615	0.0968	39	2.11	101.99	0
101	Acid Soluble Ca (4.5%)	0513	4.380‡	0.1000	3.824	0.2615	0.0968	39	2.13	101.00	0
101	Acid Soluble Ca (4.5%)	0527	4.557‡	0.0644	3.824	0.2615	0.0968	39	2.81	101.33	0
101	Acid Soluble Ca (4.5%)	0565	4.630‡	0.0600	3.824	0.2615	0.0968	39	3.08	101.99	0
101	Acid Soluble Ca (4.5%)	0402	4.750‡	0.0200	3.824	0.2615	0.0968	39	3.54	101.30	0
101	Acid Soluble Ca (4.5%)	0255	4.553‡	0.8590	3.824	0.2615	0.0968	39	2.79	101.30	1
121	Acid Soluble Mg (%)	0524	0.1427	0.0079	0.1968	0.0235	0.0071	16	-2.30	121.99	0
121	Acid Soluble Mg (%)	0472	0.1600	0.0000	0.1968	0.0235	0.0071	16	-1.57	121.30	0
121	Acid Soluble Mg (%)	0136	0.1800	0.0000	0.1968	0.0235	0.0071	16	-0.71	121.33	0
121	Acid Soluble Mg (%)	0423	0.1870	0.0020	0.1968	0.0235	0.0071	16	-0.42	121.32	0
121	Acid Soluble Mg (%)	0096	0.1900	0.0000	0.1968	0.0235	0.0071	16	-0.29	121.30	0
121	Acid Soluble Mg (%)	0220	0.1900	0.0000	0.1968	0.0235	0.0071	16	-0.29	121.30	0
121	Acid Soluble Mg (%)	0354	0.1900	0.0000	0.1968	0.0235	0.0071	16	-0.29	121.30	0
121	Acid Soluble Mg (%)	0389	0.1900	0.0000	0.1968	0.0235	0.0071	16	-0.29	121.99	0
121	Acid Soluble Mg (%)	0515	0.1907	0.0094	0.1968	0.0235	0.0071	16	-0.26	121.33	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				
121	Acid Soluble Mg (%)	0523	0.2000	0.0000	0.1968	0.0235	0.0071	16	0.14	121.99	0
121	Acid Soluble Mg (%)	0516	0.2040	0.0060	0.1968	0.0235	0.0071	16	0.31	121.99	0
121	Acid Soluble Mg (%)	0035	0.2085	0.0070	0.1968	0.0235	0.0071	16	0.50	121.30	0
121	Acid Soluble Mg (%)	0515	0.2135	0.0235	0.1968	0.0235	0.0071	16	0.71	121.99	0
121	Acid Soluble Mg (%)	0041	0.2200	0.0200	0.1968	0.0235	0.0071	16	0.99	121.30	0
121	Acid Soluble Mg (%)	0552	0.2300	0.0200	0.1968	0.0235	0.0071	16	1.41	121.99	0
121	Acid Soluble Mg (%)	0527	0.2439	0.0184	0.1968	0.0235	0.0071	16	2.00	121.33	0
121	Acid Soluble Mg (%)	0553	0.6525	0.0950	0.1968	0.0235	0.0071	16	19.38	121.00	2
143	Elemental S (%)	0389	2.170	0.0200	2.763	0.3971	0.0635	4	-1.49	143.99	0
143	Elemental S (%)	0472	2.920	0.0200	2.763	0.3971	0.0635	4	0.40	143.99	0
143	Elemental S (%)	0255	2.953	0.0550	2.763	0.3971	0.0635	4	0.48	143.99	0
143	Elemental S (%)	0390	3.010	0.1590	2.763	0.3971	0.0635	4	0.62	143.99	0
145	Sulfate S, HCl soluble (%)	0561	2.255	0.0500				2		145.00	0
145	Sulfate S, HCl soluble (%)	0444	2.435	0.0100				2		145.99	0
148	Total S (1%)	0560	1.350†	0.0800	2.751	0.5485	0.0532	35	-2.55	148.99	0
148	Total S (1%)	0220	1.470†	0.0200	2.751	0.5485	0.0532	35	-2.34	148.99	0
148	Total S (1%)	0553	1.830†	0.1200	2.751	0.5485	0.0532	35	-1.68	148.99	0
148	Total S (1%)	0562	2.000†	0.2000	2.751	0.5485	0.0532	35	-1.37	148.99	0
148	Total S (1%)	0567	2.040†	0.0600	2.751	0.5485	0.0532	35	-1.30	148.99	0
148	Total S (1%)	0564	2.055†	0.0300	2.751	0.5485	0.0532	35	-1.27	148.99	0
148	Total S (1%)	0565	2.080†	0.0200	2.751	0.5485	0.0532	35	-1.22	148.99	0
148	Total S (1%)	0055	2.300†	0.0000	2.751	0.5485	0.0532	35	-0.82	148.01	0
148	Total S (1%)	0073	2.325†	0.0900	2.751	0.5485	0.0532	35	-0.78	148.01	0
148	Total S (1%)	0324	2.505	0.0700	2.751	0.5485	0.0532	35	-0.45	148.01	0
148	Total S (1%)	0523	2.555	0.0100	2.751	0.5485	0.0532	35	-0.36	148.99	0
148	Total S (1%)	0513	2.565	0.0300	2.751	0.5485	0.0532	35	-0.34	148.01	0
148	Total S (1%)	0444	2.570	0.1000	2.751	0.5485	0.0532	35	-0.33	148.07	0
148	Total S (1%)	0230	2.685	0.1300	2.751	0.5485	0.0532	35	-0.12	148.01	0
148	Total S (1%)	0515	2.728	0.0789	2.751	0.5485	0.0532	35	-0.04	148.07	0
148	Total S (1%)	0516	2.753	0.1040	2.751	0.5485	0.0532	35	0.00	148.99	0
148	Total S (1%)	0501	2.865	0.0500	2.751	0.5485	0.0532	35	0.21	148.99	0
148	Total S (1%)	0543	2.888	0.1240	2.751	0.5485	0.0532	35	0.25	148.07	0
148	Total S (1%)	0433	2.910	0.0130	2.751	0.5485	0.0532	35	0.29	148.99	0
148	Total S (1%)	0136	2.920	0.0400	2.751	0.5485	0.0532	35	0.31	148.00	0
148	Total S (1%)	0096	2.950	0.0200	2.751	0.5485	0.0532	35	0.36	148.99	0
148	Total S (1%)	0117	2.973	0.0412	2.751	0.5485	0.0532	35	0.40	148.07	0
148	Total S (1%)	0354	3.000	0.0200	2.751	0.5485	0.0532	35	0.45	148.99	0
148	Total S (1%)	0402	3.045	0.0100	2.751	0.5485	0.0532	35	0.54	148.07	0
148	Total S (1%)	0157	3.060	0.0200	2.751	0.5485	0.0532	35	0.56	148.00	0
148	Total S (1%)	0023	3.060	0.0200	2.751	0.5485	0.0532	35	0.56	148.07	0
148	Total S (1%)	0546	3.121‡	0.0691	2.751	0.5485	0.0532	35	0.68	148.07	0
148	Total S (1%)	0029	3.166‡	0.0030	2.751	0.5485	0.0532	35	0.76	148.00	0
148	Total S (1%)	0177	3.172‡	0.0245	2.751	0.5485	0.0532	35	0.77	148.07	0
148	Total S (1%)	0040	3.200‡	0.0000	2.751	0.5485	0.0532	35	0.82	148.07	0
148	Total S (1%)	0072	3.293‡	0.0038	2.751	0.5485	0.0532	35	0.99	148.99	0
148	Total S (1%)	0292	3.335‡	0.0300	2.751	0.5485	0.0532	35	1.07	148.07	0
148	Total S (1%)	0451	3.390‡	0.1400	2.751	0.5485	0.0532	35	1.17	148.00	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 S (1%)	0049	3.415±	0.0100	2.751	0.5485	0.0532	35	1.21	148.00	0
148	Total S (1%)	0527	3.836±	0.0789	2.751	0.5485	0.0532	35	1.98	148.07	0
149	S - HNO3 soluble (%)	0524	3.027	0.0405	3.106	0.1293	0.0535	3	-0.61	149.04	0
149	S - HNO3 soluble (%)	0423	3.035	0.0700	3.106	0.1293	0.0535	3	-0.55	149.04	0
149	S - HNO3 soluble (%)	0231	3.255	0.0500	3.106	0.1293	0.0535	3	1.15	149.04	0
151	Acid Soluble As (ppm)	0389	0.0830	0.0020	0.8508	0.7697	0.1108	5	-0.87	151.30	0
151	Acid Soluble As (ppm)	0255	0.1590	0.1060	0.8508	0.7697	0.1108	5	-0.78	151.30	0
151	Acid Soluble As (ppm)	0524	0.7120	0.2460	0.8508	0.7697	0.1108	5	-0.16	151.30	0
151	Acid Soluble As (ppm)	0220	1.600	0.0000	0.8508	0.7697	0.1108	5	0.85	151.99	0
151	Acid Soluble As (ppm)	0220	1.700	0.2000	0.8508	0.7697	0.1108	5	0.96	151.32	0
151	Acid Soluble As (ppm)	0515	0.0000	0.0000	0.8508	0.7697	0.1108	5		151.33	4
151	Acid Soluble As (ppm)	0515	0.0000	0.0000	0.8508	0.7697	0.1108	5		151.34	4
151	Acid Soluble As (ppm)	0527	< 0.0001		0.8508	0.7697	0.1108	5		151.33	5
151	Acid Soluble As (ppm)	0405	< 1		0.8508	0.7697	0.1108	5		151.99	5
151	Acid Soluble As (ppm)	0117	< 10		0.8508	0.7697	0.1108	5		151.33	5
165	Acid Soluble B (%)	0524	0.0001	0.0000	0.0004	0.0004	0.0001	4	-0.68	165.99	0
165	Acid Soluble B (%)	0523	0.0002	0.0000	0.0004	0.0004	0.0001	4	-0.47	165.99	0
165	Acid Soluble B (%)	0515	0.0004	0.0002	0.0004	0.0004	0.0001	4	-0.05	165.99	0
165	Acid Soluble B (%)	0516	0.0010	0.0000	0.0004	0.0004	0.0001	4	1.21	165.99	0
165	Acid Soluble B (%)	0552	0.0000	0.0000	0.0004	0.0004	0.0001	4		165.99	4
165	Acid Soluble B (%)	0527	< 0.001		0.0004	0.0004	0.0001	4		165.99	5
165	Acid Soluble B (%)	0354	< 0.01		0.0004	0.0004	0.0001	4		165.30	5
181	Acid Soluble Cd (ppm)	0255	0.0100	0.0020	0.2055	0.3361	0.1504	6	-0.52	181.30	0
181	Acid Soluble Cd (ppm)	0523	0.0208	0.0024	0.2055	0.3361	0.1504	6	-0.49	181.30	0
181	Acid Soluble Cd (ppm)	0405	0.0250	0.0100	0.2055	0.3361	0.1504	6	-0.48	181.99	0
181	Acid Soluble Cd (ppm)	0524	0.0357	0.0032	0.2055	0.3361	0.1504	6	-0.45	181.30	0
181	Acid Soluble Cd (ppm)	0515	0.4320	0.4643	0.2055	0.3361	0.1504	6	0.60	181.34	0
181	Acid Soluble Cd (ppm)	0515	1.038	0.4206	0.2055	0.3361	0.1504	6	2.21	181.33	0
181	Acid Soluble Cd (ppm)	0527	< 0.0001		0.2055	0.3361	0.1504	6		181.33	5
181	Acid Soluble Cd (ppm)	0220	< 0.1		0.2055	0.3361	0.1504	6		181.32	5
181	Acid Soluble Cd (ppm)	0220	< 0.1		0.2055	0.3361	0.1504	6		181.99	5
181	Acid Soluble Cd (ppm)	0117	< 5		0.2055	0.3361	0.1504	6		181.33	5
191	Acid Soluble Cr (ppm)	0389	0.7100	0.1200	5.870	2.833	0.8899	11	-1.82	191.30	0
191	Acid Soluble Cr (ppm)	0524	3.073	0.1684	5.870	2.833	0.8899	11	-0.99	191.30	0
191	Acid Soluble Cr (ppm)	0523	5.059	1.010	5.870	2.833	0.8899	11	-0.29	191.30	0
191	Acid Soluble Cr (ppm)	0220	5.350	0.3000	5.870	2.833	0.8899	11	-0.18	191.32	0
191	Acid Soluble Cr (ppm)	0220	5.400	0.0000	5.870	2.833	0.8899	11	-0.17	191.99	0
191	Acid Soluble Cr (ppm)	0096	5.700	0.0000	5.870	2.833	0.8899	11	-0.06	191.30	0
191	Acid Soluble Cr (ppm)	0117	5.822	0.4260	5.870	2.833	0.8899	11	-0.02	191.33	0
191	Acid Soluble Cr (ppm)	0527	6.118	0.3225	5.870	2.833	0.8899	11	0.09	191.33	0
191	Acid Soluble Cr (ppm)	0035	6.305	2.890	5.870	2.833	0.8899	11	0.15	191.30	0
191	Acid Soluble Cr (ppm)	0405	10.00	2.000	5.870	2.833	0.8899	11	1.46	191.99	0
191	Acid Soluble Cr (ppm)	0515	10.62	2.552	5.870	2.833	0.8899	11	1.68	191.34	0
191	Acid Soluble Cr (ppm)	0515	15.68	15.67	5.870	2.833	0.8899	11	3.46	191.33	1
202	Acid Soluble Co (ppm)	0389	0.1315	0.0050	1.943	0.8205	0.2605	13	-2.21	202.30	0
202	Acid Soluble Co (ppm)	0220	0.9750	0.0500	1.943	0.8205	0.2605	13	-1.18	202.32	0
202	Acid Soluble Co (ppm)	0523	1.459	0.2360	1.943	0.8205	0.2605	13	-0.59	202.30	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				
202	Acid Soluble Co (ppm)	0405	1.500	0.0000	1.943	0.8205	0.2605	13	-0.54	202.99	0
202	Acid Soluble Co (ppm)	0035	1.550	0.3400	1.943	0.8205	0.2605	13	-0.48	202.30	0
202	Acid Soluble Co (ppm)	0220	1.700	0.2000	1.943	0.8205	0.2605	13	-0.30	202.99	0
202	Acid Soluble Co (ppm)	0423	2.015	0.1500	1.943	0.8205	0.2605	13	0.09	202.32	0
202	Acid Soluble Co (ppm)	0255	2.123	0.0330	1.943	0.8205	0.2605	13	0.22	202.99	0
202	Acid Soluble Co (ppm)	0524	2.206	0.1143	1.943	0.8205	0.2605	13	0.32	202.30	0
202	Acid Soluble Co (ppm)	0096	2.300	0.0400	1.943	0.8205	0.2605	13	0.44	202.30	0
202	Acid Soluble Co (ppm)	0527	2.591	0.0859	1.943	0.8205	0.2605	13	0.79	202.33	0
202	Acid Soluble Co (ppm)	0515	2.952	0.5679	1.943	0.8205	0.2605	13	1.23	202.33	0
202	Acid Soluble Co (ppm)	0515	4.558	1.564	1.943	0.8205	0.2605	13	3.19	202.34	0
202	Acid Soluble Co (ppm)	0546	3.682	2.650	1.943	0.8205	0.2605	13	2.12	202.33	1
202	Acid Soluble Co (ppm)	0117	< 5		1.943	0.8205	0.2605	13		202.33	5
221	Acid Soluble Cu (%)	0255	0.0010	0.0000	0.0014	0.0005	0.0024	16	-0.92	221.30	0
221	Acid Soluble Cu (%)	0402	0.0010	0.0000	0.0014	0.0005	0.0024	16	-0.92	221.30	0
221	Acid Soluble Cu (%)	0405	0.0010	0.0000	0.0014	0.0005	0.0024	16	-0.92	221.99	0
221	Acid Soluble Cu (%)	0516	0.0010	0.0000	0.0014	0.0005	0.0024	16	-0.92	221.99	0
221	Acid Soluble Cu (%)	0523	0.0010	0.0000	0.0014	0.0005	0.0024	16	-0.92	221.99	0
221	Acid Soluble Cu (%)	0096	0.0011	0.0000	0.0014	0.0005	0.0024	16	-0.70	221.30	0
221	Acid Soluble Cu (%)	0389	0.0013	0.0001	0.0014	0.0005	0.0024	16	-0.39	221.99	0
221	Acid Soluble Cu (%)	0095	0.0014	0.0002	0.0014	0.0005	0.0024	16	-0.07	221.32	0
221	Acid Soluble Cu (%)	0136	0.0014	0.0000	0.0014	0.0005	0.0024	16	-0.07	221.33	0
221	Acid Soluble Cu (%)	0527	0.0016	0.0001	0.0014	0.0005	0.0024	16	0.25	221.33	0
221	Acid Soluble Cu (%)	0515	0.0016	0.0002	0.0014	0.0005	0.0024	16	0.35	221.33	0
221	Acid Soluble Cu (%)	0546	0.0016	0.0008	0.0014	0.0005	0.0024	16	0.35	221.33	0
221	Acid Soluble Cu (%)	0035	0.0017	0.0004	0.0014	0.0005	0.0024	16	0.56	221.30	0
221	Acid Soluble Cu (%)	0515	0.0021	0.0009	0.0014	0.0005	0.0024	16	1.30	221.99	0
221	Acid Soluble Cu (%)	0524	0.0048	0.0004	0.0014	0.0005	0.0024	16	7.10	221.99	0
221	Acid Soluble Cu (%)	0041	0.0195	0.0350	0.0014	0.0005	0.0024	16	38.13	221.30	0
221	Acid Soluble Cu (%)	0043	13.16	3.280	0.0014	0.0005	0.0024	16	27772.29	221.33	2
221	Acid Soluble Cu (%)	0552	0.0000	0.0000	0.0014	0.0005	0.0024	16		221.30	4
221	Acid Soluble Cu (%)	0117	< 0.0025		0.0014	0.0005	0.0024	16		221.33	5
221	Acid Soluble Cu (%)	0354	< 0.01		0.0014	0.0005	0.0024	16		221.30	5
241	Acid Soluble Fe (%)	0096	0.0300	0.0000	0.0446	0.0125	0.0112	15	-1.16	241.30	0
241	Acid Soluble Fe (%)	0524	0.0324	0.0023	0.0446	0.0125	0.0112	15	-0.97	241.99	0
241	Acid Soluble Fe (%)	0136	0.0360	0.0000	0.0446	0.0125	0.0112	15	-0.68	241.33	0
241	Acid Soluble Fe (%)	0035	0.0385	0.0010	0.0446	0.0125	0.0112	15	-0.48	241.30	0
241	Acid Soluble Fe (%)	0444	0.0390	0.0000	0.0446	0.0125	0.0112	15	-0.44	241.30	0
241	Acid Soluble Fe (%)	0389	0.0398	0.0053	0.0446	0.0125	0.0112	15	-0.38	241.99	0
241	Acid Soluble Fe (%)	0354	0.0400	0.0000	0.0446	0.0125	0.0112	15	-0.36	241.30	0
241	Acid Soluble Fe (%)	0472	0.0400	0.0000	0.0446	0.0125	0.0112	15	-0.36	241.30	0
241	Acid Soluble Fe (%)	0523	0.0400	0.0040	0.0446	0.0125	0.0112	15	-0.36	241.99	0
241	Acid Soluble Fe (%)	0515	0.0424	0.0034	0.0446	0.0125	0.0112	15	-0.17	241.99	0
241	Acid Soluble Fe (%)	0552	0.0500	0.0400	0.0446	0.0125	0.0112	15	0.43	241.30	0
241	Acid Soluble Fe (%)	0527	0.0507	0.0003	0.0446	0.0125	0.0112	15	0.48	241.33	0
241	Acid Soluble Fe (%)	0546	0.0632	0.0575	0.0446	0.0125	0.0112	15	1.48	241.33	0
241	Acid Soluble Fe (%)	0516	0.0675	0.0130	0.0446	0.0125	0.0112	15	1.83	241.99	0
241	Acid Soluble Fe (%)	0515	0.0723	0.0418	0.0446	0.0125	0.0112	15	2.21	241.33	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				
241	Acid Soluble Fe (%)	0041	< 0.01		0.0446	0.0125	0.0112	15		241.30	5
251	Acid Soluble Pb (ppm)	0389	0.5700	0.4000	3.382	1.132	0.7522	12	-2.48	251.30	0
251	Acid Soluble Pb (ppm)	0524	2.481	0.0182	3.382	1.132	0.7522	12	-0.80	251.30	0
251	Acid Soluble Pb (ppm)	0405	2.750	0.1000	3.382	1.132	0.7522	12	-0.56	251.99	0
251	Acid Soluble Pb (ppm)	0523	2.834	0.2210	3.382	1.132	0.7522	12	-0.48	251.30	0
251	Acid Soluble Pb (ppm)	0136	2.960	0.1800	3.382	1.132	0.7522	12	-0.37	251.33	0
251	Acid Soluble Pb (ppm)	0255	3.228	0.0650	3.382	1.132	0.7522	12	-0.14	251.30	0
251	Acid Soluble Pb (ppm)	0220	3.300	0.0000	3.382	1.132	0.7522	12	-0.07	251.32	0
251	Acid Soluble Pb (ppm)	0035	3.335	2.350	3.382	1.132	0.7522	12	-0.04	251.30	0
251	Acid Soluble Pb (ppm)	0527	3.900	0.0108	3.382	1.132	0.7522	12	0.46	251.33	0
251	Acid Soluble Pb (ppm)	0220	3.950	1.300	3.382	1.132	0.7522	12	0.50	251.99	0
251	Acid Soluble Pb (ppm)	0096	5.350	0.9000	3.382	1.132	0.7522	12	1.74	251.30	0
251	Acid Soluble Pb (ppm)	0515	7.441	3.481	3.382	1.132	0.7522	12	3.58	251.34	0
251	Acid Soluble Pb (ppm)	0515	16.24	6.155	3.382	1.132	0.7522	12	11.35	251.33	1
251	Acid Soluble Pb (ppm)	0117	< 5		3.382	1.132	0.7522	12		251.33	5
261	Acid Soluble Mn (%)	0523	0.0010	0.0000	0.0018	0.0007	0.0003	12	-1.17	261.99	0
261	Acid Soluble Mn (%)	0136	0.0013	0.0000	0.0018	0.0007	0.0003	12	-0.73	261.35	0
261	Acid Soluble Mn (%)	0096	0.0014	0.0000	0.0018	0.0007	0.0003	12	-0.58	261.30	0
261	Acid Soluble Mn (%)	0389	0.0014	0.0000	0.0018	0.0007	0.0003	12	-0.58	261.99	0
261	Acid Soluble Mn (%)	0515	0.0014	0.0002	0.0018	0.0007	0.0003	12	-0.58	261.99	0
261	Acid Soluble Mn (%)	0546	0.0016	0.0005	0.0018	0.0007	0.0003	12	-0.37	261.35	0
261	Acid Soluble Mn (%)	0527	0.0017	0.0000	0.0018	0.0007	0.0003	12	-0.15	261.35	0
261	Acid Soluble Mn (%)	0035	0.0018	0.0005	0.0018	0.0007	0.0003	12	-0.07	261.30	0
261	Acid Soluble Mn (%)	0041	0.0020	0.0000	0.0018	0.0007	0.0003	12	0.29	261.30	0
261	Acid Soluble Mn (%)	0524	0.0025	0.0001	0.0018	0.0007	0.0003	12	0.95	261.99	0
261	Acid Soluble Mn (%)	0515	0.0030	0.0008	0.0018	0.0007	0.0003	12	1.75	261.35	0
261	Acid Soluble Mn (%)	0516	0.0040	0.0020	0.0018	0.0007	0.0003	12	3.20	261.99	0
261	Acid Soluble Mn (%)	0552	0.0150	0.0100	0.0018	0.0007	0.0003	12	19.23	261.32	1
261	Acid Soluble Mn (%)	0354	< 0.01		0.0018	0.0007	0.0003	12		261.30	5
281	Acid Soluble Hg (ppm)	0515	0.0000	0.0000				0		281.30	4
281	Acid Soluble Hg (ppm)	0527	< 0.0001					0		281.30	5
281	Acid Soluble Hg (ppm)	0220	< 0.01					0		281.99	5
281	Acid Soluble Hg (ppm)	0405	< 0.01					0		281.99	5
289	Acid Soluble Mo (ppm)	0524	0.4530	0.0002	4.599	7.499	1.508	10	-0.55	289.30	0
289	Acid Soluble Mo (ppm)	0255	0.4990	0.0360	4.599	7.499	1.508	10	-0.55	289.30	0
289	Acid Soluble Mo (ppm)	0546	0.5394	0.0350	4.599	7.499	1.508	10	-0.54	289.33	0
289	Acid Soluble Mo (ppm)	0523	0.5638	0.1008	4.599	7.499	1.508	10	-0.54	289.30	0
289	Acid Soluble Mo (ppm)	0527	0.6415	0.0081	4.599	7.499	1.508	10	-0.53	289.33	0
289	Acid Soluble Mo (ppm)	0405	0.6600	0.1400	4.599	7.499	1.508	10	-0.53	289.99	0
289	Acid Soluble Mo (ppm)	0035	0.9350	0.2300	4.599	7.499	1.508	10	-0.49	289.30	0
289	Acid Soluble Mo (ppm)	0516	10.00	0.0000	4.599	7.499	1.508	10	0.72	289.30	0
289	Acid Soluble Mo (ppm)	0515	39.15	7.866	4.599	7.499	1.508	10	4.61	289.34	0
289	Acid Soluble Mo (ppm)	0515	51.27	6.668	4.599	7.499	1.508	10	6.22	289.33	0
289	Acid Soluble Mo (ppm)	0220	< 0.3		4.599	7.499	1.508	10		289.99	5
289	Acid Soluble Mo (ppm)	0117	< 5		4.599	7.499	1.508	10		289.33	5
291	Acid Soluble Ni (ppm)	0255	1.753	0.5820	2.852	0.8938	0.7523	11	-1.23	291.99	0
291	Acid Soluble Ni (ppm)	0524	1.991	0.4148	2.852	0.8938	0.7523	11	-0.96	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 Ni (ppm)	0220	2.300	0.0000	2.852	0.8938	0.7523	11	-0.62	291.99	0
291	Acid Soluble Ni (ppm)	0523	2.304	0.2290	2.852	0.8938	0.7523	11	-0.61	291.30	0
291	Acid Soluble Ni (ppm)	0096	2.600	0.0000	2.852	0.8938	0.7523	11	-0.28	291.30	0
291	Acid Soluble Ni (ppm)	0220	2.650	0.1000	2.852	0.8938	0.7523	11	-0.23	291.32	0
291	Acid Soluble Ni (ppm)	0527	2.780	0.2133	2.852	0.8938	0.7523	11	-0.08	291.33	0
291	Acid Soluble Ni (ppm)	0515	3.479	2.041	2.852	0.8938	0.7523	11	0.70	291.33	0
291	Acid Soluble Ni (ppm)	0405	3.500	3.000	2.852	0.8938	0.7523	11	0.73	291.99	0
291	Acid Soluble Ni (ppm)	0035	3.820	1.100	2.852	0.8938	0.7523	11	1.08	291.30	0
291	Acid Soluble Ni (ppm)	0515	4.532	0.5950	2.852	0.8938	0.7523	11	1.88	291.34	0
291	Acid Soluble Ni (ppm)	0117	< 5		2.852	0.8938	0.7523	11		291.33	5
301	Acid Soluble Se (ppm)	0220	0.3500	0.0200	1.377	1.393	0.1648	6	-0.66	301.99	0
301	Acid Soluble Se (ppm)	0220	0.3600	0.0200	1.377	1.393	0.1648	6	-0.65	301.32	0
301	Acid Soluble Se (ppm)	0524	0.5550	0.0500	1.377	1.393	0.1648	6	-0.53	301.30	0
301	Acid Soluble Se (ppm)	0255	1.532	0.1090	1.377	1.393	0.1648	6	0.10	301.99	0
301	Acid Soluble Se (ppm)	0405	2.000	0.0000	1.377	1.393	0.1648	6	0.40	301.99	0
301	Acid Soluble Se (ppm)	0515	11.95	0.7900	1.377	1.393	0.1648	6	6.76	301.34	0
301	Acid Soluble Se (ppm)	0515	3.955	1.891	1.377	1.393	0.1648	6	1.65	301.33	1
301	Acid Soluble Se (ppm)	0527	< 0.001		1.377	1.393	0.1648	6		301.33	5
311	Sodium (%)	0136	0.6700	0.0000	0.7257	0.0688	0.0090	5	-0.81	311.33	0
311	Sodium (%)	0096	0.6850	0.0100	0.7257	0.0688	0.0090	5	-0.59	311.99	0
311	Sodium (%)	0035	0.7055	0.0190	0.7257	0.0688	0.0090	5	-0.29	311.33	0
311	Sodium (%)	0354	0.7250	0.0100	0.7257	0.0688	0.0090	5	-0.01	311.99	0
311	Sodium (%)	0527	0.8431	0.0061	0.7257	0.0688	0.0090	5	1.71	311.33	0
321	Acid Soluble Zn (%)	0516	0.0075	0.0010	0.0095	0.0009	0.0007	21	-2.25	321.99	0
321	Acid Soluble Zn (%)	0136	0.0082	0.0000	0.0095	0.0009	0.0007	21	-1.47	321.33	0
321	Acid Soluble Zn (%)	0405	0.0085	0.0010	0.0095	0.0009	0.0007	21	-1.14	321.99	0
321	Acid Soluble Zn (%)	0546	0.0087	0.0004	0.0095	0.0009	0.0007	21	-0.92	321.33	0
321	Acid Soluble Zn (%)	0389	0.0090	0.0005	0.0095	0.0009	0.0007	21	-0.64	321.99	0
321	Acid Soluble Zn (%)	0402	0.0090	0.0000	0.0095	0.0009	0.0007	21	-0.58	321.30	0
321	Acid Soluble Zn (%)	0220	0.0092	0.0003	0.0095	0.0009	0.0007	21	-0.42	321.32	0
321	Acid Soluble Zn (%)	0220	0.0093	0.0005	0.0095	0.0009	0.0007	21	-0.31	321.99	0
321	Acid Soluble Zn (%)	0035	0.0093	0.0000	0.0095	0.0009	0.0007	21	-0.25	321.30	0
321	Acid Soluble Zn (%)	0255	0.0095	0.0010	0.0095	0.0009	0.0007	21	-0.03	321.30	0
321	Acid Soluble Zn (%)	0444	0.0095	0.0010	0.0095	0.0009	0.0007	21	-0.03	321.30	0
321	Acid Soluble Zn (%)	0523	0.0095	0.0010	0.0095	0.0009	0.0007	21	-0.03	321.99	0
321	Acid Soluble Zn (%)	0515	0.0096	0.0004	0.0095	0.0009	0.0007	21	0.08	321.33	0
321	Acid Soluble Zn (%)	0354	0.0100	0.0000	0.0095	0.0009	0.0007	21	0.53	321.30	0
321	Acid Soluble Zn (%)	0472	0.0100	0.0000	0.0095	0.0009	0.0007	21	0.53	321.30	0
321	Acid Soluble Zn (%)	0095	0.0100	0.0000	0.0095	0.0009	0.0007	21	0.53	321.32	0
321	Acid Soluble Zn (%)	0423	0.0100	0.0000	0.0095	0.0009	0.0007	21	0.53	321.32	0
321	Acid Soluble Zn (%)	0515	0.0104	0.0019	0.0095	0.0009	0.0007	21	0.92	321.99	0
321	Acid Soluble Zn (%)	0527	0.0106	0.0004	0.0095	0.0009	0.0007	21	1.20	321.33	0
321	Acid Soluble Zn (%)	0041	0.0110	0.0040	0.0095	0.0009	0.0007	21	1.64	321.30	0
321	Acid Soluble Zn (%)	0524	0.0111	0.0011	0.0095	0.0009	0.0007	21	1.70	321.99	0
321	Acid Soluble Zn (%)	0096	116.9	1.900	0.0095	0.0009	0.0007	21	130075.54	321.30	2
321	Acid Soluble Zn (%)	0552	0.0000	0.0000	0.0095	0.0009	0.0007	21		321.30	4
321	Acid Soluble Zn (%)	0117	< 0.01		0.0095	0.0009	0.0007	21		321.33	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				

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.