

# magruder fertilizer

## check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 151112

MAP

### Statistical Summary

# Analytes: 29

# Labs Reporting: 87

Issue Date : 12/31/2015

Analyte Code	Analyte	# 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	IA %RSD	Average Range (R-bar)	Horwitz %RSD
001	Ammoniacal Nitrogen (%)	22	21	10.97	0.6259	11.09		0.2171	0.0335	1.96%		0.0947	2.78%
009	Ammoniacal Plus Nitrate Nitrogen (%)	3	3	11.10	0.3753	11.10		0.3753	0.1532	3.38%		0.0667	2.78%
010	Total Nitrogen (11%)	75	73	11.18	0.2142	11.20	0.5979	0.1676	0.0139	1.50%	2.67%	0.1069	2.78%
020	Total Phosphorus as P2O5 (%)	45	42	52.83	2.552	52.46		0.7717	0.0842	1.47%		0.3464	2.20%
030	Citrate Insoluble Phosphorus as P2O5 (%)	2	2	0.0200	0.0141								
040	Indirect Available Phosphorus as P2O5 (52%)	3	3	52.09	0.3714	52.09	1.1014	0.3714	0.1516	0.71%	1.06%	0.2933	2.21%
041	Direct Available Phosphorus as P2O5 (52%)	46	44	52.24	0.9218	52.32	1.1048	0.4113	0.0438	0.79%	1.06%	0.3791	2.20%
048	Water Soluble Phosphorus as P2O5 (%)	6	6	48.67	2.213	48.14		0.8812	0.2544	1.83%		0.1750	2.23%
050	Soluble Potassium as K2O (%)	15	12	9.616	21.91	0.3126		0.0608	0.0124	19.45%		0.0818	4.76%
060	Water (Free) (%)	8	8	1.777	0.6232	1.740		0.6344	0.1586	36.47%		0.1088	3.68%
101	Acid Soluble Calcium (%)	13	12	0.2088	0.0255	0.2132		0.0217	0.0044	10.19%		0.0060	5.05%
121	Acid Soluble Magnesium (%)	14	14	1.022	0.3934	1.132		0.1306	0.0247	11.54%		0.0281	3.93%
143	Elemental Sulfur (%)	1		1.905									
148	Total Sulfur (%)	7	6	1.955	0.1204	1.959		0.1271	0.0367	6.49%		0.0359	3.61%
151	Acid Soluble Arsenic (ppm)	10	8	2.167	1.187	2.044		1.068	0.2670	52.23%		0.2658	14.36%
165	Acid Soluble Boron (%)	5	5	0.0132	0.0027	0.0132		0.0027	0.0008	20.28%		0.0029	7.68%
181	Acid Soluble Cadmium (ppm)	16	15	36.78	4.298	37.56		2.993	0.5464	7.97%		0.8655	9.27%
191	Acid Soluble Chromium (ppm)	18	17	345.0	52.77	351.9		37.25	6.389	10.59%		6.164	6.62%
202	Acid Soluble Cobalt (ppm)	12	9	1.834	1.013	1.662		0.7855	0.1851	47.26%		0.2721	14.82%
221	Acid Soluble Copper (%)	13	8	0.0011	0.0018	0.0005		0.0004	0.0001	73.48%		0.0004	12.58%
241	Acid Soluble Iron (%)	14	13	1.086	0.0799	1.095		0.0689	0.0135	6.30%		0.0159	3.95%
251	Acid Soluble Lead (ppm)	10	7	2.127	1.381	2.127		1.566	0.4186	73.63%		0.2191	14.28%
261	Acid Soluble Manganese (%)	13	12	0.0086	0.0010	0.0085		0.0009	0.0002	10.66%		0.0002	8.19%
281	Acid Soluble Mercury (ppm)	3	2	0.0033	0.0025	0.0033		0.0025	0.0013	76.65%		0.0005	37.84%
289	Acid Soluble Molybdenum (ppm)	15	14	9.864	3.323	10.46		2.058	0.3890	19.68%		0.4557	11.24%
291	Acid Soluble Nickel (ppm)	17	17	34.60	3.512	34.16		2.755	0.4724	8.07%		1.832	9.40%
301	Acid Soluble Selenium (ppm)	5	1	0.0019		34.16		2.755	1.948	8.07%		0.0000	9.40%
311	Sodium (%)	6	6	0.2391	0.0208	0.2405		0.0204	0.0059	8.48%		0.0052	4.96%
321	Acid Soluble Zinc (%)	35	33	0.0569	0.0121	0.0593		0.0042	0.0005	7.03%		0.0018	6.12%

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# Analytes: 29

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Lab Values

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Issue Date : 12/31/2015

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 (%)	0230	8.375	0.1700	11.09	0.2171	0.0947	21	-12.51	001.10	0
001	Ammoniacal Nitrogen (%)	0456	10.61	0.2600	11.09	0.2171	0.0947	21	-2.21	001.10	0
001	Ammoniacal Nitrogen (%)	0397	10.79	0.0700	11.09	0.2171	0.0947	21	-1.41	001.99	0
001	Ammoniacal Nitrogen (%)	0481	10.86	0.0800	11.09	0.2171	0.0947	21	-1.06	001.10	0
001	Ammoniacal Nitrogen (%)	0394	10.90	0.0000	11.09	0.2171	0.0947	21	-0.88	001.99	0
001	Ammoniacal Nitrogen (%)	0486	10.95	0.2100	11.09	0.2171	0.0947	21	-0.67	001.10	0
001	Ammoniacal Nitrogen (%)	0513	10.97	0.0500	11.09	0.2171	0.0947	21	-0.58	001.99	0
001	Ammoniacal Nitrogen (%)	0177	10.98	0.0519	11.09	0.2171	0.0947	21	-0.49	001.10	0
001	Ammoniacal Nitrogen (%)	0420	11.08	0.1000	11.09	0.2171	0.0947	21	-0.05	001.99	0
001	Ammoniacal Nitrogen (%)	0506	11.15	0.3000	11.09	0.2171	0.0947	21	0.27	001.99	0
001	Ammoniacal Nitrogen (%)	0444	11.16	0.1500	11.09	0.2171	0.0947	21	0.30	001.10	0
001	Ammoniacal Nitrogen (%)	0405	11.17	0.0300	11.09	0.2171	0.0947	21	0.34	001.10	0
001	Ammoniacal Nitrogen (%)	0510	11.17	0.1100	11.09	0.2171	0.0947	21	0.34	001.99	0
001	Ammoniacal Nitrogen (%)	0508	11.18	0.0400	11.09	0.2171	0.0947	21	0.41	001.99	0
001	Ammoniacal Nitrogen (%)	0493	11.20	0.1000	11.09	0.2171	0.0947	21	0.50	001.99	0
001	Ammoniacal Nitrogen (%)	0169	11.22	0.0300	11.09	0.2171	0.0947	21	0.57	001.10	0
001	Ammoniacal Nitrogen (%)	0027	11.25	0.1300	11.09	0.2171	0.0947	21	0.71	001.99	0
001	Ammoniacal Nitrogen (%)	0371	11.26	0.0200	11.09	0.2171	0.0947	21	0.78	001.99	0
001	Ammoniacal Nitrogen (%)	0096	11.32	0.0600	11.09	0.2171	0.0947	21	1.06	001.99	0
001	Ammoniacal Nitrogen (%)	0200	11.35	0.0100	11.09	0.2171	0.0947	21	1.17	001.99	0
001	Ammoniacal Nitrogen (%)	0117	11.40	0.0160	11.09	0.2171	0.0947	21	1.43	001.10	0
001	Ammoniacal Nitrogen (%)	0501	10.55	0.5000	11.09	0.2171	0.0947	21	-2.49	001.99	1
009	Ammoniacal Plus Nitrate Nitrogen (%)	0309	10.67	0.1400	11.10	0.3753	0.0667	3	-1.15	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0200	11.32	0.0100	11.10	0.3753	0.0667	3	0.56	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0090	11.33	0.0500	11.10	0.3753	0.0667	3	0.59	009.10	0
010	Total Nitrogen (11%)	0481	10.47*	0.1400	11.20	0.1676	0.1069	73	-4.33	010.12	0
010	Total Nitrogen (11%)	0518	10.56*	0.1200	11.20	0.1676	0.1069	73	-3.79	010.99	0
010	Total Nitrogen (11%)	0489	10.69	0.0500	11.20	0.1676	0.1069	73	-3.05	010.60	0
010	Total Nitrogen (11%)	0211	10.79	0.0700	11.20	0.1676	0.1069	73	-2.45	010.11	0
010	Total Nitrogen (11%)	0356	10.85	0.2000	11.20	0.1676	0.1069	73	-2.06	010.60	0
010	Total Nitrogen (11%)	0406	10.88	0.0200	11.20	0.1676	0.1069	73	-1.88	010.60	0
010	Total Nitrogen (11%)	0307	10.92	0.3950	11.20	0.1676	0.1069	73	-1.64	010.60	0
010	Total Nitrogen (11%)	0481	10.93	0.1000	11.20	0.1676	0.1069	73	-1.58	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010	Total Nitrogen (11%)	0456	10.94	0.1700	11.20	0.1676	0.1069	73	-1.55	010.11	0
010	Total Nitrogen (11%)	0102	10.94	0.0800	11.20	0.1676	0.1069	73	-1.52	010.60	0
010	Total Nitrogen (11%)	0451	10.97	0.2000	11.20	0.1676	0.1069	73	-1.35	010.60	0
010	Total Nitrogen (11%)	0486	11.01	0.0900	11.20	0.1676	0.1069	73	-1.14	010.60	0
010	Total Nitrogen (11%)	0275	11.03	0.2800	11.20	0.1676	0.1069	73	-0.99	010.60	0
010	Total Nitrogen (11%)	0377	11.04	0.1300	11.20	0.1676	0.1069	73	-0.96	010.60	0
010	Total Nitrogen (11%)	0072	11.04	0.0400	11.20	0.1676	0.1069	73	-0.93	010.60	0
010	Total Nitrogen (11%)	0389	11.05	0.0700	11.20	0.1676	0.1069	73	-0.90	010.60	0
010	Total Nitrogen (11%)	0324	11.05	0.1000	11.20	0.1676	0.1069	73	-0.87	010.60	0
010	Total Nitrogen (11%)	0309	11.08	0.1200	11.20	0.1676	0.1069	73	-0.69	010.11	0
010	Total Nitrogen (11%)	0041	11.08	0.0000	11.20	0.1676	0.1069	73	-0.69	010.60	0
010	Total Nitrogen (11%)	0234	11.09	0.0600	11.20	0.1676	0.1069	73	-0.63	010.60	0
010	Total Nitrogen (11%)	0485	11.09	0.1400	11.20	0.1676	0.1069	73	-0.63	010.60	0
010	Total Nitrogen (11%)	0037	11.10	0.0800	11.20	0.1676	0.1069	73	-0.57	010.60	0
010	Total Nitrogen (11%)	0513	11.12	0.0400	11.20	0.1676	0.1069	73	-0.45	010.99	0
010	Total Nitrogen (11%)	0421	11.14	0.4800	11.20	0.1676	0.1069	73	-0.33	010.60	0
010	Total Nitrogen (11%)	0007	11.15	0.1000	11.20	0.1676	0.1069	73	-0.27	010.60	0
010	Total Nitrogen (11%)	0443	11.15	0.1000	11.20	0.1676	0.1069	73	-0.27	010.60	0
010	Total Nitrogen (11%)	0483	11.15	0.0000	11.20	0.1676	0.1069	73	-0.27	010.60	0
010	Total Nitrogen (11%)	0506	11.15	0.3000	11.20	0.1676	0.1069	73	-0.27	010.99	0
010	Total Nitrogen (11%)	0177	11.16	0.1000	11.20	0.1676	0.1069	73	-0.21	010.60	0
010	Total Nitrogen (11%)	0510	11.17	0.0100	11.20	0.1676	0.1069	73	-0.18	010.11	0
010	Total Nitrogen (11%)	0422	11.17	0.2600	11.20	0.1676	0.1069	73	-0.15	010.60	0
010	Total Nitrogen (11%)	0260	11.18	0.1200	11.20	0.1676	0.1069	73	-0.09	010.60	0
010	Total Nitrogen (11%)	0162	11.18	0.1440	11.20	0.1676	0.1069	73	-0.07	010.60	0
010	Total Nitrogen (11%)	0157	11.20	0.0000	11.20	0.1676	0.1069	73	0.03	010.60	0
010	Total Nitrogen (11%)	0325	11.20	0.4000	11.20	0.1676	0.1069	73	0.03	010.60	0
010	Total Nitrogen (11%)	0405	11.21	0.0100	11.20	0.1676	0.1069	73	0.06	010.60	0
010	Total Nitrogen (11%)	0394	11.21	0.1800	11.20	0.1676	0.1069	73	0.09	010.99	0
010	Total Nitrogen (11%)	0136	11.22	0.0500	11.20	0.1676	0.1069	73	0.12	010.60	0
010	Total Nitrogen (11%)	0095	11.22	0.2400	11.20	0.1676	0.1069	73	0.15	010.60	0
010	Total Nitrogen (11%)	0043	11.23	0.0100	11.20	0.1676	0.1069	73	0.18	010.60	0
010	Total Nitrogen (11%)	0292	11.23	0.0100	11.20	0.1676	0.1069	73	0.18	010.60	0
010	Total Nitrogen (11%)	0023	11.23	0.0440	11.20	0.1676	0.1069	73	0.19	010.60	0
010	Total Nitrogen (11%)	0394	11.24	0.1600	11.20	0.1676	0.1069	73	0.27	010.60	0
010	Total Nitrogen (11%)	0035	11.25	0.0500	11.20	0.1676	0.1069	73	0.30	010.60	0
010	Total Nitrogen (11%)	0034	11.25	0.0800	11.20	0.1676	0.1069	73	0.33	010.60	0
010	Total Nitrogen (11%)	0040	11.25	0.1000	11.20	0.1676	0.1069	73	0.33	010.60	0
010	Total Nitrogen (11%)	0516	11.25	0.3000	11.20	0.1676	0.1069	73	0.33	010.60	0
010	Total Nitrogen (11%)	0220	11.26	0.0100	11.20	0.1676	0.1069	73	0.36	010.99	0
010	Total Nitrogen (11%)	0049	11.27	0.0300	11.20	0.1676	0.1069	73	0.42	010.60	0
010	Total Nitrogen (11%)	0086	11.27	0.0560	11.20	0.1676	0.1069	73	0.42	010.60	0
010	Total Nitrogen (11%)	0390	11.27	0.0100	11.20	0.1676	0.1069	73	0.42	010.60	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010	Total Nitrogen (11%)	0114	11.27	0.0200	11.20	0.1676	0.1069	73	0.45	010.11	0
010	Total Nitrogen (11%)	0131	11.28	0.0150	11.20	0.1676	0.1069	73	0.50	010.60	0
010	Total Nitrogen (11%)	0291	11.29	0.0100	11.20	0.1676	0.1069	73	0.53	010.60	0
010	Total Nitrogen (11%)	0105	11.31	0.0100	11.20	0.1676	0.1069	73	0.65	010.11	0
010	Total Nitrogen (11%)	0233	11.31	0.1300	11.20	0.1676	0.1069	73	0.65	010.60	0
010	Total Nitrogen (11%)	0474	11.31	0.0200	11.20	0.1676	0.1069	73	0.68	010.11	0
010	Total Nitrogen (11%)	0073	11.32	0.0500	11.20	0.1676	0.1069	73	0.71	010.60	0
010	Total Nitrogen (11%)	0106	11.34	0.1200	11.20	0.1676	0.1069	73	0.86	010.60	0
010	Total Nitrogen (11%)	0025	11.35	0.0300	11.20	0.1676	0.1069	73	0.89	010.60	0
010	Total Nitrogen (11%)	0482	11.35	0.1000	11.20	0.1676	0.1069	73	0.92	010.60	0
010	Total Nitrogen (11%)	0105	11.36	0.0210	11.20	0.1676	0.1069	73	0.97	010.60	0
010	Total Nitrogen (11%)	0096	11.37	0.0900	11.20	0.1676	0.1069	73	1.01	010.60	0
010	Total Nitrogen (11%)	0444	11.39	0.0700	11.20	0.1676	0.1069	73	1.13	010.60	0
010	Total Nitrogen (11%)	0452	11.40	0.0100	11.20	0.1676	0.1069	73	1.19	010.60	0
010	Total Nitrogen (11%)	0029	11.41	0.2500	11.20	0.1676	0.1069	73	1.25	010.60	0
010	Total Nitrogen (11%)	0055	11.41	0.0100	11.20	0.1676	0.1069	73	1.25	010.60	0
010	Total Nitrogen (11%)	0360	11.42	0.2200	11.20	0.1676	0.1069	73	1.34	010.60	0
010	Total Nitrogen (11%)	0420	11.44	0.3800	11.20	0.1676	0.1069	73	1.46	010.99	0
010	Total Nitrogen (11%)	0402	11.57	0.0760	11.20	0.1676	0.1069	73	2.23	010.60	0
010	Total Nitrogen (11%)	0117	11.60	0.0000	11.20	0.1676	0.1069	73	2.41	010.60	0
010	Total Nitrogen (11%)	0230	11.60	0.0000	11.20	0.1676	0.1069	73	2.41	010.60	0
010	Total Nitrogen (11%)	0042	11.65	0.1200	11.20	0.1676	0.1069	73	2.71	010.60	0
010	Total Nitrogen (11%)	0472	10.51*	0.5700	11.20	0.1676	0.1069	73	-4.12	010.60	1
010	Total Nitrogen (11%)	0354	11.43	0.5280	11.20	0.1676	0.1069	73	1.42	010.60	1
020	Total Phosphorus as P2O5 (%)	0035	48.91	0.1000	52.46	0.7717	0.3464	42	-4.60	020.40	0
020	Total Phosphorus as P2O5 (%)	0472	49.08	0.3400	52.46	0.7717	0.3464	42	-4.38	020.50	0
020	Total Phosphorus as P2O5 (%)	0157	49.45	0.3000	52.46	0.7717	0.3464	42	-3.90	020.50	0
020	Total Phosphorus as P2O5 (%)	0420	50.42	0.3400	52.46	0.7717	0.3464	42	-2.64	020.20	0
020	Total Phosphorus as P2O5 (%)	0390	50.50	1.600	52.46	0.7717	0.3464	42	-2.54	020.50	0
020	Total Phosphorus as P2O5 (%)	0389	51.49	0.5800	52.46	0.7717	0.3464	42	-1.26	020.50	0
020	Total Phosphorus as P2O5 (%)	0027	51.62	0.2670	52.46	0.7717	0.3464	42	-1.09	020.20	0
020	Total Phosphorus as P2O5 (%)	0456	51.68	0.2100	52.46	0.7717	0.3464	42	-1.02	020.40	0
020	Total Phosphorus as P2O5 (%)	0220	51.97	0.0700	52.46	0.7717	0.3464	42	-0.64	020.20	0
020	Total Phosphorus as P2O5 (%)	0169	52.00	0.0400	52.46	0.7717	0.3464	42	-0.60	020.20	0
020	Total Phosphorus as P2O5 (%)	0402	52.02	1.000	52.46	0.7717	0.3464	42	-0.57	020.50	0
020	Total Phosphorus as P2O5 (%)	0444	52.03	0.2400	52.46	0.7717	0.3464	42	-0.56	020.10	0
020	Total Phosphorus as P2O5 (%)	0501	52.03	0.0600	52.46	0.7717	0.3464	42	-0.56	020.50	0
020	Total Phosphorus as P2O5 (%)	0371	52.06	0.1600	52.46	0.7717	0.3464	42	-0.52	020.20	0
020	Total Phosphorus as P2O5 (%)	0356	52.10	0.0800	52.46	0.7717	0.3464	42	-0.47	020.20	0
020	Total Phosphorus as P2O5 (%)	0234	52.12	0.2400	52.46	0.7717	0.3464	42	-0.44	020.50	0
020	Total Phosphorus as P2O5 (%)	0508	52.25	0.1100	52.46	0.7717	0.3464	42	-0.28	020.50	0
020	Total Phosphorus as P2O5 (%)	0474	52.26	0.2100	52.46	0.7717	0.3464	42	-0.27	020.20	0
020	Total Phosphorus as P2O5 (%)	0405	52.30	0.0800	52.46	0.7717	0.3464	42	-0.21	020.20	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 (%)	0516	52.32	1.320	52.46	0.7717	0.3464	42	-0.18	020.20	0
020	Total Phosphorus as P2O5 (%)	0096	52.36	0.1300	52.46	0.7717	0.3464	42	-0.14	020.40	0
020	Total Phosphorus as P2O5 (%)	0231	52.40	0.0000	52.46	0.7717	0.3464	42	-0.08	020.20	0
020	Total Phosphorus as P2O5 (%)	0324	52.65	0.5000	52.46	0.7717	0.3464	42	0.25	020.20	0
020	Total Phosphorus as P2O5 (%)	0510	52.65	0.0600	52.46	0.7717	0.3464	42	0.25	020.20	0
020	Total Phosphorus as P2O5 (%)	0025	52.66	0.4380	52.46	0.7717	0.3464	42	0.26	020.50	0
020	Total Phosphorus as P2O5 (%)	0292	52.67	0.0400	52.46	0.7717	0.3464	42	0.27	020.20	0
020	Total Phosphorus as P2O5 (%)	0211	52.71	0.0100	52.46	0.7717	0.3464	42	0.32	020.10	0
020	Total Phosphorus as P2O5 (%)	0090	52.76	0.1000	52.46	0.7717	0.3464	42	0.39	020.10	0
020	Total Phosphorus as P2O5 (%)	0513	52.80	0.2000	52.46	0.7717	0.3464	42	0.44	020.10	0
020	Total Phosphorus as P2O5 (%)	0394	52.85	0.1000	52.46	0.7717	0.3464	42	0.50	020.20	0
020	Total Phosphorus as P2O5 (%)	0513	53.12	0.0900	52.46	0.7717	0.3464	42	0.85	020.99	0
020	Total Phosphorus as P2O5 (%)	0157	53.15	0.3000	52.46	0.7717	0.3464	42	0.89	020.10	0
020	Total Phosphorus as P2O5 (%)	0506	53.15	0.7000	52.46	0.7717	0.3464	42	0.89	020.20	0
020	Total Phosphorus as P2O5 (%)	0406	53.34	0.2700	52.46	0.7717	0.3464	42	1.13	020.20	0
020	Total Phosphorus as P2O5 (%)	0482	53.35	0.5000	52.46	0.7717	0.3464	42	1.15	020.50	0
020	Total Phosphorus as P2O5 (%)	0443	53.42	0.0100	52.46	0.7717	0.3464	42	1.24	020.99	0
020	Total Phosphorus as P2O5 (%)	0428	53.65	0.3623	52.46	0.7717	0.3464	42	1.54	020.20	0
020	Total Phosphorus as P2O5 (%)	0481	53.84	0.9000	52.46	0.7717	0.3464	42	1.79	020.20	0
020	Total Phosphorus as P2O5 (%)	0451	55.47	0.4300	52.46	0.7717	0.3464	42	3.89	020.50	0
020	Total Phosphorus as P2O5 (%)	0483	57.18	0.2300	52.46	0.7717	0.3464	42	6.11	020.50	0
020	Total Phosphorus as P2O5 (%)	0260	60.37	0.2300	52.46	0.7717	0.3464	42	10.24	020.50	0
020	Total Phosphorus as P2O5 (%)	0422	63.70	1.600	52.46	0.7717	0.3464	42	14.56	020.50	0
020	Total Phosphorus as P2O5 (%)	0307	50.92	2.170	52.46	0.7717	0.3464	42	-1.99	020.50	1
020	Total Phosphorus as P2O5 (%)	0457	52.01	1.970	52.46	0.7717	0.3464	42	-0.59	020.20	1
020	Total Phosphorus as P2O5 (%)	0230	21.45	0.1000	52.46	0.7717	0.3464	42	-40.18	020.20	2
030	Citrate Insoluble Phosphorus as P2O5 (%)	0405	0.0100	0.0000	0.0200	0.0141	0.0000	2	-0.71	030.20	0
030	Citrate Insoluble Phosphorus as P2O5 (%)	0096	0.0300	0.0000	0.0200	0.0141	0.0000	2	0.71	030.40	0
040	Indirect Available Phosphorus as P2O5 (52%)	0072	51.67	0.6700	52.09	0.3714	0.2933	3	-1.15	040.50	0
040	Indirect Available Phosphorus as P2O5 (52%)	0405	52.29	0.0800	52.09	0.3714	0.2933	3	0.53	040.20	0
040	Indirect Available Phosphorus as P2O5 (52%)	0096	52.33	0.1300	52.09	0.3714	0.2933	3	0.62	040.40	0
041	Direct Available Phosphorus as P2O5 (52%)	0325	49.95*	0.7000	52.32	0.4113	0.3791	44	-5.75	041.50	0
041	Direct Available Phosphorus as P2O5 (52%)	0354	50.26*	0.2280	52.32	0.4113	0.3791	44	-5.01	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0095	50.54*	2.270	52.32	0.4113	0.3791	44	-4.33	041.40	0
041	Direct Available Phosphorus as P2O5 (52%)	0027	50.69*	0.3100	52.32	0.4113	0.3791	44	-3.97	041.20	0
041	Direct Available Phosphorus as P2O5 (52%)	0472	50.95*	1.620	52.32	0.4113	0.3791	44	-3.32	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0055	51.42	0.3400	52.32	0.4113	0.3791	44	-2.18	041.21	0
041	Direct Available Phosphorus as P2O5 (52%)	0177	51.42	0.0757	52.32	0.4113	0.3791	44	-2.17	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0397	51.54	0.4700	52.32	0.4113	0.3791	44	-1.90	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0025	51.65	0.0500	52.32	0.4113	0.3791	44	-1.63	041.51	0
041	Direct Available Phosphorus as P2O5 (52%)	0360	51.70	0.5900	52.32	0.4113	0.3791	44	-1.51	041.51	0
041	Direct Available Phosphorus as P2O5 (52%)	0072	52.03	0.0500	52.32	0.4113	0.3791	44	-0.71	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0518	52.04	0.2500	52.32	0.4113	0.3791	44	-0.69	041.99	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				
041	Direct Available Phosphorus as P2O5 (52%)	0037	52.16	0.1800	52.32	0.4113	0.3791	44	-0.38	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0200	52.20	0.0300	52.32	0.4113	0.3791	44	-0.30	041.21	0
041	Direct Available Phosphorus as P2O5 (52%)	0102	52.20	0.0000	52.32	0.4113	0.3791	44	-0.28	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0220	52.20	0.0400	52.32	0.4113	0.3791	44	-0.28	041.11	0
041	Direct Available Phosphorus as P2O5 (52%)	0377	52.20	0.1000	52.32	0.4113	0.3791	44	-0.28	041.51	0
041	Direct Available Phosphorus as P2O5 (52%)	0105	52.23	0.3400	52.32	0.4113	0.3791	44	-0.21	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0049	52.24	0.4800	52.32	0.4113	0.3791	44	-0.19	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0073	52.26	0.5500	52.32	0.4113	0.3791	44	-0.15	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0041	52.33	0.8800	52.32	0.4113	0.3791	44	0.03	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0291	52.35	0.0100	52.32	0.4113	0.3791	44	0.07	041.50	0
041	Direct Available Phosphorus as P2O5 (52%)	0086	52.36	0.0049	52.32	0.4113	0.3791	44	0.10	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0029	52.38	0.3600	52.32	0.4113	0.3791	44	0.15	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0040	52.40	0.2000	52.32	0.4113	0.3791	44	0.20	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0009	52.45	0.3000	52.32	0.4113	0.3791	44	0.32	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0421	52.45	0.7000	52.32	0.4113	0.3791	44	0.32	041.51	0
041	Direct Available Phosphorus as P2O5 (52%)	0177	52.49	0.0066	52.32	0.4113	0.3791	44	0.42	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0506	52.50	0.0000	52.32	0.4113	0.3791	44	0.45	041.99	0
041	Direct Available Phosphorus as P2O5 (52%)	0023	52.51	0.1900	52.32	0.4113	0.3791	44	0.46	041.51	0
041	Direct Available Phosphorus as P2O5 (52%)	0485	52.53	0.6000	52.32	0.4113	0.3791	44	0.52	041.11	0
041	Direct Available Phosphorus as P2O5 (52%)	0493	52.55	0.5000	52.32	0.4113	0.3791	44	0.57	041.10	0
041	Direct Available Phosphorus as P2O5 (52%)	0105	52.55	0.3800	52.32	0.4113	0.3791	44	0.57	041.99	0
041	Direct Available Phosphorus as P2O5 (52%)	0452	52.58	0.0800	52.32	0.4113	0.3791	44	0.64	041.50	0
041	Direct Available Phosphorus as P2O5 (52%)	0136	52.62	0.0600	52.32	0.4113	0.3791	44	0.74	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0043	52.65	0.0400	52.32	0.4113	0.3791	44	0.81	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0486	52.66	0.2700	52.32	0.4113	0.3791	44	0.82	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0043	52.68	0.0000	52.32	0.4113	0.3791	44	0.88	041.50	0
041	Direct Available Phosphorus as P2O5 (52%)	0105	52.76	0.2600	52.32	0.4113	0.3791	44	1.08	041.11	0
041	Direct Available Phosphorus as P2O5 (52%)	0034	52.84	0.4150	52.32	0.4113	0.3791	44	1.28	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0055	52.94	0.0200	52.32	0.4113	0.3791	44	1.51	041.11	0
041	Direct Available Phosphorus as P2O5 (52%)	0513	53.43	0.0100	52.32	0.4113	0.3791	44	2.69	041.60	0
041	Direct Available Phosphorus as P2O5 (52%)	0230	54.15	2.300	52.32	0.4113	0.3791	44	4.46	041.99	0
041	Direct Available Phosphorus as P2O5 (52%)	0131	55.43	0.4200	52.32	0.4113	0.3791	44	7.57	041.40	0
041	Direct Available Phosphorus as P2O5 (52%)	0106	50.51*	2.460	52.32	0.4113	0.3791	44	-4.39	041.60	1
041	Direct Available Phosphorus as P2O5 (52%)	0007	51.15*	2.700	52.32	0.4113	0.3791	44	-2.84	041.50	1
048	Water Soluble Phosphorus as P2O5 (%)	0420	46.61	0.2300	48.14	0.8812	0.1750	6	-1.74	048.20	0
048	Water Soluble Phosphorus as P2O5 (%)	0444	47.56	0.5600	48.14	0.8812	0.1750	6	-0.66	048.10	0
048	Water Soluble Phosphorus as P2O5 (%)	0405	47.93	0.0100	48.14	0.8812	0.1750	6	-0.25	048.20	0
048	Water Soluble Phosphorus as P2O5 (%)	0394	48.45	0.1000	48.14	0.8812	0.1750	6	0.35	048.20	0
048	Water Soluble Phosphorus as P2O5 (%)	0096	48.54	0.0600	48.14	0.8812	0.1750	6	0.45	048.40	0
048	Water Soluble Phosphorus as P2O5 (%)	0513	52.96	0.0900	48.14	0.8812	0.1750	6	5.46	048.99	0
050	Soluble Potassium as K2O (%)	0472	0.0750	0.0500	0.3126	0.0608	0.0818	12	-3.91	050.31	0
050	Soluble Potassium as K2O (%)	0096	0.2600	0.0000	0.3126	0.0608	0.0818	12	-0.87	050.99	0
050	Soluble Potassium as K2O (%)	0389	0.2775	0.0010	0.3126	0.0608	0.0818	12	-0.58	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 (%)	0474	0.2800	0.0000	0.3126	0.0608	0.0818	12	-0.54	050.99	0
050	Soluble Potassium as K2O (%)	0420	0.2814	0.0055	0.3126	0.0608	0.0818	12	-0.51	050.50	0
050	Soluble Potassium as K2O (%)	0292	0.2950	0.0100	0.3126	0.0608	0.0818	12	-0.29	050.50	0
050	Soluble Potassium as K2O (%)	0482	0.3000	0.0000	0.3126	0.0608	0.0818	12	-0.21	050.99	0
050	Soluble Potassium as K2O (%)	0354	0.3425	0.0050	0.3126	0.0608	0.0818	12	0.49	050.52	0
050	Soluble Potassium as K2O (%)	0421	0.3500	0.1000	0.3126	0.0608	0.0818	12	0.62	050.52	0
050	Soluble Potassium as K2O (%)	0325	0.3650	0.0100	0.3126	0.0608	0.0818	12	0.86	050.99	0
050	Soluble Potassium as K2O (%)	0309	51.16	0.6700	0.3126	0.0608	0.0818	12	836.33	050.60	0
050	Soluble Potassium as K2O (%)	0211	61.42	0.1300	0.3126	0.0608	0.0818	12	1005.10	050.00	0
050	Soluble Potassium as K2O (%)	0493	59.00	1.000	0.3126	0.0608	0.0818	12	965.38	050.99	1
050	Soluble Potassium as K2O (%)	0072	0.0000	0.0000	0.3126	0.0608	0.0818	12	-5.14	050.00	4
050	Soluble Potassium as K2O (%)	0072	0.0000	0.0000	0.3126	0.0608	0.0818	12	-5.14	050.51	4
060	Water (Free) (%)	0394	0.8800	0.0200	1.740	0.6344	0.1088	8	-1.36	060.20	0
060	Water (Free) (%)	0513	1.245	0.0100	1.740	0.6344	0.1088	8	-0.78	060.99	0
060	Water (Free) (%)	0456	1.535	0.2300	1.740	0.6344	0.1088	8	-0.32	060.00	0
060	Water (Free) (%)	0510	1.640	0.0000	1.740	0.6344	0.1088	8	-0.16	060.99	0
060	Water (Free) (%)	0007	1.665	0.0100	1.740	0.6344	0.1088	8	-0.12	060.00	0
060	Water (Free) (%)	0096	2.005	0.1700	1.740	0.6344	0.1088	8	0.42	060.00	0
060	Water (Free) (%)	0055	2.450	0.3000	1.740	0.6344	0.1088	8	1.12	060.30	0
060	Water (Free) (%)	0394	2.795	0.1300	1.740	0.6344	0.1088	8	1.66	060.30	0
101	Acid Soluble Calcium (%)	0105	0.1665	0.0050	0.2132	0.0217	0.0060	12	-2.15	101.00	0
101	Acid Soluble Calcium (%)	0105	0.1763	0.0195	0.2132	0.0217	0.0060	12	-1.70	101.03	0
101	Acid Soluble Calcium (%)	0472	0.1800	0.0200	0.2132	0.0217	0.0060	12	-1.53	101.30	0
101	Acid Soluble Calcium (%)	0035	0.1845	0.0210	0.2132	0.0217	0.0060	12	-1.32	101.30	0
101	Acid Soluble Calcium (%)	0354	0.2010	0.0000	0.2132	0.0217	0.0060	12	-0.56	101.30	0
101	Acid Soluble Calcium (%)	0096	0.2200	0.0000	0.2132	0.0217	0.0060	12	0.31	101.30	0
101	Acid Soluble Calcium (%)	0474	0.2200	0.0000	0.2132	0.0217	0.0060	12	0.31	101.30	0
101	Acid Soluble Calcium (%)	0457	0.2300	0.0000	0.2132	0.0217	0.0060	12	0.77	101.00	0
101	Acid Soluble Calcium (%)	0482	0.2300	0.0000	0.2132	0.0217	0.0060	12	0.77	101.30	0
101	Acid Soluble Calcium (%)	0389	0.2300	0.0000	0.2132	0.0217	0.0060	12	0.77	101.99	0
101	Acid Soluble Calcium (%)	0102	0.2330	0.0009	0.2132	0.0217	0.0060	12	0.91	101.30	0
101	Acid Soluble Calcium (%)	0420	0.2339	0.0058	0.2132	0.0217	0.0060	12	0.95	101.30	0
101	Acid Soluble Calcium (%)	0041	0.2100	0.0800	0.2132	0.0217	0.0060	12	-0.15	101.30	1
121	Acid Soluble Magnesium (%)	0389	0.1250	0.0040	1.132	0.1306	0.0281	14	-7.71	121.99	0
121	Acid Soluble Magnesium (%)	0131	0.1365	0.0050	1.132	0.1306	0.0281	14	-7.62	121.30	0
121	Acid Soluble Magnesium (%)	0354	0.9960	0.0140	1.132	0.1306	0.0281	14	-1.04	121.30	0
121	Acid Soluble Magnesium (%)	0035	1.035	0.0500	1.132	0.1306	0.0281	14	-0.74	121.30	0
121	Acid Soluble Magnesium (%)	0420	1.082	0.0220	1.132	0.1306	0.0281	14	-0.38	121.30	0
121	Acid Soluble Magnesium (%)	0096	1.105	0.0100	1.132	0.1306	0.0281	14	-0.21	121.30	0
121	Acid Soluble Magnesium (%)	0474	1.110	0.0200	1.132	0.1306	0.0281	14	-0.17	121.30	0
121	Acid Soluble Magnesium (%)	0482	1.180	0.0400	1.132	0.1306	0.0281	14	0.37	121.30	0
121	Acid Soluble Magnesium (%)	0105	1.186	0.0140	1.132	0.1306	0.0281	14	0.41	121.03	0
121	Acid Soluble Magnesium (%)	0041	1.195	0.0900	1.132	0.1306	0.0281	14	0.48	121.30	0

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121	Acid Soluble Magnesium (%)	0102	1.212	0.0042	1.132	0.1306	0.0281	14	0.61	121.30	0
121	Acid Soluble Magnesium (%)	0457	1.245	0.0700	1.132	0.1306	0.0281	14	0.87	121.00	0
121	Acid Soluble Magnesium (%)	0105	1.254	0.0300	1.132	0.1306	0.0281	14	0.93	121.00	0
121	Acid Soluble Magnesium (%)	0472	1.450	0.0200	1.132	0.1306	0.0281	14	2.44	121.30	0
143	Elemental Sulfur (%)	0389	1.905	0.0100			0.0100	1			0
148	Total Sulfur (%)	0354	1.753	0.0130	1.959	0.1271	0.0359	6	-1.62	148.99	0
148	Total Sulfur (%)	0096	1.890	0.0800	1.959	0.1271	0.0359	6	-0.54	148.99	0
148	Total Sulfur (%)	0474	1.965	0.0300	1.959	0.1271	0.0359	6	0.05	148.00	0
148	Total Sulfur (%)	0102	1.979	0.0124	1.959	0.1271	0.0359	6	0.16	148.07	0
148	Total Sulfur (%)	0482	2.065	0.0500	1.959	0.1271	0.0359	6	0.84	148.99	0
148	Total Sulfur (%)	0292	2.075	0.0300	1.959	0.1271	0.0359	6	0.92	148.07	0
148	Total Sulfur (%)	0072	0.0000	0.0000	1.959	0.1271	0.0359	6	-15.41	148.99	4
151	Acid Soluble Arsenic (ppm)	0102	0.8785	0.1630	2.044	1.068	0.2658	8	-1.09	151.30	0
151	Acid Soluble Arsenic (ppm)	0474	0.9000	0.2000	2.044	1.068	0.2658	8	-1.07	151.30	0
151	Acid Soluble Arsenic (ppm)	0515	1.525	0.2500	2.044	1.068	0.2658	8	-0.49	151.34	0
151	Acid Soluble Arsenic (ppm)	0096	1.650	0.1000	2.044	1.068	0.2658	8	-0.37	151.30	0
151	Acid Soluble Arsenic (ppm)	0394	2.600	0.8000	2.044	1.068	0.2658	8	0.52	151.30	0
151	Acid Soluble Arsenic (ppm)	0086	2.606	0.0533	2.044	1.068	0.2658	8	0.53	151.30	0
151	Acid Soluble Arsenic (ppm)	0230	2.730	0.2600	2.044	1.068	0.2658	8	0.64	151.30	0
151	Acid Soluble Arsenic (ppm)	0220	4.450	0.3000	2.044	1.068	0.2658	8	2.25	151.99	0
151	Acid Soluble Arsenic (ppm)	0515	2.219	1.652	2.044	1.068	0.2658	8	0.16	151.33	1
151	Acid Soluble Arsenic (ppm)	0009	0.0000	0.0000	2.044	1.068	0.2658	8	-1.91	151.30	4
165	Acid Soluble Boron (%)	0472	0.0100	0.0000	0.0132	0.0027	0.0029	5	-1.18	165.99	0
165	Acid Soluble Boron (%)	0009	0.0105	0.0002	0.0132	0.0027	0.0029	5	-0.99	165.99	0
165	Acid Soluble Boron (%)	0389	0.0148	0.0011	0.0132	0.0027	0.0029	5	0.60	165.30	0
165	Acid Soluble Boron (%)	0482	0.0150	0.0100	0.0132	0.0027	0.0029	5	0.69	165.99	0
165	Acid Soluble Boron (%)	0354	0.0155	0.0030	0.0132	0.0027	0.0029	5	0.88	165.30	0
181	Acid Soluble Cadmium (ppm)	0515	27.02	2.027	37.56	2.993	0.8655	15	-3.52	181.33	0
181	Acid Soluble Cadmium (ppm)	0481	30.80	0.2000	37.56	2.993	0.8655	15	-2.26	181.99	0
181	Acid Soluble Cadmium (ppm)	0444	32.93	1.590	37.56	2.993	0.8655	15	-1.55	181.30	0
181	Acid Soluble Cadmium (ppm)	0230	33.25	0.9000	37.56	2.993	0.8655	15	-1.44	181.30	0
181	Acid Soluble Cadmium (ppm)	0515	34.91	1.434	37.56	2.993	0.8655	15	-0.88	181.34	0
181	Acid Soluble Cadmium (ppm)	0035	36.50	0.2000	37.56	2.993	0.8655	15	-0.35	181.30	0
181	Acid Soluble Cadmium (ppm)	0220	37.90	0.4000	37.56	2.993	0.8655	15	0.11	181.99	0
181	Acid Soluble Cadmium (ppm)	0037	38.03	0.2400	37.56	2.993	0.8655	15	0.16	181.33	0
181	Acid Soluble Cadmium (ppm)	0474	38.55	0.1000	37.56	2.993	0.8655	15	0.33	181.30	0
181	Acid Soluble Cadmium (ppm)	0096	38.75	0.3000	37.56	2.993	0.8655	15	0.40	181.30	0
181	Acid Soluble Cadmium (ppm)	0095	39.00	2.000	37.56	2.993	0.8655	15	0.48	181.30	0
181	Acid Soluble Cadmium (ppm)	0506	39.25	0.5000	37.56	2.993	0.8655	15	0.57	181.99	0
181	Acid Soluble Cadmium (ppm)	0394	39.70	2.600	37.56	2.993	0.8655	15	0.72	181.30	0
181	Acid Soluble Cadmium (ppm)	0102	42.51	0.3910	37.56	2.993	0.8655	15	1.66	181.30	0
181	Acid Soluble Cadmium (ppm)	0482	42.65	0.1000	37.56	2.993	0.8655	15	1.70	181.30	0
181	Acid Soluble Cadmium (ppm)	0009	33.00	6.000	37.56	2.993	0.8655	15	-1.52	181.30	1



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)	0027	178.0	16.00	351.9	37.25	6.164	17	-4.67	191.30	0
191	Acid Soluble Chromium (ppm)	0444	300.0	10.00	351.9	37.25	6.164	17	-1.39	191.30	0
191	Acid Soluble Chromium (ppm)	0230	309.0	6.000	351.9	37.25	6.164	17	-1.15	191.30	0
191	Acid Soluble Chromium (ppm)	0515	328.6	1.994	351.9	37.25	6.164	17	-0.62	191.33	0
191	Acid Soluble Chromium (ppm)	0009	331.5	13.00	351.9	37.25	6.164	17	-0.55	191.30	0
191	Acid Soluble Chromium (ppm)	0515	333.5	3.312	351.9	37.25	6.164	17	-0.49	191.34	0
191	Acid Soluble Chromium (ppm)	0394	339.5	15.00	351.9	37.25	6.164	17	-0.33	191.30	0
191	Acid Soluble Chromium (ppm)	0035	351.0	8.000	351.9	37.25	6.164	17	-0.02	191.30	0
191	Acid Soluble Chromium (ppm)	0220	352.5	1.000	351.9	37.25	6.164	17	0.02	191.99	0
191	Acid Soluble Chromium (ppm)	0096	354.0	2.300	351.9	37.25	6.164	17	0.06	191.30	0
191	Acid Soluble Chromium (ppm)	0037	354.9	1.130	351.9	37.25	6.164	17	0.08	191.33	0
191	Acid Soluble Chromium (ppm)	0474	369.5	1.000	351.9	37.25	6.164	17	0.47	191.30	0
191	Acid Soluble Chromium (ppm)	0102	381.4	0.1530	351.9	37.25	6.164	17	0.79	191.30	0
191	Acid Soluble Chromium (ppm)	0482	388.5	3.000	351.9	37.25	6.164	17	0.98	191.30	0
191	Acid Soluble Chromium (ppm)	0371	391.0	6.000	351.9	37.25	6.164	17	1.05	191.32	0
191	Acid Soluble Chromium (ppm)	0105	391.7	0.9000	351.9	37.25	6.164	17	1.07	191.30	0
191	Acid Soluble Chromium (ppm)	0481	411.0	16.00	351.9	37.25	6.164	17	1.59	191.99	0
191	Acid Soluble Chromium (ppm)	0506	313.5	43.00	351.9	37.25	6.164	17	-1.03	191.99	1
202	Acid Soluble Cobalt (ppm)	0220	0.6500	0.1000	1.662	0.7855	0.2721	9	-1.29	202.99	0
202	Acid Soluble Cobalt (ppm)	0230	0.9810	0.0300	1.662	0.7855	0.2721	9	-0.87	202.30	0
202	Acid Soluble Cobalt (ppm)	0096	1.155	0.2100	1.662	0.7855	0.2721	9	-0.65	202.30	0
202	Acid Soluble Cobalt (ppm)	0506	1.575	0.3500	1.662	0.7855	0.2721	9	-0.11	202.99	0
202	Acid Soluble Cobalt (ppm)	0482	1.620	0.1000	1.662	0.7855	0.2721	9	-0.05	202.30	0
202	Acid Soluble Cobalt (ppm)	0035	1.670	0.3200	1.662	0.7855	0.2721	9	0.01	202.30	0
202	Acid Soluble Cobalt (ppm)	0095	2.000	0.0000	1.662	0.7855	0.2721	9	0.43	202.30	0
202	Acid Soluble Cobalt (ppm)	0474	3.000	0.0000	1.662	0.7855	0.2721	9	1.70	202.30	0
202	Acid Soluble Cobalt (ppm)	0102	3.858	1.339	1.662	0.7855	0.2721	9	2.79	202.30	0
202	Acid Soluble Cobalt (ppm)	0009	0.0000	0.0000	1.662	0.7855	0.2721	9	-2.12	202.30	4
202	Acid Soluble Cobalt (ppm)	0515	0.4305	0.8610	1.662	0.7855	0.2721	9	-1.57	202.33	4
202	Acid Soluble Cobalt (ppm)	0515	0.5050	1.010	1.662	0.7855	0.2721	9	-1.47	202.34	4
221	Acid Soluble Copper (%)	0474	0.0001	0.0000	0.0005	0.0004	0.0004	8	-1.09	221.32	0
221	Acid Soluble Copper (%)	0389	0.0002	0.0000	0.0005	0.0004	0.0004	8	-0.81	221.99	0
221	Acid Soluble Copper (%)	0433	0.0003	0.0002	0.0005	0.0004	0.0004	8	-0.53	221.30	0
221	Acid Soluble Copper (%)	0515	0.0003	0.0002	0.0005	0.0004	0.0004	8	-0.53	221.33	0
221	Acid Soluble Copper (%)	0043	0.0006	0.0001	0.0005	0.0004	0.0004	8	0.15	221.00	0
221	Acid Soluble Copper (%)	0515	0.0007	0.0003	0.0005	0.0004	0.0004	8	0.43	221.99	0
221	Acid Soluble Copper (%)	0402	0.0015	0.0010	0.0005	0.0004	0.0004	8	2.77	221.31	0
221	Acid Soluble Copper (%)	0354	0.0055	0.0010	0.0005	0.0004	0.0004	8	13.80	221.30	0
221	Acid Soluble Copper (%)	0394	0.4000	0.0000	0.0005	0.0004	0.0004	8	1100.91	221.32	2
221	Acid Soluble Copper (%)	0009	0.0000	0.0000	0.0005	0.0004	0.0004	8	-1.36	221.30	4
221	Acid Soluble Copper (%)	0230	0.0000	0.0000	0.0005	0.0004	0.0004	8	-1.36	221.30	4
221	Acid Soluble Copper (%)	0472	0.0000	0.0000	0.0005	0.0004	0.0004	8	-1.36	221.30	4
221	Acid Soluble Copper (%)	0483	0.0000	0.0000	0.0005	0.0004	0.0004	8	-1.36	221.30	4

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 (%)	0354	0.8935	0.0030	1.095	0.0689	0.0159	13	-2.92	241.30	0
241	Acid Soluble Iron (%)	0096	1.000	0.0000	1.095	0.0689	0.0159	13	-1.37	241.30	0
241	Acid Soluble Iron (%)	0402	1.010	0.0000	1.095	0.0689	0.0159	13	-1.23	241.30	0
241	Acid Soluble Iron (%)	0474	1.050	0.0200	1.095	0.0689	0.0159	13	-0.65	241.30	0
241	Acid Soluble Iron (%)	0457	1.090	0.0200	1.095	0.0689	0.0159	13	-0.07	241.00	0
241	Acid Soluble Iron (%)	0389	1.095	0.0070	1.095	0.0689	0.0159	13	0.00	241.99	0
241	Acid Soluble Iron (%)	0041	1.105	0.0900	1.095	0.0689	0.0159	13	0.15	241.30	0
241	Acid Soluble Iron (%)	0472	1.110	0.0000	1.095	0.0689	0.0159	13	0.22	241.30	0
241	Acid Soluble Iron (%)	0105	1.129	0.0110	1.095	0.0689	0.0159	13	0.49	241.03	0
241	Acid Soluble Iron (%)	0105	1.134	0.0340	1.095	0.0689	0.0159	13	0.57	241.00	0
241	Acid Soluble Iron (%)	0420	1.150	0.0060	1.095	0.0689	0.0159	13	0.80	241.30	0
241	Acid Soluble Iron (%)	0482	1.165	0.0100	1.095	0.0689	0.0159	13	1.02	241.30	0
241	Acid Soluble Iron (%)	0102	1.184	0.0057	1.095	0.0689	0.0159	13	1.30	241.30	0
241	Acid Soluble Iron (%)	0035	1.040	0.2010	1.095	0.0689	0.0159	13	-0.80	241.30	1
251	Acid Soluble Lead (ppm)	0394	0.2030	0.0900	2.127	1.566	0.2191	7	-1.23	251.30	0
251	Acid Soluble Lead (ppm)	0474	1.000	0.0000	2.127	1.566	0.2191	7	-0.72	251.30	0
251	Acid Soluble Lead (ppm)	0230	1.350	0.0200	2.127	1.566	0.2191	7	-0.50	251.30	0
251	Acid Soluble Lead (ppm)	0220	2.400	0.0000	2.127	1.566	0.2191	7	0.17	251.99	0
251	Acid Soluble Lead (ppm)	0515	2.622	0.7140	2.127	1.566	0.2191	7	0.32	251.33	0
251	Acid Soluble Lead (ppm)	0095	3.000	0.0000	2.127	1.566	0.2191	7	0.56	251.30	0
251	Acid Soluble Lead (ppm)	0482	4.315	0.7100	2.127	1.566	0.2191	7	1.40	251.30	0
251	Acid Soluble Lead (ppm)	0009	0.0000	0.0000	2.127	1.566	0.2191	7	-1.36	251.00	4
251	Acid Soluble Lead (ppm)	0009	0.0000	0.0000	2.127	1.566	0.2191	7	-1.36	251.30	4
251	Acid Soluble Lead (ppm)	0515	0.0000	0.0000	2.127	1.566	0.2191	7	-1.36	251.34	4
261	Acid Soluble Manganese (%)	0354	0.0070	0.0000	0.0085	0.0009	0.0002	12	-1.68	261.30	0
261	Acid Soluble Manganese (%)	0009	0.0077	0.0004	0.0085	0.0009	0.0002	12	-0.91	261.30	0
261	Acid Soluble Manganese (%)	0096	0.0080	0.0001	0.0085	0.0009	0.0002	12	-0.64	261.30	0
261	Acid Soluble Manganese (%)	0389	0.0081	0.0001	0.0085	0.0009	0.0002	12	-0.53	261.99	0
261	Acid Soluble Manganese (%)	0474	0.0082	0.0001	0.0085	0.0009	0.0002	12	-0.42	261.30	0
261	Acid Soluble Manganese (%)	0035	0.0083	0.0004	0.0085	0.0009	0.0002	12	-0.25	261.30	0
261	Acid Soluble Manganese (%)	0105	0.0084	0.0004	0.0085	0.0009	0.0002	12	-0.14	261.15	0
261	Acid Soluble Manganese (%)	0102	0.0086	0.0000	0.0085	0.0009	0.0002	12	0.08	261.30	0
261	Acid Soluble Manganese (%)	0420	0.0095	0.0003	0.0085	0.0009	0.0002	12	1.01	261.30	0
261	Acid Soluble Manganese (%)	0041	0.0100	0.0000	0.0085	0.0009	0.0002	12	1.62	261.30	0
261	Acid Soluble Manganese (%)	0472	0.0100	0.0000	0.0085	0.0009	0.0002	12	1.62	261.30	0
261	Acid Soluble Manganese (%)	0482	0.0100	0.0000	0.0085	0.0009	0.0002	12	1.62	261.31	0
261	Acid Soluble Manganese (%)	0105	0.0070	0.0027	0.0085	0.0009	0.0002	12	-1.74	261.12	1
281	Acid Soluble Mercury (ppm)	0394	0.0015	0.0002	0.0033	0.0025	0.0005	2	-0.71	281.30	0
281	Acid Soluble Mercury (ppm)	0230	0.0051	0.0007	0.0033	0.0025	0.0005	2	0.71	281.00	0
281	Acid Soluble Mercury (ppm)	0515	0.0000	0.0000	0.0033	0.0025	0.0005	2	-1.30	281.30	4
289	Acid Soluble Molybdenum (ppm)	0394	0.0010	0.0000	10.46	2.058	0.4557	14	-5.08	289.30	0
289	Acid Soluble Molybdenum (ppm)	0220	7.050	0.1000	10.46	2.058	0.4557	14	-1.66	289.99	0
289	Acid Soluble Molybdenum (ppm)	0230	8.220	0.1000	10.46	2.058	0.4557	14	-1.09	289.30	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				
289	Acid Soluble Molybdenum (ppm)	0515	9.017	1.070	10.46	2.058	0.4557	14	-0.70	289.33	0
289	Acid Soluble Molybdenum (ppm)	0009	9.350	0.5000	10.46	2.058	0.4557	14	-0.54	289.30	0
289	Acid Soluble Molybdenum (ppm)	0096	10.30	0.2000	10.46	2.058	0.4557	14	-0.08	289.30	0
289	Acid Soluble Molybdenum (ppm)	0474	10.50	0.2000	10.46	2.058	0.4557	14	0.02	289.30	0
289	Acid Soluble Molybdenum (ppm)	0095	11.00	0.0000	10.46	2.058	0.4557	14	0.26	289.30	0
289	Acid Soluble Molybdenum (ppm)	0105	11.48	1.310	10.46	2.058	0.4557	14	0.49	289.30	0
289	Acid Soluble Molybdenum (ppm)	0037	11.49	0.1100	10.46	2.058	0.4557	14	0.50	289.33	0
289	Acid Soluble Molybdenum (ppm)	0433	11.71	0.0265	10.46	2.058	0.4557	14	0.61	289.30	0
289	Acid Soluble Molybdenum (ppm)	0035	12.10	1.600	10.46	2.058	0.4557	14	0.80	289.30	0
289	Acid Soluble Molybdenum (ppm)	0102	12.63	0.6630	10.46	2.058	0.4557	14	1.06	289.30	0
289	Acid Soluble Molybdenum (ppm)	0506	13.25	0.5000	10.46	2.058	0.4557	14	1.36	289.99	0
289	Acid Soluble Molybdenum (ppm)	0515	8.450	2.890	10.46	2.058	0.4557	14	-0.98	289.34	1
291	Acid Soluble Nickel (ppm)	0230	29.45	0.9000	34.16	2.755	1.832	17	-1.71	291.30	0
291	Acid Soluble Nickel (ppm)	0481	30.00	0.0000	34.16	2.755	1.832	17	-1.51	291.99	0
291	Acid Soluble Nickel (ppm)	0515	31.43	2.194	34.16	2.755	1.832	17	-0.99	291.33	0
291	Acid Soluble Nickel (ppm)	0009	32.35	0.7000	34.16	2.755	1.832	17	-0.66	291.30	0
291	Acid Soluble Nickel (ppm)	0515	32.58	3.440	34.16	2.755	1.832	17	-0.57	291.34	0
291	Acid Soluble Nickel (ppm)	0506	33.00	5.000	34.16	2.755	1.832	17	-0.42	291.99	0
291	Acid Soluble Nickel (ppm)	0096	33.60	0.2000	34.16	2.755	1.832	17	-0.20	291.30	0
291	Acid Soluble Nickel (ppm)	0220	33.85	0.1000	34.16	2.755	1.832	17	-0.11	291.99	0
291	Acid Soluble Nickel (ppm)	0474	34.00	0.0000	34.16	2.755	1.832	17	-0.06	291.30	0
291	Acid Soluble Nickel (ppm)	0482	34.10	0.2000	34.16	2.755	1.832	17	-0.02	291.30	0
291	Acid Soluble Nickel (ppm)	0394	34.30	0.4000	34.16	2.755	1.832	17	0.05	291.30	0
291	Acid Soluble Nickel (ppm)	0037	34.55	0.0300	34.16	2.755	1.832	17	0.14	291.33	0
291	Acid Soluble Nickel (ppm)	0095	36.00	0.0000	34.16	2.755	1.832	17	0.67	291.30	0
291	Acid Soluble Nickel (ppm)	0035	37.25	7.700	34.16	2.755	1.832	17	1.12	291.30	0
291	Acid Soluble Nickel (ppm)	0102	39.11	1.918	34.16	2.755	1.832	17	1.80	291.30	0
291	Acid Soluble Nickel (ppm)	0444	39.39	2.060	34.16	2.755	1.832	17	1.90	291.30	0
291	Acid Soluble Nickel (ppm)	0105	43.17	6.300	34.16	2.755	1.832	17	3.27	291.30	0
301	Acid Soluble Selenium (ppm)	0394	0.0019	0.0000	34.16	2.755	0.0000	1	-12.40	301.30	0
301	Acid Soluble Selenium (ppm)	0009	0.0000	0.0000	34.16	2.755	0.0000	1	-12.40	301.30	4
301	Acid Soluble Selenium (ppm)	0230	0.0000	0.0000	34.16	2.755	0.0000	1	-12.40	301.30	4
301	Acid Soluble Selenium (ppm)	0515	0.0000	0.0000	34.16	2.755	0.0000	1	-12.40	301.33	4
301	Acid Soluble Selenium (ppm)	0515	0.2027	0.4053	34.16	2.755	0.0000	1	-12.33	301.34	4
311	Sodium (%)	0035	0.2040	0.0020	0.2405	0.0204	0.0052	6	-1.79	311.33	0
311	Sodium (%)	0096	0.2300	0.0000	0.2405	0.0204	0.0052	6	-0.52	311.99	0
311	Sodium (%)	0474	0.2350	0.0100	0.2405	0.0204	0.0052	6	-0.27	311.33	0
311	Sodium (%)	0482	0.2500	0.0000	0.2405	0.0204	0.0052	6	0.46	311.99	0
311	Sodium (%)	0354	0.2570	0.0160	0.2405	0.0204	0.0052	6	0.81	311.99	0
311	Sodium (%)	0102	0.2587	0.0029	0.2405	0.0204	0.0052	6	0.89	311.33	0
321	Acid Soluble Zinc (%)	0131	0.0060	0.0000	0.0593	0.0042	0.0018	33	-12.79	321.30	0
321	Acid Soluble Zinc (%)	0027	0.0242	0.0013	0.0593	0.0042	0.0018	33	-8.44	321.30	0
321	Acid Soluble Zinc (%)	0444	0.0463	0.0057	0.0593	0.0042	0.0018	33	-3.14	321.30	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				
321	Acid Soluble Zinc (%)	0354	0.0510	0.0020	0.0593	0.0042	0.0018	33	-2.00	321.30	0
321	Acid Soluble Zinc (%)	0230	0.0512	0.0018	0.0593	0.0042	0.0018	33	-1.95	321.30	0
321	Acid Soluble Zinc (%)	0428	0.0530	0.0001	0.0593	0.0042	0.0018	33	-1.53	321.00	0
321	Acid Soluble Zinc (%)	0009	0.0530	0.0025	0.0593	0.0042	0.0018	33	-1.53	321.30	0
321	Acid Soluble Zinc (%)	0515	0.0563	0.0013	0.0593	0.0042	0.0018	33	-0.74	321.33	0
321	Acid Soluble Zinc (%)	0220	0.0570	0.0000	0.0593	0.0042	0.0018	33	-0.56	321.99	0
321	Acid Soluble Zinc (%)	0394	0.0575	0.0010	0.0593	0.0042	0.0018	33	-0.44	321.32	0
321	Acid Soluble Zinc (%)	0420	0.0586	0.0027	0.0593	0.0042	0.0018	33	-0.19	321.30	0
321	Acid Soluble Zinc (%)	0035	0.0586	0.0080	0.0593	0.0042	0.0018	33	-0.17	321.30	0
321	Acid Soluble Zinc (%)	0105	0.0592	0.0005	0.0593	0.0042	0.0018	33	-0.04	321.03	0
321	Acid Soluble Zinc (%)	0389	0.0592	0.0001	0.0593	0.0042	0.0018	33	-0.04	321.99	0
321	Acid Soluble Zinc (%)	0096	0.0596	0.0004	0.0593	0.0042	0.0018	33	0.07	321.30	0
321	Acid Soluble Zinc (%)	0043	0.0600	0.0008	0.0593	0.0042	0.0018	33	0.16	321.00	0
321	Acid Soluble Zinc (%)	0457	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.00	0
321	Acid Soluble Zinc (%)	0095	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.30	0
321	Acid Soluble Zinc (%)	0292	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.30	0
321	Acid Soluble Zinc (%)	0472	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.30	0
321	Acid Soluble Zinc (%)	0474	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.30	0
321	Acid Soluble Zinc (%)	0482	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.30	0
321	Acid Soluble Zinc (%)	0506	0.0600	0.0000	0.0593	0.0042	0.0018	33	0.16	321.99	0
321	Acid Soluble Zinc (%)	0105	0.0601	0.0004	0.0593	0.0042	0.0018	33	0.19	321.00	0
321	Acid Soluble Zinc (%)	0515	0.0613	0.0124	0.0593	0.0042	0.0018	33	0.47	321.99	0
321	Acid Soluble Zinc (%)	0105	0.0628	0.0057	0.0593	0.0042	0.0018	33	0.82	321.30	0
321	Acid Soluble Zinc (%)	0102	0.0629	0.0006	0.0593	0.0042	0.0018	33	0.86	321.30	0
321	Acid Soluble Zinc (%)	0481	0.0635	0.0010	0.0593	0.0042	0.0018	33	1.00	321.00	0
321	Acid Soluble Zinc (%)	0371	0.0640	0.0000	0.0593	0.0042	0.0018	33	1.12	321.30	0
321	Acid Soluble Zinc (%)	0433	0.0642	0.0011	0.0593	0.0042	0.0018	33	1.16	321.30	0
321	Acid Soluble Zinc (%)	0402	0.0650	0.0100	0.0593	0.0042	0.0018	33	1.36	321.30	0
321	Acid Soluble Zinc (%)	0041	0.0700	0.0000	0.0593	0.0042	0.0018	33	2.56	321.30	0
321	Acid Soluble Zinc (%)	0483	0.0724	0.0010	0.0593	0.0042	0.0018	33	3.14	321.30	0
321	Acid Soluble Zinc (%)	0037	585.9	8.710	0.0593	0.0042	0.0018	33	140513.45	321.33	2
321	Acid Soluble Zinc (%)	0072	0.0000	0.0000	0.0593	0.0042	0.0018	33	-14.23	321.30	4

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier and a 4 flag indicates rejected due to 0 value submitted. Robust statistics not used if < 6 labs used in calculations, in this case the Z Scores are included for information only (Grey). An offset lab value with an asterix indicates that the value is lower than the Analyte value less the IA. Method or 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.