

magruder fertilizer

check sample program



STRIVING FOR EXCELLENCE IN ANALYSIS

Analyte Proficiency From All Labs

Sample # 170211

Grade 27-0-0

Statistical Summary

Analytes: 32

Labs Reporting: 80

Issue Date : 03/31/2017

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 (%)	24	23	13.43	0.2257	13.42		0.1827	0.0476	1.36%		0.1000	2.71%
002	Nitrate Nitrogen (%)	16	16	13.55	0.6893	13.54		0.7326	0.2289	5.41%		0.2134	2.70%
009	Ammoniacal Plus Nitrate Nitrogen (%)	6	6	26.68	0.6770	26.85		0.3489	0.1781	1.30%		0.3183	2.44%
010	Total Nitrogen (27%)	70	67	26.45	1.109	26.59	0.8159	0.8404	0.1283	3.16%	1.53%	0.1803	2.44%
020	Total Phosphorus as P2O5 (%)	8	5	0.5265	1.129	0.5265		1.129	0.6309	214.35%		0.0260	4.41%
030	Citrate Insoluble Phosphorus as P2O5 (%)	1		0.0150									
040	Indirect Available Phosphorus as P2O5 (%)	1		0.0100									
041	Direct Available Phosphorus as P2O5 (%)	2	1	0.1000									
048	Water Soluble Phosphorus as P2O5 (%)	1		0.0150									
050	Soluble Potassium as K2O (%)	9	6	0.3846	0.8656	0.0533		0.0726	0.0371	136.19%		0.0010	6.22%
060	Water (Free) (%)	4	4	0.6150	0.2712	0.6150		0.2712	0.1695	44.09%		0.0850	4.30%
101	Acid Soluble Calcium (4%)	57	56	4.450	0.4777	4.502	0.4251	0.2419	0.0404	5.37%	4.72%	0.0877	3.19%
121	Acid Soluble Magnesium (1%)	57	55	2.594	0.6174	2.591	0.3295	0.1930	0.0325	7.45%	6.36%	0.0533	3.47%
131	Water Soluble Magnesium (%)	1		1.000									
143	Elemental Sulfur (%)	2	2	0.1743	0.0152								
148	Total Sulfur (%)	8	7	0.2078	0.0487	0.2078		0.0552	0.0261	26.56%		0.0051	5.07%
149	Sulfur - HNO3 soluble (%)	3	3	0.1502	0.0674	0.1502		0.0674	0.0486	44.86%		0.0016	5.32%
151	Acid Soluble Arsenic (ppm)	10	6	0.3508	0.0989	0.3438		0.0954	0.0487	27.76%		0.0223	18.79%
165	Acid Soluble Boron (%)	5	4	0.0089	0.0064	0.0089		0.0064	0.0040	71.94%		0.0023	8.14%
181	Acid Soluble Cadmium (ppm)	11	8	0.1066	0.0443	0.1010		0.0361	0.0159	35.72%		0.0164	22.59%
191	Acid Soluble Chromium (ppm)	16	16	18.78	7.407	20.50		4.444	1.389	21.68%		1.159	10.15%
202	Acid Soluble Cobalt (ppm)	11	8	0.8946	0.4097	0.8946		0.4646	0.2053	51.94%		0.0271	16.27%
221	Acid Soluble Copper (%)	13	10	0.0005	0.0004	0.0005		0.0004	0.0002	90.47%		0.0001	12.76%
241	Acid Soluble Iron (%)	16	16	0.0481	0.0085	0.0496		0.0039	0.0012	7.82%		0.0029	6.29%
251	Acid Soluble Lead (ppm)	15	12	3.680	0.6597	3.677		0.7426	0.2680	20.20%		0.1297	13.15%
261	Acid Soluble Manganese (%)	14	13	0.0044	0.0008	0.0046		0.0004	0.0001	8.26%		0.0002	9.00%
281	Acid Soluble Mercury (ppm)	5	5	0.2247	0.3860	0.2247		0.3860	0.2158	171.80%		0.1267	20.03%
289	Acid Soluble Molybdenum (ppm)	14	11	1.718	0.6627	1.819		0.4702	0.1772	25.85%		0.2366	14.62%
291	Acid Soluble Nickel (ppm)	18	17	10.24	4.423	10.62		4.201	1.274	39.54%		0.5178	11.21%
301	Acid Soluble Selenium (ppm)	7	4	0.2720	0.2122	0.2720		0.2122	0.1326	78.01%		0.0189	19.46%
311	Sodium (%)	8	8	0.1622	0.0435	0.1661		0.0222	0.0098	13.36%		0.0044	5.24%

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
321	Acid Soluble Zinc (%)	22	20	0.9371	4.113	0.0020		0.0009	0.0002	44.90%		0.0878	10.20%

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Lab Values

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Issue Date : 03/31/2017

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 (%)	0486	12.86	0.0900	13.42	0.1827	0.1000	23	-3.11	001.10	0
001	Ammoniacal Nitrogen (%)	0231	13.14	0.2700	13.42	0.1827	0.1000	23	-1.58	001.10	0
001	Ammoniacal Nitrogen (%)	0526	13.20	0.0500	13.42	0.1827	0.1000	23	-1.25	001.10	0
001	Ammoniacal Nitrogen (%)	0394	13.20	0.1800	13.42	0.1827	0.1000	23	-1.22	001.99	0
001	Ammoniacal Nitrogen (%)	0027	13.27	0.0900	13.42	0.1827	0.1000	23	-0.87	001.99	0
001	Ammoniacal Nitrogen (%)	0309	13.29	0.1900	13.42	0.1827	0.1000	23	-0.76	001.10	0
001	Ammoniacal Nitrogen (%)	0200	13.35	0.1000	13.42	0.1827	0.1000	23	-0.40	001.99	0
001	Ammoniacal Nitrogen (%)	0493	13.35	0.1000	13.42	0.1827	0.1000	23	-0.40	001.99	0
001	Ammoniacal Nitrogen (%)	0405	13.43	0.0800	13.42	0.1827	0.1000	23	0.04	001.10	0
001	Ammoniacal Nitrogen (%)	0444	13.43	0.2400	13.42	0.1827	0.1000	23	0.04	001.10	0
001	Ammoniacal Nitrogen (%)	0522	13.44	0.0400	13.42	0.1827	0.1000	23	0.09	001.99	0
001	Ammoniacal Nitrogen (%)	0177	13.45	0.0030	13.42	0.1827	0.1000	23	0.13	001.10	0
001	Ammoniacal Nitrogen (%)	0117	13.45	0.1000	13.42	0.1827	0.1000	23	0.14	001.10	0
001	Ammoniacal Nitrogen (%)	0371	13.45	0.1000	13.42	0.1827	0.1000	23	0.14	001.99	0
001	Ammoniacal Nitrogen (%)	0519	13.46	0.0900	13.42	0.1827	0.1000	23	0.17	001.99	0
001	Ammoniacal Nitrogen (%)	0500	13.48	0.0000	13.42	0.1827	0.1000	23	0.31	001.99	0
001	Ammoniacal Nitrogen (%)	0169	13.50	0.0300	13.42	0.1827	0.1000	23	0.39	001.99	0
001	Ammoniacal Nitrogen (%)	0513	13.55	0.1000	13.42	0.1827	0.1000	23	0.69	001.99	0
001	Ammoniacal Nitrogen (%)	0096	13.57	0.0200	13.42	0.1827	0.1000	23	0.80	001.99	0
001	Ammoniacal Nitrogen (%)	0368	13.60	0.0901	13.42	0.1827	0.1000	23	0.97	001.99	0
001	Ammoniacal Nitrogen (%)	0423	13.61	0.1100	13.42	0.1827	0.1000	23	0.99	001.99	0
001	Ammoniacal Nitrogen (%)	0501	13.83	0.1263	13.42	0.1827	0.1000	23	2.23	001.99	0
001	Ammoniacal Nitrogen (%)	0389	13.95	0.1000	13.42	0.1827	0.1000	23	2.88	001.10	0
001	Ammoniacal Nitrogen (%)	0230	11.95	0.9000	13.42	0.1827	0.1000	23	-8.06	001.10	1
002	Nitrate Nitrogen (%)	0117	12.35	0.1000	13.54	0.7326	0.2134	16	-1.62	002.20	0
002	Nitrate Nitrogen (%)	0528	12.77	0.0400	13.54	0.7326	0.2134	16	-1.05	002.99	0
002	Nitrate Nitrogen (%)	0029	12.85	0.3100	13.54	0.7326	0.2134	16	-0.95	002.99	0
002	Nitrate Nitrogen (%)	0027	13.08	0.0720	13.54	0.7326	0.2134	16	-0.62	002.99	0
002	Nitrate Nitrogen (%)	0230	13.15	0.3000	13.54	0.7326	0.2134	16	-0.53	002.20	0
002	Nitrate Nitrogen (%)	0371	13.30	0.2000	13.54	0.7326	0.2134	16	-0.33	002.99	0
002	Nitrate Nitrogen (%)	0200	13.42	0.3100	13.54	0.7326	0.2134	16	-0.17	002.99	0
002	Nitrate Nitrogen (%)	0423	13.42	0.2200	13.54	0.7326	0.2134	16	-0.16	002.99	0
002	Nitrate Nitrogen (%)	0368	13.47	0.5604	13.54	0.7326	0.2134	16	-0.09	002.99	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				
002	Nitrate Nitrogen (%)	0519	13.52	0.0100	13.54	0.7326	0.2134	16	-0.03	002.99	0
002	Nitrate Nitrogen (%)	0513	13.64	0.0800	13.54	0.7326	0.2134	16	0.14	002.99	0
002	Nitrate Nitrogen (%)	0526	13.73	0.0000	13.54	0.7326	0.2134	16	0.26	002.99	0
002	Nitrate Nitrogen (%)	0486	14.34	0.2000	13.54	0.7326	0.2134	16	1.09	002.99	0
002	Nitrate Nitrogen (%)	0394	14.42	0.0500	13.54	0.7326	0.2134	16	1.19	002.99	0
002	Nitrate Nitrogen (%)	0231	14.47	0.5600	13.54	0.7326	0.2134	16	1.27	002.99	0
002	Nitrate Nitrogen (%)	0501	14.91	0.4025	13.54	0.7326	0.2134	16	1.86	002.99	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0309	25.35	1.030	26.85	0.3489	0.3183	6	-3.83	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0444	26.76	0.3500	26.85	0.3489	0.3183	6	-0.23	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0200	26.77	0.2100	26.85	0.3489	0.3183	6	-0.21	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0397	26.97	0.2600	26.85	0.3489	0.3183	6	0.32	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0169	27.07	0.0400	26.85	0.3489	0.3183	6	0.57	009.10	0
009	Ammoniacal Plus Nitrate Nitrogen (%)	0513	27.19	0.0200	26.85	0.3489	0.3183	6	0.88	009.99	0
010	Total Nitrogen (27%)	0307	23.17*	0.7410	26.59	0.8404	0.1803	67	-4.07	010.60	0
010	Total Nitrogen (27%)	0483	23.23*	0.0700	26.59	0.8404	0.1803	67	-4.01	010.60	0
010	Total Nitrogen (27%)	0521	23.30*	0.0000	26.59	0.8404	0.1803	67	-3.91	010.60	0
010	Total Nitrogen (27%)	0234	24.29*	0.0700	26.59	0.8404	0.1803	67	-2.75	010.60	0
010	Total Nitrogen (27%)	0042	24.43*	0.5100	26.59	0.8404	0.1803	67	-2.58	010.60	0
010	Total Nitrogen (27%)	0292	24.56*	0.0300	26.59	0.8404	0.1803	67	-2.42	010.60	0
010	Total Nitrogen (27%)	0086	24.68*	0.4790	26.59	0.8404	0.1803	67	-2.28	010.60	0
010	Total Nitrogen (27%)	0451	24.88*	0.0500	26.59	0.8404	0.1803	67	-2.04	010.60	0
010	Total Nitrogen (27%)	0230	25.15*	0.3000	26.59	0.8404	0.1803	67	-1.72	010.60	0
010	Total Nitrogen (27%)	0324	25.15*	0.3000	26.59	0.8404	0.1803	67	-1.72	010.60	0
010	Total Nitrogen (27%)	0402	25.41*	0.7300	26.59	0.8404	0.1803	67	-1.41	010.60	0
010	Total Nitrogen (27%)	0406	25.57*	0.6700	26.59	0.8404	0.1803	67	-1.22	010.60	0
010	Total Nitrogen (27%)	0522	25.86	0.0900	26.59	0.8404	0.1803	67	-0.88	010.99	0
010	Total Nitrogen (27%)	0523	25.90	0.0000	26.59	0.8404	0.1803	67	-0.82	010.60	0
010	Total Nitrogen (27%)	0309	25.91	0.8200	26.59	0.8404	0.1803	67	-0.81	010.11	0
010	Total Nitrogen (27%)	0177	25.97	0.0500	26.59	0.8404	0.1803	67	-0.75	010.60	0
010	Total Nitrogen (27%)	0528	25.98	0.0200	26.59	0.8404	0.1803	67	-0.73	010.99	0
010	Total Nitrogen (27%)	0524	25.99	0.0176	26.59	0.8404	0.1803	67	-0.72	010.99	0
010	Total Nitrogen (27%)	0527	26.04	0.2650	26.59	0.8404	0.1803	67	-0.66	010.60	0
010	Total Nitrogen (27%)	0356	26.15	0.1800	26.59	0.8404	0.1803	67	-0.53	010.60	0
010	Total Nitrogen (27%)	0516	26.15	0.1000	26.59	0.8404	0.1803	67	-0.53	010.60	0
010	Total Nitrogen (27%)	0041	26.38	0.4500	26.59	0.8404	0.1803	67	-0.26	010.60	0
010	Total Nitrogen (27%)	0377	26.45	0.0600	26.59	0.8404	0.1803	67	-0.17	010.60	0
010	Total Nitrogen (27%)	0457	26.55	0.1000	26.59	0.8404	0.1803	67	-0.05	010.60	0
010	Total Nitrogen (27%)	0522	26.56	0.1800	26.59	0.8404	0.1803	67	-0.04	010.11	0
010	Total Nitrogen (27%)	0500	26.57	0.0200	26.59	0.8404	0.1803	67	-0.03	010.11	0
010	Total Nitrogen (27%)	0444	26.61	0.0500	26.59	0.8404	0.1803	67	0.01	010.60	0
010	Total Nitrogen (27%)	0415	26.64	0.3627	26.59	0.8404	0.1803	67	0.05	010.12	0
010	Total Nitrogen (27%)	0291	26.73	0.0100	26.59	0.8404	0.1803	67	0.16	010.60	0
010	Total Nitrogen (27%)	0043	26.73	0.1000	26.59	0.8404	0.1803	67	0.16	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 (27%)	0354	26.76	0.0000	26.59	0.8404	0.1803	67	0.20	010.60	0
010	Total Nitrogen (27%)	0485	26.78	0.1600	26.59	0.8404	0.1803	67	0.22	010.60	0
010	Total Nitrogen (27%)	0007	26.80	0.6000	26.59	0.8404	0.1803	67	0.25	010.60	0
010	Total Nitrogen (27%)	0131	26.80	0.1400	26.59	0.8404	0.1803	67	0.25	010.60	0
010	Total Nitrogen (27%)	0029	26.82	0.1300	26.59	0.8404	0.1803	67	0.26	010.60	0
010	Total Nitrogen (27%)	0501	26.84	0.0790	26.59	0.8404	0.1803	67	0.29	010.60	0
010	Total Nitrogen (27%)	0157	26.90	0.0000	26.59	0.8404	0.1803	67	0.37	010.60	0
010	Total Nitrogen (27%)	0389	26.90	0.2000	26.59	0.8404	0.1803	67	0.37	010.60	0
010	Total Nitrogen (27%)	0526	26.93	0.0000	26.59	0.8404	0.1803	67	0.40	010.17	0
010	Total Nitrogen (27%)	0482	26.95	0.1000	26.59	0.8404	0.1803	67	0.43	010.60	0
010	Total Nitrogen (27%)	0421	26.96	0.0500	26.59	0.8404	0.1803	67	0.43	010.60	0
010	Total Nitrogen (27%)	0405	26.97	0.0500	26.59	0.8404	0.1803	67	0.44	010.60	0
010	Total Nitrogen (27%)	0519	27.01	0.1500	26.59	0.8404	0.1803	67	0.49	010.99	0
010	Total Nitrogen (27%)	0518	27.02	0.2000	26.59	0.8404	0.1803	67	0.51	010.99	0
010	Total Nitrogen (27%)	0025	27.04	0.1100	26.59	0.8404	0.1803	67	0.53	010.60	0
010	Total Nitrogen (27%)	0452	27.04	0.0700	26.59	0.8404	0.1803	67	0.53	010.60	0
010	Total Nitrogen (27%)	0472	27.05	0.1100	26.59	0.8404	0.1803	67	0.54	010.60	0
010	Total Nitrogen (27%)	0231	27.06	0.0500	26.59	0.8404	0.1803	67	0.55	010.60	0
010	Total Nitrogen (27%)	0055	27.06	0.1480	26.59	0.8404	0.1803	67	0.56	010.60	0
010	Total Nitrogen (27%)	0486	27.09	0.1100	26.59	0.8404	0.1803	67	0.59	010.60	0
010	Total Nitrogen (27%)	0137	27.12	0.0800	26.59	0.8404	0.1803	67	0.63	010.60	0
010	Total Nitrogen (27%)	0423	27.14	0.0900	26.59	0.8404	0.1803	67	0.65	010.60	0
010	Total Nitrogen (27%)	0105	27.14	0.0400	26.59	0.8404	0.1803	67	0.65	010.11	0
010	Total Nitrogen (27%)	0513	27.15	0.0600	26.59	0.8404	0.1803	67	0.66	010.99	0
010	Total Nitrogen (27%)	0360	27.18	0.1300	26.59	0.8404	0.1803	67	0.69	010.60	0
010	Total Nitrogen (27%)	0049	27.19	0.0600	26.59	0.8404	0.1803	67	0.71	010.60	0
010	Total Nitrogen (27%)	0136	27.19	0.0200	26.59	0.8404	0.1803	67	0.71	010.60	0
010	Total Nitrogen (27%)	0096	27.22	0.1200	26.59	0.8404	0.1803	67	0.75	010.60	0
010	Total Nitrogen (27%)	0034	27.24	0.1200	26.59	0.8404	0.1803	67	0.77	010.60	0
010	Total Nitrogen (27%)	0040	27.30	0.2000	26.59	0.8404	0.1803	67	0.84	010.60	0
010	Total Nitrogen (27%)	0105	27.33	0.0200	26.59	0.8404	0.1803	67	0.88	010.60	0
010	Total Nitrogen (27%)	0023	27.55	0.8870	26.59	0.8404	0.1803	67	1.14	010.60	0
010	Total Nitrogen (27%)	0095	27.59	0.0800	26.59	0.8404	0.1803	67	1.19	010.60	0
010	Total Nitrogen (27%)	0493	27.75	0.2000	26.59	0.8404	0.1803	67	1.38	010.99	0
010	Total Nitrogen (27%)	0494	27.76	0.2700	26.59	0.8404	0.1803	67	1.38	010.60	0
010	Total Nitrogen (27%)	0443	28.09	0.2200	26.59	0.8404	0.1803	67	1.78	010.60	0
010	Total Nitrogen (27%)	0368	28.66	0.1990	26.59	0.8404	0.1803	67	2.46	010.60	0
010	Total Nitrogen (27%)	0073	25.82	0.9900	26.59	0.8404	0.1803	67	-0.93	010.60	1
010	Total Nitrogen (27%)	0325	26.47	1.330	26.59	0.8404	0.1803	67	-0.15	010.60	1
010	Total Nitrogen (27%)	0114	6.455*	0.1900	26.59	0.8404	0.1803	67	-23.96	010.11	2
020	Total Phosphorus as P2O5 (%)	0521	0.0021	0.0000	0.5265	1.129	0.0260	5	-0.41	020.50	0
020	Total Phosphorus as P2O5 (%)	0524	0.0054	0.0000	0.5265	1.129	0.0260	5	-0.40	020.50	0
020	Total Phosphorus as P2O5 (%)	0096	0.0250	0.0100	0.5265	1.129	0.0260	5	-0.39	020.40	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 (%)	0483	0.0550	0.0700	0.5265	1.129	0.0260	5	-0.36	020.50	0
020	Total Phosphorus as P2O5 (%)	0402	2.545	0.0500	0.5265	1.129	0.0260	5	1.56	020.50	0
020	Total Phosphorus as P2O5 (%)	0292	2.335	0.1500	0.5265	1.129	0.0260	5	1.40	020.20	1
020	Total Phosphorus as P2O5 (%)	0389	0.0000	0.0000	0.5265	1.129	0.0260	5		020.50	4
020	Total Phosphorus as P2O5 (%)	0527	0.0000	0.0000	0.5265	1.129	0.0260	5		020.50	4
030	Citrate Insoluble Phosphorus as P2O5 (%)	0096	0.0150	0.0100				1		030.40	0
040	Indirect Available Phosphorus as P2O5 (%)	0096	0.0100	0.0200				0		040.40	4
041	Direct Available Phosphorus as P2O5 (%)	0325	0.1000	0.0000				1		041.50	0
041	Direct Available Phosphorus as P2O5 (%)	0354	0.0000	0.0000				1		041.60	4
048	Water Soluble Phosphorus as P2O5 (%)	0096	0.0150	0.0100				1		048.40	0
050	Soluble Potassium as K2O (%)	0521	0.0029	0.0000	0.0533	0.0726	0.0010	6	-0.62	050.99	0
050	Soluble Potassium as K2O (%)	0389	0.0065	0.0010	0.0533	0.0726	0.0010	6	-0.57	050.99	0
050	Soluble Potassium as K2O (%)	0423	0.0210	0.0020	0.0533	0.0726	0.0010	6	-0.40	050.52	0
050	Soluble Potassium as K2O (%)	0524	0.0273	0.0031	0.0533	0.0726	0.0010	6	-0.32	050.99	0
050	Soluble Potassium as K2O (%)	0325	0.1000	0.0000	0.0533	0.0726	0.0010	6	0.57	050.99	0
050	Soluble Potassium as K2O (%)	0402	2.150	0.0000	0.0533	0.0726	0.0010	6	25.72	050.99	0
050	Soluble Potassium as K2O (%)	0483	0.2750	0.1100	0.0533	0.0726	0.0010	6	2.72	050.51	1
050	Soluble Potassium as K2O (%)	0354	0.0000	0.0000	0.0533	0.0726	0.0010	6		050.52	4
050	Soluble Potassium as K2O (%)	0527	0.0000	0.0000	0.0533	0.0726	0.0010	6		050.99	4
060	Water (Free) (%)	0007	0.2650	0.0300	0.6150	0.2712	0.0850	4	-1.29	060.00	0
060	Water (Free) (%)	0096	0.5450	0.2900	0.6150	0.2712	0.0850	4	-0.26	060.00	0
060	Water (Free) (%)	0513	0.7750	0.0100	0.6150	0.2712	0.0850	4	0.59	060.30	0
060	Water (Free) (%)	0513	0.8750	0.0100	0.6150	0.2712	0.0850	4	0.96	060.99	0
101	Acid Soluble Calcium (4%)	0521	1.991*	0.0000	4.502	0.2419	0.0877	56	-10.38	101.32	0
101	Acid Soluble Calcium (4%)	0234	2.795*	0.0500	4.502	0.2419	0.0877	56	-7.06	101.30	0
101	Acid Soluble Calcium (4%)	0500	3.930*	0.0000	4.502	0.2419	0.0877	56	-2.36	101.30	0
101	Acid Soluble Calcium (4%)	0486	4.030*	0.0200	4.502	0.2419	0.0877	56	-1.95	101.30	0
101	Acid Soluble Calcium (4%)	0029	4.096	0.0100	4.502	0.2419	0.0877	56	-1.68	101.00	0
101	Acid Soluble Calcium (4%)	0501	4.145	0.1100	4.502	0.2419	0.0877	56	-1.48	101.99	0
101	Acid Soluble Calcium (4%)	0528	4.205	0.0100	4.502	0.2419	0.0877	56	-1.23	101.32	0
101	Acid Soluble Calcium (4%)	0515	4.234	0.1646	4.502	0.2419	0.0877	56	-1.11	101.99	0
101	Acid Soluble Calcium (4%)	0519	4.270	0.0600	4.502	0.2419	0.0877	56	-0.96	101.99	0
101	Acid Soluble Calcium (4%)	0389	4.290	0.0600	4.502	0.2419	0.0877	56	-0.88	101.99	0
101	Acid Soluble Calcium (4%)	0482	4.305	0.0500	4.502	0.2419	0.0877	56	-0.81	101.30	0
101	Acid Soluble Calcium (4%)	0526	4.310	0.0000	4.502	0.2419	0.0877	56	-0.79	101.99	0
101	Acid Soluble Calcium (4%)	0457	4.320	0.0400	4.502	0.2419	0.0877	56	-0.75	101.00	0
101	Acid Soluble Calcium (4%)	0055	4.330	0.2000	4.502	0.2419	0.0877	56	-0.71	101.33	0
101	Acid Soluble Calcium (4%)	0073	4.375	0.0900	4.502	0.2419	0.0877	56	-0.52	101.30	0
101	Acid Soluble Calcium (4%)	0231	4.400	0.0400	4.502	0.2419	0.0877	56	-0.42	101.30	0
101	Acid Soluble Calcium (4%)	0368	4.409	0.1194	4.502	0.2419	0.0877	56	-0.38	101.99	0
101	Acid Soluble Calcium (4%)	0515	4.418	0.1760	4.502	0.2419	0.0877	56	-0.35	101.33	0
101	Acid Soluble Calcium (4%)	0354	4.445	0.0100	4.502	0.2419	0.0877	56	-0.24	101.30	0
101	Acid Soluble Calcium (4%)	0351	4.451	0.2760	4.502	0.2419	0.0877	56	-0.21	101.30	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				
101	Acid Soluble Calcium (4%)	0513	4.455	0.0100	4.502	0.2419	0.0877	56	-0.19	101.00	0
101	Acid Soluble Calcium (4%)	0023	4.459	0.0290	4.502	0.2419	0.0877	56	-0.18	101.33	0
101	Acid Soluble Calcium (4%)	0485	4.460	0.0000	4.502	0.2419	0.0877	56	-0.17	101.00	0
101	Acid Soluble Calcium (4%)	0177	4.471	0.0452	4.502	0.2419	0.0877	56	-0.13	101.33	0
101	Acid Soluble Calcium (4%)	0169	4.475	0.0500	4.502	0.2419	0.0877	56	-0.11	101.00	0
101	Acid Soluble Calcium (4%)	0025	4.482	0.0695	4.502	0.2419	0.0877	56	-0.08	101.33	0
101	Acid Soluble Calcium (4%)	0037	4.485	0.0100	4.502	0.2419	0.0877	56	-0.07	101.33	0
101	Acid Soluble Calcium (4%)	0402	4.490	0.0200	4.502	0.2419	0.0877	56	-0.05	101.30	0
101	Acid Soluble Calcium (4%)	0137	4.511	0.0500	4.502	0.2419	0.0877	56	0.04	101.30	0
101	Acid Soluble Calcium (4%)	0527	4.518	0.0270	4.502	0.2419	0.0877	56	0.06	101.33	0
101	Acid Soluble Calcium (4%)	0324	4.520	0.1600	4.502	0.2419	0.0877	56	0.08	101.30	0
101	Acid Soluble Calcium (4%)	0394	4.520	0.0400	4.502	0.2419	0.0877	56	0.08	101.30	0
101	Acid Soluble Calcium (4%)	0472	4.520	0.0400	4.502	0.2419	0.0877	56	0.08	101.30	0
101	Acid Soluble Calcium (4%)	0522	4.525	0.1500	4.502	0.2419	0.0877	56	0.10	101.70	0
101	Acid Soluble Calcium (4%)	0444	4.555	0.0700	4.502	0.2419	0.0877	56	0.22	101.30	0
101	Acid Soluble Calcium (4%)	0360	4.560	0.0800	4.502	0.2419	0.0877	56	0.24	101.30	0
101	Acid Soluble Calcium (4%)	0114	4.565	0.1100	4.502	0.2419	0.0877	56	0.26	101.30	0
101	Acid Soluble Calcium (4%)	0397	4.567	0.0140	4.502	0.2419	0.0877	56	0.27	101.30	0
101	Acid Soluble Calcium (4%)	0105	4.570	0.2600	4.502	0.2419	0.0877	56	0.28	101.03	0
101	Acid Soluble Calcium (4%)	0523	4.600	0.2000	4.502	0.2419	0.0877	56	0.41	101.99	0
101	Acid Soluble Calcium (4%)	0200	4.620	0.0000	4.502	0.2419	0.0877	56	0.49	101.70	0
101	Acid Soluble Calcium (4%)	0028	4.625	0.0300	4.502	0.2419	0.0877	56	0.51	101.00	0
101	Acid Soluble Calcium (4%)	0043	4.635	0.0100	4.502	0.2419	0.0877	56	0.55	101.00	0
101	Acid Soluble Calcium (4%)	0157	4.660	0.3000	4.502	0.2419	0.0877	56	0.65	101.30	0
101	Acid Soluble Calcium (4%)	0105	4.690	0.1000	4.502	0.2419	0.0877	56	0.78	101.00	0
101	Acid Soluble Calcium (4%)	0423	4.715	0.0500	4.502	0.2419	0.0877	56	0.88	101.32	0
101	Acid Soluble Calcium (4%)	0421	4.727	0.0050	4.502	0.2419	0.0877	56	0.93	101.33	0
101	Acid Soluble Calcium (4%)	0040	4.735	0.1500	4.502	0.2419	0.0877	56	0.96	101.00	0
101	Acid Soluble Calcium (4%)	0096	4.735	0.4300	4.502	0.2419	0.0877	56	0.96	101.30	0
101	Acid Soluble Calcium (4%)	0291	4.890	0.0200	4.502	0.2419	0.0877	56	1.60	101.30	0
101	Acid Soluble Calcium (4%)	0027	4.913	0.1230	4.502	0.2419	0.0877	56	1.70	101.99	0
101	Acid Soluble Calcium (4%)	0433	4.915	0.0500	4.502	0.2419	0.0877	56	1.71	101.30	0
101	Acid Soluble Calcium (4%)	0157	4.930	0.2400	4.502	0.2419	0.0877	56	1.77	101.00	0
101	Acid Soluble Calcium (4%)	0117	5.056	0.2010	4.502	0.2419	0.0877	56	2.29	101.33	0
101	Acid Soluble Calcium (4%)	0042	5.075	0.1700	4.502	0.2419	0.0877	56	2.37	101.99	0
101	Acid Soluble Calcium (4%)	0483	5.235	0.1100	4.502	0.2419	0.0877	56	3.03	101.30	0
101	Acid Soluble Calcium (4%)	0494	4.392	0.7430	4.502	0.2419	0.0877	56	-0.46	101.33	1
121	Acid Soluble Magnesium (1%)	0519	0.9850*	0.0100	2.591	0.1930	0.0533	55	-8.32	121.99	0
121	Acid Soluble Magnesium (1%)	0500	1.080*	0.0400	2.591	0.1930	0.0533	55	-7.83	121.00	0
121	Acid Soluble Magnesium (1%)	0521	1.124*	0.0000	2.591	0.1930	0.0533	55	-7.60	121.32	0
121	Acid Soluble Magnesium (1%)	0486	2.010*	0.0200	2.591	0.1930	0.0533	55	-3.01	121.33	0
121	Acid Soluble Magnesium (1%)	0042	2.150*	0.0200	2.591	0.1930	0.0533	55	-2.28	121.99	0
121	Acid Soluble Magnesium (1%)	0073	2.195*	0.0700	2.591	0.1930	0.0533	55	-2.05	121.00	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				
121	Acid Soluble Magnesium (1%)	0457	2.220*	0.0400	2.591	0.1930	0.0533	55	-1.92	121.00	0
121	Acid Soluble Magnesium (1%)	0029	2.356	0.0980	2.591	0.1930	0.0533	55	-1.22	121.00	0
121	Acid Soluble Magnesium (1%)	0515	2.387	0.0914	2.591	0.1930	0.0533	55	-1.06	121.99	0
121	Acid Soluble Magnesium (1%)	0515	2.428	0.1345	2.591	0.1930	0.0533	55	-0.84	121.33	0
121	Acid Soluble Magnesium (1%)	0394	2.465	0.0700	2.591	0.1930	0.0533	55	-0.65	121.32	0
121	Acid Soluble Magnesium (1%)	0354	2.481	0.0140	2.591	0.1930	0.0533	55	-0.57	121.30	0
121	Acid Soluble Magnesium (1%)	0137	2.490	0.0280	2.591	0.1930	0.0533	55	-0.52	121.30	0
121	Acid Soluble Magnesium (1%)	0105	2.495	0.0700	2.591	0.1930	0.0533	55	-0.50	121.03	0
121	Acid Soluble Magnesium (1%)	0482	2.495	0.0500	2.591	0.1930	0.0533	55	-0.50	121.30	0
121	Acid Soluble Magnesium (1%)	0368	2.514	0.1704	2.591	0.1930	0.0533	55	-0.40	121.99	0
121	Acid Soluble Magnesium (1%)	0231	2.515	0.0500	2.591	0.1930	0.0533	55	-0.39	121.30	0
121	Acid Soluble Magnesium (1%)	0105	2.520	0.0400	2.591	0.1930	0.0533	55	-0.37	121.00	0
121	Acid Soluble Magnesium (1%)	0157	2.520	0.0600	2.591	0.1930	0.0533	55	-0.37	121.30	0
121	Acid Soluble Magnesium (1%)	0073	2.535	0.0300	2.591	0.1930	0.0533	55	-0.29	121.30	0
121	Acid Soluble Magnesium (1%)	0309	2.545	0.0100	2.591	0.1930	0.0533	55	-0.24	121.00	0
121	Acid Soluble Magnesium (1%)	0423	2.560	0.0600	2.591	0.1930	0.0533	55	-0.16	121.32	0
121	Acid Soluble Magnesium (1%)	0037	2.567	0.0160	2.591	0.1930	0.0533	55	-0.12	121.33	0
121	Acid Soluble Magnesium (1%)	0023	2.568	0.0420	2.591	0.1930	0.0533	55	-0.12	121.33	0
121	Acid Soluble Magnesium (1%)	0169	2.570	0.0600	2.591	0.1930	0.0533	55	-0.11	121.00	0
121	Acid Soluble Magnesium (1%)	0177	2.576	0.0329	2.591	0.1930	0.0533	55	-0.07	121.33	0
121	Acid Soluble Magnesium (1%)	0397	2.582	0.0430	2.591	0.1930	0.0533	55	-0.05	121.30	0
121	Acid Soluble Magnesium (1%)	0040	2.595	0.0100	2.591	0.1930	0.0533	55	0.02	121.00	0
121	Acid Soluble Magnesium (1%)	0096	2.600	0.0200	2.591	0.1930	0.0533	55	0.05	121.30	0
121	Acid Soluble Magnesium (1%)	0157	2.605	0.0300	2.591	0.1930	0.0533	55	0.07	121.00	0
121	Acid Soluble Magnesium (1%)	0389	2.620	0.0000	2.591	0.1930	0.0533	55	0.15	121.99	0
121	Acid Soluble Magnesium (1%)	0025	2.629	0.0461	2.591	0.1930	0.0533	55	0.20	121.33	0
121	Acid Soluble Magnesium (1%)	0360	2.630	0.0600	2.591	0.1930	0.0533	55	0.20	121.30	0
121	Acid Soluble Magnesium (1%)	0055	2.630	0.1400	2.591	0.1930	0.0533	55	0.20	121.33	0
121	Acid Soluble Magnesium (1%)	0444	2.640	0.0800	2.591	0.1930	0.0533	55	0.25	121.30	0
121	Acid Soluble Magnesium (1%)	0523	2.650	0.1000	2.591	0.1930	0.0533	55	0.31	121.99	0
121	Acid Soluble Magnesium (1%)	0485	2.660	0.0170	2.591	0.1930	0.0533	55	0.36	121.00	0
121	Acid Soluble Magnesium (1%)	0351	2.660	0.2620	2.591	0.1930	0.0533	55	0.36	121.30	0
121	Acid Soluble Magnesium (1%)	0516	2.665	0.0460	2.591	0.1930	0.0533	55	0.38	121.00	0
121	Acid Soluble Magnesium (1%)	0528	2.665	0.0700	2.591	0.1930	0.0533	55	0.38	121.32	0
121	Acid Soluble Magnesium (1%)	0028	2.685	0.0100	2.591	0.1930	0.0533	55	0.49	121.00	0
121	Acid Soluble Magnesium (1%)	0114	2.690	0.0600	2.591	0.1930	0.0533	55	0.51	121.30	0
121	Acid Soluble Magnesium (1%)	0324	2.705	0.1700	2.591	0.1930	0.0533	55	0.59	121.30	0
121	Acid Soluble Magnesium (1%)	0043	2.715	0.0300	2.591	0.1930	0.0533	55	0.64	121.00	0
121	Acid Soluble Magnesium (1%)	0421	2.741	0.0050	2.591	0.1930	0.0533	55	0.78	121.33	0
121	Acid Soluble Magnesium (1%)	0527	2.744	0.0380	2.591	0.1930	0.0533	55	0.79	121.33	0
121	Acid Soluble Magnesium (1%)	0433	2.750	0.0200	2.591	0.1930	0.0533	55	0.82	121.30	0
121	Acid Soluble Magnesium (1%)	0027	2.824	0.0540	2.591	0.1930	0.0533	55	1.21	121.99	0
121	Acid Soluble Magnesium (1%)	0117	2.837	0.0760	2.591	0.1930	0.0533	55	1.28	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 Magnesium (1%)	0513	2.910	0.0200	2.591	0.1930	0.0533	55	1.65	121.00	0
121	Acid Soluble Magnesium (1%)	0483	2.950	0.0600	2.591	0.1930	0.0533	55	1.86	121.30	0
121	Acid Soluble Magnesium (1%)	0472	2.985	0.0100	2.591	0.1930	0.0533	55	2.04	121.30	0
121	Acid Soluble Magnesium (1%)	0524	3.014	0.0592	2.591	0.1930	0.0533	55	2.19	121.99	0
121	Acid Soluble Magnesium (1%)	0234	4.515	0.0500	2.591	0.1930	0.0533	55	9.97	121.30	0
121	Acid Soluble Magnesium (1%)	0200	5.420	0.0200	2.591	0.1930	0.0533	55	14.66	121.99	0
121	Acid Soluble Magnesium (1%)	0501	1.632*	0.6697	2.591	0.1930	0.0533	55	-4.97	121.99	1
121	Acid Soluble Magnesium (1%)	0494	2.517	0.3937	2.591	0.1930	0.0533	55	-0.38	121.33	1
131	Water Soluble Magnesium (%)	0518	1.000	0.0800				1		131.70	0
143	Elemental Sulfur (%)	0389	0.1635	0.0070				2		143.99	0
143	Elemental Sulfur (%)	0472	0.1850	0.0100				2		143.99	0
148	Total Sulfur (%)	0105	0.1400	0.0200	0.2078	0.0552	0.0051	7	-1.11	148.01	0
148	Total Sulfur (%)	0096	0.1781	0.0012	0.2078	0.0552	0.0051	7	-0.49	148.99	0
148	Total Sulfur (%)	0494	0.1785	0.0039	0.2078	0.0552	0.0051	7	-0.48	148.07	0
148	Total Sulfur (%)	0354	0.2055	0.0030	0.2078	0.0552	0.0051	7	-0.04	148.99	0
148	Total Sulfur (%)	0483	0.2300	0.0040	0.2078	0.0552	0.0051	7	0.36	148.07	0
148	Total Sulfur (%)	0117	0.2326	0.0039	0.2078	0.0552	0.0051	7	0.41	148.07	0
148	Total Sulfur (%)	0482	0.2900	0.0000	0.2078	0.0552	0.0051	7	1.35	148.99	0
148	Total Sulfur (%)	0527	0.3215	0.0370	0.2078	0.0552	0.0051	7	1.86	148.07	1
149	Sulfur - HNO3 soluble (%)	0521	0.0754	0.0000	0.1502	0.0674	0.0016	3	-1.11	149.04	0
149	Sulfur - HNO3 soluble (%)	0423	0.1690	0.0020	0.1502	0.0674	0.0016	3	0.28	149.04	0
149	Sulfur - HNO3 soluble (%)	0524	0.2062	0.0029	0.1502	0.0674	0.0016	3	0.83	149.04	0
151	Acid Soluble Arsenic (ppm)	0136	0.2500	0.1000	0.3438	0.0954	0.0223	6	-0.88	151.00	0
151	Acid Soluble Arsenic (ppm)	0519	0.2950	0.0100	0.3438	0.0954	0.0223	6	-0.46	151.99	0
151	Acid Soluble Arsenic (ppm)	0501	0.2957	0.0038	0.3438	0.0954	0.0223	6	-0.45	151.30	0
151	Acid Soluble Arsenic (ppm)	0394	0.3550	0.0100	0.3438	0.0954	0.0223	6	0.10	151.30	0
151	Acid Soluble Arsenic (ppm)	0200	0.3800	0.0000	0.3438	0.0954	0.0223	6	0.34	151.00	0
151	Acid Soluble Arsenic (ppm)	0527	0.5290	0.0100	0.3438	0.0954	0.0223	6	1.73	151.33	0
151	Acid Soluble Arsenic (ppm)	0368	0.0000	0.0000	0.3438	0.0954	0.0223	6		151.30	4
151	Acid Soluble Arsenic (ppm)	0528	0.0000	0.0000	0.3438	0.0954	0.0223	6		151.32	4
151	Acid Soluble Arsenic (ppm)	0515	0.0000	0.0000	0.3438	0.0954	0.0223	6		151.33	4
151	Acid Soluble Arsenic (ppm)	0515	0.1943	0.3885	0.3438	0.0954	0.0223	6		151.34	4
165	Acid Soluble Boron (%)	0521	0.0004	0.0000	0.0089	0.0064	0.0023	4	-1.33	165.30	0
165	Acid Soluble Boron (%)	0354	0.0075	0.0030	0.0089	0.0064	0.0023	4	-0.22	165.30	0
165	Acid Soluble Boron (%)	0524	0.0136	0.0000	0.0089	0.0064	0.0023	4	0.74	165.99	0
165	Acid Soluble Boron (%)	0527	0.0140	0.0060	0.0089	0.0064	0.0023	4	0.80	165.99	0
165	Acid Soluble Boron (%)	0389	0.0000	0.0000	0.0089	0.0064	0.0023	4		165.30	4
181	Acid Soluble Cadmium (ppm)	0527	0.0705	0.0090	0.1010	0.0361	0.0164	8	-0.77	181.33	0
181	Acid Soluble Cadmium (ppm)	0501	0.0750	0.0151	0.1010	0.0361	0.0164	8	-0.66	181.30	0
181	Acid Soluble Cadmium (ppm)	0136	0.0800	0.0400	0.1010	0.0361	0.0164	8	-0.53	181.00	0
181	Acid Soluble Cadmium (ppm)	0394	0.0900	0.0200	0.1010	0.0361	0.0164	8	-0.28	181.30	0
181	Acid Soluble Cadmium (ppm)	0519	0.0950	0.0100	0.1010	0.0361	0.0164	8	-0.15	181.99	0
181	Acid Soluble Cadmium (ppm)	0524	0.0973	0.0071	0.1010	0.0361	0.0164	8	-0.09	181.30	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
181	Acid Soluble Cadmium (ppm)	0528	0.1450	0.0300	0.1010	0.0361	0.0164	8	1.12	181.32	0
181	Acid Soluble Cadmium (ppm)	0389	0.2000	0.0000	0.1010	0.0361	0.0164	8	2.51	181.30	0
181	Acid Soluble Cadmium (ppm)	0368	0.0000	0.0000	0.1010	0.0361	0.0164	8		181.30	4
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.1010	0.0361	0.0164	8		181.33	4
181	Acid Soluble Cadmium (ppm)	0515	0.0000	0.0000	0.1010	0.0361	0.0164	8		181.34	4
191	Acid Soluble Chromium (ppm)	0519	2.390	0.0600	20.50	4.444	1.159	16	-4.08	191.99	0
191	Acid Soluble Chromium (ppm)	0501	3.298	0.0170	20.50	4.444	1.159	16	-3.87	191.30	0
191	Acid Soluble Chromium (ppm)	0482	8.285	2.630	20.50	4.444	1.159	16	-2.75	191.30	0
191	Acid Soluble Chromium (ppm)	0394	18.80	0.2000	20.50	4.444	1.159	16	-0.38	191.30	0
191	Acid Soluble Chromium (ppm)	0523	19.62	1.110	20.50	4.444	1.159	16	-0.20	191.30	0
191	Acid Soluble Chromium (ppm)	0444	19.69	0.1500	20.50	4.444	1.159	16	-0.18	191.30	0
191	Acid Soluble Chromium (ppm)	0515	19.95	3.397	20.50	4.444	1.159	16	-0.12	191.33	0
191	Acid Soluble Chromium (ppm)	0389	20.80	0.2000	20.50	4.444	1.159	16	0.07	191.30	0
191	Acid Soluble Chromium (ppm)	0494	20.88	3.436	20.50	4.444	1.159	16	0.08	191.33	0
191	Acid Soluble Chromium (ppm)	0368	21.60	2.600	20.50	4.444	1.159	16	0.25	191.30	0
191	Acid Soluble Chromium (ppm)	0515	22.66	0.5250	20.50	4.444	1.159	16	0.49	191.34	0
191	Acid Soluble Chromium (ppm)	0096	22.90	0.8000	20.50	4.444	1.159	16	0.54	191.30	0
191	Acid Soluble Chromium (ppm)	0528	23.75	0.3000	20.50	4.444	1.159	16	0.73	191.32	0
191	Acid Soluble Chromium (ppm)	0037	24.43	0.2900	20.50	4.444	1.159	16	0.88	191.33	0
191	Acid Soluble Chromium (ppm)	0527	25.72	1.816	20.50	4.444	1.159	16	1.17	191.33	0
191	Acid Soluble Chromium (ppm)	0117	25.74	1.010	20.50	4.444	1.159	16	1.18	191.33	0
202	Acid Soluble Cobalt (ppm)	0519	0.2900	0.0200	0.8946	0.4646	0.0271	8	-1.19	202.99	0
202	Acid Soluble Cobalt (ppm)	0501	0.3198	0.0072	0.8946	0.4646	0.0271	8	-1.13	202.34	0
202	Acid Soluble Cobalt (ppm)	0389	0.8000	0.0000	0.8946	0.4646	0.0271	8	-0.19	202.30	0
202	Acid Soluble Cobalt (ppm)	0523	0.9180	0.0220	0.8946	0.4646	0.0271	8	0.05	202.30	0
202	Acid Soluble Cobalt (ppm)	0494	1.046	0.0957	0.8946	0.4646	0.0271	8	0.30	202.33	0
202	Acid Soluble Cobalt (ppm)	0527	1.094	0.0230	0.8946	0.4646	0.0271	8	0.39	202.33	0
202	Acid Soluble Cobalt (ppm)	0528	1.310	0.0400	0.8946	0.4646	0.0271	8	0.82	202.32	0
202	Acid Soluble Cobalt (ppm)	0524	1.379	0.0085	0.8946	0.4646	0.0271	8	0.95	202.30	0
202	Acid Soluble Cobalt (ppm)	0368	1.039	0.6020	0.8946	0.4646	0.0271	8	0.28	202.30	1
202	Acid Soluble Cobalt (ppm)	0515	0.0000	0.0000	0.8946	0.4646	0.0271	8		202.33	4
202	Acid Soluble Cobalt (ppm)	0515	0.0754	0.1508	0.8946	0.4646	0.0271	8		202.34	4
221	Acid Soluble Copper (%)	0521	0.0001	0.0000	0.0005	0.0004	0.0001	10	-0.86	221.32	0
221	Acid Soluble Copper (%)	0527	0.0001	0.0000	0.0005	0.0004	0.0001	10	-0.86	221.33	0
221	Acid Soluble Copper (%)	0433	0.0002	0.0001	0.0005	0.0004	0.0001	10	-0.74	221.30	0
221	Acid Soluble Copper (%)	0501	0.0002	0.0000	0.0005	0.0004	0.0001	10	-0.61	221.99	0
221	Acid Soluble Copper (%)	0524	0.0003	0.0000	0.0005	0.0004	0.0001	10	-0.37	221.99	0
221	Acid Soluble Copper (%)	0394	0.0004	0.0001	0.0005	0.0004	0.0001	10	-0.25	221.32	0
221	Acid Soluble Copper (%)	0389	0.0005	0.0000	0.0005	0.0004	0.0001	10	0.12	221.99	0
221	Acid Soluble Copper (%)	0515	0.0008	0.0006	0.0005	0.0004	0.0001	10	0.86	221.99	0
221	Acid Soluble Copper (%)	0515	0.0010	0.0000	0.0005	0.0004	0.0001	10	1.35	221.33	0
221	Acid Soluble Copper (%)	0519	0.0010	0.0000	0.0005	0.0004	0.0001	10	1.35	221.99	0
221	Acid Soluble Copper (%)	0354	0.0040	0.0020	0.0005	0.0004	0.0001	10	8.72	221.30	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				
221	Acid Soluble Copper (%)	0528	0.0000	0.0000	0.0005	0.0004	0.0001	10		221.32	4
221	Acid Soluble Copper (%)	0368	0.0001	0.0001	0.0005	0.0004	0.0001	10		221.99	4
241	Acid Soluble Iron (%)	0521	0.0187	0.0000	0.0496	0.0039	0.0029	16	-7.96	241.32	0
241	Acid Soluble Iron (%)	0482	0.0450	0.0100	0.0496	0.0039	0.0029	16	-1.18	241.30	0
241	Acid Soluble Iron (%)	0423	0.0455	0.0010	0.0496	0.0039	0.0029	16	-1.05	241.32	0
241	Acid Soluble Iron (%)	0494	0.0464	0.0065	0.0496	0.0039	0.0029	16	-0.83	241.33	0
241	Acid Soluble Iron (%)	0389	0.0465	0.0013	0.0496	0.0039	0.0029	16	-0.80	241.99	0
241	Acid Soluble Iron (%)	0483	0.0476	0.0033	0.0496	0.0039	0.0029	16	-0.52	241.30	0
241	Acid Soluble Iron (%)	0096	0.0500	0.0000	0.0496	0.0039	0.0029	16	0.11	241.30	0
241	Acid Soluble Iron (%)	0402	0.0500	0.0000	0.0496	0.0039	0.0029	16	0.11	241.30	0
241	Acid Soluble Iron (%)	0472	0.0500	0.0000	0.0496	0.0039	0.0029	16	0.11	241.30	0
241	Acid Soluble Iron (%)	0351	0.0505	0.0090	0.0496	0.0039	0.0029	16	0.24	241.30	0
241	Acid Soluble Iron (%)	0527	0.0520	0.0020	0.0496	0.0039	0.0029	16	0.63	241.33	0
241	Acid Soluble Iron (%)	0524	0.0522	0.0003	0.0496	0.0039	0.0029	16	0.67	241.99	0
241	Acid Soluble Iron (%)	0105	0.0525	0.0010	0.0496	0.0039	0.0029	16	0.76	241.00	0
241	Acid Soluble Iron (%)	0105	0.0525	0.0070	0.0496	0.0039	0.0029	16	0.76	241.03	0
241	Acid Soluble Iron (%)	0117	0.0535	0.0021	0.0496	0.0039	0.0029	16	1.00	241.33	0
241	Acid Soluble Iron (%)	0354	0.0565	0.0030	0.0496	0.0039	0.0029	16	1.79	241.30	0
251	Acid Soluble Lead (ppm)	0444	2.620	0.2000	3.677	0.7426	0.1297	12	-1.42	251.30	0
251	Acid Soluble Lead (ppm)	0523	2.785	0.1100	3.677	0.7426	0.1297	12	-1.20	251.30	0
251	Acid Soluble Lead (ppm)	0136	3.000	0.0000	3.677	0.7426	0.1297	12	-0.91	251.00	0
251	Acid Soluble Lead (ppm)	0519	3.600	0.1800	3.677	0.7426	0.1297	12	-0.10	251.99	0
251	Acid Soluble Lead (ppm)	0037	3.610	0.0200	3.677	0.7426	0.1297	12	-0.09	251.33	0
251	Acid Soluble Lead (ppm)	0394	3.655	0.0500	3.677	0.7426	0.1297	12	-0.03	251.30	0
251	Acid Soluble Lead (ppm)	0494	3.656	0.3861	3.677	0.7426	0.1297	12	-0.03	251.33	0
251	Acid Soluble Lead (ppm)	0524	3.815	0.0098	3.677	0.7426	0.1297	12	0.19	251.30	0
251	Acid Soluble Lead (ppm)	0096	3.900	0.2000	3.677	0.7426	0.1297	12	0.30	251.30	0
251	Acid Soluble Lead (ppm)	0527	4.093	0.0080	3.677	0.7426	0.1297	12	0.56	251.33	0
251	Acid Soluble Lead (ppm)	0389	4.600	0.0000	3.677	0.7426	0.1297	12	1.24	251.30	0
251	Acid Soluble Lead (ppm)	0501	4.822	0.3920	3.677	0.7426	0.1297	12	1.54	251.30	0
251	Acid Soluble Lead (ppm)	0368	0.0000	0.0000	3.677	0.7426	0.1297	12		251.30	4
251	Acid Soluble Lead (ppm)	0515	0.4496	0.8992	3.677	0.7426	0.1297	12		251.33	4
251	Acid Soluble Lead (ppm)	0515	0.5965	1.193	3.677	0.7426	0.1297	12		251.34	4
261	Acid Soluble Manganese (%)	0521	0.0020	0.0000	0.0046	0.0004	0.0002	13	-6.81	261.34	0
261	Acid Soluble Manganese (%)	0527	0.0040	0.0000	0.0046	0.0004	0.0002	13	-1.50	261.35	0
261	Acid Soluble Manganese (%)	0389	0.0043	0.0000	0.0046	0.0004	0.0002	13	-0.70	261.99	0
261	Acid Soluble Manganese (%)	0483	0.0046	0.0003	0.0046	0.0004	0.0002	13	-0.04	261.32	0
261	Acid Soluble Manganese (%)	0423	0.0046	0.0001	0.0046	0.0004	0.0002	13	-0.04	261.34	0
261	Acid Soluble Manganese (%)	0494	0.0046	0.0009	0.0046	0.0004	0.0002	13	-0.04	261.35	0
261	Acid Soluble Manganese (%)	0524	0.0046	0.0001	0.0046	0.0004	0.0002	13	-0.04	261.99	0
261	Acid Soluble Manganese (%)	0105	0.0046	0.0004	0.0046	0.0004	0.0002	13	0.09	261.12	0
261	Acid Soluble Manganese (%)	0105	0.0046	0.0006	0.0046	0.0004	0.0002	13	0.09	261.15	0
261	Acid Soluble Manganese (%)	0096	0.0046	0.0002	0.0046	0.0004	0.0002	13	0.09	261.30	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				
261	Acid Soluble Manganese (%)	0354	0.0050	0.0000	0.0046	0.0004	0.0002	13	1.15	261.30	0
261	Acid Soluble Manganese (%)	0351	0.0050	0.0000	0.0046	0.0004	0.0002	13	1.15	261.32	0
261	Acid Soluble Manganese (%)	0117	0.0051	0.0003	0.0046	0.0004	0.0002	13	1.29	261.35	0
261	Acid Soluble Manganese (%)	0291	2.440	0.0200	0.0046	0.0004	0.0002	13	6460.52	261.33	2
281	Acid Soluble Mercury (ppm)	0519	0.0100	0.0000	0.2247	0.3860	0.1267	5	-0.56	281.99	0
281	Acid Soluble Mercury (ppm)	0501	0.0285	0.0154	0.2247	0.3860	0.1267	5	-0.51	281.30	0
281	Acid Soluble Mercury (ppm)	0394	0.0340	0.0060	0.2247	0.3860	0.1267	5	-0.49	281.30	0
281	Acid Soluble Mercury (ppm)	0527	0.1420	0.0760	0.2247	0.3860	0.1267	5	-0.21	281.30	0
281	Acid Soluble Mercury (ppm)	0515	0.9090	0.5360	0.2247	0.3860	0.1267	5	1.77	281.30	0
289	Acid Soluble Molybdenum (ppm)	0519	0.0100	0.0000	1.819	0.4702	0.2366	11	-3.85	289.99	0
289	Acid Soluble Molybdenum (ppm)	0515	1.108	1.076	1.819	0.4702	0.2366	11	-1.51	289.34	0
289	Acid Soluble Molybdenum (ppm)	0433	1.541	0.0900	1.819	0.4702	0.2366	11	-0.59	289.30	0
289	Acid Soluble Molybdenum (ppm)	0521	1.697	0.0000	1.819	0.4702	0.2366	11	-0.26	289.30	0
289	Acid Soluble Molybdenum (ppm)	0494	1.785	0.2719	1.819	0.4702	0.2366	11	-0.07	289.33	0
289	Acid Soluble Molybdenum (ppm)	0096	2.000	0.2000	1.819	0.4702	0.2366	11	0.38	289.30	0
289	Acid Soluble Molybdenum (ppm)	0524	2.005	0.1050	1.819	0.4702	0.2366	11	0.39	289.30	0
289	Acid Soluble Molybdenum (ppm)	0394	2.110	0.1600	1.819	0.4702	0.2366	11	0.62	289.32	0
289	Acid Soluble Molybdenum (ppm)	0527	2.152	0.0770	1.819	0.4702	0.2366	11	0.71	289.33	0
289	Acid Soluble Molybdenum (ppm)	0037	2.215	0.0700	1.819	0.4702	0.2366	11	0.84	289.33	0
289	Acid Soluble Molybdenum (ppm)	0501	2.280	0.5530	1.819	0.4702	0.2366	11	0.98	289.34	0
289	Acid Soluble Molybdenum (ppm)	0368	4.915	2.930	1.819	0.4702	0.2366	11	6.58	289.30	1
289	Acid Soluble Molybdenum (ppm)	0528	46.52	0.0700	1.819	0.4702	0.2366	11	95.06	289.32	2
289	Acid Soluble Molybdenum (ppm)	0515	0.0000	0.0000	1.819	0.4702	0.2366	11		289.33	4
291	Acid Soluble Nickel (ppm)	0501	1.718	0.0330	10.62	4.201	0.5178	17	-2.12	291.34	0
291	Acid Soluble Nickel (ppm)	0519	2.265	0.3100	10.62	4.201	0.5178	17	-1.99	291.99	0
291	Acid Soluble Nickel (ppm)	0521	2.509	0.0000	10.62	4.201	0.5178	17	-1.93	291.30	0
291	Acid Soluble Nickel (ppm)	0482	5.150	0.5000	10.62	4.201	0.5178	17	-1.30	291.30	0
291	Acid Soluble Nickel (ppm)	0523	10.38	0.0800	10.62	4.201	0.5178	17	-0.06	291.30	0
291	Acid Soluble Nickel (ppm)	0394	10.90	0.2000	10.62	4.201	0.5178	17	0.07	291.30	0
291	Acid Soluble Nickel (ppm)	0444	11.07	0.2200	10.62	4.201	0.5178	17	0.11	291.30	0
291	Acid Soluble Nickel (ppm)	0515	11.31	1.616	10.62	4.201	0.5178	17	0.16	291.34	0
291	Acid Soluble Nickel (ppm)	0524	11.79	0.3744	10.62	4.201	0.5178	17	0.28	291.30	0
291	Acid Soluble Nickel (ppm)	0494	12.09	1.856	10.62	4.201	0.5178	17	0.35	291.33	0
291	Acid Soluble Nickel (ppm)	0368	12.75	0.7000	10.62	4.201	0.5178	17	0.51	291.30	0
291	Acid Soluble Nickel (ppm)	0096	12.85	0.3000	10.62	4.201	0.5178	17	0.53	291.30	0
291	Acid Soluble Nickel (ppm)	0528	12.90	0.1200	10.62	4.201	0.5178	17	0.54	291.32	0
291	Acid Soluble Nickel (ppm)	0527	13.33	0.3630	10.62	4.201	0.5178	17	0.65	291.33	0
291	Acid Soluble Nickel (ppm)	0136	13.50	1.000	10.62	4.201	0.5178	17	0.68	291.00	0
291	Acid Soluble Nickel (ppm)	0037	14.14	0.1900	10.62	4.201	0.5178	17	0.84	291.33	0
291	Acid Soluble Nickel (ppm)	0117	15.48	0.9400	10.62	4.201	0.5178	17	1.16	291.33	0
291	Acid Soluble Nickel (ppm)	0515	9.769	2.769	10.62	4.201	0.5178	17	-0.20	291.33	1
301	Acid Soluble Selenium (ppm)	0519	0.0400	0.0200	0.2720	0.2122	0.0189	4	-0.93	301.99	0
301	Acid Soluble Selenium (ppm)	0524	0.1440	0.0032	0.2720	0.2122	0.0189	4	-0.51	301.30	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				
301	Acid Soluble Selenium (ppm)	0501	0.4476	0.0252	0.2720	0.2122	0.0189	4	0.70	301.30	0
301	Acid Soluble Selenium (ppm)	0527	0.4565	0.0270	0.2720	0.2122	0.0189	4	0.74	301.33	0
301	Acid Soluble Selenium (ppm)	0368	0.0000	0.0000	0.2720	0.2122	0.0189	4		301.30	4
301	Acid Soluble Selenium (ppm)	0515	0.0000	0.0000	0.2720	0.2122	0.0189	4		301.33	4
301	Acid Soluble Selenium (ppm)	0515	0.7715	1.543	0.2720	0.2122	0.0189	4		301.34	4
311	Sodium (%)	0521	0.0720	0.0000	0.1661	0.0222	0.0044	8	-3.88	311.32	0
311	Sodium (%)	0494	0.1485	0.0071	0.1661	0.0222	0.0044	8	-0.73	311.33	0
311	Sodium (%)	0025	0.1585	0.0049	0.1661	0.0222	0.0044	8	-0.31	311.32	0
311	Sodium (%)	0482	0.1700	0.0000	0.1661	0.0222	0.0044	8	0.16	311.99	0
311	Sodium (%)	0423	0.1720	0.0040	0.1661	0.0222	0.0044	8	0.24	311.33	0
311	Sodium (%)	0527	0.1725	0.0030	0.1661	0.0222	0.0044	8	0.27	311.33	0
311	Sodium (%)	0096	0.1750	0.0100	0.1661	0.0222	0.0044	8	0.37	311.99	0
311	Sodium (%)	0354	0.2290	0.0060	0.1661	0.0222	0.0044	8	2.59	311.99	0
321	Acid Soluble Zinc (%)	0521	0.0007	0.0000	0.0020	0.0009	0.0878	20	-1.44	321.32	0
321	Acid Soluble Zinc (%)	0519	0.0010	0.0000	0.0020	0.0009	0.0878	20	-1.11	321.99	0
321	Acid Soluble Zinc (%)	0515	0.0015	0.0001	0.0020	0.0009	0.0878	20	-0.60	321.99	0
321	Acid Soluble Zinc (%)	0394	0.0015	0.0010	0.0020	0.0009	0.0878	20	-0.55	321.32	0
321	Acid Soluble Zinc (%)	0494	0.0015	0.0000	0.0020	0.0009	0.0878	20	-0.55	321.33	0
321	Acid Soluble Zinc (%)	0515	0.0015	0.0008	0.0020	0.0009	0.0878	20	-0.55	321.33	0
321	Acid Soluble Zinc (%)	0444	0.0016	0.0001	0.0020	0.0009	0.0878	20	-0.49	321.30	0
321	Acid Soluble Zinc (%)	0423	0.0016	0.0001	0.0020	0.0009	0.0878	20	-0.49	321.32	0
321	Acid Soluble Zinc (%)	0389	0.0016	0.0001	0.0020	0.0009	0.0878	20	-0.49	321.99	0
321	Acid Soluble Zinc (%)	0368	0.0017	0.0004	0.0020	0.0009	0.0878	20	-0.32	321.99	0
321	Acid Soluble Zinc (%)	0501	0.0019	0.0003	0.0020	0.0009	0.0878	20	-0.15	321.99	0
321	Acid Soluble Zinc (%)	0200	0.0020	0.0001	0.0020	0.0009	0.0878	20	-0.04	321.99	0
321	Acid Soluble Zinc (%)	0351	0.0020	0.0000	0.0020	0.0009	0.0878	20	0.01	321.30	0
321	Acid Soluble Zinc (%)	0527	0.0020	0.0000	0.0020	0.0009	0.0878	20	0.01	321.33	0
321	Acid Soluble Zinc (%)	0105	0.0022	0.0003	0.0020	0.0009	0.0878	20	0.18	321.00	0
321	Acid Soluble Zinc (%)	0524	0.0025	0.0002	0.0020	0.0009	0.0878	20	0.57	321.99	0
321	Acid Soluble Zinc (%)	0354	0.0050	0.0020	0.0020	0.0009	0.0878	20	3.38	321.30	0
321	Acid Soluble Zinc (%)	0433	0.0052	0.0006	0.0020	0.0009	0.0878	20	3.60	321.30	0
321	Acid Soluble Zinc (%)	0292	0.2950	0.0100	0.0020	0.0009	0.0878	20	328.31	321.30	0
321	Acid Soluble Zinc (%)	0037	18.41	1.740	0.0020	0.0009	0.0878	20	20625.58	321.33	0
321	Acid Soluble Zinc (%)	0096	84.85	11.30	0.0020	0.0009	0.0878	20	95069.43	321.30	2
321	Acid Soluble Zinc (%)	0528	0.0010	0.0020	0.0020	0.0009	0.0878	20		321.32	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.