

Analyte Proficiency From All Labs
Sample # 220311
12-0-0 Liquid

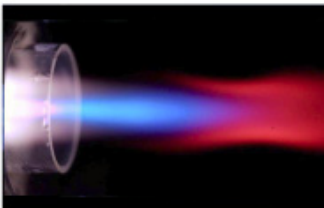
Magruder Fertilizer PT Program
Regular PT Scheme
Statistical Summary

Analytes: 31
Labs Reporting: 98
Issue Date : 04/30/2022

Analyte Code	Analyte Sample # 220311	# 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 (%)	13	12	11.77	1.559	11.83		0.4572	0.1650	3.87%		0.1032	2.76%
002	Nitrate N (%)	1		0.1075									
005	Urea N (%)	1		0.2205									
009	Ammoniacal Plus Nitrate N (%)	1		12.30									
010	Total N (12%)	86	83	12.43	3.707	11.96	0.6094	0.2435	0.0334	2.04%	0.93	0.1076	2.75%
020	Total P2O5 (%)	3	3	0.1850	0.3192	0.1850		0.3192	0.2303	172.57%		0.0972	5.16%
041	Direct Available P2O5 (%)	3	1	0.0412	0.0523	0.1850	0.6700	0.3192	0.3990	172.57%	1.11	0.0110	5.16%
050	Soluble K2O (%)	6	3	0.0212	0.0388	0.0071	0.4100	0.0031	0.0022	43.97%	0.02	0.0016	8.43%
101	Acid Soluble Ca (%)	3	0	0.0060	0.0036	0.0071	0.2004	0.0031		43.97%	0.04	0.0000	8.43%
121	Acid Soluble Mg (%)	4	1	0.0053	0.0044	0.0071	0.2004	0.0031	0.0039	43.97%	0.04	0.0002	8.43%
143	Elemental S (%)	5	5	33.76	21.06	33.76		21.06	11.77	62.37%		1.290	1.72%
145	Sulfate S, HCl soluble (%)	3	3	28.03	3.789	28.03		3.789	2.734	13.52%		0.4800	1.89%
146	Total S in Liquid (26%)	14	13	26.40	0.7558	26.20	1.0000	0.2894	0.1003	1.10%	0.67	0.1112	1.95%
148	Total S (26%)	44	43	26.43	2.770	26.05	1.0000	0.9413	0.1794	3.61%	2.19	0.5114	1.96%
149	S - HNO3 soluble (%)	4	4	22.94	6.020	22.94		6.020	3.762	26.25%		0.3124	2.09%
151	Acid Soluble As (ppm)	12	5	1.443	2.848	0.1183		0.1641	0.0918	138.74%		0.0059	22.00%
165	Acid Soluble B (%)	3	0	0.0037	0.0055	0.1183	0.0207	0.1641		138.74%	18.43	0.0000	5.51%
181	Acid Soluble Cd (ppm)	15	2	1.411	2.774	2.708		3.827	3.383	141.32%		3.841	13.77%
190	Water Soluble Cl (%)	1		18.65									
191	Acid Soluble Cr (ppm)	12	4	3.893	5.922	2.212		2.606	1.629	117.84%		0.1335	14.20%
202	Acid Soluble Co (ppm)	12	5	6.445	12.10	8.141	3.4424	17.69	9.892	217.35%	11.98	2.754	11.67%
221	Acid Soluble Cu (%)	15	5	0.0496	0.1270	0.0724	0.0122	0.1608	0.0899	222.06%	30.60	0.0002	5.94%
241	Acid Soluble Fe (%)	5	1	0.0031	0.0044	0.0724	0.0122	0.1608	0.2010	222.06%	30.60	0.0005	5.94%
251	Acid Soluble Pb (ppm)	14	4	1.651	2.684	0.2800		0.4204	0.2627	150.14%		0.0677	19.37%
261	Acid Soluble Mn (%)	4	0	0.0039	0.0047	0.2800	0.0330	0.4204		150.14%	29.68	0.0000	4.84%
281	Acid Soluble Hg (ppm)	9	5	0.3227	0.6505	0.0408		0.0774	0.0433	189.65%		0.0010	22.00%
289	Acid Soluble Mo (ppm)	10	5	12.06	31.00	2.376	1.7127	3.329	1.861	140.15%	4.53	1.948	14.04%
291	Acid Soluble Ni (ppm)	13	5	6.231	14.10	10.81		22.79	12.74	210.79%		2.353	11.18%
301	Acid Soluble Se (ppm)	13	5	2.081	3.581	0.5705		0.9510	0.5316	166.71%		0.1182	17.41%

Analyte Code	Analyte Sample # 220311	# 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
311	Sodium (%)	3	3	0.0197	0.0179	0.0197	0.0070	0.0179	0.0129	90.79%	5.99	0.0071	7.22%
321	Acid Soluble Zn (%)	15	5	0.1225	0.3486	0.2570	0.0307	0.5719	0.3197	222.52%	43.40	0.0003	4.91%

The Analyte IA Ratio = $2.33 * \text{Robust SD} / \text{IA at the Analyte Assigned Value}$. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting. The Horwitz %RSD is calculated using the Thompson Modification, Analyst,2000,125,385-386.



Analyte Proficiency From All Labs

Magruder Fertilizer PT Program

Analytes: 31

Sample # 220311

Regular PT Scheme

Labs Reporting: 98

12-0-0 Liquid

Lab Values

Issue Date : 04/30/2022

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 (%)	0536	7.560	0.0400	11.83	0.4572	0.1032	12	-9.33	001.99	0
001	Ammoniacal N (%)	0553	11.15	0.3000	11.83	0.4572	0.1032	12	-1.48	001.99	0
001	Ammoniacal N (%)	0587	11.47	0.0100	11.83	0.4572	0.1032	12	-0.79	001.99	0
001	Ammoniacal N (%)	0394	11.73	0.0460	11.83	0.4572	0.1032	12	-0.22	001.99	0
001	Ammoniacal N (%)	0027	11.87	0.0100	11.83	0.4572	0.1032	12	0.08	001.99	0
001	Ammoniacal N (%)	0549	11.91	0.0400	11.83	0.4572	0.1032	12	0.18	001.99	0
001	Ammoniacal N (%)	0569	11.95	0.1300	11.83	0.4572	0.1032	12	0.26	001.99	0
001	Ammoniacal N (%)	0397	11.98	0.0229	11.83	0.4572	0.1032	12	0.32	001.99	0
001	Ammoniacal N (%)	0513	12.02	0.0400	11.83	0.4572	0.1032	12	0.42	001.99	0
001	Ammoniacal N (%)	0580	12.04	0.0000	11.83	0.4572	0.1032	12	0.47	001.10	0
001	Ammoniacal N (%)	0562	12.18	0.1500	11.83	0.4572	0.1032	12	0.76	001.99	0
001	Ammoniacal N (%)	0577	15.00	0.4500	11.83	0.4572	0.1032	12	6.93	001.99	0
001	Ammoniacal N (%)	0524	12.18	0.7100	11.83	0.4572	0.1032	12	0.76	001.99	1
002	Nitrate N (%)	0553	0.1075	0.0030				1		002.99	0
005	Urea N (%)	0524	0.2205	0.0470				1		005.99	0
009	Ammoniacal Plus Nitrate N (%)	0587	12.30	0.1600				1		009.10	0
010	Total N (12%)	0521	11.01†	0.0000	11.96	0.2435	0.1076	83	-3.88	010.60	0
010	Total N (12%)	0389	11.23†	0.5800	11.96	0.2435	0.1076	83	-3.00	010.60	0
010	Total N (12%)	0042	11.25†	0.1000	11.96	0.2435	0.1076	83	-2.92	010.60	0
010	Total N (12%)	0185	11.51	0.0100	11.96	0.2435	0.1076	83	-1.87	010.60	0
010	Total N (12%)	0523	11.51	0.0100	11.96	0.2435	0.1076	83	-1.87	010.60	0
010	Total N (12%)	0524	11.58	0.0181	11.96	0.2435	0.1076	83	-1.57	010.99	0
010	Total N (12%)	0423	11.59	0.0300	11.96	0.2435	0.1076	83	-1.54	010.60	0
010	Total N (12%)	0472	11.62	0.0100	11.96	0.2435	0.1076	83	-1.42	010.60	0
010	Total N (12%)	0325	11.63	0.4200	11.96	0.2435	0.1076	83	-1.35	010.60	0
010	Total N (12%)	0588	11.64	0.0300	11.96	0.2435	0.1076	83	-1.33	010.60	0
010	Total N (12%)	0494	11.64	0.2200	11.96	0.2435	0.1076	83	-1.31	010.60	0
010	Total N (12%)	0177	11.66	0.2270	11.96	0.2435	0.1076	83	-1.21	010.60	0
010	Total N (12%)	0578	11.67	0.1712	11.96	0.2435	0.1076	83	-1.19	010.11	0
010	Total N (12%)	0037	11.71	0.0200	11.96	0.2435	0.1076	83	-1.01	010.60	0
010	Total N (12%)	0394	11.73	0.0460	11.96	0.2435	0.1076	83	-0.96	010.99	0
010	Total N (12%)	0527	11.74	0.0263	11.96	0.2435	0.1076	83	-0.89	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 (12%)	0452	11.76	0.0400	11.96	0.2435	0.1076	83	-0.82	010.60	0
010	Total N (12%)	0231	11.77	0.0100	11.96	0.2435	0.1076	83	-0.80	010.60	0
010	Total N (12%)	0055	11.79	0.0100	11.96	0.2435	0.1076	83	-0.72	010.60	0
010	Total N (12%)	0481	11.82	0.1700	11.96	0.2435	0.1076	83	-0.59	010.12	0
010	Total N (12%)	0106	11.82	0.1500	11.96	0.2435	0.1076	83	-0.59	010.60	0
010	Total N (12%)	0027	11.82	0.0000	11.96	0.2435	0.1076	83	-0.57	010.60	0
010	Total N (12%)	0422	11.82	0.0600	11.96	0.2435	0.1076	83	-0.57	010.60	0
010	Total N (12%)	0043	11.84	0.1200	11.96	0.2435	0.1076	83	-0.49	010.60	0
010	Total N (12%)	0292	11.85	0.0100	11.96	0.2435	0.1076	83	-0.47	010.60	0
010	Total N (12%)	0260	11.85	0.5000	11.96	0.2435	0.1076	83	-0.45	010.60	0
010	Total N (12%)	0095	11.86	0.2300	11.96	0.2435	0.1076	83	-0.43	010.60	0
010	Total N (12%)	0476	11.86	0.0566	11.96	0.2435	0.1076	83	-0.39	010.99	0
010	Total N (12%)	0547	11.89	0.1100	11.96	0.2435	0.1076	83	-0.31	010.60	0
010	Total N (12%)	0211	11.90	0.1000	11.96	0.2435	0.1076	83	-0.25	010.17	0
010	Total N (12%)	0040	11.90	0.0000	11.96	0.2435	0.1076	83	-0.25	010.60	0
010	Total N (12%)	0324	11.90	0.0000	11.96	0.2435	0.1076	83	-0.25	010.60	0
010	Total N (12%)	0034	11.91	0.0500	11.96	0.2435	0.1076	83	-0.23	010.60	0
010	Total N (12%)	0575	11.91	0.1140	11.96	0.2435	0.1076	83	-0.19	010.99	0
010	Total N (12%)	0234	11.92	0.1000	11.96	0.2435	0.1076	83	-0.16	010.60	0
010	Total N (12%)	0402	11.93	0.1550	11.96	0.2435	0.1076	83	-0.12	010.60	0
010	Total N (12%)	0451	11.94	0.2400	11.96	0.2435	0.1076	83	-0.08	010.60	0
010	Total N (12%)	0390	11.95	0.0960	11.96	0.2435	0.1076	83	-0.05	010.60	0
010	Total N (12%)	0531	11.95	0.1000	11.96	0.2435	0.1076	83	-0.04	010.11	0
010	Total N (12%)	0516	11.95	0.1000	11.96	0.2435	0.1076	83	-0.04	010.60	0
010	Total N (12%)	0600	11.99	0.1400	11.96	0.2435	0.1076	83	0.12	010.99	0
010	Total N (12%)	0560	12.00	0.0300	11.96	0.2435	0.1076	83	0.14	010.99	0
010	Total N (12%)	0354	12.00	0.0000	11.96	0.2435	0.1076	83	0.16	010.60	0
010	Total N (12%)	0531	12.00	0.0000	11.96	0.2435	0.1076	83	0.16	010.99	0
010	Total N (12%)	0602	12.01	0.1000	11.96	0.2435	0.1076	83	0.21	010.12	0
010	Total N (12%)	0481	12.01	0.4200	11.96	0.2435	0.1076	83	0.21	010.60	0
010	Total N (12%)	0405	12.02	0.0100	11.96	0.2435	0.1076	83	0.23	010.60	0
010	Total N (12%)	0602	12.02	0.0900	11.96	0.2435	0.1076	83	0.23	010.99	0
010	Total N (12%)	0086	12.02	0.1470	11.96	0.2435	0.1076	83	0.24	010.60	0
010	Total N (12%)	0600	12.03	0.0400	11.96	0.2435	0.1076	83	0.29	010.11	0
010	Total N (12%)	0536	12.03	0.0600	11.96	0.2435	0.1076	83	0.29	010.99	0
010	Total N (12%)	0356	12.03	0.0030	11.96	0.2435	0.1076	83	0.31	010.60	0
010	Total N (12%)	0025	12.04	0.0300	11.96	0.2435	0.1076	83	0.31	010.60	0
010	Total N (12%)	0563	12.04	0.0400	11.96	0.2435	0.1076	83	0.33	010.99	0
010	Total N (12%)	0534	12.05	0.0900	11.96	0.2435	0.1076	83	0.35	010.99	0
010	Total N (12%)	0535	12.05	0.1000	11.96	0.2435	0.1076	83	0.37	010.11	0
010	Total N (12%)	0230	12.05	0.1000	11.96	0.2435	0.1076	83	0.37	010.60	0
010	Total N (12%)	0073	12.08	0.1500	11.96	0.2435	0.1076	83	0.47	010.60	0
010	Total N (12%)	0501	12.08	0.1500	11.96	0.2435	0.1076	83	0.47	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 (12%)	0029	12.09	0.1500	11.96	0.2435	0.1076	83	0.51	010.60	0
010	Total N (12%)	0360	12.09	0.3300	11.96	0.2435	0.1076	83	0.51	010.60	0
010	Total N (12%)	0548	12.09	0.0800	11.96	0.2435	0.1076	83	0.53	010.11	0
010	Total N (12%)	0532	12.12	0.0900	11.96	0.2435	0.1076	83	0.64	010.99	0
010	Total N (12%)	0559	12.12	0.0200	11.96	0.2435	0.1076	83	0.66	010.99	0
010	Total N (12%)	0551	12.13	0.0200	11.96	0.2435	0.1076	83	0.70	010.99	0
010	Total N (12%)	0035	12.15	0.1000	11.96	0.2435	0.1076	83	0.78	010.60	0
010	Total N (12%)	0444	12.15	0.1000	11.96	0.2435	0.1076	83	0.78	010.60	0
010	Total N (12%)	0556	12.15	0.0200	11.96	0.2435	0.1076	83	0.78	010.99	0
010	Total N (12%)	0510	12.16	0.0525	11.96	0.2435	0.1076	83	0.83	010.11	0
010	Total N (12%)	0564	12.20	0.0300	11.96	0.2435	0.1076	83	0.97	010.99	0
010	Total N (12%)	0539	12.20	0.2000	11.96	0.2435	0.1076	83	0.99	010.11	0
010	Total N (12%)	0565	12.20	0.0400	11.96	0.2435	0.1076	83	0.99	010.99	0
010	Total N (12%)	0049	12.21	0.4600	11.96	0.2435	0.1076	83	1.03	010.60	0
010	Total N (12%)	0562	12.23	0.1500	11.96	0.2435	0.1076	83	1.09	010.99	0
010	Total N (12%)	0580	12.23	0.0000	11.96	0.2435	0.1076	83	1.11	010.12	0
010	Total N (12%)	0136	12.31	0.2500	11.96	0.2435	0.1076	83	1.42	010.60	0
010	Total N (12%)	0421	12.35	0.0400	11.96	0.2435	0.1076	83	1.60	010.60	0
010	Total N (12%)	0561	12.44	0.1100	11.96	0.2435	0.1076	83	1.95	010.60	0
010	Total N (12%)	0545	12.61‡	0.0600	11.96	0.2435	0.1076	83	2.67	010.99	0
010	Total N (12%)	0041	12.66‡	0.0400	11.96	0.2435	0.1076	83	2.88	010.60	0
010	Total N (12%)	0368	12.79‡	0.0770	11.96	0.2435	0.1076	83	3.40	010.60	0
010	Total N (12%)	0529	15.50‡	0.0700	11.96	0.2435	0.1076	83	14.52	010.99	0
010	Total N (12%)	0568	15.85‡	0.3000	11.96	0.2435	0.1076	83	15.98	010.12	0
010	Total N (12%)	0255	11.51	0.6580	11.96	0.2435	0.1076	83	-1.84	010.60	1
010	Total N (12%)	0307	12.30	1.000	11.96	0.2435	0.1076	83	1.40	010.60	1
010	Total N (12%)	0102	45.91‡	0.1400	11.96	0.2435	0.1076	83	139.44	010.60	2
020	Total P2O5 (%)	0524	0.0003	0.0004	0.1850	0.3192	0.0972	3	-0.58	020.50	0
020	Total P2O5 (%)	0515	0.0011	0.0001	0.1850	0.3192	0.0972	3	-0.58	020.99	0
020	Total P2O5 (%)	0516	0.5535	0.2910	0.1850	0.3192	0.0972	3	1.15	020.50	0
041	Direct Available P2O5 (%)	0354	0.0235	0.0110				1		041.21	0
041	Direct Available P2O5 (%)	0568	0.0000	0.0000				1		041.21	4
041	Direct Available P2O5 (%)	0325	< 0.1					1		041.50	5
050	Soluble K2O (%)	0568	0.0045	0.0010	0.0071	0.0031	0.0016	3	-0.67	050.51	0
050	Soluble K2O (%)	0524	0.0062	0.0009	0.0071	0.0031	0.0016	3	-0.24	050.99	0
050	Soluble K2O (%)	0354	0.0105	0.0030	0.0071	0.0031	0.0016	3	0.90	050.52	0
050	Soluble K2O (%)	0516	0.0000	0.0000	0.0071	0.0031	0.0016	3		050.99	4
050	Soluble K2O (%)	0553	< 0.006		0.0071	0.0031	0.0016	3		050.99	5
050	Soluble K2O (%)	0325	< 0.1		0.0071	0.0031	0.0016	3		050.99	5
101	Acid Soluble Ca (%)	0494	< 0.0029					0		101.33	5
101	Acid Soluble Ca (%)	0553	< 0.005					0		101.00	5
101	Acid Soluble Ca (%)	0354	< 0.01					0		101.30	5
121	Acid Soluble Mg (%)	0515	0.0080	0.0002				1		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 (%)	0494	< 0.001					1		121.33	5
121	Acid Soluble Mg (%)	0553	< 0.002					1		121.00	5
121	Acid Soluble Mg (%)	0354	< 0.01					1		121.30	5
143	Elemental S (%)	0389	13.03	1.470	33.76	21.06	1.290	5	-0.98	143.99	0
143	Elemental S (%)	0368	23.33	0.2097	33.76	21.06	1.290	5	-0.50	143.99	0
143	Elemental S (%)	0255	27.15	0.6200	33.76	21.06	1.290	5	-0.31	143.99	0
143	Elemental S (%)	0325	37.20	2.950	33.76	21.06	1.290	5	0.16	143.99	0
143	Elemental S (%)	0390	68.10	1.200	33.76	21.06	1.290	5	1.63	143.99	0
145	Sulfate S, HCl soluble (%)	0027	25.73	0.5800	28.03	3.789	0.4800	3	-0.61	145.00	0
145	Sulfate S, HCl soluble (%)	0561	25.95	0.3200	28.03	3.789	0.4800	3	-0.55	145.00	0
145	Sulfate S, HCl soluble (%)	0444	32.40	0.5400	28.03	3.789	0.4800	3	1.15	145.99	0
146	Total S in Liquid (26%)	0549	25.83	0.1900	26.20	0.2894	0.1112	13	-1.30	146.00	0
146	Total S in Liquid (26%)	0211	25.88	0.2000	26.20	0.2894	0.1112	13	-1.11	146.00	0
146	Total S in Liquid (26%)	0569	25.92	0.1300	26.20	0.2894	0.1112	13	-0.99	146.00	0
146	Total S in Liquid (26%)	0600	25.98	0.0800	26.20	0.2894	0.1112	13	-0.77	146.00	0
146	Total S in Liquid (26%)	0548	26.14	0.0900	26.20	0.2894	0.1112	13	-0.23	146.00	0
146	Total S in Liquid (26%)	0564	26.17	0.0400	26.20	0.2894	0.1112	13	-0.11	146.99	0
146	Total S in Liquid (26%)	0565	26.19	0.0700	26.20	0.2894	0.1112	13	-0.06	146.99	0
146	Total S in Liquid (26%)	0577	26.28	0.3300	26.20	0.2894	0.1112	13	0.25	146.99	0
146	Total S in Liquid (26%)	0578	26.29	0.1200	26.20	0.2894	0.1112	13	0.31	146.00	0
146	Total S in Liquid (26%)	0481	26.33	0.0400	26.20	0.2894	0.1112	13	0.44	146.00	0
146	Total S in Liquid (26%)	0231	26.45	0.1000	26.20	0.2894	0.1112	13	0.86	146.00	0
146	Total S in Liquid (26%)	0397	26.55	0.0553	26.20	0.2894	0.1112	13	1.20	146.00	0
146	Total S in Liquid (26%)	0580	26.83	0.0000	26.20	0.2894	0.1112	13	2.17	146.00	0
146	Total S in Liquid (26%)	0324	28.85±	1.100	26.20	0.2894	0.1112	13	9.15	146.00	1
148	Total S (26%)	0131	21.89†	0.3500	26.05	0.9413	0.5114	43	-4.43	148.00	0
148	Total S (26%)	0307	22.70†	2.400	26.05	0.9413	0.5114	43	-3.56	148.99	0
148	Total S (26%)	0472	23.79†	0.1100	26.05	0.9413	0.5114	43	-2.41	148.07	0
148	Total S (26%)	0114	23.85†	0.1530	26.05	0.9413	0.5114	43	-2.34	148.00	0
148	Total S (26%)	0494	24.16†	1.147	26.05	0.9413	0.5114	43	-2.02	148.07	0
148	Total S (26%)	0421	24.30†	1.000	26.05	0.9413	0.5114	43	-1.86	148.07	0
148	Total S (26%)	0433	24.64†	0.3800	26.05	0.9413	0.5114	43	-1.50	148.99	0
148	Total S (26%)	0521	25.25	0.0000	26.05	0.9413	0.5114	43	-0.86	148.99	0
148	Total S (26%)	0516	25.26	0.7140	26.05	0.9413	0.5114	43	-0.84	148.99	0
148	Total S (26%)	0451	25.40	0.8000	26.05	0.9413	0.5114	43	-0.69	148.00	0
148	Total S (26%)	0523	25.60	0.4900	26.05	0.9413	0.5114	43	-0.49	148.99	0
148	Total S (26%)	0106	25.84	2.090	26.05	0.9413	0.5114	43	-0.23	148.07	0
148	Total S (26%)	0029	25.90	0.1200	26.05	0.9413	0.5114	43	-0.16	148.00	0
148	Total S (26%)	0049	25.95	0.0900	26.05	0.9413	0.5114	43	-0.12	148.00	0
148	Total S (26%)	0157	25.95	0.1000	26.05	0.9413	0.5114	43	-0.11	148.00	0
148	Total S (26%)	0037	25.99	0.4300	26.05	0.9413	0.5114	43	-0.07	148.07	0
148	Total S (26%)	0556	26.00	0.2000	26.05	0.9413	0.5114	43	-0.06	148.01	0
148	Total S (26%)	0560	26.01	0.0120	26.05	0.9413	0.5114	43	-0.04	148.99	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				
148	Total S (26%)	0527	26.05	0.0926	26.05	0.9413	0.5114	43	-0.01	148.07	0
148	Total S (26%)	0157	26.05	0.3000	26.05	0.9413	0.5114	43	0.00	148.01	0
148	Total S (26%)	0562	26.08	0.2500	26.05	0.9413	0.5114	43	0.02	148.99	0
148	Total S (26%)	0230	26.10	0.4000	26.05	0.9413	0.5114	43	0.05	148.01	0
148	Total S (26%)	0040	26.10	0.4000	26.05	0.9413	0.5114	43	0.05	148.07	0
148	Total S (26%)	0452	26.12	0.0700	26.05	0.9413	0.5114	43	0.06	148.99	0
148	Total S (26%)	0575	26.12	0.6900	26.05	0.9413	0.5114	43	0.06	148.99	0
148	Total S (26%)	0534	26.12	0.0200	26.05	0.9413	0.5114	43	0.07	148.01	0
148	Total S (26%)	0117	26.34	0.1789	26.05	0.9413	0.5114	43	0.31	148.01	0
148	Total S (26%)	0422	26.35	3.000	26.05	0.9413	0.5114	43	0.31	148.99	0
148	Total S (26%)	0029	26.40	0.1100	26.05	0.9413	0.5114	43	0.36	148.01	0
148	Total S (26%)	0501	26.40	0.1800	26.05	0.9413	0.5114	43	0.37	148.99	0
148	Total S (26%)	0485	26.42	0.2800	26.05	0.9413	0.5114	43	0.39	148.01	0
148	Total S (26%)	0073	26.54	0.7400	26.05	0.9413	0.5114	43	0.52	148.01	0
148	Total S (26%)	0102	26.56	0.6800	26.05	0.9413	0.5114	43	0.54	148.07	0
148	Total S (26%)	0177	26.59	0.5003	26.05	0.9413	0.5114	43	0.57	148.07	0
148	Total S (26%)	0055	26.64	0.1100	26.05	0.9413	0.5114	43	0.62	148.01	0
148	Total S (26%)	0547	26.89	0.0100	26.05	0.9413	0.5114	43	0.88	148.00	0
148	Total S (26%)	0043	26.91	0.3000	26.05	0.9413	0.5114	43	0.91	148.99	0
148	Total S (26%)	0292	26.99	0.0100	26.05	0.9413	0.5114	43	0.99	148.07	0
148	Total S (26%)	0136	27.15‡	0.5000	26.05	0.9413	0.5114	43	1.16	148.00	0
148	Total S (26%)	0035	27.40‡	0.2000	26.05	0.9413	0.5114	43	1.43	148.99	0
148	Total S (26%)	0354	27.60‡	0.2000	26.05	0.9413	0.5114	43	1.64	148.99	0
148	Total S (26%)	0515	29.36‡	1.675	26.05	0.9413	0.5114	43	3.51	148.07	0
148	Total S (26%)	0072	36.74‡	0.5090	26.05	0.9413	0.5114	43	11.35	148.99	0
148	Total S (26%)	0025	38.39‡	5.048	26.05	0.9413	0.5114	43	13.11	148.99	1
149	S - HNO3 soluble (%)	0588	13.99	0.0500	22.94	6.020	0.3124	4	-1.49	149.04	0
149	S - HNO3 soluble (%)	0524	24.97	0.6895	22.94	6.020	0.3124	4	0.34	149.04	0
149	S - HNO3 soluble (%)	0423	25.90	0.1100	22.94	6.020	0.3124	4	0.49	149.04	0
149	S - HNO3 soluble (%)	0260	26.90	0.4000	22.94	6.020	0.3124	4	0.66	149.04	0
151	Acid Soluble As (ppm)	0524	0.0026	0.0037	0.1183	0.1641	0.0059	5	-0.71	151.30	0
151	Acid Soluble As (ppm)	0529	0.0100	0.0000	0.1183	0.1641	0.0059	5	-0.66	151.32	0
151	Acid Soluble As (ppm)	0578	0.0610	0.0240	0.1183	0.1641	0.0059	5	-0.35	151.99	0
151	Acid Soluble As (ppm)	0548	0.1180	0.0020	0.1183	0.1641	0.0059	5	0.00	151.33	0
151	Acid Soluble As (ppm)	0220	0.4000	0.0000	0.1183	0.1641	0.0059	5	1.72	151.99	0
151	Acid Soluble As (ppm)	0255	0.0000	0.0000	0.1183	0.1641	0.0059	5		151.30	4
151	Acid Soluble As (ppm)	0368	< 0.3		0.1183	0.1641	0.0059	5		151.34	5
151	Acid Soluble As (ppm)	0481	< 0.5		0.1183	0.1641	0.0059	5		151.99	5
151	Acid Soluble As (ppm)	0136	< 1		0.1183	0.1641	0.0059	5		151.33	5
151	Acid Soluble As (ppm)	0494	< 1.93		0.1183	0.1641	0.0059	5		151.33	5
151	Acid Soluble As (ppm)	0405	< 3		0.1183	0.1641	0.0059	5		151.32	5
151	Acid Soluble As (ppm)	0027	< 10		0.1183	0.1641	0.0059	5		151.30	5
165	Acid Soluble B (%)	0515	0.0000	0.0000				0		165.99	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				
165	Acid Soluble B (%)	0553	< 0.001					0		165.00	5
165	Acid Soluble B (%)	0354	< 0.01					0		165.30	5
181	Acid Soluble Cd (ppm)	0548	0.0020	0.0020				2		181.33	0
181	Acid Soluble Cd (ppm)	0255	5.414	7.680				2		181.30	0
181	Acid Soluble Cd (ppm)	0515	0.0000	0.0000				2		181.33	4
181	Acid Soluble Cd (ppm)	0515	0.0000	0.0000				2		181.34	4
181	Acid Soluble Cd (ppm)	0524	0.0053	0.0106				2		181.30	4
181	Acid Soluble Cd (ppm)	0529	< 0.01					2		181.32	5
181	Acid Soluble Cd (ppm)	0394	< 0.1					2		181.30	5
181	Acid Soluble Cd (ppm)	0368	< 0.1					2		181.34	5
181	Acid Soluble Cd (ppm)	0220	< 0.1					2		181.99	5
181	Acid Soluble Cd (ppm)	0481	< 0.5					2		181.99	5
181	Acid Soluble Cd (ppm)	0494	< 0.54					2		181.33	5
181	Acid Soluble Cd (ppm)	0405	< 1					2		181.32	5
181	Acid Soluble Cd (ppm)	0136	< 1					2		181.33	5
181	Acid Soluble Cd (ppm)	0578	< 2.396					2		181.99	5
181	Acid Soluble Cd (ppm)	0027	< 10					2		181.30	5
190	Water Soluble Cl (%)	0553	18.65	1.300				1		190.00	0
191	Acid Soluble Cr (ppm)	0548	0.2030	0.0100	2.212	2.606	0.1335	4	-0.77	191.33	0
191	Acid Soluble Cr (ppm)	0220	0.3000	0.0000	2.212	2.606	0.1335	4	-0.73	191.99	0
191	Acid Soluble Cr (ppm)	0529	2.590	0.0000	2.212	2.606	0.1335	4	0.15	191.32	0
191	Acid Soluble Cr (ppm)	0037	5.754	0.5240	2.212	2.606	0.1335	4	1.36	191.33	0
191	Acid Soluble Cr (ppm)	0368	< 0.1		2.212	2.606	0.1335	4		191.34	5
191	Acid Soluble Cr (ppm)	0578	< 0.242		2.212	2.606	0.1335	4		191.99	5
191	Acid Soluble Cr (ppm)	0394	< 0.3		2.212	2.606	0.1335	4		191.30	5
191	Acid Soluble Cr (ppm)	0405	< 1		2.212	2.606	0.1335	4		191.32	5
191	Acid Soluble Cr (ppm)	0494	< 1.23		2.212	2.606	0.1335	4		191.33	5
191	Acid Soluble Cr (ppm)	0136	< 5		2.212	2.606	0.1335	4		191.33	5
191	Acid Soluble Cr (ppm)	0027	< 10		2.212	2.606	0.1335	4		191.30	5
191	Acid Soluble Cr (ppm)	0481	< 20		2.212	2.606	0.1335	4		191.99	5
202	Acid Soluble Co (ppm)	0548	0.0080	0.0020	8.141	17.69	2.754	5	-0.46	202.33	0
202	Acid Soluble Co (ppm)	0529	0.0200	0.0000	8.141	17.69	2.754	5	-0.46	202.32	0
202	Acid Soluble Co (ppm)	0524	0.1418	0.0177	8.141	17.69	2.754	5	-0.45	202.30	0
202	Acid Soluble Co (ppm)	0515	0.7462	0.2683	8.141	17.69	2.754	5	-0.42	202.33	0
202	Acid Soluble Co (ppm)	0255	39.79	13.48	8.141	17.69	2.754	5	1.79	202.99	0
202	Acid Soluble Co (ppm)	0368	< 0.1		8.141	17.69	2.754	5		202.34	5
202	Acid Soluble Co (ppm)	0578	< 0.124		8.141	17.69	2.754	5		202.99	5
202	Acid Soluble Co (ppm)	0494	< 0.41		8.141	17.69	2.754	5		202.33	5
202	Acid Soluble Co (ppm)	0405	< 1		8.141	17.69	2.754	5		202.32	5
202	Acid Soluble Co (ppm)	0136	< 5		8.141	17.69	2.754	5		202.33	5
202	Acid Soluble Co (ppm)	0027	< 10		8.141	17.69	2.754	5		202.30	5
202	Acid Soluble Co (ppm)	0481	< 20		8.141	17.69	2.754	5		202.99	5
221	Acid Soluble Cu (%)	0548	0.0001	0.0000	0.0724	0.1608	0.0002	5	-0.45	221.33	0

Analyte Group	Analyte (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Your Method	Flag
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221	Acid Soluble Cu (%)	0515	0.0005	0.0001	0.0724	0.1608	0.0002	5	-0.45	221.33	0
221	Acid Soluble Cu (%)	0515	0.0005	0.0007	0.0724	0.1608	0.0002	5	-0.45	221.99	0
221	Acid Soluble Cu (%)	0394	0.0010	0.0000	0.0724	0.1608	0.0002	5	-0.44	221.32	0
221	Acid Soluble Cu (%)	0529	0.3600	0.0000	0.0724	0.1608	0.0002	5	1.79	221.32	0
221	Acid Soluble Cu (%)	0578	0.3645	0.0450	0.0724	0.1608	0.0002	5	1.82	221.99	1
221	Acid Soluble Cu (%)	0255	0.0000	0.0000	0.0724	0.1608	0.0002	5		221.30	4
221	Acid Soluble Cu (%)	0106	0.0000	0.0000	0.0724	0.1608	0.0002	5		221.33	4
221	Acid Soluble Cu (%)	0368	0.0000	0.0000	0.0724	0.1608	0.0002	5		221.99	4
221	Acid Soluble Cu (%)	0405	< 0.0002		0.0724	0.1608	0.0002	5		221.32	5
221	Acid Soluble Cu (%)	0494	< 0.0002		0.0724	0.1608	0.0002	5		221.33	5
221	Acid Soluble Cu (%)	0136	< 0.0005		0.0724	0.1608	0.0002	5		221.33	5
221	Acid Soluble Cu (%)	0481	< 0.001		0.0724	0.1608	0.0002	5		221.99	5
221	Acid Soluble Cu (%)	0553	< 0.005		0.0724	0.1608	0.0002	5		221.00	5
221	Acid Soluble Cu (%)	0354	< 0.01		0.0724	0.1608	0.0002	5		221.30	5
241	Acid Soluble Fe (%)	0494	0.0006	0.0005				1		241.33	0
241	Acid Soluble Fe (%)	0515	0.0000	0.0000				1		241.33	4
241	Acid Soluble Fe (%)	0515	0.0000	0.0000				1		241.99	4
241	Acid Soluble Fe (%)	0553	< 0.005					1		241.00	5
241	Acid Soluble Fe (%)	0354	< 0.01					1		241.30	5
251	Acid Soluble Pb (ppm)	0548	0.0040	0.0020	0.2800	0.4204	0.0677	4	-0.66	251.33	0
251	Acid Soluble Pb (ppm)	0529	0.0700	0.0000	0.2800	0.4204	0.0677	4	-0.50	251.32	0
251	Acid Soluble Pb (ppm)	0524	0.1411	0.0387	0.2800	0.4204	0.0677	4	-0.33	251.30	0
251	Acid Soluble Pb (ppm)	0481	0.9050	0.2300	0.2800	0.4204	0.0677	4	1.49	251.99	0
251	Acid Soluble Pb (ppm)	0515	0.0000	0.0000	0.2800	0.4204	0.0677	4		251.33	4
251	Acid Soluble Pb (ppm)	0255	1.668	3.336	0.2800	0.4204	0.0677	4		251.30	4
251	Acid Soluble Pb (ppm)	0578	< 0.051		0.2800	0.4204	0.0677	4		251.99	5
251	Acid Soluble Pb (ppm)	0394	< 0.4		0.2800	0.4204	0.0677	4		251.30	5
251	Acid Soluble Pb (ppm)	0368	< 0.6		0.2800	0.4204	0.0677	4		251.34	5
251	Acid Soluble Pb (ppm)	0220	< 1		0.2800	0.4204	0.0677	4		251.99	5
251	Acid Soluble Pb (ppm)	0494	< 1.27		0.2800	0.4204	0.0677	4		251.33	5
251	Acid Soluble Pb (ppm)	0136	< 3		0.2800	0.4204	0.0677	4		251.33	5
251	Acid Soluble Pb (ppm)	0405	< 4		0.2800	0.4204	0.0677	4		251.32	5
251	Acid Soluble Pb (ppm)	0027	< 10		0.2800	0.4204	0.0677	4		251.30	5
261	Acid Soluble Mn (%)	0515	0.0000	0.0000				0		261.35	4
261	Acid Soluble Mn (%)	0494	< 0.0004					0		261.35	5
261	Acid Soluble Mn (%)	0553	< 0.005					0		261.00	5
261	Acid Soluble Mn (%)	0354	< 0.01					0		261.30	5
281	Acid Soluble Hg (ppm)	0368	0.0012	0.0003	0.0408	0.0774	0.0010	5	-0.45	281.99	0
281	Acid Soluble Hg (ppm)	0524	0.0019	0.0005	0.0408	0.0774	0.0010	5	-0.44	281.99	0
281	Acid Soluble Hg (ppm)	0035	0.0025	0.0010	0.0408	0.0774	0.0010	5	-0.43	281.99	0
281	Acid Soluble Hg (ppm)	0529	0.0200	0.0000	0.0408	0.0774	0.0010	5	-0.23	281.30	0
281	Acid Soluble Hg (ppm)	0578	0.1785	0.0030	0.0408	0.0774	0.0010	5	1.55	281.99	0
281	Acid Soluble Hg (ppm)	0515	0.0000	0.0000	0.0408	0.0774	0.0010	5		281.30	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				
281	Acid Soluble Hg (ppm)	0117	< 0.2		0.0408	0.0774	0.0010	5		281.00	5
281	Acid Soluble Hg (ppm)	0481	< 0.5		0.0408	0.0774	0.0010	5		281.99	5
281	Acid Soluble Hg (ppm)	0405	< 2		0.0408	0.0774	0.0010	5		281.30	5
289	Acid Soluble Mo (ppm)	0548	0.0500	0.0020	2.376	3.329	1.948	5	-0.61	289.33	0
289	Acid Soluble Mo (ppm)	0529	0.0900	0.0000	2.376	3.329	1.948	5	-0.60	289.32	0
289	Acid Soluble Mo (ppm)	0578	1.760	0.0150	2.376	3.329	1.948	5	-0.16	289.99	0
289	Acid Soluble Mo (ppm)	0494	1.854	1.713	2.376	3.329	1.948	5	-0.14	289.33	0
289	Acid Soluble Mo (ppm)	0255	8.125	8.010	2.376	3.329	1.948	5	1.51	289.30	0
289	Acid Soluble Mo (ppm)	0368	0.2000	0.4000	2.376	3.329	1.948	5		289.34	4
289	Acid Soluble Mo (ppm)	0106	2.500	5.000	2.376	3.329	1.948	5		289.33	4
289	Acid Soluble Mo (ppm)	0405	< 1		2.376	3.329	1.948	5		289.32	5
289	Acid Soluble Mo (ppm)	0136	< 5		2.376	3.329	1.948	5		289.33	5
289	Acid Soluble Mo (ppm)	0481	< 100		2.376	3.329	1.948	5		289.99	5
291	Acid Soluble Ni (ppm)	0548	0.1750	0.0040	10.81	22.79	2.353	5	-0.47	291.33	0
291	Acid Soluble Ni (ppm)	0220	0.2000	0.0000	10.81	22.79	2.353	5	-0.47	291.99	0
291	Acid Soluble Ni (ppm)	0394	0.6250	0.0100	10.81	22.79	2.353	5	-0.45	291.30	0
291	Acid Soluble Ni (ppm)	0529	1.490	0.0000	10.81	22.79	2.353	5	-0.41	291.32	0
291	Acid Soluble Ni (ppm)	0255	51.58	11.75	10.81	22.79	2.353	5	1.79	291.99	0
291	Acid Soluble Ni (ppm)	0515	0.0000	0.0000	10.81	22.79	2.353	5		291.33	4
291	Acid Soluble Ni (ppm)	0578	< 0.091		10.81	22.79	2.353	5		291.99	5
291	Acid Soluble Ni (ppm)	0368	< 0.2		10.81	22.79	2.353	5		291.34	5
291	Acid Soluble Ni (ppm)	0494	< 0.65		10.81	22.79	2.353	5		291.33	5
291	Acid Soluble Ni (ppm)	0405	< 1		10.81	22.79	2.353	5		291.32	5
291	Acid Soluble Ni (ppm)	0136	< 5		10.81	22.79	2.353	5		291.33	5
291	Acid Soluble Ni (ppm)	0027	< 10		10.81	22.79	2.353	5		291.30	5
291	Acid Soluble Ni (ppm)	0481	< 10		10.81	22.79	2.353	5		291.99	5
301	Acid Soluble Se (ppm)	0529	0.0100	0.0000	0.5705	0.9510	0.1182	5	-0.59	301.32	0
301	Acid Soluble Se (ppm)	0524	0.0298	0.0320	0.5705	0.9510	0.1182	5	-0.57	301.30	0
301	Acid Soluble Se (ppm)	0220	0.2500	0.1000	0.5705	0.9510	0.1182	5	-0.34	301.99	0
301	Acid Soluble Se (ppm)	0548	0.3070	0.0060	0.5705	0.9510	0.1182	5	-0.28	301.33	0
301	Acid Soluble Se (ppm)	0515	2.256	0.4530	0.5705	0.9510	0.1182	5	1.77	301.33	0
301	Acid Soluble Se (ppm)	0043	1.615	0.6700	0.5705	0.9510	0.1182	5	1.10	301.33	1
301	Acid Soluble Se (ppm)	0255	0.0000	0.0000	0.5705	0.9510	0.1182	5		301.99	4
301	Acid Soluble Se (ppm)	0578	< 0.042		0.5705	0.9510	0.1182	5		301.99	5
301	Acid Soluble Se (ppm)	0481	< 0.5		0.5705	0.9510	0.1182	5		301.99	5
301	Acid Soluble Se (ppm)	0494	< 0.95		0.5705	0.9510	0.1182	5		301.33	5
301	Acid Soluble Se (ppm)	0368	< 1.1		0.5705	0.9510	0.1182	5		301.34	5
301	Acid Soluble Se (ppm)	0027	< 10		0.5705	0.9510	0.1182	5		301.30	5
301	Acid Soluble Se (ppm)	0405	< 10		0.5705	0.9510	0.1182	5		301.32	5
311	Sodium (%)	0553	0.0060	0.0000	0.0197	0.0179	0.0071	3	-0.77	311.00	0
311	Sodium (%)	0494	0.0132	0.0012	0.0197	0.0179	0.0071	3	-0.36	311.33	0
311	Sodium (%)	0354	0.0400	0.0200	0.0197	0.0179	0.0071	3	1.13	311.99	0
321	Acid Soluble Zn (%)	0548	0.0001	0.0000	0.2570	0.5719	0.0003	5	-0.45	321.33	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				
321	Acid Soluble Zn (%)	0394	0.0008	0.0001	0.2570	0.5719	0.0003	5	-0.45	321.32	0
321	Acid Soluble Zn (%)	0035	0.0017	0.0005	0.2570	0.5719	0.0003	5	-0.45	321.30	0
321	Acid Soluble Zn (%)	0255	0.0025	0.0010	0.2570	0.5719	0.0003	5	-0.45	321.30	0
321	Acid Soluble Zn (%)	0529	1.280	0.0000	0.2570	0.5719	0.0003	5	1.79	321.02	0
321	Acid Soluble Zn (%)	0578	0.5360	0.3200	0.2570	0.5719	0.0003	5	0.49	321.99	1
321	Acid Soluble Zn (%)	0106	0.0000	0.0000	0.2570	0.5719	0.0003	5		321.33	4
321	Acid Soluble Zn (%)	0515	0.0000	0.0000	0.2570	0.5719	0.0003	5		321.33	4
321	Acid Soluble Zn (%)	0368	0.0002	0.0003	0.2570	0.5719	0.0003	5		321.99	4
321	Acid Soluble Zn (%)	0405	< 0.0003		0.2570	0.5719	0.0003	5		321.32	5
321	Acid Soluble Zn (%)	0136	< 0.0005		0.2570	0.5719	0.0003	5		321.33	5
321	Acid Soluble Zn (%)	0494	< 0.0008		0.2570	0.5719	0.0003	5		321.33	5
321	Acid Soluble Zn (%)	0553	< 0.002		0.2570	0.5719	0.0003	5		321.00	5
321	Acid Soluble Zn (%)	0481	< 0.002		0.2570	0.5719	0.0003	5		321.99	5
321	Acid Soluble Zn (%)	0354	< 0.01		0.2570	0.5719	0.0003	5		321.30	5

Interpreting Z Scores and Flags:

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.

Notes:

Robust statistics not used if < 6 labs used in calculations, in this case Values and Z Scores are grayed out and should be interpreted with extreme caution. 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.