

Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 107

Sample # 220611

Regular PT Scheme

Labs Reporting: 78

Organic w/humic acids

Statistical Summary

Issue Date : 07/31/2022

Method Code	Analyte & Method Sample # 220611	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
001.99	Ammoniacal N, Other (%)	1		0.0539									
010.60	Total N, Combustion (%)	9	7	0.2356	0.1455	0.2267	0.4900	0.0791	0.0374	34.87%	0.38	0.0317	5.00%
010.99	Total N, Other (%)	1		0.2594									
020.40	Total P2O5, Automated (%)	1		0.4000									
020.50	Total P2O5, ICP (%)	4	1	0.0006	0.0006	0.2267		0.0791	0.0988	34.87%		0.0003	5.00%
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	2	1	0.0100	0.0000								
041.50	Direct Available P2O5, ICP (%)	1		0.1000									
048.20	Water Soluble P2O5, Spectrophotometric (%)	1		0.0100									
050.00	Soluble K2O, STPB Oxalate (2%)	5	5	3.531	2.639	3.531	0.4100	2.639	1.475	74.72%	14.99	0.0980	3.31%
050.30	Soluble K2O, AA (Oxalate) (2%)	4	4	3.914	0.3213	3.914	0.4100	0.3213	0.2008	8.21%	1.83	0.1975	3.26%
050.31	Soluble K2O, AA (Citrate) (2%)	1		4.050									
050.32	Soluble K2O, AA (Citrate-EDTA) (2%)	1		3.960									
050.50	Soluble K2O, ICP (Oxalate) (2%)	7	7	3.878	0.3301	3.918	0.4100	0.2750	0.1299	7.02%	1.56	0.1145	3.26%
050.51	Soluble K2O, ICP (Citrate) (2%)	2	2	3.783	0.3912								
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	10	10	3.911	0.2465	3.924	0.4100	0.2498	0.0987	6.37%	1.42	0.1182	3.26%
050.60	Soluble K2O, Flame Photometric (Oxalate) (2%)	1		3.579									
050.61	Soluble K2O, Flame Photometric (Citrate) (2%)	1		3.900									
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	6	6	4.005	0.1554	4.005	0.4101	0.1762	0.0899	4.40%	1.00	0.0660	3.25%
050.99	Soluble K2O, Other (2%)	42	41	3.625	0.5605	3.677	0.4100	0.4449	0.0868	12.10%	2.53	0.0949	3.29%
101.00	Acid Soluble Ca, AA, inorganic 965.09 (%)	1		0.2100									
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	1		0.4000									
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	1		0.1825									
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	3	3	0.1743	0.0218	0.1743	0.2087	0.0218	0.0158	12.52%	0.24	0.0041	5.20%
101.99	Acid Soluble Ca, Other (%)	2	2	0.1750	0.0212								
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	1		0.0340									
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	1		0.0250									
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	1		0.0230									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	3	2	0.0292	0.0011	0.0288	0.2014	0.0012	0.0010	4.05%	0.01	0.0007	6.82%
121.99	Acid Soluble Mg, Other (%)	4	4	0.0241	0.0053	0.0241	0.2012	0.0053	0.0033	22.22%	0.06	0.0004	7.01%

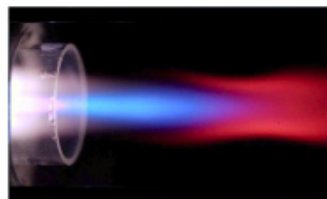
Method Code	Analyte & Method Sample # 220611	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Howitz %RSD
143.99	Elemental S, Other (%)	1		0.0580									
148.07	Total S, ICP, test portion as in 2017.02 (%)	3	2	0.0440	0.0308	0.0609	0.2030	0.0128	0.0113	21.07%	0.15	0.0009	6.09%
148.99	Total S, Other (%)	2	1	0.0869	0.0186								
149.04	S - HNO3 soluble, ICP (%)	2	2	0.0726	0.0048								
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid	1		0.2000									
151.30	Acid Soluble As, ICP (ppm)	6	4	1.227	2.439	0.2900		0.0245	0.0153	8.44%		0.0094	19.27%
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	5	3	1.502	1.983	0.5028		0.3476	0.2509	69.15%		0.1161	17.74%
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	2	1	0.9743	0.9535								
151.99	Acid Soluble As, Other (ppm)	4	2	1.245	1.234	0.7400		0.6505	0.5750	87.91%		0.0200	16.74%
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	2	1	0.0054	0.0065								
165.99	Acid Soluble B, Other (%)	6	4	0.0014	0.0012	0.0015	0.0032	0.0011	0.0007	73.31%	0.78	0.0000	10.67%
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid	1		0.1000									
181.30	Acid Soluble Cd, ICP (ppm)	8	5	0.9624	1.668	0.1916		0.3849	0.2152	200.90%		0.0590	20.51%
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	5	2	0.6365	0.8661	0.0912		0.0961	0.0849	105.36%		0.0189	22.00%
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	2	1	0.1645	0.0912								
181.99	Acid Soluble Cd, Other (ppm)	4	1	0.4034	0.4507	0.0912		0.0961	0.1201	105.36%		0.0010	22.00%
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid	1		1.830									
191.30	Acid Soluble Cr, ICP (ppm)	8	6	1.593	2.772	0.5217		0.2733	0.1394	52.38%		0.0320	17.64%
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	6	4	5.482	8.322	1.974		2.452	1.532	124.23%		0.2777	14.44%
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	2	2	0.9063	0.2917								
191.99	Acid Soluble Cr, Other (ppm)	4	2	5.725	9.521	0.9500		0.4950	0.4375	52.10%		0.0300	16.12%
202.00	Acid Soluble Co, AA, test portion 2006.03 modified w/dual acid	1		20.00									
202.30	Acid Soluble Co, ICP (ppm)	6	5	0.6225	0.4147	0.6144	1.1843	0.4631	0.2589	75.38%	0.91	0.0105	17.21%
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	1		0.4300									
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	5	3	1.287	1.164	0.4782	1.1435	0.0718	0.0519	15.03%	0.15	0.0120	17.88%
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	3	3	0.9159	0.4720	0.9159	1.2748	0.4720	0.3406	51.53%	0.86	0.7972	16.21%
202.99	Acid Soluble Co, Other (ppm)	4	2	14.77	17.71	19.05	6.7135	26.23	23.18	137.71%	9.10	7.460	10.27%
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	1		0.0050									
221.03	Acid Soluble Cu, AA, 965.09, test portion 2006.03A-C w/dual acid	1		0.0020									
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	4	2	0.0030	0.0047	0.0010	0.0051	0.0000	0.0000	0.00%	0.00	0.0000	11.31%
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	6	3	0.0005	0.0010	0.0001	0.0050	0.0001	0.0000	43.30%	0.03	0.0000	15.32%
221.99	Acid Soluble Cu, Other (%)	6	3	0.0003	0.0003	0.0002	0.0050	0.0001	0.0001	48.04%	0.05	0.0000	14.24%
241.00	Acid Soluble Fe, AA, inorganic 965.09 (%)	1		0.0640									
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	2	2	0.0575	0.0035								
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	1		0.0635									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	4	4	0.0643	0.0046	0.0643	0.0114	0.0046	0.0029	7.23%	0.95	0.0017	6.04%
241.99	Acid Soluble Fe, Other (%)	3	3	0.0602	0.0033	0.0602	0.0110	0.0033	0.0024	5.42%	0.69	0.0021	6.10%
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid	1		0.7050									
251.30	Acid Soluble Pb, ICP (ppm)	8	5	0.8803	1.679	0.4075		0.1507	0.0842	36.98%		0.0295	18.31%
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	5	3	5.021	6.150	5.368		8.541	6.164	159.09%		0.8134	12.42%

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251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	2	1	4.076	4.916								
251.99	Acid Soluble Pb, Other (ppm)	4	2	1.380	1.750	0.5100		0.1980	0.1750	38.82%		0.1700	17.70%
261.00	Acid Soluble Mn, AA, Mn2+ only (%)	1		0.0050									
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	1		0.0100									
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	1		0.0000									
261.34	Acid Soluble Mn, ICP, test portion 2006.03A-C (%)	1		0.0020									
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	2	2	0.0015	0.0001								
261.99	Acid Soluble Mn, Other (%)	2	2	0.0014	0.0000								
281.00	Acid Soluble Hg, AA (ppm)	3	0	0.4000	0.1732	0.0014		0.0000		0.00%		0.0000	22.00%
281.30	Acid Soluble Hg, ICP (ppm)	5	1	0.2864	0.5680	0.0014		0.0000	0.0000	0.00%		0.0005	22.00%
281.99	Acid Soluble Hg, Other (ppm)	5	4	0.4049	0.8917	0.0062		0.0027	0.0017	43.51%		0.0001	22.00%
289.00	Acid Soluble Mo, AA, test portion 2006.03 modified w/dual acid	1		0.0100									
289.30	Acid Soluble Mo, ICP (ppm)	4	2	0.3138	0.5225	0.6266	1.1880	0.6540	0.5780	104.37%	1.28	0.0036	17.16%
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	6	3	1.291	1.743	0.2482	1.0745	0.0109	0.0078	4.38%	0.02	0.0893	19.73%
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	3	2	0.2719	0.2424	0.3828	1.1148	0.2090	0.1847	54.60%	0.44	0.0163	18.48%
289.99	Acid Soluble Mo, Other (ppm)	4	1	25.48	49.68	0.3828	1.1148	0.2090	0.2612	54.60%	0.44	0.4000	18.48%
291.00	Acid Soluble Ni, AA, test portion 2006.03 modified w/dual acid	1		10.00									
291.30	Acid Soluble Ni, ICP (ppm)	6	5	1.530	0.8336	1.357		0.8011	0.4478	59.06%		0.0165	15.28%
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	5	3	1.753	1.147	0.9218		0.1953	0.1410	21.19%		0.0236	16.19%
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	3	3	2.143	1.246	2.143		1.246	0.8989	58.13%		1.652	14.26%
291.99	Acid Soluble Ni, Other (ppm)	5	4	15.58	22.87	14.47		26.25	16.40	181.35%		4.053	10.70%
301.30	Acid Soluble Se, ICP (ppm)	5	4	0.6212	0.6085	0.3515		0.0942	0.0589	26.81%		0.0314	18.72%
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	4	2	6.878	10.35	2.755		3.355	2.965	121.77%		0.5453	13.73%
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	2	2	4.773	2.160								
301.99	Acid Soluble Se, Other (ppm)	5	2	2.215	4.356	0.2875		0.0106	0.0094	3.69%		0.0850	19.30%
311.00	Sodium, AA (%)	1		0.0530									
311.33	Sodium, ICP, test portion as in 2017.02 (%)	3	3	0.0426	0.0028	0.0426	0.0093	0.0028	0.0021	6.67%	0.72	0.0014	6.43%
311.99	Sodium, Other (%)	1		0.1500									
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	1		0.0020									
321.03	Acid Soluble Zn, AA, 965.09, test portion 2006.03A-C w/dual acid	1		0.0100									
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	4	2	0.0065	0.0069	0.0080	0.0058	0.0092	0.0081	114.90%	3.69	0.0050	8.27%
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		0.0030									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	7	3	0.7077	1.871	1.650	0.1700	2.858	2.063	173.19%	39.17	0.3687	3.71%
321.99	Acid Soluble Zn, Other (%)	6	4	0.0006	0.0007	0.0003	0.0050	0.0002	0.0001	68.46%	0.08	0.0002	13.83%
325.30	Water Soluble Zn, ICP (%)	1		0.0009									
441.00	Humic Acids, Gravimetry, Ash-free, alkali dissolved, acid precipitated (12%)	7	7	11.29	1.319	11.29		1.496	0.7068	13.26%		0.3614	2.78%
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12%)	8	8	12.49	2.173	12.43		2.340	1.034	18.82%		0.1097	2.74%
441.99	Humic Acids, Other (12%)	9	8	12.30	0.2156	12.28		0.1227	0.0542	1.00%		0.0750	2.74%

The Method IA Ratio = 2.33 * Robust SD / IA at the Method Assigned Value. IA ratios of 1 and less indicate participant data dispersion is as good or less than the IA. Red indicates the IA ratio is significantly greater than 1, Orange indicates marginally greater than 1, Green indicates IA ratio is not significantly greater than 1 and Grey indicates < 6 labs reporting.

Horwitz %RSD
Average Range (R-bar)
Method IA Ratio
Robust % RSD
Robust Uncertainty (U)
Robust sd
IA at Method Value
Assigned Value Robust Mean
Raw SD
Raw Mean
Tests in Robust Calculations
Tests Submitted
Analyte & Method Sample # 220611
Method Code

The Horwitz %RSD is calculated usin the Thompson Modification, Analyst,2000,125,385-386.



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Sample # 220611

Regular PT Scheme

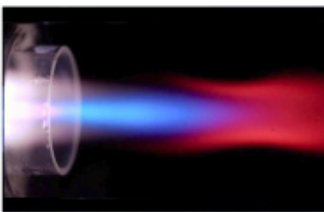
Organic w/humic acids

Method Precision Report

Issue Date : 07/31/2022

Method Code	Analyte & Method	# Tests Submitted	# Tests Used in Precision Calcs	Mean	SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
010.60	Total N, Combustion (%)	9	6	0.2285	0.0807	0.0798	0.0168	0.0816	34.94%	7.34%	35.71%	4.865
050.00	Soluble K ₂ O, STPB Oxalate (2%)	5	5	3.531	2.639	2.638	0.0903	2.639	74.70%	2.56%	74.75%	29.24
050.50	Soluble K ₂ O, ICP (Oxalate) (2%)	7	6	3.987	0.1757	0.1524	0.1236	0.1962	3.82%	3.10%	4.92%	1.588
050.52	Soluble K ₂ O, ICP (Citrate-EDTA) (2%)	10	9	3.887	0.2490	0.2437	0.0720	0.2541	6.27%	1.85%	6.54%	3.530
050.62	Soluble K ₂ O, Flame Photometric (Citrate-EDTA) (2%)	6	6	4.005	0.1554	0.1494	0.0605	0.1611	3.73%	1.51%	4.02%	2.663
050.99	Soluble K ₂ O, Other (2%)	42	38	3.712	0.4440	0.4406	0.0781	0.4475	11.87%	2.10%	12.05%	5.728
191.30	Acid Soluble Cr, ICP (ppm)	8	6	0.5217	0.2410	0.2398	0.0338	0.2421	45.96%	6.48%	46.41%	7.163
251.30	Acid Soluble Pb, ICP (ppm)	8	5	0.4075	0.1507	0.1493	0.0291	0.1521	36.63%	7.14%	37.32%	5.228
441.00	Humic Acids, Gravimetry, Ash-free, alkali dissolved, acid precipit	7	7	11.29	1.319	1.300	0.3182	1.338	11.52%	2.82%	11.86%	4.206
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12%	8	8	12.49	2.173	2.171	0.1001	2.174	17.39%	0.80%	17.41%	21.71
441.99	Humic Acids, Other (12%)	9	7	12.31	0.0849	0.0753	0.0555	0.0935	0.61%	0.45%	0.76%	1.684

Notes: Precision data calculated when 5 or more Tests included.



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 107

Sample # 220611

Regular PT Scheme

Labs Reporting: 78

Organic w/humic acids

Lab Values

Issue Date : 07/31/2022

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001.99	Ammoniacal N, Other (%)	0524	0.0539	0.0722				1			0
010.60	Total N, Combustion (%)	0389	0.1538	0.0005	0.2267	0.0791	0.0317	7	-0.83	OK	0
010.60	Total N, Combustion (%)	0034	0.1675	0.0106	0.2267	0.0791	0.0317	7	-0.68	OK	0
010.60	Total N, Combustion (%)	0422	0.1850	0.0100	0.2267	0.0791	0.0317	7	-0.48	OK	0
010.60	Total N, Combustion (%)	0527	0.2130	0.0060	0.2267	0.0791	0.0317	7	-0.16	OK	0
010.60	Total N, Combustion (%)	0325	0.2300	0.1200	0.2267	0.0791	0.0317	7	0.04	OK	0
010.60	Total N, Combustion (%)	0472	0.2925	0.0250	0.2267	0.0791	0.0317	7	0.75	OK	0
010.60	Total N, Combustion (%)	0354	0.3590	0.0500	0.2267	0.0791	0.0317	7	1.51	OK	0
010.60	Total N, Combustion (%)	0043	0.5200	0.5200	0.2267	0.0791	0.0317	7	3.35	OK	1
010.60	Total N, Combustion (%)	0035	0.0000	0.0000	0.2267	0.0791	0.0317	7			4
010.99	Total N, Other (%)	0524	0.2594	0.0192				1			0
020.40	Total P2O5, Automated (%)	0035	< 0.4					0			5
020.50	Total P2O5, ICP (%)	0524	0.0012	0.0003				1			0
020.50	Total P2O5, ICP (%)	0552	0.0000	0.0000				1			4
020.50	Total P2O5, ICP (%)	0422	0.0002	0.0004				1			4
020.50	Total P2O5, ICP (%)	0527	< 0.001					1			5
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	0472	0.0100	0.0000				1			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	0354	< 0.01					1			5
041.50	Direct Available P2O5, ICP (%)	0325	< 0.1					0			5
048.20	Water Soluble P2O5, Spectrophotometric (%)	0472	0.0100	0.0000				1			0
050.00	Soluble K2O, STPB Oxalate (2%)	0055	1.730	0.1400	3.531	2.639	0.0980	5	-0.68		0
050.00	Soluble K2O, STPB Oxalate (2%)	0220	1.995	0.0300	3.531	2.639	0.0980	5	-0.58		0
050.00	Soluble K2O, STPB Oxalate (2%)	0405	2.205	0.0300	3.531	2.639	0.0980	5	-0.50		0
050.00	Soluble K2O, STPB Oxalate (2%)	0102	3.670	0.2400	3.531	2.639	0.0980	5	0.05		0
050.00	Soluble K2O, STPB Oxalate (2%)	0049	8.055	0.0500	3.531	2.639	0.0980	5	1.71		0
050.30	Soluble K2O, AA (Oxalate) (2%)	0580	3.435	0.0100	3.914	0.3213	0.1975	4	-1.49		0
050.30	Soluble K2O, AA (Oxalate) (2%)	0073	4.045	0.0500	3.914	0.3213	0.1975	4	0.41		0
050.30	Soluble K2O, AA (Oxalate) (2%)	0040	4.050	0.1000	3.914	0.3213	0.1975	4	0.42		0
050.30	Soluble K2O, AA (Oxalate) (2%)	0307	4.125	0.6300	3.914	0.3213	0.1975	4	0.66		0
050.31	Soluble K2O, AA (Citrate) (2%)	0498	4.050	0.1000				1			0
050.32	Soluble K2O, AA (Citrate-EDTA) (2%)	0472	3.960	0.0200				1			0
050.50	Soluble K2O, ICP (Oxalate) (2%)	0422	3.223	0.0012	3.918	0.2750	0.1145	7	-2.28	Low	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
050.50	Soluble K2O, ICP (Oxalate) (2%)	0055	3.745	0.0300	3.918	0.2750	0.1145	7	-0.57	OK	0
050.50	Soluble K2O, ICP (Oxalate) (2%)	0307	3.885	0.2900	3.918	0.2750	0.1145	7	-0.11	OK	0
050.50	Soluble K2O, ICP (Oxalate) (2%)	0230	3.940	0.0400	3.918	0.2750	0.1145	7	0.07	OK	0
050.50	Soluble K2O, ICP (Oxalate) (2%)	0106	3.970	0.1000	3.918	0.2750	0.1145	7	0.17	OK	0
050.50	Soluble K2O, ICP (Oxalate) (2%)	0324	4.175	0.2900	3.918	0.2750	0.1145	7	0.85	OK	0
050.50	Soluble K2O, ICP (Oxalate) (2%)	0292	4.205	0.0500	3.918	0.2750	0.1145	7	0.94	OK	0
050.51	Soluble K2O, ICP (Citrate) (2%)	0368	3.507	0.0536				2			0
050.51	Soluble K2O, ICP (Citrate) (2%)	0291	4.060	0.0200				2			0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0547	3.425	0.1300	3.924	0.2498	0.1182	10	-1.86	Low	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0354	3.545	0.0500	3.924	0.2498	0.1182	10	-1.41	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0423	3.800	0.1200	3.924	0.2498	0.1182	10	-0.46	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0136	3.955	0.1100	3.924	0.2498	0.1182	10	0.12	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0377	3.955	0.0700	3.924	0.2498	0.1182	10	0.12	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0360	4.015	0.0300	3.924	0.2498	0.1182	10	0.34	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0023	4.090	0.0400	3.924	0.2498	0.1182	10	0.62	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0043	4.100	0.2000	3.924	0.2498	0.1182	10	0.66	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0117	4.101	0.0022	3.924	0.2498	0.1182	10	0.66	OK	0
050.52	Soluble K2O, ICP (Citrate-EDTA) (2%)	0485	4.125	0.4300	3.924	0.2498	0.1182	10	0.75	OK	0
050.60	Soluble K2O, Flame Photometric (Oxalate) (2%)	0510	3.579	0.0450				1			0
050.61	Soluble K2O, Flame Photometric (Citrate) (2%)	0035	3.900	0.2000				1			0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	0018	3.745	0.0300	4.005	0.1762	0.0660	6	-1.31	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	0513	3.975	0.0300	4.005	0.1762	0.0660	6	-0.15	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	0029	3.985	0.0100	4.005	0.1762	0.0660	6	-0.10	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	0037	3.997	0.0560	4.005	0.1762	0.0660	6	-0.04	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	0095	4.130	0.1000	4.005	0.1762	0.0660	6	0.63	OK	0
050.62	Soluble K2O, Flame Photometric (Citrate-EDTA) (2%)	0034	4.195	0.1700	4.005	0.1762	0.0660	6	0.96	OK	0
050.99	Soluble K2O, Other (2%)	0538	1.995	0.0100	3.677	0.4449	0.0949	41	-3.78	Low	0
050.99	Soluble K2O, Other (2%)	0556	2.050	0.0200	3.677	0.4449	0.0949	41	-3.66	Low	0
050.99	Soluble K2O, Other (2%)	0575	2.475	0.0930	3.677	0.4449	0.0949	41	-2.70	Low	0
050.99	Soluble K2O, Other (2%)	0518	2.745	0.0500	3.677	0.4449	0.0949	41	-2.10	Low	0
050.99	Soluble K2O, Other (2%)	0533	2.990	0.1200	3.677	0.4449	0.0949	41	-1.54	Low	0
050.99	Soluble K2O, Other (2%)	0560	3.170	0.0600	3.677	0.4449	0.0949	41	-1.14	Low	0
050.99	Soluble K2O, Other (2%)	0523	3.300	0.4000	3.677	0.4449	0.0949	41	-0.85	OK	0
050.99	Soluble K2O, Other (2%)	0562	3.350	0.1000	3.677	0.4449	0.0949	41	-0.74	OK	0
050.99	Soluble K2O, Other (2%)	0600	3.350	0.2000	3.677	0.4449	0.0949	41	-0.74	OK	0
050.99	Soluble K2O, Other (2%)	0564	3.390	0.0400	3.677	0.4449	0.0949	41	-0.65	OK	0
050.99	Soluble K2O, Other (2%)	0325	3.400	0.2000	3.677	0.4449	0.0949	41	-0.62	OK	0
050.99	Soluble K2O, Other (2%)	0552	3.410	0.0200	3.677	0.4449	0.0949	41	-0.60	OK	0
050.99	Soluble K2O, Other (2%)	0559	3.445	0.0100	3.677	0.4449	0.0949	41	-0.52	OK	0
050.99	Soluble K2O, Other (2%)	0561	3.455	0.1100	3.677	0.4449	0.0949	41	-0.50	OK	0
050.99	Soluble K2O, Other (2%)	0567	3.465	0.0300	3.677	0.4449	0.0949	41	-0.48	OK	0
050.99	Soluble K2O, Other (2%)	0565	3.510	0.0800	3.677	0.4449	0.0949	41	-0.38	OK	0
050.99	Soluble K2O, Other (2%)	0501	3.560	0.1600	3.677	0.4449	0.0949	41	-0.26	OK	0

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			Value	Range	Rob Mean	Rob SD	R-bar				
050.99	Soluble K2O, Other (2%)	0220	3.625	0.0100	3.677	0.4449	0.0949	41	-0.12	OK	0
050.99	Soluble K2O, Other (2%)	0260	3.625	0.1100	3.677	0.4449	0.0949	41	-0.12	OK	0
050.99	Soluble K2O, Other (2%)	0553	3.625	0.2300	3.677	0.4449	0.0949	41	-0.12	OK	0
050.99	Soluble K2O, Other (2%)	0451	3.713	0.1140	3.677	0.4449	0.0949	41	0.08	OK	0
050.99	Soluble K2O, Other (2%)	0255	3.741	0.2250	3.677	0.4449	0.0949	41	0.14	OK	0
050.99	Soluble K2O, Other (2%)	0563	3.764	0.0700	3.677	0.4449	0.0949	41	0.20	OK	0
050.99	Soluble K2O, Other (2%)	0549	3.850	0.1000	3.677	0.4449	0.0949	41	0.39	OK	0
050.99	Soluble K2O, Other (2%)	0389	3.880	0.0270	3.677	0.4449	0.0949	41	0.46	OK	0
050.99	Soluble K2O, Other (2%)	0605	3.900	0.0620	3.677	0.4449	0.0949	41	0.50	OK	0
050.99	Soluble K2O, Other (2%)	0433	3.915	0.1700	3.677	0.4449	0.0949	41	0.54	OK	0
050.99	Soluble K2O, Other (2%)	0524	3.950	0.0229	3.677	0.4449	0.0949	41	0.61	OK	0
050.99	Soluble K2O, Other (2%)	0481	3.950	0.0400	3.677	0.4449	0.0949	41	0.61	OK	0
050.99	Soluble K2O, Other (2%)	0587	3.955	0.1300	3.677	0.4449	0.0949	41	0.62	OK	0
050.99	Soluble K2O, Other (2%)	0421	3.960	0.0600	3.677	0.4449	0.0949	41	0.64	OK	0
050.99	Soluble K2O, Other (2%)	0177	3.977	0.0653	3.677	0.4449	0.0949	41	0.67	OK	0
050.99	Soluble K2O, Other (2%)	0027	3.995	0.0500	3.677	0.4449	0.0949	41	0.71	OK	0
050.99	Soluble K2O, Other (2%)	0231	4.015	0.0300	3.677	0.4449	0.0949	41	0.76	OK	0
050.99	Soluble K2O, Other (2%)	0157	4.025	0.0900	3.677	0.4449	0.0949	41	0.78	OK	0
050.99	Soluble K2O, Other (2%)	0577	4.055	0.1500	3.677	0.4449	0.0949	41	0.85	OK	0
050.99	Soluble K2O, Other (2%)	0234	4.150	0.0600	3.677	0.4449	0.0949	41	1.06	High	0
050.99	Soluble K2O, Other (2%)	0444	4.265	0.1100	3.677	0.4449	0.0949	41	1.32	High	0
050.99	Soluble K2O, Other (2%)	0042	4.300	0.2000	3.677	0.4449	0.0949	41	1.40	High	0
050.99	Soluble K2O, Other (2%)	0527	4.324	0.0623	3.677	0.4449	0.0949	41	1.46	High	0
050.99	Soluble K2O, Other (2%)	0521	4.779	0.0000	3.677	0.4449	0.0949	41	2.48	High	0
050.99	Soluble K2O, Other (2%)	0515	3.859	0.8000	3.677	0.4449	0.0949	41	0.41	OK	1
101.00	Acid Soluble Ca, AA, inorganic 965.09 (%)	0553	0.2100	0.0040				1			0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0354	0.4000	0.0600				1			0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (%)	0423	0.1825	0.0010				1			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0472	0.1550	0.0100	0.1743	0.0218	0.0041	3	-0.89		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0009	0.1700	0.0000	0.1743	0.0218	0.0041	3	-0.20		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0527	0.1980	0.0024	0.1743	0.0218	0.0041	3	1.08		0
101.99	Acid Soluble Ca, Other (%)	0389	0.1600	0.0000				2			0
101.99	Acid Soluble Ca, Other (%)	0552	0.1900	0.0200				2			0
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	0553	0.0340	0.0000				1			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0354	0.0250	0.0100				1			0
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	0423	0.0230	0.0020				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0527	0.0280	0.0010				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0515	0.0297	0.0003				2			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0009	< 0.03					2			5
121.99	Acid Soluble Mg, Other (%)	0552	0.0200	0.0000	0.0241	0.0053	0.0004	4	-0.76		0
121.99	Acid Soluble Mg, Other (%)	0524	0.0215	0.0010	0.0241	0.0053	0.0004	4	-0.48		0
121.99	Acid Soluble Mg, Other (%)	0389	0.0229	0.0000	0.0241	0.0053	0.0004	4	-0.22		0
121.99	Acid Soluble Mg, Other (%)	0515	0.0319	0.0006	0.0241	0.0053	0.0004	4	1.46		0

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			Value	Range	Rob Mean	Rob SD	R-bar				
143.99	Elemental S, Other (%)	0389	0.0580	0.0020				1			0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0515	0.0519	0.0017				2			0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0472	0.0700	0.0000				2			0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0527	< 0.01					2			5
148.99	Total S, Other (%)	0422	0.0737	0.0096				1			0
148.99	Total S, Other (%)	0354	< 0.1					1			5
149.04	S - HNO3 soluble, ICP (%)	0524	0.0692	0.0001				2			0
149.04	S - HNO3 soluble, ICP (%)	0423	0.0760	0.0060				2			0
151.00	Acid Soluble As, AA, test portion 2006.03 modified w/dual acid	0498	< 0.2					0			5
151.30	Acid Soluble As, ICP (ppm)	0501	0.2650	0.0100	0.2900	0.0245	0.0094	4	-0.87		0
151.30	Acid Soluble As, ICP (ppm)	0524	0.2766	0.0026	0.2900	0.0245	0.0094	4	-0.46		0
151.30	Acid Soluble As, ICP (ppm)	0575	0.2980	0.0000	0.2900	0.0245	0.0094	4	0.28		0
151.30	Acid Soluble As, ICP (ppm)	0523	0.3205	0.0250	0.2900	0.0245	0.0094	4	1.06		0
151.30	Acid Soluble As, ICP (ppm)	0255	0.0000	0.0000	0.2900	0.0245	0.0094	4			4
151.30	Acid Soluble As, ICP (ppm)	0605	< 6.2		0.2900	0.0245	0.0094	4			5
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0527	0.2810	0.0110	0.5028	0.3476	0.1161	3	-0.64		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0563	0.3239	0.0201	0.5028	0.3476	0.1161	3	-0.51		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0515	0.9034	0.3172	0.5028	0.3476	0.1161	3	1.15		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0136	< 1		0.5028	0.3476	0.1161	3			5
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0009	< 5		0.5028	0.3476	0.1161	3			5
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0515	1.649	0.1130				1			0
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0368	< 0.3					1			5
151.99	Acid Soluble As, Other (ppm)	0009	0.2800	0.0400				2			0
151.99	Acid Soluble As, Other (ppm)	0220	1.200	0.0000				2			0
151.99	Acid Soluble As, Other (ppm)	0481	< 0.5					2			5
151.99	Acid Soluble As, Other (ppm)	0405	< 3					2			5
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0389	0.0008	0.0000				1			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0354	< 0.01					1			5
165.99	Acid Soluble B, Other (%)	0515	0.0005	0.0000	0.0015	0.0011	0.0000	4	-0.76		0
165.99	Acid Soluble B, Other (%)	0524	0.0010	0.0000	0.0015	0.0011	0.0000	4	-0.37		0
165.99	Acid Soluble B, Other (%)	0527	0.0014	0.0000	0.0015	0.0011	0.0000	4	-0.06		0
165.99	Acid Soluble B, Other (%)	0423	0.0030	0.0000	0.0015	0.0011	0.0000	4	1.20		0
165.99	Acid Soluble B, Other (%)	0552	0.0000	0.0000	0.0015	0.0011	0.0000	4			4
165.99	Acid Soluble B, Other (%)	0009	< 0.0025		0.0015	0.0011	0.0000	4			5
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid	0498	< 0.1					0			5
181.30	Acid Soluble Cd, ICP (ppm)	0501	0.0140	0.0020	0.1916	0.3849	0.0590	5	-0.40		0
181.30	Acid Soluble Cd, ICP (ppm)	0389	0.0150	0.0080	0.1916	0.3849	0.0590	5	-0.40		0
181.30	Acid Soluble Cd, ICP (ppm)	0524	0.0214	0.0020	0.1916	0.3849	0.0590	5	-0.39		0
181.30	Acid Soluble Cd, ICP (ppm)	0523	0.0275	0.0030	0.1916	0.3849	0.0590	5	-0.37		0
181.30	Acid Soluble Cd, ICP (ppm)	0035	0.8800	0.2800	0.1916	0.3849	0.0590	5	1.56		0
181.30	Acid Soluble Cd, ICP (ppm)	0255	4.742	6.955	0.1916	0.3849	0.0590	5	10.32		1
181.30	Acid Soluble Cd, ICP (ppm)	0575	< 0.1		0.1916	0.3849	0.0590	5			5
181.30	Acid Soluble Cd, ICP (ppm)	0605	< 1.9		0.1916	0.3849	0.0590	5			5

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			Value	Range	Rob Mean	Rob SD	R-bar				
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0563	0.0233	0.0011				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0515	0.1591	0.0366				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0527	< 0.0001					2			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0136	< 1					2			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0009	< 2					2			5
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0515	0.2290	0.1763				1			0
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0368	< 0.1					1			5
181.99	Acid Soluble Cd, Other (ppm)	0009	0.0135	0.0010				1			0
181.99	Acid Soluble Cd, Other (ppm)	0220	< 0.1					1			5
181.99	Acid Soluble Cd, Other (ppm)	0481	< 0.5					1			5
181.99	Acid Soluble Cd, Other (ppm)	0405	< 1					1			5
191.00	Acid Soluble Cr, AA, test portion 2006.03 modified w/dual acid	0498	1.830	0.0600				1			0
191.30	Acid Soluble Cr, ICP (ppm)	0389	0.1353	0.0165	0.5217	0.2733	0.0320	6	-1.26	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0524	0.3595	0.0204	0.5217	0.2733	0.0320	6	-0.53	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0444	0.5000	0.0000	0.5217	0.2733	0.0320	6	-0.07	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0501	0.6600	0.1000	0.5217	0.2733	0.0320	6	0.45	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0523	0.7085	0.0550	0.5217	0.2733	0.0320	6	0.61	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0575	0.7670	0.0000	0.5217	0.2733	0.0320	6	0.80	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0035	8.410	0.6000	0.5217	0.2733	0.0320	6	25.71	NA	1
191.30	Acid Soluble Cr, ICP (ppm)	0605	< 1.2		0.5217	0.2733	0.0320	6			5
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0527	0.6770	0.0062	1.974	2.452	0.2777	4	-0.45		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0563	0.7234	0.0447	1.974	2.452	0.2777	4	-0.43		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0515	0.8443	0.1027	1.974	2.452	0.2777	4	-0.39		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0037	5.650	0.9570	1.974	2.452	0.2777	4	1.27		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0136	< 3		1.974	2.452	0.2777	4			5
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0009	< 22		1.974	2.452	0.2777	4			5
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0368	0.7000	0.2000				2			0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0515	1.113	0.1110				2			0
191.99	Acid Soluble Cr, Other (ppm)	0009	0.6000	0.0600				2			0
191.99	Acid Soluble Cr, Other (ppm)	0220	1.300	0.0000				2			0
191.99	Acid Soluble Cr, Other (ppm)	0405	< 1					2			5
191.99	Acid Soluble Cr, Other (ppm)	0481	< 20					2			5
202.00	Acid Soluble Co, AA, test portion 2006.03 modified w/dual acid	0498	< 20					0			5
202.30	Acid Soluble Co, ICP (ppm)	0389	0.1925	0.0010	0.6144	0.4631	0.0105	5	-0.80		0
202.30	Acid Soluble Co, ICP (ppm)	0524	0.4148	0.0126	0.6144	0.4631	0.0105	5	-0.38		0
202.30	Acid Soluble Co, ICP (ppm)	0575	0.5110	0.0000	0.6144	0.4631	0.0105	5	-0.19		0
202.30	Acid Soluble Co, ICP (ppm)	0523	0.5485	0.0090	0.6144	0.4631	0.0105	5	-0.12		0
202.30	Acid Soluble Co, ICP (ppm)	0035	1.405	0.0300	0.6144	0.4631	0.0105	5	1.49		0
202.30	Acid Soluble Co, ICP (ppm)	0605	0.6630	0.2360	0.6144	0.4631	0.0105	5	0.09		1
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0423	0.4300	0.0200				1			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0563	0.4288	0.0133	0.4782	0.0718	0.0120	3	-0.69		0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0515	0.4452	0.0046	0.4782	0.0718	0.0120	3	-0.46		0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0527	0.5606	0.0182	0.4782	0.0718	0.0120	3	1.15		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0009	< 2		0.4782	0.0718	0.0120	3			5
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0136	< 3		0.4782	0.0718	0.0120	3			5
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0501	0.5550	0.0500	0.9159	0.4720	0.7972	3	-0.76		0
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0515	0.7426	0.0416	0.9159	0.4720	0.7972	3	-0.37		0
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0368	1.450	2.300	0.9159	0.4720	0.7972	3	1.13		0
202.99	Acid Soluble Co, Other (ppm)	0009	0.5000	0.0600				2			0
202.99	Acid Soluble Co, Other (ppm)	0255	37.59	14.86				2			0
202.99	Acid Soluble Co, Other (ppm)	0405	< 1					2			5
202.99	Acid Soluble Co, Other (ppm)	0481	< 20					2			5
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	0553	< 0.005					0			5
221.03	Acid Soluble Cu, AA, 965.09, test portion 2006.03A-C w/dual a	0498	< 0.002					0			5
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0035	0.0010	0.0000				2			0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0255	0.0010	0.0000				2			0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				2			4
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					2			5
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0515	0.0001	0.0000	0.0001	0.0001	0.0000	3	-0.47		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0527	0.0001	0.0000	0.0001	0.0001	0.0000	3	-0.47		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0575	0.0002	0.0000	0.0001	0.0001	0.0000	3	0.94		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0106	0.0000	0.0000	0.0001	0.0001	0.0000	3			4
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0136	< 0.0002		0.0001	0.0001	0.0000	3			5
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0009	< 0.0025		0.0001	0.0001	0.0000	3			5
221.99	Acid Soluble Cu, Other (%)	0501	0.0001	0.0000	0.0002	0.0001	0.0000	3	-0.91		0
221.99	Acid Soluble Cu, Other (%)	0368	0.0003	0.0001	0.0002	0.0001	0.0000	3	0.26		0
221.99	Acid Soluble Cu, Other (%)	0515	0.0003	0.0000	0.0002	0.0001	0.0000	3	0.65		0
221.99	Acid Soluble Cu, Other (%)	0009	< 0.0002		0.0002	0.0001	0.0000	3			5
221.99	Acid Soluble Cu, Other (%)	0405	< 0.0002		0.0002	0.0001	0.0000	3			5
221.99	Acid Soluble Cu, Other (%)	0481	< 0.001		0.0002	0.0001	0.0000	3			5
241.00	Acid Soluble Fe, AA, inorganic 965.09 (%)	0553	0.0640	0.0000				1			0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0552	0.0550	0.0100				2			0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0354	0.0600	0.0000				2			0
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	0423	0.0635	0.0010				1			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0472	0.0600	0.0000	0.0643	0.0046	0.0017	4	-0.93		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0009	0.0610	0.0020	0.0643	0.0046	0.0017	4	-0.72		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0527	0.0665	0.0023	0.0643	0.0046	0.0017	4	0.46		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0515	0.0699	0.0025	0.0643	0.0046	0.0017	4	1.19		0
241.99	Acid Soluble Fe, Other (%)	0389	0.0582	0.0002	0.0602	0.0033	0.0021	3	-0.62		0
241.99	Acid Soluble Fe, Other (%)	0524	0.0585	0.0034	0.0602	0.0033	0.0021	3	-0.53		0
241.99	Acid Soluble Fe, Other (%)	0515	0.0640	0.0028	0.0602	0.0033	0.0021	3	1.15		0
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid	0498	0.7050	0.0500				1			0
251.30	Acid Soluble Pb, ICP (ppm)	0389	0.1515	0.0010	0.4075	0.1507	0.0295	5	-1.48		0
251.30	Acid Soluble Pb, ICP (ppm)	0524	0.3904	0.0737	0.4075	0.1507	0.0295	5	-0.10		0
251.30	Acid Soluble Pb, ICP (ppm)	0575	0.4890	0.0000	0.4075	0.1507	0.0295	5	0.47		0
251.30	Acid Soluble Pb, ICP (ppm)	0523	0.5015	0.0230	0.4075	0.1507	0.0295	5	0.54		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
251.30	Acid Soluble Pb, ICP (ppm)	0501	0.5050	0.0500	0.4075	0.1507	0.0295	5	0.56		0
251.30	Acid Soluble Pb, ICP (ppm)	0255	0.0000	0.0000	0.4075	0.1507	0.0295	5			4
251.30	Acid Soluble Pb, ICP (ppm)	0035	< 0.005		0.4075	0.1507	0.0295	5			5
251.30	Acid Soluble Pb, ICP (ppm)	0605	< 5		0.4075	0.1507	0.0295	5			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0527	0.3954	0.0049	5.368	8.541	0.8134	3	-0.58		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0563	0.4795	0.0553	5.368	8.541	0.8134	3	-0.57		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0515	15.23	2.380	5.368	8.541	0.8134	3	1.15		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0136	< 3		5.368	8.541	0.8134	3			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0009	< 6		5.368	8.541	0.8134	3			5
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0515	7.553	1.233				1			0
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0368	< 0.6					1			5
251.99	Acid Soluble Pb, Other (ppm)	0009	0.3700	0.0400				2			0
251.99	Acid Soluble Pb, Other (ppm)	0220	0.6500	0.3000				2			0
251.99	Acid Soluble Pb, Other (ppm)	0481	< 0.5					2			5
251.99	Acid Soluble Pb, Other (ppm)	0405	< 4					2			5
261.00	Acid Soluble Mn, AA, Mn2+ only (%)	0553	< 0.005					0			5
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0354	< 0.01					0			5
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				0			4
261.34	Acid Soluble Mn, ICP, test portion 2006.03A-C (%)	0423	0.0020	0.0000				1			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0009	0.0014	0.0000				2			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0527	0.0016	0.0000				2			0
261.99	Acid Soluble Mn, Other (%)	0389	0.0014	0.0000				2			0
261.99	Acid Soluble Mn, Other (%)	0524	0.0014	0.0000				2			0
281.00	Acid Soluble Hg, AA (ppm)	0117	< 0.2					0			5
281.00	Acid Soluble Hg, AA (ppm)	0481	< 0.5					0			5
281.00	Acid Soluble Hg, AA (ppm)	0498	< 0.5					0			5
281.30	Acid Soluble Hg, ICP (ppm)	0501	0.0062	0.0005				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0527	< 0.001					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0009	< 0.025					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0575	< 0.1					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0605	< 1.3					1			5
281.99	Acid Soluble Hg, Other (ppm)	0368	0.0042	0.0003	0.0062	0.0027	0.0001	4	-0.75		0
281.99	Acid Soluble Hg, Other (ppm)	0524	0.0045	0.0000	0.0062	0.0027	0.0001	4	-0.62		0
281.99	Acid Soluble Hg, Other (ppm)	0035	0.0060	0.0000	0.0062	0.0027	0.0001	4	-0.06		0
281.99	Acid Soluble Hg, Other (ppm)	0220	0.0100	0.0000	0.0062	0.0027	0.0001	4	1.43		0
281.99	Acid Soluble Hg, Other (ppm)	0405	< 2		0.0062	0.0027	0.0001	4			5
289.00	Acid Soluble Mo, AA, test portion 2006.03 modified w/dual acid	0498	< 0.01					0			5
289.30	Acid Soluble Mo, ICP (ppm)	0524	0.1642	0.0071				2			0
289.30	Acid Soluble Mo, ICP (ppm)	0575	1.089	0.0000				2			0
289.30	Acid Soluble Mo, ICP (ppm)	0255	0.0000	0.0000				2			4
289.30	Acid Soluble Mo, ICP (ppm)	0035	< 0.002					2			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0515	0.2365	0.2287	0.2482	0.0109	0.0893	3	-0.88		0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0563	0.2503	0.0277	0.2482	0.0109	0.0893	3	0.15		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
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289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0527	0.2579	0.0116	0.2482	0.0109	0.0893	3	0.72		0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0106	0.0000	0.0000	0.2482	0.0109	0.0893	3			4
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0136	< 3		0.2482	0.0109	0.0893	3			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0009	< 4		0.2482	0.0109	0.0893	3			5
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0501	0.2350	0.0300				2			0
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0515	0.5306	0.0025				2			0
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0368	0.0500	0.1000				2			4
289.99	Acid Soluble Mo, Other (ppm)	0220	0.7000	0.4000				1			0
289.99	Acid Soluble Mo, Other (ppm)	0009	< 0.2					1			5
289.99	Acid Soluble Mo, Other (ppm)	0405	< 1					1			5
289.99	Acid Soluble Mo, Other (ppm)	0481	< 100					1			5
291.00	Acid Soluble Ni, AA, test portion 2006.03 modified w/dual acid	0498	< 10					0			5
291.30	Acid Soluble Ni, ICP (ppm)	0524	0.6651	0.0714	1.357	0.8011	0.0165	5	-0.75		0
291.30	Acid Soluble Ni, ICP (ppm)	0444	0.8050	0.0100	1.357	0.8011	0.0165	5	-0.60		0
291.30	Acid Soluble Ni, ICP (ppm)	0575	1.275	0.0000	1.357	0.8011	0.0165	5	-0.09		0
291.30	Acid Soluble Ni, ICP (ppm)	0523	1.348	0.0010	1.357	0.8011	0.0165	5	-0.01		0
291.30	Acid Soluble Ni, ICP (ppm)	0035	2.690	0.0000	1.357	0.8011	0.0165	5	1.45		0
291.30	Acid Soluble Ni, ICP (ppm)	0605	< 2.4		1.357	0.8011	0.0165	5			5
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0515	0.6964	0.0360	0.9218	0.1953	0.0236	3	-1.15		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0563	1.028	0.0130	0.9218	0.1953	0.0236	3	0.54		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0527	1.041	0.0217	0.9218	0.1953	0.0236	3	0.61		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0009	< 3		0.9218	0.1953	0.0236	3			5
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0136	< 3		0.9218	0.1953	0.0236	3			5
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0501	1.350	0.1000	2.143	1.246	1.652	3	-0.64		0
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0368	1.500	0.2000	2.143	1.246	1.652	3	-0.52		0
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0515	3.579	4.655	2.143	1.246	1.652	3	1.15		0
291.99	Acid Soluble Ni, Other (ppm)	0009	1.250	0.1000	14.47	26.25	4.053	4	-0.50		0
291.99	Acid Soluble Ni, Other (ppm)	0220	1.300	0.0000	14.47	26.25	4.053	4	-0.50		0
291.99	Acid Soluble Ni, Other (ppm)	0405	1.500	1.000	14.47	26.25	4.053	4	-0.49		0
291.99	Acid Soluble Ni, Other (ppm)	0255	53.85	15.11	14.47	26.25	4.053	4	1.50		0
291.99	Acid Soluble Ni, Other (ppm)	0481	< 20		14.47	26.25	4.053	4			5
301.30	Acid Soluble Se, ICP (ppm)	0524	0.2667	0.0127	0.3515	0.0942	0.0314	4	-0.90		0
301.30	Acid Soluble Se, ICP (ppm)	0501	0.2800	0.0800	0.3515	0.0942	0.0314	4	-0.76		0
301.30	Acid Soluble Se, ICP (ppm)	0523	0.3975	0.0330	0.3515	0.0942	0.0314	4	0.49		0
301.30	Acid Soluble Se, ICP (ppm)	0575	0.4620	0.0000	0.3515	0.0942	0.0314	4	1.17		0
301.30	Acid Soluble Se, ICP (ppm)	0605	< 1.7		0.3515	0.0942	0.0314	4			5
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0563	0.3828	0.0605				2			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0515	5.127	1.030				2			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0527	< 0.001					2			5
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0009	< 22					2			5
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0515	3.246	0.4810				2			0
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0368	6.300	4.200				2			0
301.99	Acid Soluble Se, Other (ppm)	0220	0.2800	0.1400				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
301.99	Acid Soluble Se, Other (ppm)	0009	0.2950	0.0300				2			0
301.99	Acid Soluble Se, Other (ppm)	0255	0.0000	0.0000				2			4
301.99	Acid Soluble Se, Other (ppm)	0481	< 0.5					2			5
301.99	Acid Soluble Se, Other (ppm)	0405	< 10					2			5
311.00	Sodium, AA (%)	0553	0.0530	0.0020				1			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0009	0.0405	0.0010	0.0426	0.0028	0.0014	3	-0.74		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0423	0.0415	0.0010	0.0426	0.0028	0.0014	3	-0.39		0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	0.0459	0.0021	0.0426	0.0028	0.0014	3	1.14		0
311.99	Sodium, Other (%)	0354	0.1500	0.0000				1			0
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	0553	< 0.002					0			5
321.03	Acid Soluble Zn, AA, 965.09, test portion 2006.03A-C w/dual a	0498	< 0.01					0			5
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0255	0.0015	0.0010				2			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0035	0.0145	0.0090				2			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0552	0.0000	0.0000				2			4
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0354	< 0.01					2			5
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0423	0.0030	0.0000				1			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0515	0.0001	0.0000	1.650	2.858	0.3687	3	-0.47		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0575	0.0001	0.0000	1.650	2.858	0.3687	3	-0.47		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0037	4.951	1.106	1.650	2.858	0.3687	3	0.94		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0106	0.0000	0.0000	1.650	2.858	0.3687	3			4
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0527	< 0.0001		1.650	2.858	0.3687	3			5
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0136	< 0.0003		1.650	2.858	0.3687	3			5
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0009	< 0.0025		1.650	2.858	0.3687	3			5
321.99	Acid Soluble Zn, Other (%)	0524	0.0001	0.0000	0.0003	0.0002	0.0002	4	-0.77		0
321.99	Acid Soluble Zn, Other (%)	0501	0.0002	0.0001	0.0003	0.0002	0.0002	4	-0.53		0
321.99	Acid Soluble Zn, Other (%)	0515	0.0003	0.0004	0.0003	0.0002	0.0002	4	0.18		0
321.99	Acid Soluble Zn, Other (%)	0368	0.0005	0.0002	0.0003	0.0002	0.0002	4	1.12		0
321.99	Acid Soluble Zn, Other (%)	0405	< 0.0003		0.0003	0.0002	0.0002	4			5
321.99	Acid Soluble Zn, Other (%)	0481	< 0.002		0.0003	0.0002	0.0002	4			5
325.30	Water Soluble Zn, ICP (%)	0368	0.0009	0.0009				1			0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0501	9.165	0.1100	11.29	1.496	0.3614	7	-1.28	NA	0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0037	9.700	0.5200	11.29	1.496	0.3614	7	-0.96	NA	0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0533	11.40	0.4000	11.29	1.496	0.3614	7	0.07	NA	0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0220	11.97	0.0400	11.29	1.496	0.3614	7	0.41	NA	0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0549	11.99	0.0900	11.29	1.496	0.3614	7	0.42	NA	0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0136	12.32	0.8000	11.29	1.496	0.3614	7	0.62	NA	0
441.00	Humic Acids, Gravimetry,Ash-free, alkali dissolved, acid precip	0518	12.47	0.5700	11.29	1.496	0.3614	7	0.71	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0444	9.950	0.1000	12.43	2.340	0.1097	8	-0.97	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0527	10.02	0.0549	12.43	2.340	0.1097	8	-0.94	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0368	11.60	0.0430	12.43	2.340	0.1097	8	-0.33	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0538	12.00	0.0300	12.43	2.340	0.1097	8	-0.17	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0556	12.10	0.0200	12.43	2.340	0.1097	8	-0.13	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0117	13.82	0.1693	12.43	2.340	0.1097	8	0.54	NA	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0547	14.04	0.1600	12.43	2.340	0.1097	8	0.63	NA	0
441.10	Humic Acids, Gravimetry, alkali dissolved, acid precipitated (12	0220	16.38	0.3000	12.43	2.340	0.1097	8	1.54	NA	0
441.99	Humic Acids, Other (12%)	0498	11.85	0.1000	12.28	0.1227	0.0750	8	-3.21	NA	0
441.99	Humic Acids, Other (12%)	0567	12.23	0.0500	12.28	0.1227	0.0750	8	-0.42	NA	0
441.99	Humic Acids, Other (12%)	0562	12.25	0.1000	12.28	0.1227	0.0750	8	-0.23	NA	0
441.99	Humic Acids, Other (12%)	0565	12.26	0.1100	12.28	0.1227	0.0750	8	-0.19	NA	0
441.99	Humic Acids, Other (12%)	0560	12.28	0.0700	12.28	0.1227	0.0750	8	-0.04	NA	0
441.99	Humic Acids, Other (12%)	0600	12.30	0.1000	12.28	0.1227	0.0750	8	0.14	NA	0
441.99	Humic Acids, Other (12%)	0559	12.39	0.0100	12.28	0.1227	0.0750	8	0.78	NA	0
441.99	Humic Acids, Other (12%)	0564	12.46	0.0600	12.28	0.1227	0.0750	8	1.34	NA	0
441.99	Humic Acids, Other (12%)	0481	12.66	0.4700	12.28	0.1227	0.0750	8	2.79	NA	1

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. IA Status describes where your result is relative to the Assigned Value $\pm$ IA. Red indicates Higher or Lower and Green indicates within the IA range about the Robust mean. Method 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.