



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 104

Sample # 231011

Regular PT Scheme

Labs Reporting: 70

Gypsum

Statistical Summary

Issue Date : 11/30/2023

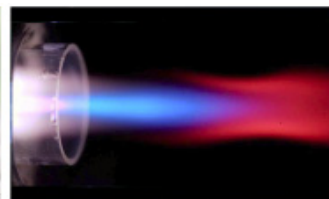
Method Code	Analyte & Method Sample # 231011	# Tests Submitted	# Tests in Robust Calculations	Raw Mean	Raw SD	Assigned Value Robust Mean	IA at Method Value	Robust sd	Robust Uncertainty (U)	Robust % RSD	Method IA Ratio	Average Range (R-bar)	Horwitz %RSD
001.99	Ammoniacal N, Other (%)	2	2	0.5985	0.0092								
005.99	Urea N, Other (%)	1		0.1386									
010.60	Total N, Combustion (%)	7	7	0.6295	0.0394	0.6242	0.4900	0.0316	0.0149	5.06%	0.15	0.0179	4.29%
010.99	Total N, Other (%)	1		0.6059									
020.50	Total P2O5, ICP (%)	5	2	0.0347	0.0424	0.0318		0.0330	0.0291	103.78%		0.0033	6.72%
020.99	Total P2O5, Other (%)	1		0.0076									
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	2	2	0.0143	0.0060								
041.50	Direct Available P2O5, ICP (%)	1		0.0172									
050.50	Soluble K2O, ICP (Oxalate) (%)	1		0.0691									
050.52	Soluble K2O, ICP (Citrate-EDTA) (%)	1		0.0595									
050.99	Soluble K2O, Other (%)	5	3	0.0524	0.0387	0.0540	0.4100	0.0219	0.0158	40.57%	0.12	0.0039	6.21%
060.99	Water (Free), Other (%)	1		1.346									
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	6	6	20.77	0.4402	20.77	1.0000	0.4991	0.2547	2.40%	1.16	0.4873	2.19%
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	16	15	20.75	1.556	20.91	1.0000	1.294	0.4177	6.19%	3.02	0.2215	2.19%
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	5	5	20.89	0.4184	20.89	1.0000	0.4184	0.2339	2.00%	0.97	0.3138	2.19%
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	18	18	20.34	2.584	20.51	1.0000	1.576	0.4642	7.68%	3.67	0.4559	2.21%
101.70	Acid Soluble Ca, Titrimetric (21%)	4	4	20.27	0.2314	20.27	1.0000	0.2314	0.1446	1.14%	0.54	0.1293	2.22%
101.99	Acid Soluble Ca, Other (21%)	15	15	20.74	0.9244	20.86	1.0000	0.7307	0.2358	3.50%	1.70	0.3775	2.19%
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	1		0.1070									
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	1		0.1000									
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	1		0.1100									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	4	4	0.1003	0.0075	0.1003	0.2050	0.0075	0.0047	7.44%	0.08	0.0110	5.65%
121.99	Acid Soluble Mg, Other (%)	5	5	0.1382	0.0765	0.1382	0.2069	0.0765	0.0428	55.39%	0.86	0.0208	5.39%
131.00	Water Soluble Mg, AA (%)	1		0.0115									
131.30	Water Soluble Mg, ICP (%)	1		0.0115									
143.99	Elemental S, Other (%)	5	5	17.34	1.560	17.34		1.560	0.8719	8.99%		0.1246	2.40%
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	8	8	16.65	0.5133	16.69		0.4906	0.2168	2.94%		0.2319	2.45%
145.99	Sulfate S, HCl soluble, Other (%)	4	4	17.00	0.3290	17.00		0.3290	0.2057	1.94%		0.4375	2.43%
148.00	Total S, Combustion (17%)	4	4	17.78	2.435	17.78	1.0000	2.435	1.522	13.70%	5.67	0.4233	2.37%

Method Code	Analyte & Method Sample # 231011	# 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
148.01	Total S, Gravimetric - sulfate and elemental (17%)	11	11	16.90	0.4128	16.90	1.0000	0.4624	0.1743	2.74%	1.08	0.1810	2.43%
148.07	Total S, ICP, test portion as in 2017.02 (17%)	17	16	16.20	2.148	16.79	1.0000	0.9522	0.2976	5.67%	2.22	0.2911	2.44%
148.99	Total S, Other (17%)	13	12	17.34	1.823	17.17	1.0000	1.344	0.4850	7.83%	3.13	0.2030	2.41%
149.04	S - HNO3 soluble, ICP (%)	2	2	18.11	0.2300								
151.30	Acid Soluble As, ICP (ppm)	5	3	1.368	2.371	0.4166		0.1842	0.1329	44.21%		0.0775	18.25%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	1		3.000									
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	5	3	5.213	9.186	8.354		11.47	8.276	137.27%		2.197	11.62%
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	2	1	16.08	22.32								
151.99	Acid Soluble As, Other (ppm)	2	2	0.4165	0.0233								
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	1		0.0100									
165.99	Acid Soluble B, Other (%)	6	4	0.1673	0.3325	0.2457	0.0399	0.3996	0.2497	162.61%	23.36	0.0487	4.94%
181.30	Acid Soluble Cd, ICP (ppm)	7	5	0.5692	0.6118	0.4373		0.6930	0.3874	158.46%		0.6270	18.12%
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	1		1.000									
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	6	3	0.2617	0.3724	0.1266		0.0997	0.0719	78.72%		0.0039	21.83%
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	2	0	0.1165	0.0233								
181.99	Acid Soluble Cd, Other (ppm)	1		0.1150									
191.30	Acid Soluble Cr, ICP (ppm)	6	5	9.120	3.692	9.944		3.456	1.932	34.76%		0.6006	11.32%
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	1		16.00									
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	6	6	11.23	3.351	11.57		2.966	1.514	25.64%		0.9079	11.07%
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	2	2	7.596	3.895								
191.99	Acid Soluble Cr, Other (ppm)	2	1	5.209	0.2949								
202.30	Acid Soluble Co, ICP (ppm)	6	5	2.200	1.482	1.640	1.4919	0.6253	0.3495	38.14%	0.98	0.1456	14.85%
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	1		3.000									
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	5	3	1.872	0.9210	2.200	1.6601	0.1958	0.1413	8.90%	0.27	0.0983	14.21%
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	2	1	0.6195	0.6795								
202.99	Acid Soluble Co, Other (ppm)	3	1	7.510	8.382	2.200	1.6601	0.1958	0.2447	8.90%	0.27	0.0269	14.21%
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	1		0.0005									
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	5	3	0.0140	0.0232	0.0200	0.0070	0.0303	0.0219	151.55%	10.09	0.0053	7.21%
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		0.0002									
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	7	5	0.6396	1.691	0.8954	0.0945	2.001	1.119	223.52%	49.33	0.0926	4.07%
221.99	Acid Soluble Cu, Other (%)	5	4	0.0805	0.1786	0.1002	0.0150	0.1999	0.1249	199.57%	31.02	0.0001	5.65%
241.00	Acid Soluble Fe, AA, inorganic 965.09 (%)	1		0.0690									
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	3	3	0.3208	0.3633	0.3208	0.0371	0.3633	0.2622	113.25%	22.83	0.0065	4.75%
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	1		0.0900									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	5	5	0.0704	0.0322	0.0704	0.0120	0.0322	0.0180	45.68%	6.22	0.0065	5.96%
241.99	Acid Soluble Fe, Other (%)	2	2	0.0716	0.0129								
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid	1		5.000									
251.30	Acid Soluble Pb, ICP (ppm)	6	3	1.916	2.396	0.5014		0.1854	0.1338	36.97%		0.0705	17.75%
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	1		4.000									
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	5	3	0.9955	1.236	0.6592		0.6184	0.4463	93.82%		0.1004	17.03%

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251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	2	0	0.4080	0.2715								
251.99	Acid Soluble Pb, Other (ppm)	1		0.5225									
261.11	Acid Soluble Mn, AA, total Mn (%)	1		0.0030									
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	2	1	0.0065	0.0050								
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	1		0.1000									
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	2	2	0.0043	0.0004								
261.99	Acid Soluble Mn, Other (%)	2	2	0.0045	0.0001								
271.00	Water Soluble Mn, AA (%)	1		0.0029									
271.30	Water Soluble Mn, ICP, Ext. 972.03 (%)	1		0.0028									
281.30	Acid Soluble Hg, ICP (ppm)	6	3	0.4108	0.7803	0.1213		0.0371	0.0268	30.58%		0.0467	21.97%
281.99	Acid Soluble Hg, Other (ppm)	3	3	0.1451	0.0346	0.1451		0.0346	0.0250	23.84%		0.0053	21.39%
289.30	Acid Soluble Mo, ICP (ppm)	5	4	1.297	1.578	1.272	1.3815	1.821	1.138	143.16%	3.07	0.0931	15.43%
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	1		1.000									
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	6	1	2.378	3.838	1.272	1.3815	1.821	2.276	143.16%	3.07	0.0022	15.43%
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	2	1	0.7140	0.7580								
289.99	Acid Soluble Mo, Other (ppm)	1		2.550									
291.00	Acid Soluble Ni, AA, test portion 2006.03 modified w/dual acid	1		5.000									
291.30	Acid Soluble Ni, ICP (ppm)	5	5	2.791	0.4795	2.791		0.4795	0.2681	17.18%		0.2755	13.71%
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	1		3.500									
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	6	4	2.154	1.095	2.542		0.7496	0.4685	29.49%		0.4164	13.90%
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	3	1	2.810	2.440	2.542		0.7496	0.9371	29.49%		0.0540	13.90%
291.99	Acid Soluble Ni, Other (ppm)	1		25.63									
301.00	Acid Soluble Se, AA, test portion 2006.03 modified w/dual acid	1		0.9100									
301.30	Acid Soluble Se, ICP (ppm)	5	4	6.131	5.602	4.664		5.243	3.277	112.43%		0.4376	12.69%
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	1		10.00									
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	1		0.0100									
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	2	1	2.583	3.277								
301.99	Acid Soluble Se, Other (ppm)	2	1	1.037	1.467								
311.33	Sodium, ICP, test portion as in 2017.02 (%)	2	1	0.0528	0.0667								
311.99	Sodium, Other (%)	2	1	0.0225	0.0248								
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	1		0.0010									
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	4	3	0.0334	0.0579	0.0412	0.0091	0.0683	0.0493	165.85%	17.45	0.0205	6.46%
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		0.0011									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	7	5	1.906	5.040	0.0014	0.0051	0.0007	0.0004	52.29%	0.33	0.0004	10.78%
321.99	Acid Soluble Zn, Other (%)	7	5	1.366	3.609	0.0013	0.0051	0.0002	0.0001	15.12%	0.09	0.0002	10.86%

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

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 # 231011
Method Code



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Sample # 231011

Regular PT Scheme

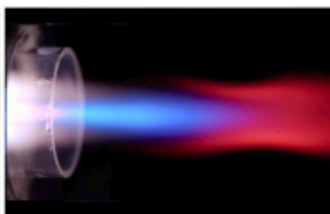
Gypsum

Method Precision Report

Issue Date : 11/30/2023

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 (%)	7	6	0.6163	0.0202	0.0189	0.0098	0.0213	3.07%	1.60%	3.46%	2.170
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	6	6	20.77	0.4402	0.2956	0.4612	0.5478	1.42%	2.22%	2.64%	1.188
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	16	14	21.06	1.376	1.369	0.1916	1.383	6.50%	0.91%	6.57%	7.214
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	5	5	20.89	0.4184	0.3859	0.2287	0.4486	1.85%	1.09%	2.15%	1.961
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	18	16	20.94	1.684	1.604	0.7243	1.760	7.66%	3.46%	8.40%	2.430
101.99	Acid Soluble Ca, Other (21%)	15	14	20.92	0.6395	0.5971	0.3238	0.6792	2.85%	1.55%	3.25%	2.098
143.99	Elemental S, Other (%)	5	5	17.34	1.560	1.558	0.1035	1.561	8.98%	0.60%	9.00%	15.08
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	8	8	16.65	0.5133	0.4881	0.2246	0.5373	2.93%	1.35%	3.23%	2.392
148.01	Total S, Gravimetric - sulfate and elemental (17%)	11	11	16.90	0.4128	0.3921	0.1826	0.4325	2.32%	1.08%	2.56%	2.368
148.07	Total S, ICP, test portion as in 2017.02 (17%)	17	14	16.91	0.9216	0.9015	0.2709	0.9413	5.33%	1.60%	5.57%	3.475
148.99	Total S, Other (17%)	13	11	17.01	1.116	1.112	0.1456	1.121	6.53%	0.86%	6.59%	7.701
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	6	6	11.23	3.351	3.308	0.7599	3.394	29.47%	6.77%	30.23%	4.466
202.30	Acid Soluble Co, ICP (ppm)	6	5	1.640	0.6253	0.6182	0.1331	0.6323	37.70%	8.12%	38.57%	4.750
291.30	Acid Soluble Ni, ICP (ppm)	5	5	2.791	0.4795	0.4460	0.2492	0.5109	15.98%	8.93%	18.30%	2.050
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	7	5	0.0014	0.0007	0.0007	0.0002	0.0007	51.43%	13.36%	53.14%	3.977
321.99	Acid Soluble Zn, Other (%)	7	5	0.0013	0.0002	0.0002	0.0002	0.0002	12.25%	12.54%	17.53%	1.398

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



Method PT For All Labs

Magruder Fertilizer Proficiency Testing Program

Methods: 104

Sample # 231011

Regular PT Scheme

Labs Reporting: 70

Gypsum

Lab Values

Issue Date : 11/30/2023

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
001.99	Ammoniacal N, Other (%)	0524	0.5920	0.4739				2			0
001.99	Ammoniacal N, Other (%)	0626	0.6050	0.0100				2			0
005.99	Urea N, Other (%)	0524	0.1386	0.0047				1			0
010.60	Total N, Combustion (%)	0472	0.5930	0.0040	0.6242	0.0316	0.0179	7	-0.89	OK	0
010.60	Total N, Combustion (%)	0527	0.5990	0.0260	0.6242	0.0316	0.0179	7	-0.72	OK	0
010.60	Total N, Combustion (%)	0422	0.6100	0.0000	0.6242	0.0316	0.0179	7	-0.41	OK	0
010.60	Total N, Combustion (%)	0354	0.6165	0.0030	0.6242	0.0316	0.0179	7	-0.22	OK	0
010.60	Total N, Combustion (%)	0624	0.6345	0.0190	0.6242	0.0316	0.0179	7	0.29	OK	0
010.60	Total N, Combustion (%)	0626	0.6450	0.0100	0.6242	0.0316	0.0179	7	0.59	OK	0
010.60	Total N, Combustion (%)	0588	0.7085	0.0530	0.6242	0.0316	0.0179	7	2.41	OK	0
010.99	Total N, Other (%)	0524	0.6059	0.0155				1			0
020.50	Total P2O5, ICP (%)	0524	0.0085	0.0007				2			0
020.50	Total P2O5, ICP (%)	0422	0.0551	0.0059				2			0
020.50	Total P2O5, ICP (%)	0552	0.0000	0.0000				2			4
020.50	Total P2O5, ICP (%)	0588	< 0.01					2			5
020.50	Total P2O5, ICP (%)	0527	< 0.1					2			5
020.99	Total P2O5, Other (%)	0572	0.0076	0.0001				1			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext. (	0472	0.0100	0.0000				2			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext. (	0354	0.0185	0.0030				2			0
041.50	Direct Available P2O5, ICP (%)	0624	0.0172	0.0080				1			0
050.50	Soluble K2O, ICP (Oxalate) (%)	0422	0.0691	0.0010				1			0
050.52	Soluble K2O, ICP (Citrate-EDTA) (%)	0354	0.0595	0.0090				1			0
050.99	Soluble K2O, Other (%)	0588	0.0290	0.0040	0.0540	0.0219	0.0039	3	-1.14		0
050.99	Soluble K2O, Other (%)	0624	0.0630	0.0000	0.0540	0.0219	0.0039	3	0.41		0
050.99	Soluble K2O, Other (%)	0524	0.0699	0.0038	0.0540	0.0219	0.0039	3	0.73		0
050.99	Soluble K2O, Other (%)	0552	0.0000	0.0000	0.0540	0.0219	0.0039	3			4
050.99	Soluble K2O, Other (%)	0527	< 0.1		0.0540	0.0219	0.0039	3			5
060.99	Water (Free), Other (%)	0510	1.346	0.0001				1			0
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	0580	20.17	0.1800	20.77	0.4991	0.4873	6	-1.08	OK	0
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	0538	20.58	0.1500	20.77	0.4991	0.4873	6	-0.35	OK	0
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	0415	20.74	0.9608	20.77	0.4991	0.4873	6	-0.05	OK	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	0485	20.80	1.200	20.77	0.4991	0.4873	6	0.05	OK	0
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	0553	20.83	0.3600	20.77	0.4991	0.4873	6	0.10	OK	0
101.00	Acid Soluble Ca, AA, inorganic 965.09 (21%)	0558	21.52	0.0729	20.77	0.4991	0.4873	6	1.34	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0255	18.15	0.2100	20.91	1.294	0.2215	15	-2.13	Low	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0049	19.15	0.9400	20.91	1.294	0.2215	15	-1.36	Low	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0402	19.53	0.1000	20.91	1.294	0.2215	15	-1.06	Low	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0035	20.10	0.4000	20.91	1.294	0.2215	15	-0.62	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0451	20.49	0.2400	20.91	1.294	0.2215	15	-0.32	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0360	20.95	0.0900	20.91	1.294	0.2215	15	0.03	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0354	21.00	0.0000	20.91	1.294	0.2215	15	0.07	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0444	21.05	0.1800	20.91	1.294	0.2215	15	0.11	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0234	21.14	0.1600	20.91	1.294	0.2215	15	0.18	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0324	21.15	0.7000	20.91	1.294	0.2215	15	0.19	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0231	21.26	0.0800	20.91	1.294	0.2215	15	0.27	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0619	21.50	0.4000	20.91	1.294	0.2215	15	0.46	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0433	21.65	0.0400	20.91	1.294	0.2215	15	0.57	OK	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0291	22.84	0.0100	20.91	1.294	0.2215	15	1.49	High	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0452	24.02	0.1800	20.91	1.294	0.2215	15	2.40	High	0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (21%)	0377	17.96	1.590	20.91	1.294	0.2215	15	-2.28	Low	1
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	0405	20.45	0.5000	20.89	0.4184	0.3138	5	-1.06		0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	0521	20.57	0.0000	20.89	0.4184	0.3138	5	-0.77		0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	0023	20.91	0.0350	20.89	0.4184	0.3138	5	0.03		0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	0095	21.03	0.2800	20.89	0.4184	0.3138	5	0.33		0
101.32	Acid Soluble Ca, ICP, test portion 2006.03A-C (21%)	0073	21.51	0.4400	20.89	0.4184	0.3138	5	1.47		0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0624	12.44	0.7100	20.51	1.576	0.4559	18	-5.12	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0055	18.03	1.010	20.51	1.576	0.4559	18	-1.58	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0472	18.60	0.2000	20.51	1.576	0.4559	18	-1.21	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0260	18.67	3.350	20.51	1.576	0.4559	18	-1.17	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0040	19.40	0.1000	20.51	1.576	0.4559	18	-0.70	Low	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0043	20.38	0.3800	20.51	1.576	0.4559	18	-0.08	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0136	20.55	0.3000	20.51	1.576	0.4559	18	0.03	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0177	20.73	0.1685	20.51	1.576	0.4559	18	0.14	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0292	20.85	0.2500	20.51	1.576	0.4559	18	0.21	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0630	20.97	0.4861	20.51	1.576	0.4559	18	0.29	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0527	20.98	0.1703	20.51	1.576	0.4559	18	0.30	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0543	21.05	0.2060	20.51	1.576	0.4559	18	0.34	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0102	21.06	0.2900	20.51	1.576	0.4559	18	0.35	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0563	21.15	2.900	20.51	1.576	0.4559	18	0.41	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0422	21.43	0.1100	20.51	1.576	0.4559	18	0.58	OK	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0086	21.71	0.2858	20.51	1.576	0.4559	18	0.76	High	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0421	22.48	0.3600	20.51	1.576	0.4559	18	1.25	High	0
101.33	Acid Soluble Ca, ICP, 2017.02 (21%)	0106	25.67	2.523	20.51	1.576	0.4559	18	3.28	High	0
101.70	Acid Soluble Ca, Titrimetric (21%)	0510	19.97	0.3472	20.27	0.2314	0.1293	4	-1.29		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
101.70	Acid Soluble Ca, Titrimetric (21%)	0626	20.22	0.0500	20.27	0.2314	0.1293	4	-0.25		0
101.70	Acid Soluble Ca, Titrimetric (21%)	0200	20.40	0.0400	20.27	0.2314	0.1293	4	0.55		0
101.70	Acid Soluble Ca, Titrimetric (21%)	0536	20.50	0.0800	20.27	0.2314	0.1293	4	0.98		0
101.99	Acid Soluble Ca, Other (21%)	0042	18.25	1.500	20.86	0.7307	0.3775	15	-3.57	Low	0
101.99	Acid Soluble Ca, Other (21%)	0552	19.47	0.5700	20.86	0.7307	0.3775	15	-1.91	Low	0
101.99	Acid Soluble Ca, Other (21%)	0389	20.25	0.7000	20.86	0.7307	0.3775	15	-0.84	OK	0
101.99	Acid Soluble Ca, Other (21%)	0605	20.39	0.1500	20.86	0.7307	0.3775	15	-0.65	OK	0
101.99	Acid Soluble Ca, Other (21%)	0626	20.41	0.0400	20.86	0.7307	0.3775	15	-0.62	OK	0
101.99	Acid Soluble Ca, Other (21%)	0230	20.50	1.000	20.86	0.7307	0.3775	15	-0.50	OK	0
101.99	Acid Soluble Ca, Other (21%)	0513	20.94	0.1200	20.86	0.7307	0.3775	15	0.11	OK	0
101.99	Acid Soluble Ca, Other (21%)	0029	20.97	0.1000	20.86	0.7307	0.3775	15	0.15	OK	0
101.99	Acid Soluble Ca, Other (21%)	0231	21.20	0.2000	20.86	0.7307	0.3775	15	0.46	OK	0
101.99	Acid Soluble Ca, Other (21%)	0587	21.22	0.0200	20.86	0.7307	0.3775	15	0.49	OK	0
101.99	Acid Soluble Ca, Other (21%)	0368	21.30	0.3041	20.86	0.7307	0.3775	15	0.60	OK	0
101.99	Acid Soluble Ca, Other (21%)	0547	21.35	0.3000	20.86	0.7307	0.3775	15	0.67	OK	0
101.99	Acid Soluble Ca, Other (21%)	0619	21.50	0.4000	20.86	0.7307	0.3775	15	0.87	OK	0
101.99	Acid Soluble Ca, Other (21%)	0027	21.59	0.0100	20.86	0.7307	0.3775	15	0.99	OK	0
101.99	Acid Soluble Ca, Other (21%)	0572	21.79	0.8300	20.86	0.7307	0.3775	15	1.26	OK	0
121.00	Acid Soluble Mg, AA, inorganic 965.09 (%)	0626	0.1070	0.0003				1			0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0354	0.1000	0.0000				1			0
121.32	Acid Soluble Mg, ICP, test portion 2006.03A-C (%)	0095	0.1100	0.0000				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0472	0.0900	0.0000	0.1003	0.0075	0.0110	4	-1.38		0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0515	0.0996	0.0307	0.1003	0.0075	0.0110	4	-0.10		0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0624	0.1057	0.0021	0.1003	0.0075	0.0110	4	0.72		0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0527	0.1060	0.0003	0.1003	0.0075	0.0110	4	0.76		0
121.99	Acid Soluble Mg, Other (%)	0515	0.0996	0.0307	0.1382	0.0765	0.0208	5	-0.50		0
121.99	Acid Soluble Mg, Other (%)	0524	0.1029	0.0014	0.1382	0.0765	0.0208	5	-0.46		0
121.99	Acid Soluble Mg, Other (%)	0572	0.1064	0.0000	0.1382	0.0765	0.0208	5	-0.42		0
121.99	Acid Soluble Mg, Other (%)	0626	0.1071	0.0009	0.1382	0.0765	0.0208	5	-0.41		0
121.99	Acid Soluble Mg, Other (%)	0552	0.2750	0.0500	0.1382	0.0765	0.0208	5	1.79		0
131.00	Water Soluble Mg, AA (%)	0626	0.0115	0.0005				1			0
131.30	Water Soluble Mg, ICP (%)	0626	0.0115	0.0010				1			0
143.99	Elemental S, Other (%)	0255	15.23	0.1200	17.34	1.560	0.1246	5	-1.35		0
143.99	Elemental S, Other (%)	0536	16.36	0.2200	17.34	1.560	0.1246	5	-0.63		0
143.99	Elemental S, Other (%)	0291	17.54	0.0200	17.34	1.560	0.1246	5	0.13		0
143.99	Elemental S, Other (%)	0368	18.57	0.0629	17.34	1.560	0.1246	5	0.79		0
143.99	Elemental S, Other (%)	0389	19.00	0.2000	17.34	1.560	0.1246	5	1.06		0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0106	15.65	0.1700	16.69	0.4906	0.2319	8	-1.94	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0626	16.17	0.0800	16.69	0.4906	0.2319	8	-0.97	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0538	16.63	0.2500	16.69	0.4906	0.2319	8	-0.12	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0027	16.76	0.4900	16.69	0.4906	0.2319	8	0.13	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0029	16.78	0.0800	16.69	0.4906	0.2319	8	0.17	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0102	16.93	0.6500	16.69	0.4906	0.2319	8	0.44	NA	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0444	17.10	0.2000	16.69	0.4906	0.2319	8	0.77	NA	0
145.00	Sulfate S, HCl soluble, Gravimetric Sulfur - sulfate form (%)	0405	17.20	0.0100	16.69	0.4906	0.2319	8	0.95	NA	0
145.99	Sulfate S, HCl soluble, Other (%)	0553	16.54	0.1300	17.00	0.3290	0.4375	4	-1.41		0
145.99	Sulfate S, HCl soluble, Other (%)	0518	17.05	0.7000	17.00	0.3290	0.4375	4	0.16		0
145.99	Sulfate S, HCl soluble, Other (%)	0136	17.10	0.8000	17.00	0.3290	0.4375	4	0.31		0
145.99	Sulfate S, HCl soluble, Other (%)	0587	17.31	0.1200	17.00	0.3290	0.4375	4	0.95		0
148.00	Total S, Combustion (17%)	0049	15.90	0.1200	17.78	2.435	0.4233	4	-0.77		0
148.00	Total S, Combustion (17%)	0025	16.71	0.1630	17.78	2.435	0.4233	4	-0.44		0
148.00	Total S, Combustion (17%)	0451	17.15	0.5000	17.78	2.435	0.4233	4	-0.26		0
148.00	Total S, Combustion (17%)	0073	21.35	0.9100	17.78	2.435	0.4233	4	1.47		0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0095	16.26	0.5900	16.90	0.4624	0.1810	11	-1.30	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0231	16.35	0.1000	16.90	0.4624	0.1810	11	-1.11	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0580	16.50	0.1100	16.90	0.4624	0.1810	11	-0.81	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0029	16.78	0.0800	16.90	0.4624	0.1810	11	-0.24	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0324	16.90	0.2000	16.90	0.4624	0.1810	11	0.01	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0200	16.95	0.0700	16.90	0.4624	0.1810	11	0.10	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0584	17.01	0.2000	16.90	0.4624	0.1810	11	0.23	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0485	17.05	0.3000	16.90	0.4624	0.1810	11	0.31	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0534	17.17	0.0100	16.90	0.4624	0.1810	11	0.54	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0117	17.33	0.0755	16.90	0.4624	0.1810	11	0.87	OK	0
148.01	Total S, Gravimetric - sulfate and elemental (17%)	0055	17.62	0.4200	16.90	0.4624	0.1810	11	1.46	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0624	9.001	0.1410	16.79	0.9522	0.2911	16	-8.18	Low	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0472	14.19	0.0100	16.79	0.9522	0.2911	16	-2.74	Low	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0515	14.75	1.900	16.79	0.9522	0.2911	16	-2.14	Low	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0040	15.80	0.4000	16.79	0.9522	0.2911	16	-1.04	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0521	16.85	0.0000	16.79	0.9522	0.2911	16	0.06	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0547	16.85	0.1000	16.79	0.9522	0.2911	16	0.06	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0527	16.85	0.1540	16.79	0.9522	0.2911	16	0.07	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0543	16.94	0.2760	16.79	0.9522	0.2911	16	0.16	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0177	16.97	0.3116	16.79	0.9522	0.2911	16	0.18	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0292	17.25	0.0500	16.79	0.9522	0.2911	16	0.48	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0513	17.27	0.0800	16.79	0.9522	0.2911	16	0.50	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0563	17.40	1.000	16.79	0.9522	0.2911	16	0.64	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0043	17.57	0.1300	16.79	0.9522	0.2911	16	0.81	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0402	17.57	0.4600	16.79	0.9522	0.2911	16	0.82	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0421	17.60	0.6000	16.79	0.9522	0.2911	16	0.85	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0619	17.65	0.3000	16.79	0.9522	0.2911	16	0.90	OK	0
148.07	Total S, ICP, test portion as in 2017.02 (17%)	0260	14.87	2.960	16.79	0.9522	0.2911	16	-2.02	Low	1
148.99	Total S, Other (17%)	0433	15.54	0.0500	17.17	1.344	0.2030	12	-1.22	Low	0
148.99	Total S, Other (17%)	0035	15.70	0.4000	17.17	1.344	0.2030	12	-1.09	Low	0
148.99	Total S, Other (17%)	0230	15.90	0.2000	17.17	1.344	0.2030	12	-0.94	Low	0
148.99	Total S, Other (17%)	0354	16.75	0.1000	17.17	1.344	0.2030	12	-0.31	OK	0
148.99	Total S, Other (17%)	0577	16.81	0.1100	17.17	1.344	0.2030	12	-0.27	OK	0

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			Value	Range	Rob Mean	Rob SD	Rob R-bar				
148.99	Total S, Other (17%)	0023	16.90	0.1610	17.17	1.344	0.2030	12	-0.20	OK	0
148.99	Total S, Other (17%)	0558	17.46	0.0567	17.17	1.344	0.2030	12	0.21	OK	0
148.99	Total S, Other (17%)	0619	17.50	0.0000	17.17	1.344	0.2030	12	0.25	OK	0
148.99	Total S, Other (17%)	0572	17.52	0.4100	17.17	1.344	0.2030	12	0.26	OK	0
148.99	Total S, Other (17%)	0605	17.60	0.1800	17.17	1.344	0.2030	12	0.32	OK	0
148.99	Total S, Other (17%)	0452	19.50	0.1100	17.17	1.344	0.2030	12	1.73	High	0
148.99	Total S, Other (17%)	0422	22.27	0.6100	17.17	1.344	0.2030	12	3.79	High	0
148.99	Total S, Other (17%)	0377	15.94	3.110	17.17	1.344	0.2030	12	-0.92	Low	1
149.04	S - HNO3 soluble, ICP (%)	0086	17.95	0.2142				2			0
149.04	S - HNO3 soluble, ICP (%)	0524	18.27	1.358				2			0
151.30	Acid Soluble As, ICP (ppm)	0605	0.2150	0.1820	0.4166	0.1842	0.0775	3	-1.09		0
151.30	Acid Soluble As, ICP (ppm)	0524	0.4587	0.0104	0.4166	0.1842	0.0775	3	0.23		0
151.30	Acid Soluble As, ICP (ppm)	0630	0.5760	0.0400	0.4166	0.1842	0.0775	3	0.87		0
151.30	Acid Soluble As, ICP (ppm)	0255	0.0000	0.0000	0.4166	0.1842	0.0775	3			4
151.30	Acid Soluble As, ICP (ppm)	0035	< 5.59		0.4166	0.1842	0.0775	3			5
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0405	< 3					0			5
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0563	0.7525	0.0110	8.354	11.47	2.197	3	-0.66		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0624	2.765	0.5300	8.354	11.47	2.197	3	-0.49		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0515	21.55	6.050	8.354	11.47	2.197	3	1.15		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0527	< 0.0001		8.354	11.47	2.197	3			5
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0136	< 1		8.354	11.47	2.197	3			5
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0515	31.87	15.33				1			0
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0368	< 0.3					1			5
151.99	Acid Soluble As, Other (ppm)	0626	0.4000	0.0200				2			0
151.99	Acid Soluble As, Other (ppm)	0572	0.4330	0.0280				2			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0354	< 0.01					0			5
165.99	Acid Soluble B, Other (%)	0524	0.0007	0.0001	0.2457	0.3996	0.0487	4	-0.52		0
165.99	Acid Soluble B, Other (%)	0624	0.0009	0.0000	0.2457	0.3996	0.0487	4	-0.52		0
165.99	Acid Soluble B, Other (%)	0552	0.1450	0.0500	0.2457	0.3996	0.0487	4	-0.21		0
165.99	Acid Soluble B, Other (%)	0515	0.8363	0.0960	0.2457	0.3996	0.0487	4	1.25		0
165.99	Acid Soluble B, Other (%)	0527	< 0.01		0.2457	0.3996	0.0487	4			5
165.99	Acid Soluble B, Other (%)	0572	< 0.011		0.2457	0.3996	0.0487	4			5
181.30	Acid Soluble Cd, ICP (ppm)	0389	0.1150	0.0100	0.4373	0.6930	0.6270	5	-0.41		0
181.30	Acid Soluble Cd, ICP (ppm)	0630	0.1175	0.0090	0.4373	0.6930	0.6270	5	-0.40		0
181.30	Acid Soluble Cd, ICP (ppm)	0524	0.1176	0.0070	0.4373	0.6930	0.6270	5	-0.40		0
181.30	Acid Soluble Cd, ICP (ppm)	0605	0.1600	0.0260	0.4373	0.6930	0.6270	5	-0.35		0
181.30	Acid Soluble Cd, ICP (ppm)	0255	1.677	3.083	0.4373	0.6930	0.6270	5	1.56		0
181.30	Acid Soluble Cd, ICP (ppm)	0035	< 0.798		0.4373	0.6930	0.6270	5			5
181.30	Acid Soluble Cd, ICP (ppm)	0626	< 1		0.4373	0.6930	0.6270	5			5
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0405	< 1					0			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0624	0.0275	0.0030	0.1266	0.0997	0.0039	3	-0.81		0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0563	0.1255	0.0070	0.1266	0.0997	0.0039	3	-0.01		0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0086	0.2268	0.0018	0.1266	0.0997	0.0039	3	0.82		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0527	< 0.0001		0.1266	0.0997	0.0039	3			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0515	< 0.19		0.1266	0.0997	0.0039	3			5
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0136	< 1		0.1266	0.0997	0.0039	3			5
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0368	< 0.1					0			5
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0515	< 0.133					0			5
181.99	Acid Soluble Cd, Other (ppm)	0572	0.1150	0.0080				1			0
191.30	Acid Soluble Cr, ICP (ppm)	0389	6.400	0.0000	9.944	3.456	0.6006	5	-0.89		0
191.30	Acid Soluble Cr, ICP (ppm)	0524	6.491	0.2234	9.944	3.456	0.6006	5	-0.87		0
191.30	Acid Soluble Cr, ICP (ppm)	0035	10.15	0.1000	9.944	3.456	0.6006	5	0.05		0
191.30	Acid Soluble Cr, ICP (ppm)	0605	13.02	1.734	9.944	3.456	0.6006	5	0.78		0
191.30	Acid Soluble Cr, ICP (ppm)	0630	13.66	0.3450	9.944	3.456	0.6006	5	0.94		0
191.30	Acid Soluble Cr, ICP (ppm)	0626	< 5		9.944	3.456	0.6006	5			5
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0405	16.00	0.0000				1			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0136	5.055	0.4100	11.57	2.966	0.9079	6	-1.96	NA	0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0515	10.46	0.8300	11.57	2.966	0.9079	6	-0.33	NA	0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0624	11.84	0.1000	11.57	2.966	0.9079	6	0.08	NA	0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0563	12.35	0.9000	11.57	2.966	0.9079	6	0.23	NA	0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0527	12.76	1.369	11.57	2.966	0.9079	6	0.36	NA	0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0086	14.90	1.838	11.57	2.966	0.9079	6	1.00	NA	0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0515	4.842	1.402				2			0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0368	10.35	1.300				2			0
191.99	Acid Soluble Cr, Other (ppm)	0572	5.417	0.3360				1			0
191.99	Acid Soluble Cr, Other (ppm)	0626	< 5					1			5
202.30	Acid Soluble Co, ICP (ppm)	0389	0.8350	0.0700	1.640	0.6253	0.1456	5	-1.12		0
202.30	Acid Soluble Co, ICP (ppm)	0035	1.185	0.0500	1.640	0.6253	0.1456	5	-0.63		0
202.30	Acid Soluble Co, ICP (ppm)	0524	1.775	0.0280	1.640	0.6253	0.1456	5	0.19		0
202.30	Acid Soluble Co, ICP (ppm)	0605	2.028	0.3100	1.640	0.6253	0.1456	5	0.54		0
202.30	Acid Soluble Co, ICP (ppm)	0630	2.375	0.2700	1.640	0.6253	0.1456	5	1.03		0
202.30	Acid Soluble Co, ICP (ppm)	0626	< 5		1.640	0.6253	0.1456	5			5
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0405	3.000	0.0000				1			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0527	1.991	0.0280	2.200	0.1958	0.0983	3	-1.07		0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0563	2.230	0.2400	2.200	0.1958	0.0983	3	0.15		0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0086	2.379	0.0269	2.200	0.1958	0.0983	3	0.92		0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0515	< 0.26		2.200	0.1958	0.0983	3			5
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0136	< 2.5		2.200	0.1958	0.0983	3			5
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0368	1.100	0.0000				1			0
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0515	< 0.139					1			5
202.99	Acid Soluble Co, Other (ppm)	0255	16.86	7.160				1			0
202.99	Acid Soluble Co, Other (ppm)	0572	< 0.67					1			5
202.99	Acid Soluble Co, Other (ppm)	0626	< 5					1			5
221.00	Acid Soluble Cu, AA, inorganic 965.09 (%)	0626	< 0.0005					0			5
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0255	0.0010	0.0000	0.0200	0.0303	0.0053	3	-0.63		0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0402	0.0041	0.0005	0.0200	0.0303	0.0053	3	-0.53		0

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			Value	Range	Rob Mean	Rob SD	Rob R-bar				
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0552	0.0550	0.0100	0.0200	0.0303	0.0053	3	1.15		0
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0035	< 0.0001		0.0200	0.0303	0.0053	3			5
221.30	Acid Soluble Cu, ICP, test portion inorganic 965.09 (%)	0354	< 0.01		0.0200	0.0303	0.0053	3			5
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	0405	< 0.0002					0			5
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0527	0.0001	0.0000	0.8954	2.001	0.0926	5	-0.39		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0630	0.0002	0.0001	0.8954	2.001	0.0926	5	-0.39		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0624	0.0002	0.0000	0.8954	2.001	0.0926	5	-0.39		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0515	0.0009	0.0016	0.8954	2.001	0.0926	5	-0.39		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0086	4.475	0.2760	0.8954	2.001	0.0926	5	1.56		0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0136	< 0.0002		0.8954	2.001	0.0926	5			5
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0626	< 0.0005		0.8954	2.001	0.0926	5			5
221.99	Acid Soluble Cu, Other (%)	0524	0.0002	0.0000	0.1002	0.1999	0.0001	4	-0.50		0
221.99	Acid Soluble Cu, Other (%)	0572	0.0002	0.0000	0.1002	0.1999	0.0001	4	-0.50		0
221.99	Acid Soluble Cu, Other (%)	0368	0.0003	0.0001	0.1002	0.1999	0.0001	4	-0.50		0
221.99	Acid Soluble Cu, Other (%)	0389	0.4000	0.0000	0.1002	0.1999	0.0001	4	1.50		0
221.99	Acid Soluble Cu, Other (%)	0547	< 0.002		0.1002	0.1999	0.0001	4			5
241.00	Acid Soluble Fe, AA, inorganic 965.09 (%)	0626	0.0690	0.0020				1			0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0354	0.0700	0.0000	0.3208	0.3633	0.0065	3	-0.69		0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0552	0.1550	0.0100	0.3208	0.3633	0.0065	3	-0.46		0
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0402	0.7375	0.0030	0.3208	0.3633	0.0065	3	1.15		0
241.32	Acid Soluble Fe, ICP, test portion 2006.03A-C (%)	0095	0.0900	0.0000				1			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0515	0.0159	0.0200	0.0704	0.0322	0.0065	5	-1.70		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0626	0.0715	0.0010	0.0704	0.0322	0.0065	5	0.03		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0472	0.0800	0.0000	0.0704	0.0322	0.0065	5	0.30		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0624	0.0850	0.0020	0.0704	0.0322	0.0065	5	0.45		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0527	0.0998	0.0030	0.0704	0.0322	0.0065	5	0.91		0
241.99	Acid Soluble Fe, Other (%)	0524	0.0625	0.0024				2			0
241.99	Acid Soluble Fe, Other (%)	0572	0.0807	0.0006				2			0
251.00	Acid Soluble Pb, AA, test portion 2006.03 modified w/dual acid	0626	< 5					0			5
251.30	Acid Soluble Pb, ICP (ppm)	0605	0.3015	0.0470	0.5014	0.1854	0.0705	3	-0.87		0
251.30	Acid Soluble Pb, ICP (ppm)	0630	0.5350	0.1400	0.5014	0.1854	0.0705	3	0.15		0
251.30	Acid Soluble Pb, ICP (ppm)	0524	0.6677	0.0245	0.5014	0.1854	0.0705	3	0.73		0
251.30	Acid Soluble Pb, ICP (ppm)	0255	0.0000	0.0000	0.5014	0.1854	0.0705	3			4
251.30	Acid Soluble Pb, ICP (ppm)	0035	< 4.99		0.5014	0.1854	0.0705	3			5
251.30	Acid Soluble Pb, ICP (ppm)	0626	< 5		0.5014	0.1854	0.0705	3			5
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0405	< 4					0			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0624	0.0750	0.0300	0.6592	0.6184	0.1004	3	-0.94		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0563	0.5955	0.0970	0.6592	0.6184	0.1004	3	-0.10		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0086	1.307	0.1741	0.6592	0.6184	0.1004	3	1.05		0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0527	< 0.0001		0.6592	0.6184	0.1004	3			5
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0136	< 3		0.6592	0.6184	0.1004	3			5
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0515	< 0.216					0			5
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0368	< 0.6					0			5

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251.99	Acid Soluble Pb, Other (ppm)	0572	0.5225	0.0010				1			0
261.11	Acid Soluble Mn, AA, total Mn (%)	0626	0.0030	0.0000				1			0
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0626	0.0030	0.0001				1			0
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0354	< 0.01					1			5
261.32	Acid Soluble Mn, ICP, test portion inorganic 965.09 (%)	0552	0.1000	0.0200				1			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0624	0.0040	0.0000				2			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0527	0.0046	0.0001				2			0
261.99	Acid Soluble Mn, Other (%)	0572	0.0044	0.0002				2			0
261.99	Acid Soluble Mn, Other (%)	0524	0.0045	0.0002				2			0
271.00	Water Soluble Mn, AA (%)	0626	0.0029	0.0001				1			0
271.30	Water Soluble Mn, ICP, Ext. 972.03 (%)	0626	0.0028	0.0001				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0605	0.0785	0.1090	0.1213	0.0371	0.0467	3	-0.94		0
281.30	Acid Soluble Hg, ICP (ppm)	0630	0.1420	0.0160	0.1213	0.0371	0.0467	3	0.45		0
281.30	Acid Soluble Hg, ICP (ppm)	0563	0.1435	0.0150	0.1213	0.0371	0.0467	3	0.48		0
281.30	Acid Soluble Hg, ICP (ppm)	0527	< 0.001		0.1213	0.0371	0.0467	3			5
281.30	Acid Soluble Hg, ICP (ppm)	0515	< 0.1		0.1213	0.0371	0.0467	3			5
281.30	Acid Soluble Hg, ICP (ppm)	0405	< 2		0.1213	0.0371	0.0467	3			5
281.99	Acid Soluble Hg, Other (ppm)	0524	0.1165	0.0051	0.1451	0.0346	0.0053	3	-0.83		0
281.99	Acid Soluble Hg, Other (ppm)	0572	0.1353	0.0099	0.1451	0.0346	0.0053	3	-0.28		0
281.99	Acid Soluble Hg, Other (ppm)	0626	0.1835	0.0010	0.1451	0.0346	0.0053	3	1.11		0
289.30	Acid Soluble Mo, ICP (ppm)	0524	0.2486	0.0044	1.272	1.821	0.0931	4	-0.56		0
289.30	Acid Soluble Mo, ICP (ppm)	0630	0.4015	0.0150	1.272	1.821	0.0931	4	-0.48		0
289.30	Acid Soluble Mo, ICP (ppm)	0255	0.4370	0.2600	1.272	1.821	0.0931	4	-0.46		0
289.30	Acid Soluble Mo, ICP (ppm)	0234	4.000	0.0000	1.272	1.821	0.0931	4	1.50		0
289.30	Acid Soluble Mo, ICP (ppm)	0035	< 1.4		1.272	1.821	0.0931	4			5
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0405	< 1					0			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0086	0.5407	0.0180				1			0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0527	< 0.0001					1			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0515	< 0.23					1			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0563	< 1					1			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0136	< 2.5					1			5
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0626	< 10					1			5
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0368	1.250	0.1000				1			0
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0515	< 0.178					1			5
289.99	Acid Soluble Mo, Other (ppm)	0572	< 2.55					0			5
291.00	Acid Soluble Ni, AA, test portion 2006.03 modified w/dual acid (	0626	< 5					0			5
291.30	Acid Soluble Ni, ICP (ppm)	0389	2.300	0.2000	2.791	0.4795	0.2755	5	-1.02		0
291.30	Acid Soluble Ni, ICP (ppm)	0035	2.435	0.0700	2.791	0.4795	0.2755	5	-0.74		0
291.30	Acid Soluble Ni, ICP (ppm)	0524	2.689	0.3347	2.791	0.4795	0.2755	5	-0.21		0
291.30	Acid Soluble Ni, ICP (ppm)	0605	3.056	0.6740	2.791	0.4795	0.2755	5	0.55		0
291.30	Acid Soluble Ni, ICP (ppm)	0630	3.478	0.0990	2.791	0.4795	0.2755	5	1.43		0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0405	3.500	1.000				1			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0624	1.626	0.0770	2.542	0.7496	0.4164	4	-1.04		0

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291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0527	2.367	0.0540	2.542	0.7496	0.4164	4	-0.20		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0563	2.755	0.4500	2.542	0.7496	0.4164	4	0.24		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0086	3.419	1.085	2.542	0.7496	0.4164	4	0.99		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0515	< 0.26		2.542	0.7496	0.4164	4			5
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0136	< 2.5		2.542	0.7496	0.4164	4			5
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0368	3.250	0.1000				1			0
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0515	< 0.18					1			5
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0626	< 5					1			5
291.99	Acid Soluble Ni, Other (ppm)	0255	25.63	8.720				1			0
301.00	Acid Soluble Se, AA, test portion 2006.03 modified w/dual acid	0626	0.9100	0.0000				1			0
301.30	Acid Soluble Se, ICP (ppm)	0605	1.804	0.7280	4.664	5.243	0.4376	4	-0.55		0
301.30	Acid Soluble Se, ICP (ppm)	0524	2.150	0.0023	4.664	5.243	0.4376	4	-0.48		0
301.30	Acid Soluble Se, ICP (ppm)	0630	2.177	0.1360	4.664	5.243	0.4376	4	-0.47		0
301.30	Acid Soluble Se, ICP (ppm)	0027	12.53	0.8840	4.664	5.243	0.4376	4	1.50		0
301.30	Acid Soluble Se, ICP (ppm)	0035	< 12		4.664	5.243	0.4376	4			5
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0405	< 10					0			5
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0527	< 0.01					0			5
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0368	4.900	0.2000				1			0
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0515	< 0.266					1			5
301.99	Acid Soluble Se, Other (ppm)	0572	2.075	0.4030				1			0
301.99	Acid Soluble Se, Other (ppm)	0255	0.0000	0.0000				1			4
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0624	0.0057	0.0001				1			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	< 0.1					1			5
311.99	Sodium, Other (%)	0354	0.0400	0.0200				1			0
311.99	Sodium, Other (%)	0572	< 0.005					1			5
321.00	Acid Soluble Zn, AA, inorganic 965.09 (%)	0626	0.0010	0.0000				1			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0035	0.0010	0.0000	0.0412	0.0683	0.0205	3	-0.59		0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0255	0.0025	0.0010	0.0412	0.0683	0.0205	3	-0.57		0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0552	0.1200	0.0400	0.0412	0.0683	0.0205	3	1.15		0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0354	< 0.01		0.0412	0.0683	0.0205	3			5
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0405	0.0011	0.0001				1			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0626	0.0009	0.0000	0.0014	0.0007	0.0004	5	-0.58		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0136	0.0010	0.0000	0.0014	0.0007	0.0004	5	-0.46		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0624	0.0011	0.0000	0.0014	0.0007	0.0004	5	-0.34		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0630	0.0013	0.0003	0.0014	0.0007	0.0004	5	-0.16		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0563	0.0027	0.0005	0.0014	0.0007	0.0004	5	1.54		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0086	13.33	0.6336	0.0014	0.0007	0.0004	5	16127.88		1
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0527	< 0.001		0.0014	0.0007	0.0004	5			5
321.99	Acid Soluble Zn, Other (%)	0368	0.0010	0.0002	0.0013	0.0002	0.0002	5	-1.37		0
321.99	Acid Soluble Zn, Other (%)	0524	0.0013	0.0003	0.0013	0.0002	0.0002	5	-0.26		0
321.99	Acid Soluble Zn, Other (%)	0572	0.0014	0.0001	0.0013	0.0002	0.0002	5	0.18		0
321.99	Acid Soluble Zn, Other (%)	0515	0.0015	0.0003	0.0013	0.0002	0.0002	5	0.62		0
321.99	Acid Soluble Zn, Other (%)	0027	0.0015	0.0002	0.0013	0.0002	0.0002	5	0.84		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		*Robust Method Values			# Tests	Magruder PT Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	Rob R-bar				
321.99	Acid Soluble Zn, Other (%)	0389	9.550	0.1000	0.0013	0.0002	0.0002	5	42070.17		1
321.99	Acid Soluble Zn, Other (%)	0547	< 0.002		0.0013	0.0002	0.0002	5			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. Identical duplicates not included in calculation of Rob R-bar. IA Status describes where your result is relative to the Assigned Value ± 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