Magruder Fertilizer Proficiency Testing

ANALYTE Summary Statistics

260815 (28-0-5-S6)



Issue Date: 10/31/2026

Code	Analyte (Guarantees in green)	[1] Trueness (Lab Value) Robust Mean	n used	Robust Uncert.	Robust StDev	Robust %RSD	[2] Thompson Horwitz %RSD	[2] IA %RSD	[3] Precision (range) Robust Mean	n used
001	Ammoniacal N (%)	**15.64**	**27**	**0.0648**	**0.2692**	**1.72**	**2.53**		**0.1063**	**26**
002	Nitrate N (%)	**12.07**	**17**	**0.0955**	**0.3151**	**2.61**	**2.75**		**0.1297**	**13**
005	Urea N (%)	0.369	1						0.032	1
010	**Total N (44%)**	**27.53**	**69**	**0.0831**	**0.5521**	**2.01**	**1.91**	**1.29**	**0.1486**	**66**
020	Total P2O5 (%)	0.0734	4	0.0751	0.1201	164	5.93		0.0044	4
041	Direct Available P2O5 (%)	0.0412	3	0.0074	0.0102	24.8	6.46			
048	Water Soluble P2O5 (%)	0.025	1						0.01	1
050	**Soluble K2O (%)**	**4.735**	**75**	**0.0475**	**0.3291**	**6.95**	**3.17**	**3.85**	**0.0807**	**70**
060	Water (Free) (%)	1.85	1						0.1	1
101	Acid Soluble Ca (%)	**0.6404**	**9**	**0.0348**	**0.0836**	**13**	**4.28**		**0.0181**	**9**
121	Acid Soluble Mg (%)	**0.1461**	**9**	**0.005**	**0.0119**	**8.14**	**5.34**		**0.0064**	**6**
131	Water Soluble Mg (%)	0.15	1							
143	Elemental S (%)	**6.371**	**6**	**0.3579**	**0.7013**	**11**	**3.03**		0.0889	5

Code	Analyte (Guarantees in green)	[1] Trueness (Lab Value) Robust Mean	n used	Robust Uncert.	Robust StDev	Robust %RSD	[2] Thompson Horwitz %RSD	[2] IA %RSD	[3] Precision (range) Robust Mean	n used
145	Sulfate S, HCl soluble (%)	**6.505**	**8**	**0.1281**	**0.2898**	**4.46**	**3.02**		**0.0646**	**7**
148	**Total S (%)**	**6.599**	**46**	**0.0706**	**0.3833**	**5.81**	**3.01**	**3.45**	**0.1007**	**43**
149	S - HNO3 soluble (%)	6.822	3	0.4152	0.5753	8.43	3		0.0809	3
151	Acid Soluble As (ppm)	0.1736	4	0.0546	0.0874	50.4	20.8		0.0378	4
165	Acid Soluble B (%)	0.0002	1						0.0001	1
181	Acid Soluble Cd (ppm)	0.0086	2		0.0064				0.0068	1
191	Acid Soluble Cr (ppm)	**1.234**	**10**	**0.2155**	**0.5452**	**44.2**	**15.5**		**0.1774**	**9**
202	Acid Soluble Co (ppm)	0.2692	3	0.16	0.2217	82.4	19.5		0.0708	3
221	Acid Soluble Cu (%)	0.0007	3	0.0005	0.0007	109	12			
241	Acid Soluble Fe (%)	0.0048	5	0.0017	0.003	61.9	8.94			
251	Acid Soluble Pb (ppm)	0.8745	3	0.8915	1.235	141	16.3			
261	Acid Soluble Mn (%)	0.0002	3	0	0.0001	34.6	14.8			
281	Acid Soluble Hg (ppm)	0.0252	2		0.0145				0.0065	2
289	Acid Soluble Mo (ppm)	**1.576**	**7**	**0.1456**	**0.3082**	**19.6**	**14.9**		**0.0984**	**6**
291	Acid Soluble Ni (ppm)	0.4952	5	0.0748	0.1339	27	17.8		0.0982	4
301	Acid Soluble Se (ppm)	0.3274	4	0.0643	0.1029	31.4	18.9		0.0711	4
311	Sodium (%)	**0.1859**	**7**	**0.0091**	**0.0192**	**10.3**	**5.15**		**0.0193**	**6**
321	Acid Soluble Zn (%)	**0.0007**	**9**	**0.0003**	**0.0008**	**111**	**11.9**		**0.0003**	**6**
325	Water Soluble Zn (%)	0.135	1						0.01	1

1. Trueness Parameters: Statistical parameters defining the distribution of lab values which are used to evaluate how close a Lab Value is to the mean. Parameters are shown for number of observations used (n used). Analyte All Tests report identifies data not used. Robust statistics was employed to determine mean and standard deviation (StDev) if number of observations used (n used) >=6 (blue background). Classical statistics was employed if number of observations used (n used) < 6 (no color background). %RSD is the relative standard deviation with respect to the mean (StDev/Mean x 100). Uncertainty (Uncert.) is a measure to estimate where the true mean lies.

2. Thompson-Horwitz %RSD and IA %RSD: These are benchmark values that can be used to compare to actual variability of Lab Values (Robust %RSD). Thompson-Horwitz %RSD is a benchmark on variability from proficiency testing programs. IA %RSD is variability expected from AAPFCO investigational allowance (IA).

3. Precision Parameters: Lab's precision is estimated by the difference in 2 results reported by the lab (range). Mean of ranges are shown for number of observations used (n used). Analyte All Tests report identifies data not used. Robust statistics was employed to determine mean if number of observations used (n used) >=6 (green background). Classical statistics was employed if number of observations used (n used) <6 (no color background).

Appendix

Content Description of Analyte Summary Statistics Report

The Analyte Summary Statistics Report provides trueness and precision parameters from determination of an analyte regardless of method. Determination of summary statistics followed protocols in ISO 13528:2015(E) using Algorithm A robust analysis (Statistical methods for use in proficiency testing by interlaboratory comparison). Robust statistics was used to determine statistical parameters for sets with 6 or more observations. Classical statistics was used for sets with 3, 4, or 5 observations. Robust statistics has an advantage of removing undesired influence of outlying data on the mean and standard deviation without removing data from the statistical analysis.

For trueness, the mean and standard deviation (StDev) are presented for the number of observations (n used). The uncertainty (Uncert.) is a measure of where the "real" value for the concentration lies around the mean with a 68% certainty (Mean ± Uncert.). The larger the number of observations, the smaller the uncertainty. The relative standard deviation (%RSD) is a percentage of the standard deviation divided by the mean. Standard deviation from Lab Values is determined by robust statistics for n used >=6 or classical statistics for n used <6. The Thompson-Horwitz %RSD is a standard benchmark on inter-laboratory variability (Thompson, DOI: 10.1039/b000282h) that can be used to compare %RSD from Lab Values variability with Thompson-Horwitz expectation. The IA %RSD is a measure of variability expected from the AAPFCO investigational allowance (IA) where standard deviation is IA/2.33.

Precision in the data populations is estimated by the range of duplicate results reported. The robust or classical mean is presented along with the number of observations used. Any duplicate results that are exactly the same are removed in the determination of the mean range to remove undo influence of entries that may be from labs reporting one result twice.

Magruder Fertilizer Proficiency Testing

ANALYTE All Labs Report

260815 (28-0-5-S6)



Issue Date: 10/31/2026

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
				Ammoniacal N (%)							
001.99	Ammoniacal N (%)	Other	**0423**	14.2	14.7	**14.45**	**-4.40**	15.64	0.2692	27	1
001.99	Ammoniacal N (%)	Other	**0220**	14.84	14.85	**14.84**	**-2.94**	15.64	0.2692	27	
001.10	Ammoniacal N (%)	Magnesium Oxide Method	**0231**	15.01	14.99	**15**	**-2.36**	15.64	0.2692	27	
001.10	Ammoniacal N (%)	Magnesium Oxide Method	**0389**	15.2	15.04	**15.12**	**-1.92**	15.64	0.2692	27	
001.10	Ammoniacal N (%)	Magnesium Oxide Method	**0117**	15.2	15.3	**15.25**	**-1.43**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0605**	15.27	15.45	**15.36**	**-1.02**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0169**	15.57	15.31	**15.44**	**-0.73**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0136**	15.4	15.5	**15.45**	**-0.69**	15.64	0.2692	27	
001.10	Ammoniacal N (%)	Magnesium Oxide Method	**0498**	15.4	15.6	**15.5**	**-0.50**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0602**	15.5	15.6	**15.55**	**-0.32**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0553**	15.44	15.66	**15.55**	**-0.32**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0255**	15.66	15.53	**15.6**	**-0.15**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0564**	15.6	15.65	**15.62**	**-0.04**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0027**	15.641	15.681	**15.66**	**0.09**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0572**	15.57	15.8	**15.68**	**0.18**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0517**	15.71	15.68	**15.7**	**0.22**	15.64	0.2692	27	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
001.99	Ammoniacal N (%)	Other	**0481**	15.77	15.66	**15.72**	**0.30**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0513**	15.75	15.72	**15.74**	**0.37**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0577**	15.7	15.79	**15.74**	**0.41**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0472**	15.8	15.7	**15.75**	**0.43**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0540**	15.76	15.79	**15.78**	**0.52**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0405**	15.76	15.8	**15.78**	**0.54**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0562**	15.9	15.8	**15.85**	**0.80**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0524**	15.8	15.98	**15.89**	**0.95**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0368**	15.914	15.914	**15.91**	**1.03**	15.64	0.2692	27	7
001.99	Ammoniacal N (%)	Other	**0551**	15.94	15.95	**15.94**	**1.15**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0671**	15.95	15.98	**15.96**	**1.22**	15.64	0.2692	27	
001.99	Ammoniacal N (%)	Other	**0612**	16.42	16.69	**16.56**	**3.42**	15.64	0.2692	27	

Nitrate N (%)

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
002.99	Nitrate N (%)	Other	**0368**	6.156	6.156	**6.156**	**-18.78**	12.07	0.3151	17	7
002.99	Nitrate N (%)	Other	**0029**	11.21	11.25	**11.23**	**-2.67**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0231**	11.77	11.77	**11.77**	**-0.96**	12.07	0.3151	17	7
002.99	Nitrate N (%)	Other	**0481**	11.77	12.02	**11.9**	**-0.56**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0136**	12.1	11.7	**11.9**	**-0.55**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0498**	11.9	11.9	**11.9**	**-0.55**	12.07	0.3151	17	7
002.99	Nitrate N (%)	Other	**0472**	12	12	**12**	**-0.23**	12.07	0.3151	17	7
002.99	Nitrate N (%)	Other	**0553**	12.05	11.98	**12.02**	**-0.18**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0027**	11.99	12.21	**12.1**	**0.09**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0671**	12.1	12.11	**12.1**	**0.10**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0564**	12.16	12.17	**12.16**	**0.30**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0517**	12.23	12.26	**12.24**	**0.55**	12.07	0.3151	17	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
002.99	Nitrate N (%)	Other	**0562**	12.2	12.3	**12.25**	**0.57**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0513**	12.23	12.29	**12.26**	**0.60**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0605**	12.28	12.57	**12.42**	**1.12**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0602**	12.4	12.5	**12.45**	**1.20**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0540**	12.91	12.72	**12.82**	**2.36**	12.07	0.3151	17	
002.99	Nitrate N (%)	Other	**0423**	15.3	16.1	**15.7**	**11.51**	12.07	0.3151	17	1
Urea N (%)											
005.99	Urea N (%)	Other	**0524**	0.353	0.385	**0.369**					
Total N (28 %)											
010.60	**Total N (%)**	Combustion	**0360**	26.3	26.15	**26.22** †	**-2.36**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0324**	26.4	26.1	**26.25** †	**-2.32**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0422**	26.4	26.48	**26.44** †	**-1.97**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0035**	26.7	26.2	**26.45** †	**-1.95**	27.53	0.5521	69	
010.12	**Total N (%)**	Salicylic	**0568**	26.4	26.6	**26.5** †	**-1.86**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0086**	26.596	26.724	**26.66** †	**-1.57**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0072**	26.5	26.9	**26.7**	**-1.50**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0588**	26.7	26.9	**26.8**	**-1.32**	27.53	0.5521	69	
010.12	**Total N (%)**	Salicylic	**0117**	26.8	26.8	**26.8**	**-1.32**	27.53	0.5521	69	7
010.60	**Total N (%)**	Combustion	**0018**	26.7	26.9	**26.8**	**-1.32**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0542**	27.18	26.48	**26.83**	**-1.27**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0095**	26.98	26.69	**26.84**	**-1.26**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0523**	26.96	26.896	**26.93**	**-1.09**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0055**	26.945	26.965	**26.96**	**-1.04**	27.53	0.5521	69	
010.60	**Total N (%)**	Combustion	**0234**	26.96	27.11	**27.04**	**-0.90**	27.53	0.5521	69	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
010.60	Total N (%)	Combustion	0102	27.02	27.09	27.06	-0.86	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0292	27.06	27.12	27.09	-0.80	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0389	27.18	27.21	27.2	-0.61	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0025	27.68	26.84	27.26	-0.49	27.53	0.5521	69	1
010.99	Total N (%)	Other	0524	27.0563	27.5141	27.29	-0.44	27.53	0.5521	69	
010.12	Total N (%)	Salicylic	0540	27.32	27.27	27.3	-0.42	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0136	27.2	27.4	27.3	-0.42	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0354	27.3	27.3	27.3	-0.42	27.53	0.5521	69	7
010.60	Total N (%)	Combustion	0260	27.4	27.3	27.35	-0.32	27.53	0.5521	69	
010.12	Total N (%)	Salicylic	0498	27.3	27.5	27.4	-0.23	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0023	27.408	27.432	27.42	-0.20	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0423	27.32	27.59	27.46	-0.13	27.53	0.5521	69	
010.11	Total N (%)	Modified Comprehensive	0309	27.31	27.62	27.46	-0.12	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0029	27.69	27.33	27.51	-0.03	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0037	27.484	27.537	27.51	-0.03	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0231	27.55	27.49	27.52	-0.02	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0377	27.61	27.47	27.54	0.02	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0612	27.41	27.71	27.56	0.06	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0481	27.42	27.71	27.56	0.06	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0494	27.56	27.6	27.58	0.09	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0451	27.49	27.68	27.58	0.10	27.53	0.5521	69	
010.99	Total N (%)	Other	0481	27.54	27.67	27.6	0.14	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0220	27.67	27.57	27.62	0.16	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0027	27.74	27.52	27.63	0.18	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0405	27.66	27.67	27.66	0.25	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0307	27.71	27.62	27.66	0.25	27.53	0.5521	69	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
010.60	Total N (%)	Combustion	0043	27.65	27.69	27.67	0.25	27.53	0.5521	69	
010.99	Total N (%)	Other	0635	27.65	27.76	27.7	0.32	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0527	27.818	27.611	27.71	0.34	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0368	27.736	27.762	27.75	0.40	27.53	0.5521	69	
010.99	Total N (%)	Other	0564	27.8	27.75	27.78	0.45	27.53	0.5521	69	
010.99	Total N (%)	Other	0605	27.55	28.02	27.78	0.46	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0177	27.793	27.837	27.82	0.52	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0472	27.56	28.11	27.84	0.55	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0040	27.8	27.9	27.85	0.58	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0169	27.88	27.82	27.85	0.58	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0131	27.773	27.959	27.87	0.61	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0390	28.16	27.63	27.9	0.66	27.53	0.5521	69	
010.99	Total N (%)	Other	0517	27.98	27.95	27.96	0.79	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0073	27.91	28.07	27.99	0.83	27.53	0.5521	69	
010.99	Total N (%)	Other	0513	27.98	28.01	28	0.84	27.53	0.5521	69	
010.12	Total N (%)	Salicylic	0602	27.9	28.1	28	0.85	27.53	0.5521	69	
010.99	Total N (%)	Other	0602	27.9	28.1	28	0.85	27.53	0.5521	69	
010.99	Total N (%)	Other	0551	28.03	28.05	28.04	0.93	27.53	0.5521	69	
010.99	Total N (%)	Other	0671	28.05	28.07	28.06	0.96	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0049	28.026	28.1465	28.09	1.01	27.53	0.5521	69	
010.99	Total N (%)	Other	0556	28	28.2	28.1	1.03	27.53	0.5521	69	
010.99	Total N (%)	Other	0562	28.15	28.1	28.12	1.08	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0255	28.062	28.201	28.13	1.09	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0572	28.21	28.07	28.14	1.11	27.53	0.5521	69	
010.60	Total N (%)	Combustion	0521	28.22	28.22	28.22	1.25	27.53	0.5521	69	7
010.99	Total N (%)	Other	0584	28.14	28.31	28.22	1.26	27.53	0.5521	69	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
010.60	**Total N (%)**	Combustion	**0291**	28.24	28.25	**28.24**	**1.30**	27.53	0.5521	69	
010.99	**Total N (%)**	Other	**0518**	28.3	28.24	**28.27**	**1.34**	27.53	0.5521	69	
010.99	**Total N (%)**	Other	**0615**	28.8	28.9	**28.85 ‡**	**2.39**	27.53	0.5521	69	
			Total P2O5 (%)								
020.50	Total P2O5 (%)	ICP	**0527**	<0.01	<0.01	**<0.01**		0.0734	0.1201	4	6
020.50	Total P2O5 (%)	ICP	**0588**	0.001	0.002	**0.0015**	**-0.60**	0.0734	0.1201	4	
020.50	Total P2O5 (%)	ICP	**0422**	0.015	0.014	**0.0145**	**-0.49**	0.0734	0.1201	4	
020.50	Total P2O5 (%)	ICP	**0524**	0.0228	0.0263	**0.0246**	**-0.41**	0.0734	0.1201	4	
020.50	Total P2O5 (%)	ICP	**0472**	0.247	0.259	**0.253**	**1.50**	0.0734	0.1201	4	
			Direct Available P2O5 (%)								
041.21	Direct Available P2O5 (%)	Spectrophotometric, Citrate-EDTA	**0354**	<0.01	<0.01	**<0.01**		0.0412	0.0102	3	6
041.21	Direct Available P2O5 (%)	Spectrophotometric, Citrate-EDTA	**0568**	0.03	0.03	**0.03**	**-1.09**	0.0412	0.0102	3	7
041.51	Direct Available P2O5 (%)	ICP, Citrate-EDTA Ext.	**0307**	0.047	0.04	**0.0435**	**0.23**	0.0412	0.0102	3	
041.21	Direct Available P2O5 (%)	Spectrophotometric, Citrate-EDTA	**0472**	0.04	0.06	**0.05**	**0.87**	0.0412	0.0102	3	
			Water Soluble P2O5 (%)								
048.20	Water Soluble P2O5 (%)	Spectrophotometric	**0472**	0.02	0.03	**0.025**					
			Soluble K2O (5 %)								
050.99	**Soluble K2O (%)**	Other	**0524**	3.9466	3.98	**3.963 †**	**-2.34**	4.735	0.3291	75	
050.52	**Soluble K2O (%)**	ICP (Citrate-EDTA)	**0027**	4.07	4.02	**4.045 †**	**-2.10**	4.735	0.3291	75	
050.99	**Soluble K2O (%)**	Other	**0624**	4.07	4.12	**4.095 †**	**-1.94**	4.735	0.3291	75	
050.99	**Soluble K2O (%)**	Other	**0521**	4.19	4.19	**4.19 †**	**-1.66**	4.735	0.3291	75	7
050.51	**Soluble K2O (%)**	ICP (Citrate)	**0007**	4.23	4.2	**4.215 †**	**-1.58**	4.735	0.3291	75	
050.99	**Soluble K2O (%)**	Other	**0615**	4.3	4.3	**4.3 †**	**-1.32**	4.735	0.3291	75	7

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
050.99	Soluble K2O (%)	Other	0389	4.31	4.33	**4.32**	**-1.26**	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0260	4.229	4.428	**4.328**	**-1.24**	4.735	0.3291	75	
050.50	Soluble K2O (%)	ICP (Oxalate)	0422	4.324	4.342	**4.333**	**-1.22**	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0049	4.35	4.32	**4.335**	**-1.22**	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0025	4.4	4.33	**4.365**	**-1.12**	4.735	0.3291	75	
050.50	Soluble K2O (%)	ICP (Oxalate)	0055	4.2965	4.447	**4.372**	**-1.10**	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0072	4.598	4.186	**4.392**	**-1.04**	4.735	0.3291	75	
050.62	Soluble K2O (%)	Flame Photometric (Citrate-EDTA)	0037	4.4	4.419	**4.41**	**-0.99**	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0255	4.516	4.402	**4.459**	**-0.84**	4.735	0.3291	75	
050.62	Soluble K2O (%)	Flame Photometric (Citrate-EDTA)	0029	4.36	4.604	**4.482**	**-0.77**	4.735	0.3291	75	
050.30	Soluble K2O (%)	AA (Oxalate)	0040	4.4	4.6	**4.5**	**-0.71**	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0513	4.49	4.55	**4.52**	**-0.65**	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0517	4.55	4.5	**4.525**	**-0.64**	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0220	4.54	4.52	**4.53**	**-0.62**	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0023	4.54	4.55	**4.545**	**-0.58**	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0494	4.49	4.61	**4.55**	**-0.56**	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0055	4.57	4.555	**4.562**	**-0.52**	4.735	0.3291	75	
050.50	Soluble K2O (%)	ICP (Oxalate)	0231	4.51	4.64	**4.575**	**-0.49**	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0523	4.589	4.566	**4.578**	**-0.48**	4.735	0.3291	75	
050.30	Soluble K2O (%)	AA (Oxalate)	0309	4.55	4.63	**4.59**	**-0.44**	4.735	0.3291	75	
050.51	Soluble K2O (%)	ICP (Citrate)	0291	4.62	4.63	**4.625**	**-0.33**	4.735	0.3291	75	
050.60	Soluble K2O (%)	Flame Photometric (Oxalate)	0169	4.62	4.65	**4.635**	**-0.30**	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0073	4.68	4.59	**4.635**	**-0.30**	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0602	4.6	4.7	**4.65**	**-0.26**	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0602	4.6	4.7	**4.65**	**-0.26**	4.735	0.3291	75	
050.60	Soluble K2O (%)	Flame Photometric (Oxalate)	0602	4.6	4.7	**4.65**	**-0.26**	4.735	0.3291	75	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
050.00	Soluble K2O (%)	STPB Oxalate	0231	4.66	4.66	4.66	-0.23	4.735	0.3291	75	7
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0377	4.68	4.66	4.67	-0.20	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0612	4.62	4.73	4.675	-0.18	4.735	0.3291	75	
050.32	Soluble K2O (%)	AA (Citrate-EDTA)	0472	4.73	4.72	4.725	-0.03	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0494	4.72	4.73	4.725	-0.03	4.735	0.3291	75	
050.61	Soluble K2O (%)	Flame Photometric (Citrate)	0035	4.8	4.7	4.75	0.05	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0556	4.8	4.7	4.75	0.05	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0451	4.731	4.799	4.765	0.09	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0423	4.71	4.83	4.77	0.11	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0177	4.9125	4.6317	4.772	0.11	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0354	4.8	4.79	4.795	0.18	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0136	4.8	4.8	4.8	0.20	4.735	0.3291	75	7
050.99	Soluble K2O (%)	Other	0542	4.726	4.875	4.8	0.20	4.735	0.3291	75	
050.50	Soluble K2O (%)	ICP (Oxalate)	0292	4.77	4.91	4.84	0.32	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0540	4.82	4.86	4.84	0.32	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0498	5	4.7	4.85	0.35	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0234	4.86	4.85	4.855	0.36	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0588	4.965	4.802	4.884	0.45	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0605	4.85	4.94	4.895	0.49	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0307	5.01	4.78	4.895	0.49	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0564	4.9	4.95	4.925	0.58	4.735	0.3291	75	
050.62	Soluble K2O (%)	Flame Photometric (Citrate-EDTA)	0095	4.95	4.9	4.925	0.58	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0671	4.92	4.94	4.93	0.59	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0360	4.91	4.96	4.935	0.61	4.735	0.3291	75	
050.52	Soluble K2O (%)	ICP (Citrate-EDTA)	0043	4.914	4.963	4.938	0.62	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0611	5.03	4.91	4.97	0.71	4.735	0.3291	75	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
050.99	Soluble K2O (%)	Other	0577	4.97	4.98	4.975	0.73	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0551	5.02	5.03	5.025	0.88	4.735	0.3291	75	
050.51	Soluble K2O (%)	ICP (Citrate)	0568	4.9	5.16	5.03	0.90	4.735	0.3291	75	
050.51	Soluble K2O (%)	ICP (Citrate)	0368	5.0022	5.1036	5.053	0.97	4.735	0.3291	75	
050.50	Soluble K2O (%)	ICP (Oxalate)	0390	5.16	4.95	5.055	0.97	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0515	5.013	5.108	5.06	0.99	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0481	5.1	5.11	5.105	1.12	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0405	5.13	5.11	5.12	1.17	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0562	5.1	5.15	5.125	1.19	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0042	4.9	5.4	5.15	1.26	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0635	5.21	5.14	5.175 ‡	1.34	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0558	5.13	5.22	5.175 ‡	1.34	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0527	5.1874	5.2	5.194 ‡	1.39	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0584	5.37	5.23	5.3 ‡	1.72	4.735	0.3291	75	
050.99	Soluble K2O (%)	Other	0518	5.42	5.33	5.375 ‡	1.95	4.735	0.3291	75	
050.50	Soluble K2O (%)	ICP (Oxalate)	0324	5.41	5.54	5.475 ‡	2.25	4.735	0.3291	75	
050.00	Soluble K2O (%)	STPB Oxalate	0102	5.48	5.48	5.48 ‡	2.26	4.735	0.3291	75	7
050.99	Soluble K2O (%)	Other	0553	50.7	5.12	27.91 ‡	70.43	4.735	0.3291	75	3
Water (Free) (%)											
060.00	Water (Free) (%)	Vacuum Oven	0611	1.9	1.8	1.85					
Acid Soluble Ca (%)											
101.33	Acid Soluble Ca (%)	ICP, 2017.02	0624	0.47	0.51	0.49	-1.80	0.6404	0.0836	9	
101.30	Acid Soluble Ca (%)	ICP, test portion inorganic 965.09	0568	0.58	0.59	0.585	-0.66	0.6404	0.0836	9	
101.30	Acid Soluble Ca (%)	ICP, test portion inorganic 965.09	0035	0.616	0.594	0.605	-0.42	0.6404	0.0836	9	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
101.30	Acid Soluble Ca (%)	ICP, test portion inorganic 965.09	**0354**	0.64	0.61	**0.625**	**-0.18**	0.6404	0.0836	9	
101.33	Acid Soluble Ca (%)	ICP, 2017.02	**0260**	0.625	0.651	**0.638**	**-0.03**	0.6404	0.0836	9	
101.30	Acid Soluble Ca (%)	ICP, test portion inorganic 965.09	**0422**	0.654	0.649	**0.6515**	**0.13**	0.6404	0.0836	9	
101.33	Acid Soluble Ca (%)	ICP, 2017.02	**0527**	0.6625	0.6448	**0.6536**	**0.16**	0.6404	0.0836	9	
101.33	Acid Soluble Ca (%)	ICP, 2017.02	**0472**	0.727	0.723	**0.725**	**1.01**	0.6404	0.0836	9	
101.99	Acid Soluble Ca (%)	Other	**0558**	1.14	1.15	**1.145**	**6.04**	0.6404	0.0836	9	
		Acid Soluble Mg (%)									
121.33	Acid Soluble Mg (%)	ICP, 2017.02	**0624**	0.08	0.08	**0.08**	**-5.56**	0.1461	0.0119	9	7
121.30	Acid Soluble Mg (%)	ICP, test portion inorganic 965.09	**0568**	0.13	0.13	**0.13**	**-1.36**	0.1461	0.0119	9	7
121.99	Acid Soluble Mg (%)	Other	**0524**	0.1398	0.1516	**0.1457**	**-0.04**	0.1461	0.0119	9	
121.30	Acid Soluble Mg (%)	ICP, test portion inorganic 965.09	**0035**	0.149	0.144	**0.1465**	**0.03**	0.1461	0.0119	9	
121.33	Acid Soluble Mg (%)	ICP, 2017.02	**0260**	0.148	0.151	**0.1495**	**0.28**	0.1461	0.0119	9	
121.30	Acid Soluble Mg (%)	ICP, test portion inorganic 965.09	**0354**	0.15	0.15	**0.15**	**0.32**	0.1461	0.0119	9	7
121.30	Acid Soluble Mg (%)	ICP, test portion inorganic 965.09	**0422**	0.152	0.15	**0.151**	**0.41**	0.1461	0.0119	9	
121.33	Acid Soluble Mg (%)	ICP, 2017.02	**0472**	0.148	0.162	**0.155**	**0.74**	0.1461	0.0119	9	
121.33	Acid Soluble Mg (%)	ICP, 2017.02	**0527**	0.1607	0.1579	**0.1593**	**1.11**	0.1461	0.0119	9	
		Water Soluble Mg (%)									
131.30	Water Soluble Mg (%)	ICP	**0611**	0.15	0.15	**0.15**					7
		Elemental S (%)									
143.00	Elemental S (%)	Gravimetric Sulfur - carbon	**0405**	0.01	0.01	**0.01**	**-9.07**	6.371	0.7013	6	7
143.99	Elemental S (%)	Other	**0255**	6.067	5.955	**6.011**	**-0.51**	6.371	0.7013	6	
143.99	Elemental S (%)	Other	**0390**	6.26	6.48	**6.37**	**0.00**	6.371	0.7013	6	
143.99	Elemental S (%)	Other	**0291**	6.76	6.77	**6.765**	**0.56**	6.371	0.7013	6	
143.99	Elemental S (%)	Other	**0389**	6.89	6.85	**6.87**	**0.71**	6.371	0.7013	6	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
143.99	Elemental S (%)	Other	**0368**	6.8621	6.9248	**6.893**	**0.74**	6.371	0.7013	6	
				Sulfate S, HCl soluble (%)							
145.99	Sulfate S, HCl soluble (%)	Other	**0553**	6.11	6.19	**6.15**	**-1.22**	6.505	0.2898	8	
145.99	Sulfate S, HCl soluble (%)	Other	**0584**	6.22	6.3	**6.26**	**-0.84**	6.505	0.2898	8	
145.99	Sulfate S, HCl soluble (%)	Other	**0518**	6.4	6.36	**6.38**	**-0.43**	6.505	0.2898	8	
145.00	Sulfate S, HCl soluble (%)	Gravimetric Sulfur - sulfate form	**0405**	6.38	6.38	**6.38**	**-0.43**	6.505	0.2898	8	7
145.00	Sulfate S, HCl soluble (%)	Gravimetric Sulfur - sulfate form	**0671**	6.55	6.58	**6.565**	**0.21**	6.505	0.2898	8	
145.00	Sulfate S, HCl soluble (%)	Gravimetric Sulfur - sulfate form	**0498**	6.6	6.7	**6.65**	**0.50**	6.505	0.2898	8	
145.00	Sulfate S, HCl soluble (%)	Gravimetric Sulfur - sulfate form	**0494**	6.74	6.784	**6.762**	**0.89**	6.505	0.2898	8	
145.00	Sulfate S, HCl soluble (%)	Gravimetric Sulfur - sulfate form	**0177**	6.8522	6.9307	**6.891**	**1.33**	6.505	0.2898	8	
				Total S (6 %)							
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0515**	0.0378	0.0369	**0.0374** †	**-17.12**	6.599	0.3833	46	2
148.00	**Total S (%)**	Combustion, 2017.08	**0234**	5.3	5.3	**5.3** †	**-3.39**	6.599	0.3833	46	7
148.00	**Total S (%)**	Combustion, 2017.08	**0049**	5.595	5.642	**5.618** †	**-2.56**	6.599	0.3833	46	
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0624**	5.58	5.69	**5.635** †	**-2.51**	6.599	0.3833	46	
148.01	**Total S (%)**	Gravimetric - sulfate and elemental	**0562**	5.95	6.1	**6.025** †	**-1.50**	6.599	0.3833	46	
148.99	**Total S (%)**	Other	**0635**	6.1	6.18	**6.14**	**-1.20**	6.599	0.3833	46	
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0527**	6.2898	6.1098	**6.2**	**-1.04**	6.599	0.3833	46	
148.01	**Total S (%)**	Gravimetric - sulfate and elemental	**0564**	6.2	6.22	**6.21**	**-1.01**	6.599	0.3833	46	
148.00	**Total S (%)**	Combustion, 2017.08	**0521**	6.28	6.28	**6.28**	**-0.83**	6.599	0.3833	46	7
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0292**	6.22	6.36	**6.29**	**-0.81**	6.599	0.3833	46	
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0086**	6.2911	6.3911	**6.341**	**-0.67**	6.599	0.3833	46	
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0040**	6.7	6	**6.35**	**-0.65**	6.599	0.3833	46	1
148.07	**Total S (%)**	ICP, test portion as in 2017.02	**0136**	6.3	6.4	**6.35**	**-0.65**	6.599	0.3833	46	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
148.00	Total S (%)	Combustion, 2017.08	0451	6.43	6.295	6.362	-0.62	6.599	0.3833	46	
148.99	Total S (%)	Other	0405	6.39	6.39	6.39	-0.55	6.599	0.3833	46	7
148.99	Total S (%)	Other	0035	6.41	6.37	6.39	-0.55	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0043	6.361	6.424	6.392	-0.54	6.599	0.3833	46	
148.99	Total S (%)	Other	0481	6.26	6.54	6.4	-0.52	6.599	0.3833	46	
148.00	Total S (%)	Combustion, 2017.08	0405	6.42	6.44	6.43	-0.44	6.599	0.3833	46	
148.00	Total S (%)	Combustion, 2017.08	0131	6.428	6.486	6.457	-0.37	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0117	6.4932	6.4344	6.464	-0.35	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0260	6.32	6.708	6.514	-0.22	6.599	0.3833	46	
148.99	Total S (%)	Other	0422	6.711	6.322	6.516	-0.22	6.599	0.3833	46	
148.99	Total S (%)	Other	0354	6.53	6.52	6.525	-0.19	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0494	6.5998	6.4986	6.549	-0.13	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0612	6.27	6.88	6.575	-0.06	6.599	0.3833	46	1
148.07	Total S (%)	ICP, test portion as in 2017.02	0169	6.59	6.64	6.615	0.04	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0177	6.6037	6.6317	6.618	0.05	6.599	0.3833	46	
148.99	Total S (%)	Other	0023	6.61	6.64	6.625	0.07	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0037	6.56	6.71	6.635	0.09	6.599	0.3833	46	
148.00	Total S (%)	Combustion, 2017.08	0351	6.674	6.639	6.656	0.15	6.599	0.3833	46	
148.00	Total S (%)	Combustion, 2017.08	0025	6.506	6.833	6.67	0.18	6.599	0.3833	46	
148.99	Total S (%)	Other	0558	6.68	6.66	6.67	0.19	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0472	6.66	6.7	6.68	0.21	6.599	0.3833	46	
148.00	Total S (%)	Combustion, 2017.08	0029	6.937	6.847	6.892	0.76	6.599	0.3833	46	
148.99	Total S (%)	Other	0542	6.955	6.838	6.896	0.78	6.599	0.3833	46	
148.99	Total S (%)	Other	0605	6.84	6.96	6.9	0.79	6.599	0.3833	46	
148.01	Total S (%)	Gravimetric - sulfate and elemental	0177	6.8714	6.9307	6.901	0.79	6.599	0.3833	46	
148.01	Total S (%)	Gravimetric - sulfate and elemental	0485	7.03	6.84	6.935	0.88	6.599	0.3833	46	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
148.01	Total S (%)	Gravimetric - sulfate and elemental	0513	6.96	6.92	**6.94**	**0.89**	6.599	0.3833	46	
148.01	Total S (%)	Gravimetric - sulfate and elemental	0055	6.885	7.035	**6.96**	**0.94**	6.599	0.3833	46	
148.01	Total S (%)	Gravimetric - sulfate and elemental	0102	6.99	6.96	**6.975**	**0.98**	6.599	0.3833	46	
148.99	Total S (%)	Other	0523	7.019	6.966	**6.992**	**1.03**	6.599	0.3833	46	
148.07	Total S (%)	ICP, test portion as in 2017.02	0513	7.04	6.99	**7.015**	**1.09**	6.599	0.3833	46	
148.99	Total S (%)	Other	0377	7.17	6.94	**7.055**	**1.19**	6.599	0.3833	46	
148.99	Total S (%)	Other	0556	7	7.2	**7.1**	**1.31**	6.599	0.3833	46	
148.99	Total S (%)	Other	0072	7.2389	7.1324	**7.186 ‡**	**1.53**	6.599	0.3833	46	
148.01	Total S (%)	Gravimetric - sulfate and elemental	0220	7.18	7.27	**7.225 ‡**	**1.63**	6.599	0.3833	46	
148.01	Total S (%)	Gravimetric - sulfate and elemental	0324	7.47	7.27	**7.37 ‡**	**2.01**	6.599	0.3833	46	
S - HNO3 soluble (%)											
149.04	S - HNO3 soluble (%)	ICP	0423	6.32	6.17	**6.245**	**-1.00**	6.822	0.5753	3	
149.04	S - HNO3 soluble (%)	ICP	0231	6.85	6.8	**6.825**	**0.01**	6.822	0.5753	3	
149.04	S - HNO3 soluble (%)	ICP	0524	7.3742	7.4168	**7.396**	**1.00**	6.822	0.5753	3	
Acid Soluble As (ppm)											
151.33	Acid Soluble As (ppm)	ICP, 2017.02	0527	<0.0001	<0.0001	**<0.0001**		0.1736	0.0874	4	6
151.00	Acid Soluble As (ppm)	AA, test portion 2006.03 modified	0498	<0.2	<0.2	**<0.2**		0.1736	0.0874	4	6
151.33	Acid Soluble As (ppm)	ICP, 2017.02	0515	<0.25	<0.25	**<0.25**		0.1736	0.0874	4	6
151.34	Acid Soluble As (ppm)	ICP, EPA 3050B/6010C	0515	<0.406	<0.406	**<0.406**		0.1736	0.0874	4	6
151.99	Acid Soluble As (ppm)	Other	0481	<0.5	<0.5	**<0.5**		0.1736	0.0874	4	6
151.33	Acid Soluble As (ppm)	ICP, 2017.02	0136	<1	<1	**<1**		0.1736	0.0874	4	6
151.32	Acid Soluble As (ppm)	ICP, 2006.03	0405	<3	<3	**<3**		0.1736	0.0874	4	6
151.30	Acid Soluble As (ppm)	ICP	0605	<6.25	<6.25	**<6.25**		0.1736	0.0874	4	6
151.30	Acid Soluble As (ppm)	ICP	0255	0	0	**0**		0.1736	0.0874	4	5

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
151.30	Acid Soluble As (ppm)	ICP	**0524**	0.078	0.0749	**0.0764**	**-1.11**	0.1736	0.0874	4	
151.30	Acid Soluble As (ppm)	ICP	**0523**	0.132	0.114	**0.123**	**-0.58**	0.1736	0.0874	4	
151.32	Acid Soluble As (ppm)	ICP, 2006.03	**0220**	0.26	0.23	**0.245**	**0.82**	0.1736	0.0874	4	
151.99	Acid Soluble As (ppm)	Other	**0220**	0.3	0.2	**0.25**	**0.87**	0.1736	0.0874	4	
151.34	Acid Soluble As (ppm)	ICP, EPA 3050B/6010C	**0368**	3.3	2.5	**2.9**	**31.18**	0.1736	0.0874	4	1
Acid Soluble B (%)											
165.99	Acid Soluble B (%)	Other	**0527**	<0.01	<0.01	**<0.01**					6
165.30	Acid Soluble B (%)	ICP, test portion in 982.01	**0354**	<0.01	<0.01	**<0.01**					6
165.30	Acid Soluble B (%)	ICP, test portion in 982.01	**0422**	0	0	**0**					5
165.99	Acid Soluble B (%)	Other	**0524**	0.0001	0.0002	**0.0002**					
Acid Soluble Cd (ppm)											
181.33	Acid Soluble Cd (ppm)	ICP, 2017.02	**0527**	<0.0001	<0.0001	**<0.0001**					6
181.33	Acid Soluble Cd (ppm)	ICP, 2017.02	**0086**	<0.05	<0.05	**<0.05**					6
181.99	Acid Soluble Cd (ppm)	Other	**0220**	<0.1	<0.1	**<0.1**					6
181.32	Acid Soluble Cd (ppm)	ICP, 2006.03	**0220**	<0.1	<0.1	**<0.1**					6
181.34	Acid Soluble Cd (ppm)	ICP, EPA 3050B/6010C	**0368**	<0.1	<0.1	**<0.1**					6
181.00	Acid Soluble Cd (ppm)	AA, test portion 2006.03 modified	**0498**	<0.1	<0.1	**<0.1**					6
181.33	Acid Soluble Cd (ppm)	ICP, 2017.02	**0515**	<0.19	<0.19	**<0.19**					6
181.30	Acid Soluble Cd (ppm)	ICP	**0605**	<0.25	<0.25	**<0.25**					6
181.34	Acid Soluble Cd (ppm)	ICP, EPA 3050B/6010C	**0515**	<0.333	<0.333	**<0.333**					6
181.99	Acid Soluble Cd (ppm)	Other	**0481**	<0.5	<0.5	**<0.5**					6
181.32	Acid Soluble Cd (ppm)	ICP, 2006.03	**0405**	<1	<1	**<1**					6
181.33	Acid Soluble Cd (ppm)	ICP, 2017.02	**0136**	<1	<1	**<1**					6
181.30	Acid Soluble Cd (ppm)	ICP	**0523**	0.004	0.004	**0.004**					7

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
181.30	Acid Soluble Cd (ppm)	ICP	**0524**	0.0097	0.0165	**0.0131**					
181.30	Acid Soluble Cd (ppm)	ICP	**0255**	0.2	0.096	**0.148**					1
					Water Soluble Cl (%)						
190.99	Water Soluble Cl (%)	Other	**0611**	<0.1	<0.1	**<0.1**					6
					Acid Soluble Cr (ppm)						
191.30	Acid Soluble Cr (ppm)	ICP	**0605**	<1.25	<1.25	**<1.25**		1.234	0.5452	10	6
191.33	Acid Soluble Cr (ppm)	ICP, 2017.02	**0086**	<10	<10	**<10**		1.234	0.5452	10	6
191.33	Acid Soluble Cr (ppm)	ICP, 2017.02	**0136**	<2.5	<2.5	**<2.5**		1.234	0.5452	10	6
191.99	Acid Soluble Cr (ppm)	Other	**0481**	<20	<20	**<20**		1.234	0.5452	10	6
191.32	Acid Soluble Cr (ppm)	ICP, 2006.03	**0220**	0.73	0.75	**0.74**	**-0.91**	1.234	0.5452	10	
191.30	Acid Soluble Cr (ppm)	ICP	**0524**	0.8126	0.8859	**0.8492**	**-0.71**	1.234	0.5452	10	
191.30	Acid Soluble Cr (ppm)	ICP	**0523**	0.843	0.896	**0.8695**	**-0.67**	1.234	0.5452	10	
191.99	Acid Soluble Cr (ppm)	Other	**0220**	0.93	0.96	**0.945**	**-0.53**	1.234	0.5452	10	
191.33	Acid Soluble Cr (ppm)	ICP, 2017.02	**0527**	0.9087	1.0272	**0.968**	**-0.49**	1.234	0.5452	10	
191.34	Acid Soluble Cr (ppm)	ICP, EPA 3050B/6010C	**0368**	1.5	0.8	**1.15**	**-0.15**	1.234	0.5452	10	
191.30	Acid Soluble Cr (ppm)	ICP	**0035**	1.15	1.19	**1.17**	**-0.12**	1.234	0.5452	10	
191.00	Acid Soluble Cr (ppm)	AA, test portion 2006.03 modified	**0498**	1.7	1.5	**1.6**	**0.67**	1.234	0.5452	10	
191.32	Acid Soluble Cr (ppm)	ICP, 2006.03	**0405**	2	2	**2**	**1.40**	1.234	0.5452	10	7
191.34	Acid Soluble Cr (ppm)	ICP, EPA 3050B/6010C	**0515**	9.84	11.8	**10.82**	**17.58**	1.234	0.5452	10	
191.33	Acid Soluble Cr (ppm)	ICP, 2017.02	**0515**	31.45	22.25	**26.85**	**46.98**	1.234	0.5452	10	1
					Acid Soluble Co (ppm)						
202.33	Acid Soluble Co (ppm)	ICP, 2017.02	**0527**	<0.0001	<0.0001	**<0.0001**		0.2692	0.2217	3	6
202.32	Acid Soluble Co (ppm)	ICP, 2006.03	**0220**	<0.1	<0.1	**<0.1**		0.2692	0.2217	3	6
202.99	Acid Soluble Co (ppm)	Other	**0220**	<0.1	<0.1	**<0.1**		0.2692	0.2217	3	6

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
202.34	Acid Soluble Co (ppm)	ICP, EPA 3050B/6010C	**0368**	0.6	<0.1	**<0.1**		0.2692	0.2217	3	6
202.33	Acid Soluble Co (ppm)	ICP, 2017.02	**0515**	<0.226	<0.226	**<0.226**		0.2692	0.2217	3	6
202.34	Acid Soluble Co (ppm)	ICP, EPA 3050B/6010C	**0515**	<0.324	<0.324	**<0.324**		0.2692	0.2217	3	6
202.32	Acid Soluble Co (ppm)	ICP, 2006.03	**0405**	<1	<1	**<1**		0.2692	0.2217	3	6
202.30	Acid Soluble Co (ppm)	ICP	**0605**	<1.25	<1.25	**<1.25**		0.2692	0.2217	3	6
202.33	Acid Soluble Co (ppm)	ICP, 2017.02	**0086**	<10	<10	**<10**		0.2692	0.2217	3	6
202.33	Acid Soluble Co (ppm)	ICP, 2017.02	**0136**	<2.5	<2.5	**<2.5**		0.2692	0.2217	3	6
202.99	Acid Soluble Co (ppm)	Other	**0481**	<20	<20	**<20**		0.2692	0.2217	3	6
202.30	Acid Soluble Co (ppm)	ICP	**0523**	0.075	0.091	**0.083**	**-0.84**	0.2692	0.2217	3	
202.33	Acid Soluble Co (ppm)	ICP, 2017.02	**0037**	0.2	0.22	**0.21**	**-0.27**	0.2692	0.2217	3	
202.30	Acid Soluble Co (ppm)	ICP	**0524**	0.4262	0.6027	**0.5144**	**1.11**	0.2692	0.2217	3	
202.99	Acid Soluble Co (ppm)	Other	**0255**	2.442	1.34	**1.891**	**7.31**	0.2692	0.2217	3	1

Acid Soluble Cu (%)

221.33	Acid Soluble Cu (%)	ICP, 2017.02	**0527**	<0.0001	<0.0001	**<0.0001**		0.0007	0.0007	3	6
221.32	Acid Soluble Cu (%)	ICP, test portion 2006.03A-C	**0405**	<0.0002	<0.0002	**<0.0002**		0.0007	0.0007	3	6
221.33	Acid Soluble Cu (%)	ICP, 2017.02	**0136**	<0.0002	<0.0002	**<0.0002**		0.0007	0.0007	3	6
221.33	Acid Soluble Cu (%)	ICP, 2017.02	**0086**	<0.001	<0.001	**<0.001**		0.0007	0.0007	3	6
221.00	Acid Soluble Cu (%)	AA, inorganic 965.09	**0498**	<0.001	<0.001	**<0.001**		0.0007	0.0007	3	6
221.00	Acid Soluble Cu (%)	AA, inorganic 965.09	**0485**	<0.01	<0.01	**<0.01**		0.0007	0.0007	3	6
221.99	Acid Soluble Cu (%)	Other	**0481**	<0.01	<0.01	**<0.01**		0.0007	0.0007	3	6
221.30	Acid Soluble Cu (%)	ICP, test portion inorganic 965.09	**0354**	<0.01	<0.01	**<0.01**		0.0007	0.0007	3	6
221.33	Acid Soluble Cu (%)	ICP, 2017.02	**0515**	0.0001	<0.26	**<0.26**		0.0007	0.0007	3	6
221.99	Acid Soluble Cu (%)	Other	**0368**	3.8	<0.3	**<0.3**		0.0007	0.0007	3	6
221.30	Acid Soluble Cu (%)	ICP, test portion inorganic 965.09	**0422**	0	0	**0**		0.0007	0.0007	3	5
221.30	Acid Soluble Cu (%)	ICP, test portion inorganic 965.09	**0255**	0	0	**0**		0.0007	0.0007	3	5

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
221.99	Acid Soluble Cu (%)	Other	**0515**	0.0003	0.0001	**0.0002**	-0.65	0.0007	0.0007	3	
221.99	Acid Soluble Cu (%)	Other	**0524**	0.0003	0.0003	**0.0003**	-0.51	0.0007	0.0007	3	7
221.99	Acid Soluble Cu (%)	Other	**0523**	0.001	0.002	**0.0015**	1.15	0.0007	0.0007	3	
221.99	Acid Soluble Cu (%)	Other	**0671**	0.1	0.12	**0.11**	>100	0.0007	0.0007	3	1
Acid Soluble Fe (%)											
241.30	Acid Soluble Fe (%)	ICP, test portion inorganic 965.09	**0422**	0.003	0.003	**0.003**	-0.60	0.0048	0.003	5	7
241.30	Acid Soluble Fe (%)	ICP, test portion inorganic 965.09	**0035**	0.003	0.003	**0.003**	-0.60	0.0048	0.003	5	7
241.33	Acid Soluble Fe (%)	ICP, 2017.02	**0527**	0.0037	0.0038	**0.0038**	-0.35	0.0048	0.003	5	
241.99	Acid Soluble Fe (%)	Other	**0524**	0.0041	0.0042	**0.0042**	-0.21	0.0048	0.003	5	
241.30	Acid Soluble Fe (%)	ICP, test portion inorganic 965.09	**0354**	0.01	0.01	**0.01**	1.76	0.0048	0.003	5	7
Acid Soluble Pb (ppm)											
251.33	Acid Soluble Pb (ppm)	ICP, 2017.02	**0527**	<0.0001	<0.0001	**<0.0001**		0.8745	1.235	3	6
251.33	Acid Soluble Pb (ppm)	ICP, 2017.02	**0515**	<0.21	<0.21	**<0.21**		0.8745	1.235	3	6
251.99	Acid Soluble Pb (ppm)	Other	**0481**	<0.5	<0.5	**<0.5**		0.8745	1.235	3	6
251.99	Acid Soluble Pb (ppm)	Other	**0220**	<0.7	<0.7	**<0.7**		0.8745	1.235	3	6
251.32	Acid Soluble Pb (ppm)	ICP, 2006.03	**0220**	<0.7	<0.7	**<0.7**		0.8745	1.235	3	6
251.33	Acid Soluble Pb (ppm)	ICP, 2017.02	**0136**	<3	<3	**<3**		0.8745	1.235	3	6
251.32	Acid Soluble Pb (ppm)	ICP, 2006.03	**0405**	<4	<4	**<4**		0.8745	1.235	3	6
251.30	Acid Soluble Pb (ppm)	ICP	**0605**	<6.25	<6.25	**<6.25**		0.8745	1.235	3	6
251.30	Acid Soluble Pb (ppm)	ICP	**0255**	0	0	**0**		0.8745	1.235	3	5
251.30	Acid Soluble Pb (ppm)	ICP	**0523**	0.117	0.116	**0.1165**	-0.61	0.8745	1.235	3	
251.30	Acid Soluble Pb (ppm)	ICP	**0524**	0.117	0.2969	**0.207**	-0.54	0.8745	1.235	3	
251.34	Acid Soluble Pb (ppm)	ICP, EPA 3050B/6010C	**0368**	2.3	2.3	**2.3**	1.15	0.8745	1.235	3	7
251.34	Acid Soluble Pb (ppm)	ICP, EPA 3050B/6010C	**0515**	7.95	2.42	**5.185**	3.49	0.8745	1.235	3	1

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
Acid Soluble Mn (%)											
261.30	Acid Soluble Mn (%)	ICP, test portion 972.02a	**0354**	<0.01	<0.01	**<0.01**		0.0002	0.0001	3	6
261.30	Acid Soluble Mn (%)	ICP, test portion 972.02a	**0422**	0	0	**0**		0.0002	0.0001	3	5
261.30	Acid Soluble Mn (%)	ICP, test portion 972.02a	**0035**	0.0001	0.0001	**0.0001**	**-1.15**	0.0002	0.0001	3	7
261.35	Acid Soluble Mn (%)	ICP, 2017.02	**0527**	0.0002	0.0002	**0.0002**	**0.58**	0.0002	0.0001	3	7
261.99	Acid Soluble Mn (%)	Other	**0524**	0.0002	0.0002	**0.0002**	**0.58**	0.0002	0.0001	3	7
Acid Soluble Hg (ppm)											
281.30	Acid Soluble Hg (ppm)	ICP	**0527**	<0.001	<0.001	**<0.001**					6
281.00	Acid Soluble Hg (ppm)	AA	**0481**	<0.5	<0.5	**<0.5**					6
281.30	Acid Soluble Hg (ppm)	ICP	**0605**	<1.25	<1.25	**<1.25**					6
281.30	Acid Soluble Hg (ppm)	ICP	**0405**	<2	<2	**<2**					6
281.99	Acid Soluble Hg (ppm)	Other	**0220**	0.01	0.02	**0.015**					
281.99	Acid Soluble Hg (ppm)	Other	**0035**	0.034	0.037	**0.0355**					
281.99	Acid Soluble Hg (ppm)	Other	**0524**	28.5527	27.6997	**28.13**					1
Acid Soluble Mo (ppm)											
289.34	Acid Soluble Mo (ppm)	ICP, EPA 3050B/6010C	**0368**	2.4	<0.1	**<0.1**		1.576	0.3082	7	6
289.33	Acid Soluble Mo (ppm)	ICP, 2017.02	**0515**	<0.23	<0.23	**<0.23**		1.576	0.3082	7	6
289.34	Acid Soluble Mo (ppm)	ICP, EPA 3050B/6010C	**0515**	<0.255	<0.255	**<0.255**		1.576	0.3082	7	6
289.33	Acid Soluble Mo (ppm)	ICP, 2017.02	**0136**	<2.5	<2.5	**<2.5**		1.576	0.3082	7	6
289.99	Acid Soluble Mo (ppm)	Other	**0481**	<50	<50	**<50**		1.576	0.3082	7	6
289.30	Acid Soluble Mo (ppm)	ICP	**0255**	1.6	0.61	**1.105**	**-1.53**	1.576	0.3082	7	1
289.30	Acid Soluble Mo (ppm)	ICP	**0524**	1.2768	1.2952	**1.286**	**-0.94**	1.576	0.3082	7	
289.33	Acid Soluble Mo (ppm)	ICP, 2017.02	**0037**	1.2705	1.4216	**1.346**	**-0.74**	1.576	0.3082	7	
289.32	Acid Soluble Mo (ppm)	ICP, 2006.03	**0220**	1.4	1.5	**1.45**	**-0.41**	1.576	0.3082	7	

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
289.30	Acid Soluble Mo (ppm)	ICP	**0035**	1.53	1.51	**1.52**	**-0.18**	1.576	0.3082	7	
289.33	Acid Soluble Mo (ppm)	ICP, 2017.02	**0527**	1.5044	1.5485	**1.526**	**-0.16**	1.576	0.3082	7	
289.99	Acid Soluble Mo (ppm)	Other	**0220**	2.1	1.7	**1.9**	**1.05**	1.576	0.3082	7	
289.32	Acid Soluble Mo (ppm)	ICP, 2006.03	**0405**	2	2	**2**	**1.38**	1.576	0.3082	7	7
						Acid Soluble Ni (ppm)					
291.33	Acid Soluble Ni (ppm)	ICP, 2017.02	**0515**	<0.26	<0.26	**<0.26**		0.4952	0.1339	5	6
291.34	Acid Soluble Ni (ppm)	ICP, EPA 3050B/6010C	**0368**	1.8	<0.3	**<0.3**		0.4952	0.1339	5	6
291.34	Acid Soluble Ni (ppm)	ICP, EPA 3050B/6010C	**0515**	<0.483	<0.483	**<0.483**		0.4952	0.1339	5	6
291.32	Acid Soluble Ni (ppm)	ICP, 2006.03	**0405**	<1	<1	**<1**		0.4952	0.1339	5	6
291.30	Acid Soluble Ni (ppm)	ICP	**0605**	<1.25	<1.25	**<1.25**		0.4952	0.1339	5	6
291.33	Acid Soluble Ni (ppm)	ICP, 2017.02	**0086**	<10	<10	**<10**		0.4952	0.1339	5	6
291.33	Acid Soluble Ni (ppm)	ICP, 2017.02	**0136**	<2.5	<2.5	**<2.5**		0.4952	0.1339	5	6
291.99	Acid Soluble Ni (ppm)	Other	**0481**	<20	<20	**<20**		0.4952	0.1339	5	6
291.30	Acid Soluble Ni (ppm)	ICP	**0523**	0.301	0.35	**0.3255**	**-1.27**	0.4952	0.1339	5	
291.32	Acid Soluble Ni (ppm)	ICP, 2006.03	**0220**	0.4	0.4	**0.4**	**-0.71**	0.4952	0.1339	5	7
291.30	Acid Soluble Ni (ppm)	ICP	**0524**	0.4426	0.5665	**0.5046**	**0.07**	0.4952	0.1339	5	
291.99	Acid Soluble Ni (ppm)	Other	**0220**	0.5	0.7	**0.6**	**0.78**	0.4952	0.1339	5	
291.33	Acid Soluble Ni (ppm)	ICP, 2017.02	**0527**	0.636	0.6561	**0.646**	**1.13**	0.4952	0.1339	5	
291.99	Acid Soluble Ni (ppm)	Other	**0255**	3.569	3.141	**3.355**	**21.36**	0.4952	0.1339	5	1
						Acid Soluble Se (ppm)					
301.33	Acid Soluble Se (ppm)	ICP, 2017.02	**0527**	<0.01	<0.01	**<0.01**		0.3274	0.1029	4	6
301.99	Acid Soluble Se (ppm)	Other	**0485**	<0.02	0.205	**<0.02**		0.3274	0.1029	4	6
301.33	Acid Soluble Se (ppm)	ICP, 2017.02	**0515**	<0.27	<0.27	**<0.27**		0.3274	0.1029	4	6
301.34	Acid Soluble Se (ppm)	ICP, EPA 3050B/6010C	**0515**	<0.554	<0.554	**<0.554**		0.3274	0.1029	4	6

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
301.34	Acid Soluble Se (ppm)	ICP, EPA 3050B/6010C	**0368**	<1.5	<1.6	**<1.6**		0.3274	0.1029	4	6
301.32	Acid Soluble Se (ppm)	ICP, 2006.03	**0405**	<10	<10	**<10**		0.3274	0.1029	4	6
301.30	Acid Soluble Se (ppm)	ICP	**0605**	<6.25	<6.25	**<6.25**		0.3274	0.1029	4	6
301.99	Acid Soluble Se (ppm)	Other	**0255**	0	0	**0**		0.3274	0.1029	4	5
301.30	Acid Soluble Se (ppm)	ICP	**0524**	0.2046	0.1984	**0.2015**	**-1.22**	0.3274	0.1029	4	
301.30	Acid Soluble Se (ppm)	ICP	**0523**	0.269	0.347	**0.308**	**-0.19**	0.3274	0.1029	4	
301.32	Acid Soluble Se (ppm)	ICP, 2006.03	**0220**	0.4	0.3	**0.35**	**0.22**	0.3274	0.1029	4	
301.99	Acid Soluble Se (ppm)	Other	**0220**	0.4	0.5	**0.45**	**1.19**	0.3274	0.1029	4	
301.30	Acid Soluble Se (ppm)	ICP	**0035**	10.7	13.7	**12.2**	**>100**	0.3274	0.1029	4	1
						Sodium (%)					
311.32	Sodium (%)	ICP, 2006.03 test portion	**0422**	0.159	0.157	**0.158**	**-1.45**	0.1859	0.0192	7	
311.99	Sodium (%)	Other	**0611**	0.18	0.16	**0.17**	**-0.83**	0.1859	0.0192	7	
311.33	Sodium (%)	ICP, test portion as in 2017.02	**0035**	0.176	0.195	**0.1855**	**-0.02**	0.1859	0.0192	7	
311.33	Sodium (%)	ICP, test portion as in 2017.02	**0527**	0.1881	0.1831	**0.1856**	**-0.01**	0.1859	0.0192	7	
311.33	Sodium (%)	ICP, test portion as in 2017.02	**0260**	0.197	0.197	**0.197**	**0.58**	0.1859	0.0192	7	7
311.99	Sodium (%)	Other	**0354**	0.22	0.18	**0.2**	**0.74**	0.1859	0.0192	7	
311.33	Sodium (%)	ICP, test portion as in 2017.02	**0624**	0.19	0.22	**0.205**	**1.00**	0.1859	0.0192	7	
						Acid Soluble Zn (%)					
321.33	Acid Soluble Zn (%)	ICP, 2017.02	**0136**	<0.0003	<0.0003	**<0.0003**		0.0007	0.0008	9	6
321.00	Acid Soluble Zn (%)	AA, inorganic 965.09	**0498**	<0.001	<0.001	**<0.001**		0.0007	0.0008	9	6
321.99	Acid Soluble Zn (%)	Other	**0481**	<0.01	<0.01	**<0.01**		0.0007	0.0008	9	6
321.30	Acid Soluble Zn (%)	ICP, test portion inorganic 965.09	**0354**	<0.01	<0.01	**<0.01**		0.0007	0.0008	9	6
321.33	Acid Soluble Zn (%)	ICP, 2017.02	**0515**	<0.19	<0.19	**<0.19**		0.0007	0.0008	9	6
321.30	Acid Soluble Zn (%)	ICP, test portion inorganic 965.09	**0422**	0	0	**0**		0.0007	0.0008	9	5

Code	Analyte	Method	Lab Code	Result1	Result2	[1] Lab Value	[2] Z score	[3] Robust Stats Mean	StDev	n used	[4] Flag
321.30	Acid Soluble Zn (%)	ICP, test portion inorganic 965.09	**0035**	0.0002	0.0002	**0.0002**	**-0.65**	0.0007	0.0008	9	7
321.33	Acid Soluble Zn (%)	ICP, 2017.02	**0527**	0.0002	0.0002	**0.0002**	**-0.65**	0.0007	0.0008	9	7
321.99	Acid Soluble Zn (%)	Other	**0515**	0.0003	0.0002	**0.0002**	**-0.59**	0.0007	0.0008	9	
321.99	Acid Soluble Zn (%)	Other	**0524**	0.0001	0.0005	**0.0003**	**-0.52**	0.0007	0.0008	9	
321.32	Acid Soluble Zn (%)	ICP, test portion 2006.03A-C	**0405**	0.0003	0.0004	**0.0004**	**-0.46**	0.0007	0.0008	9	
321.99	Acid Soluble Zn (%)	Other	**0368**	0.0007	0.0001	**0.0004**	**-0.40**	0.0007	0.0008	9	
321.30	Acid Soluble Zn (%)	ICP, test portion inorganic 965.09	**0255**	0.001	0.001	**0.001**	**0.35**	0.0007	0.0008	9	7
321.32	Acid Soluble Zn (%)	ICP, test portion 2006.03A-C	**0220**	0.002	0.0017	**0.0018**	**1.42**	0.0007	0.0008	9	
321.33	Acid Soluble Zn (%)	ICP, 2017.02	**0260**	0.003	0.0033	**0.0032**	**3.05**	0.0007	0.0008	9	
321.99	Acid Soluble Zn (%)	Other	**0523**	0.001	0.006	**0.0035**	**3.49**	0.0007	0.0008	9	1

Water Soluble Zn (%)

325.00	Water Soluble Zn (%)	AA	**0485**	<0.01	<0.01	**<0.01**					6
325.99	Water Soluble Zn (%)	Other	**0671**	0.13	0.14	**0.135**					

1. Lab Value: Lab Value is the average of 2 reported lab result. † or ‡ beside Lab Value denotes the value exceeds the investigational allowance (IA) around the analyte mean. † denotes value is less than IA and ‡ denotes value is greater than IA. This is noted for guaranteed analytes with number of observations used (n used) >= 6. Method code and analyte name are shown in green for guaranteed analytes along with guaranteed concentration.

2. Z score: Red = Z value >3 or <-3 (action required), Orange = Z value between 2 and 3 or -2 and -3 (warning), Green = Z value between -2 and 2 (pass). Z values are shown for data sets with number of observation used (n used) >= 3 for Lab Values that are not an analytical limit or 0. Color ratings shown for number of observations used (n used) >= 6. Z values were calculated as (Lab Value - Mean)/(Standard Deviation (StDev)).

3. Statistical parameters: Robust statistics was employed to determine mean and standard deviation (StDev) if number of observations used (n used) >=6 (blue background). Classical statistics was employed if number of observations used (n used) = 3, 4, or 5 (pink background). Flags identify data not used to calculate mean and standard deviation.

4. Flag: Flag number identifies why data was not used to determine statistical parameters. 1 = data rejected for dups too far apart, 2 = rejected as extreme outlier, 3 = rejected for both dups too far apart and extreme outlier, 4 = removed after manual inspection, 5 = rejected due to zero(s) submitted, 6 = rejected due to analytical limit submitted (eg "<0.1"), 7 = Lab's range rejected for determining mean range on Report Cards due to identical values reported for two results, 8 = Classical statistics used for standard deviation of data set since StDev < 0.0001 with robust statistics.

Appendix

Content Description of Analyte All Labs Report

The Analyte All Labs report has results listed for every lab grouped by Analyte with data in each group sorted by lab value. The reports are helpful to see where your lab result fell within the whole set of data for the Analyte by identifying your results by your lab code. Data on the right side of the report shows the mean, standard deviation, and number of observations (obs) used in the analysis of each group. An observation was a lab value for a test which was the average of reported duplicate results. Mean and standard deviation were determined using Algorithm A robust analysis in ISO 13528:2015(E) (Statistical methods for use in proficiency testing by interlaboratory comparison) for 6 or more observations. Robust statistics has an advantage of removing undesired influence of outlying data on the mean and standard deviation without removing data from the statistical analysis. Robust statistics was only used on data sets with 6 or more observations. For data sets with 3, 4, or 5 observations, classical calculation of mean and standard deviation was performed. Z scores for data sets with a small number of observations are given less importance as indicated by no color coding of Z score with less than 6 observations. No Z scores were determined for 1 or 2 observations.

Before determining mean and standard deviation for a set of data, data was removed from statistical analysis for various reasons. Mandel statistical analysis was used to identify and remove extreme outliers and lab values from duplicate results that were too far apart (ISO 5725-2:1994, Accuracy (trueness and precision) of measurement methods and results – Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method.). Any individual result report of zero or less than a limit resulted in lab value removed from analysis. The lab values removed from analysis are denoted with numerical flags on the far right-hand side of the report. Z scores are reported for data removed due to extreme outlier or duplicates too far apart even though data was not used in the determination of mean and standard deviation. However, Z scores are not reported for results reported as 0 or less than a limit. Also, any submission of just one lab result is removed for consideration in statistical analysis and presentation on reports.

The American Association of Plant Food Control Officials (AAPFCO) recommends limits around a nutrient guarantee that should initiate an investigation if observed nutrient concentration falls outside of the limits. These limits are referred to as Investigational Allowances (IAs). Lab Values that fall outside of the IA limits around the analyte mean are denoted with † (below limit) or ‡ (above limit). These same symbols are also used to denote Lab Values beyond IA limits on Laboratory Report Cards.