

**Method Proficiency For All Labs**  
**Sample # 220341**  
**18-46-0 DAP**

**Magruder Fertilizer PT Program**  
**Phosphorous Select PT Scheme**  
**Statistical Summary**

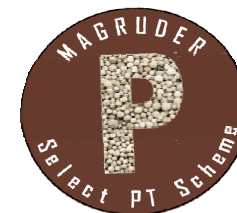
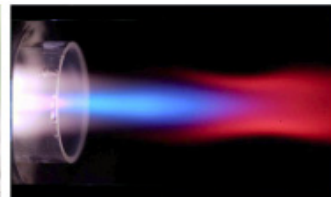
**# Methods: 95**  
**# Labs Reporting: 32**  
**Issue Date : 04/30/2022**

Method Code	Analyte & Method Sample # 220341	# 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
001.10	Ammoniacal N, Magnesium Oxide Method (%)	1		17.14									
001.99	Ammoniacal N, Other (%)	10	9	17.25	0.2942	17.17		0.0964	0.0401	0.56%		0.0544	2.41%
010.11	Total N, Modified Comprehensive (18%)	1		17.95									
010.17	Total N, Comprehensive (18%)	1		18.10									
010.60	Total N, Combustion (18%)	22	22	17.66	0.2674	17.66	0.6949	0.2409	0.0642	1.36%	0.81	0.1519	2.38%
010.99	Total N, Other (18%)	4	4	17.67	0.3523	17.67	0.6951	0.3523	0.2202	1.99%	1.18	0.0525	2.38%
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	3	3	46.45	0.1165	46.45		0.1165	0.0841	0.25%		0.2067	1.47%
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	11	11	46.56	0.4096	46.58		0.4268	0.1609	0.92%		0.1065	1.47%
020.40	Total P2O5, Automated (%)	2	2	46.89	0.3642								
020.50	Total P2O5, ICP (%)	5	5	46.03	1.195	46.03		1.195	0.6683	2.60%		0.3827	1.47%
020.99	Total P2O5, Other (%)	2	2	46.32	0.4561								
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP	1		0.1050									
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	1		0.0400									
030.50	Citrate Insoluble P2O5, ICP, test portion 963.03 A-B (%)	3	3	0.0783	0.0549	0.0783		0.0548	0.0396	70.02%		0.0300	5.87%
040.40	Indirect Available P2O5, Automated (46%)	1		47.11									
040.50	Indirect Available P2O5, ICP (46%)	2	2	46.26	0.0849								
040.99	Indirect Available P2O5, Other (46%)	1		46.78									
041.10	Direct Available P2O5, Gravimetric Quinolinium (46%)	2	2	46.46	0.5020								
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	4	4	46.31	0.2596	46.31	1.0046	0.2596	0.1622	0.56%	0.60	0.0975	1.47%
041.20	Direct Available P2O5, Spectrophotometric (46%)	1		46.08									
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	2	2	45.54	0.6505								
041.50	Direct Available P2O5, ICP (46%)	2	2	45.72	0.7729								
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (46%)	2	2	45.95	0.5586								
041.99	Direct Available P2O5, Other (46%)	1		46.02									
048.10	Water Soluble P2O5, Gravimetric Quinolinium (%)	1		40.67									
048.20	Water Soluble P2O5, Spectrophotometric (%)	6	6	41.03	2.194	41.77		0.4904	0.2503	1.17%		0.1350	1.55%
048.40	Water Soluble P2O5, Automated (%)	1		43.37									
048.99	Water Soluble P2O5, Other (%)	1		41.56									
050.99	Soluble K2O, Other (%)	3	2	0.1543	0.0659	0.1907	0.4100	0.0273	0.0241	14.29%	0.15	0.0005	5.13%

Method Code	Analyte & Method Sample # 220341	# 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
060.00	Water (Free), Vacuum Oven (%)	3	3	2.173	0.7600	2.173		0.7600	0.5485	34.97%		0.1400	3.56%
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	1		0.3675									
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	3	3	0.3302	0.0943	0.3302	0.2165	0.0943	0.0680	28.55%	1.01	0.0047	4.73%
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	1		0.6620									
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	3	3	0.6326	0.0519	0.6326	0.2316	0.0519	0.0374	8.20%	0.52	0.0279	4.29%
148.07	Total S, ICP, test portion as in 2017.02 (%)	3	3	1.072	0.2608	1.072	0.2536	0.2608	0.1882	24.33%	2.40	0.0189	3.96%
148.99	Total S, Other (%)	2	2	1.446	0.0368								
151.30	Acid Soluble As, ICP (ppm)	7	6	7.200	5.611	6.734		6.799	3.470	100.97%		0.0900	12.01%
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	2	2	7.350	5.162								
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	3	3	18.40	10.54	18.40		10.54	7.609	57.31%		1.575	10.32%
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	1		4.400									
151.99	Acid Soluble As, Other (ppm)	1		3.400									
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	1		0.0860									
165.99	Acid Soluble B, Other (%)	2	2	0.0132	0.0096								
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acic	1		2.060									
181.30	Acid Soluble Cd, ICP (ppm)	5	4	13.20	17.46	14.00		20.05	12.53	143.29%		0.4650	10.75%
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	2	2	2.675	0.4596								
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	3	3	3.007	0.1332	3.007		0.1332	0.0962	4.43%		0.0925	13.55%
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	1		2.550									
181.99	Acid Soluble Cd, Other (ppm)	1		2.350									
191.30	Acid Soluble Cr, ICP (ppm)	6	6	110.5	76.71	105.0		44.85	22.89	42.71%		4.098	7.94%
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	2	2	103.4	2.333								
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	3	3	102.7	3.559	102.7		3.559	2.569	3.47%		3.023	7.97%
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	1		99.25									
191.99	Acid Soluble Cr, Other (ppm)	1		100.5									
202.30	Acid Soluble Co, ICP (ppm)	4	2	4.270	4.178	3.525	2.0575	0.6718	0.5938	19.06%	0.76	0.1500	13.23%
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	2	2	3.900	0.1414								
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	2	2	3.751	0.2814								
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	1		4.850									
202.99	Acid Soluble Co, Other (ppm)	1		3.700									
221.32	Acid Soluble Cu, ICP, test portion 2006.03A-C (%)	1		0.0002									
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	3	2	0.0042	0.0071	0.0063	0.0056	0.0087	0.0077	139.16%	3.60	0.0004	8.59%
221.99	Acid Soluble Cu, Other (%)	2	0	0.0050	0.0070								
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	1		0.6250									
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	3	3	1.128	0.0156	1.128	0.1178	0.0156	0.0112	1.38%	0.31	0.0055	3.93%
251.30	Acid Soluble Pb, ICP (ppm)	5	4	4.591	4.915	3.239		4.474	2.796	138.14%		0.5196	13.40%
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	2	2	4.500	4.243								
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	3	2	1.675	0.3670	1.878		0.1527	0.1350	8.13%		0.8738	14.55%
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	1		0.6000									
251.99	Acid Soluble Pb, Other (ppm)	1		1.550									

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261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	1		0.0120									
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	3	3	0.0296	0.0005	0.0296	0.0080	0.0005	0.0004	1.74%	0.15	0.0004	6.79%
281.30	Acid Soluble Hg, ICP (ppm)	4	1	0.6437	0.9306	0.0296		0.0005	0.0006	1.74%		0.0017	22.00%
281.99	Acid Soluble Hg, Other (ppm)	1		0.0056									
289.30	Acid Soluble Mo, ICP (ppm)	6	5	8.633	6.343	8.360	3.5079	7.052	3.942	84.35%	4.68	0.5508	11.62%
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	2	2	12.33	0.9546								
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	3	3	12.33	1.191	12.33	4.6998	1.191	0.8594	9.66%	0.59	0.1435	10.96%
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	1		11.40									
289.99	Acid Soluble Mo, Other (ppm)	1		11.30									
291.30	Acid Soluble Ni, ICP (ppm)	6	6	13.01	6.639	14.18		4.615	2.355	32.56%		0.9367	10.73%
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	2	2	16.83	0.9546								
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	3	3	16.77	1.201	16.77		1.201	0.8666	7.16%		0.5925	10.47%
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	1		16.45									
291.99	Acid Soluble Ni, Other (ppm)	1		16.15									
301.30	Acid Soluble Se, ICP (ppm)	2	1	7.808	3.101								
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	2	1	5.325	6.611								
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	3	2	2.995	1.781	4.018		0.2717	0.2401	6.76%		0.6129	12.98%
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	1		1.100									
301.99	Acid Soluble Se, Other (ppm)	2	1	0.3500	0.3536								
311.33	Sodium, ICP, test portion as in 2017.02 (%)	2	2	0.1824	0.0070								
311.99	Sodium, Other (%)	1		0.8400									
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	1		0.0168									
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	1		0.0085									
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	6	5	29.48	45.98	15.98	1.0000	35.71	19.97	223.49%	83.22	0.2274	2.50%
321.99	Acid Soluble Zn, Other (%)	2	2	0.0083	0.0024								
325.30	Water Soluble Zn, ICP (%)	1		109.0									

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.



**Method Proficiency For All Labs**

**Magruder Fertilizer PT Program**

**Sample # 220341**

**Phosphorous Select PT Scheme**

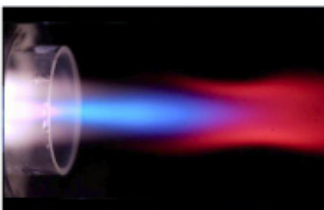
**18-46-0 DAP**

**Method Precision Report**

**Issue Date : 04/30/2022**

Method Code	Analyte & Method	# Tests Submitted	# Tests Used in Precision Calcs	Mean	SD	Between Labs sL	Within Labs sr	Reproducibility sR	Between Labs %RSD	Within Labs %rsd	Reproducibility %RSD	sR/sr
001.99	Ammoniacal N, Other (%)	10	9	17.17	0.1481	0.1435	0.0520	0.1526	0.84%	0.30%	0.89%	2.934
010.60	Total N, Combustion (18%)	22	20	17.66	0.1918	0.1736	0.1154	0.2085	0.98%	0.65%	1.18%	1.806
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	11	11	46.56	0.4096	0.4049	0.0876	0.4143	0.87%	0.19%	0.89%	4.732
020.50	Total P2O5, ICP (%)	5	5	46.03	1.195	1.176	0.3015	1.214	2.56%	0.65%	2.64%	4.028
048.20	Water Soluble P2O5, Spectrophotometric (%)	6	5	41.92	0.2673	0.2606	0.0840	0.2738	0.62%	0.20%	0.65%	3.259
151.30	Acid Soluble As, ICP (ppm)	7	5	5.511	5.807	5.807	0.0465	5.807	105.37%	0.84%	105.37%	124.9
191.30	Acid Soluble Cr, ICP (ppm)	6	6	110.5	76.71	76.67	3.632	76.76	69.39%	3.29%	69.47%	21.14
291.30	Acid Soluble Ni, ICP (ppm)	6	5	15.56	2.515	2.380	1.152	2.644	15.29%	7.40%	16.99%	2.296

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



Method Proficiency For All Labs

Magruder Fertilizer PT Program

# Methods: 95

Sample # 220341

Phosphorous Select PT Scheme

# Labs Reporting: 32

18-46-0 DAP

Lab Values

Issue Date : 04/30/2022

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
001.10	Ammoniacal N, Magnesium Oxide Method (%)	0570	17.14	0.0700				1			0
001.99	Ammoniacal N, Other (%)	0096	16.89	0.0100	17.17	0.0964	0.0544	9	-2.73	NA	0
001.99	Ammoniacal N, Other (%)	0581	17.10	0.0600	17.17	0.0964	0.0544	9	-0.67	NA	0
001.99	Ammoniacal N, Other (%)	0027	17.12	0.0000	17.17	0.0964	0.0544	9	-0.48	NA	0
001.99	Ammoniacal N, Other (%)	0582	17.13	0.0000	17.17	0.0964	0.0544	9	-0.38	NA	0
001.99	Ammoniacal N, Other (%)	0493	17.20	0.1000	17.17	0.0964	0.0544	9	0.29	NA	0
001.99	Ammoniacal N, Other (%)	0586	17.20	0.1000	17.17	0.0964	0.0544	9	0.29	NA	0
001.99	Ammoniacal N, Other (%)	0513	17.22	0.0300	17.17	0.0964	0.0544	9	0.43	NA	0
001.99	Ammoniacal N, Other (%)	0593	17.23	0.1500	17.17	0.0964	0.0544	9	0.53	NA	0
001.99	Ammoniacal N, Other (%)	0405	17.45	0.0400	17.17	0.0964	0.0544	9	2.68	NA	0
001.99	Ammoniacal N, Other (%)	0368	17.99	0.6870	17.17	0.0964	0.0544	9	7.84	NA	1
010.11	Total N, Modified Comprehensive (18%)	0531	17.95	0.1000				1			0
010.17	Total N, Comprehensive (18%)	0211	18.10	0.2600				1			0
010.60	Total N, Combustion (18%)	0042	17.10	0.6000	17.66	0.2409	0.1519	22	-2.32	OK	0
010.60	Total N, Combustion (18%)	0185	17.28	0.1400	17.66	0.2409	0.1519	22	-1.57	OK	0
010.60	Total N, Combustion (18%)	0450	17.35	0.1000	17.66	0.2409	0.1519	22	-1.28	OK	0
010.60	Total N, Combustion (18%)	0472	17.40	0.0900	17.66	0.2409	0.1519	22	-1.09	OK	0
010.60	Total N, Combustion (18%)	0534	17.40	0.2000	17.66	0.2409	0.1519	22	-1.07	OK	0
010.60	Total N, Combustion (18%)	0421	17.55	0.3800	17.66	0.2409	0.1519	22	-0.45	OK	0
010.60	Total N, Combustion (18%)	0073	17.57	0.1600	17.66	0.2409	0.1519	22	-0.37	OK	0
010.60	Total N, Combustion (18%)	0561	17.60	0.0500	17.66	0.2409	0.1519	22	-0.26	OK	0
010.60	Total N, Combustion (18%)	0494	17.60	0.1200	17.66	0.2409	0.1519	22	-0.24	OK	0
010.60	Total N, Combustion (18%)	0516	17.65	0.1000	17.66	0.2409	0.1519	22	-0.03	OK	0
010.60	Total N, Combustion (18%)	0586	17.69	0.0500	17.66	0.2409	0.1519	22	0.11	OK	0
010.60	Total N, Combustion (18%)	0593	17.69	0.2700	17.66	0.2409	0.1519	22	0.11	OK	0
010.60	Total N, Combustion (18%)	0356	17.72	0.3260	17.66	0.2409	0.1519	22	0.26	OK	0
010.60	Total N, Combustion (18%)	0582	17.74	0.0400	17.66	0.2409	0.1519	22	0.34	OK	0
010.60	Total N, Combustion (18%)	0405	17.77	0.0300	17.66	0.2409	0.1519	22	0.44	OK	0
010.60	Total N, Combustion (18%)	0027	17.78	0.0100	17.66	0.2409	0.1519	22	0.48	OK	0
010.60	Total N, Combustion (18%)	0037	17.81	0.0140	17.66	0.2409	0.1519	22	0.62	OK	0
010.60	Total N, Combustion (18%)	0527	17.85	0.0340	17.66	0.2409	0.1519	22	0.79	OK	0
010.60	Total N, Combustion (18%)	0040	17.85	0.1000	17.66	0.2409	0.1519	22	0.80	OK	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
010.60	Total N, Combustion (18%)	0025	17.90	0.2500	17.66	0.2409	0.1519	22	0.98	OK	0
010.60	Total N, Combustion (18%)	0547	17.99	0.0200	17.66	0.2409	0.1519	22	1.38	OK	0
010.60	Total N, Combustion (18%)	0368	18.36	0.2580	17.66	0.2409	0.1519	22	2.91	High	0
010.99	Total N, Other (18%)	0541	17.34	0.0100	17.67	0.3523	0.0525	4	-0.95		0
010.99	Total N, Other (18%)	0493	17.40	0.1000	17.67	0.3523	0.0525	4	-0.77		0
010.99	Total N, Other (18%)	0531	17.95	0.1000	17.67	0.3523	0.0525	4	0.79		0
010.99	Total N, Other (18%)	0576	18.00	0.0000	17.67	0.3523	0.0525	4	0.93		0
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	0570	46.36	0.2500	46.45	0.1165	0.2067	3	-0.82		0
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	0493	46.42	0.0700	46.45	0.1165	0.2067	3	-0.30		0
020.10	Total P2O5, Gravimetric Quinolinium MolybdoP (%)	0211	46.58	0.3000	46.45	0.1165	0.2067	3	1.12		0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0027	45.76	0.2500	46.58	0.4268	0.1065	11	-1.80	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0534	46.19	0.0700	46.58	0.4268	0.1065	11	-0.86	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0593	46.36	0.0700	46.58	0.4268	0.1065	11	-0.48	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0581	46.37	0.1400	46.58	0.4268	0.1065	11	-0.45	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0493	46.40	0.1000	46.58	0.4268	0.1065	11	-0.39	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0561	46.47	0.1600	46.58	0.4268	0.1065	11	-0.23	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0582	46.68	0.0600	46.58	0.4268	0.1065	11	0.23	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0405	46.89	0.1500	46.58	0.4268	0.1065	11	0.68	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0547	46.90	0.0000	46.58	0.4268	0.1065	11	0.71	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0541	47.03	0.1000	46.58	0.4268	0.1065	11	1.00	NA	0
020.20	Total P2O5, Spectrophotometric MolybdovanadoP (%)	0356	47.13	0.0710	46.58	0.4268	0.1065	11	1.21	NA	0
020.40	Total P2O5, Automated (%)	0586	46.64	0.1500				2			0
020.40	Total P2O5, Automated (%)	0096	47.15	0.0600				2			0
020.50	Total P2O5, ICP (%)	0472	44.38	0.0400	46.03	1.195	0.3827	5	-1.38		0
020.50	Total P2O5, ICP (%)	0450	45.51	0.4000	46.03	1.195	0.3827	5	-0.44		0
020.50	Total P2O5, ICP (%)	0527	46.16	0.3679	46.03	1.195	0.3827	5	0.11		0
020.50	Total P2O5, ICP (%)	0368	46.51	0.5368	46.03	1.195	0.3827	5	0.40		0
020.50	Total P2O5, ICP (%)	0516	47.60	0.5690	46.03	1.195	0.3827	5	1.31		0
020.99	Total P2O5, Other (%)	0576	46.00	0.0000				2			0
020.99	Total P2O5, Other (%)	0513	46.65	0.0300				2			0
030.20	Citrate Insoluble P2O5, Spectrophotometric MolybdovanadoP (%)	0405	0.1050	0.0100				1			0
030.40	Citrate Insoluble P2O5, Automated, test portion 963.03 A-B (%)	0096	0.0400	0.0200				1			0
030.50	Citrate Insoluble P2O5, ICP, test portion 963.03 A-B (%)	0593	0.0350	0.0300	0.0783	0.0548	0.0300	3	-0.79		0
030.50	Citrate Insoluble P2O5, ICP, test portion 963.03 A-B (%)	0582	0.0600	0.0400	0.0783	0.0548	0.0300	3	-0.33		0
030.50	Citrate Insoluble P2O5, ICP, test portion 963.03 A-B (%)	0581	0.1400	0.0200	0.0783	0.0548	0.0300	3	1.12		0
040.40	Indirect Available P2O5, Automated (46%)	0096	47.11	0.0800				1			0
040.50	Indirect Available P2O5, ICP (46%)	0547	46.20	0.4000				2			0
040.50	Indirect Available P2O5, ICP (46%)	0593	46.32	0.0400				2			0
040.99	Indirect Available P2O5, Other (46%)	0405	46.78	0.1400				1			0
041.10	Direct Available P2O5, Gravimetric Quinolinium (46%)	0040	46.10	1.000				2			0
041.10	Direct Available P2O5, Gravimetric Quinolinium (46%)	0494	46.81	0.0600				2			0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0405	46.12	0.0600	46.31	0.2596	0.0975	4	-0.73		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0185	46.14	0.2000	46.31	0.2596	0.0975	4	-0.65		0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0513	46.30	0.0100	46.31	0.2596	0.0975	4	-0.05		0
041.11	Direct Available P2O5, Gravimetric Quinolinium, Citrate-EDTA	0073	46.68	0.1200	46.31	0.2596	0.0975	4	1.43		0
041.20	Direct Available P2O5, Spectrophotometric (46%)	0027	46.08	0.2500				1			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	0472	45.08	0.0700				2			0
041.21	Direct Available P2O5, Spectrophotometric, Citrate-EDTA Ext.	0405	46.00	0.0500				2			0
041.50	Direct Available P2O5, ICP (46%)	0421	45.17	0.4600				2			0
041.50	Direct Available P2O5, ICP (46%)	0037	46.26	0.4460				2			0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (46%)	0025	45.55	1.100				2			0
041.51	Direct Available P2O5, ICP, Citrate-EDTA Ext. (46%)	0494	46.34	0.0000				2			0
041.99	Direct Available P2O5, Other (46%)	0531	46.02	0.0100				1			0
048.10	Water Soluble P2O5, Gravimetric Quinolinium (%)	0570	40.67	0.6300				1			0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0472	36.58	0.3300	41.77	0.4904	0.1350	6	-9.43	NA	0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0581	41.53	0.1800	41.77	0.4904	0.1350	6	-0.43	NA	0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0593	41.77	0.1600	41.77	0.4904	0.1350	6	0.00	NA	0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0582	41.98	0.1100	41.77	0.4904	0.1350	6	0.37	NA	0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0405	42.15	0.0100	41.77	0.4904	0.1350	6	0.68	NA	0
048.20	Water Soluble P2O5, Spectrophotometric (%)	0561	42.16	0.0200	41.77	0.4904	0.1350	6	0.71	NA	0
048.40	Water Soluble P2O5, Automated (%)	0096	43.37	0.2100				1			0
048.99	Water Soluble P2O5, Other (%)	0513	41.56	0.0500				1			0
050.99	Soluble K2O, Other (%)	0527	0.1715	0.0009				2			0
050.99	Soluble K2O, Other (%)	0096	0.2100	0.0000				2			0
050.99	Soluble K2O, Other (%)	0516	0.0815	0.1630				2			4
060.00	Water (Free), Vacuum Oven (%)	0513	1.410	0.0200	2.173	0.7600	0.1400	3	-1.00		0
060.00	Water (Free), Vacuum Oven (%)	0493	2.180	0.1000	2.173	0.7600	0.1400	3	0.01		0
060.00	Water (Free), Vacuum Oven (%)	0096	2.930	0.3000	2.173	0.7600	0.1400	3	1.00		0
101.30	Acid Soluble Ca, ICP, test portion inorganic 965.09 (%)	0096	0.3675	0.0050				1			0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0527	0.2276	0.0096	0.3302	0.0943	0.0047	3	-1.09		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0472	0.3500	0.0000	0.3302	0.0943	0.0047	3	0.21		0
101.33	Acid Soluble Ca, ICP, 2017.02 (%)	0494	0.4130	0.0046	0.3302	0.0943	0.0047	3	0.88		0
121.30	Acid Soluble Mg, ICP, test portion inorganic 965.09 (%)	0096	0.6620	0.0160				1			0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0494	0.5883	0.0383	0.6326	0.0519	0.0279	3	-0.86		0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0472	0.6200	0.0000	0.6326	0.0519	0.0279	3	-0.24		0
121.33	Acid Soluble Mg, ICP, 2017.02 (%)	0527	0.6897	0.0453	0.6326	0.0519	0.0279	3	1.10		0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0527	0.7813	0.0098	1.072	0.2608	0.0189	3	-1.12		0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0472	1.150	0.0000	1.072	0.2608	0.0189	3	0.30		0
148.07	Total S, ICP, test portion as in 2017.02 (%)	0494	1.285	0.0470	1.072	0.2608	0.0189	3	0.82		0
148.99	Total S, Other (%)	0096	1.420	0.0200				2			0
148.99	Total S, Other (%)	0516	1.472	0.0020				2			0
151.30	Acid Soluble As, ICP (ppm)	0582	0.0300	0.0400	6.734	6.799	0.0900	6	-0.88	NA	0
151.30	Acid Soluble As, ICP (ppm)	0593	0.1230	0.0000	6.734	6.799	0.0900	6	-0.87	NA	0
151.30	Acid Soluble As, ICP (ppm)	0096	4.250	0.1000	6.734	6.799	0.0900	6	-0.33	NA	0
151.30	Acid Soluble As, ICP (ppm)	0586	11.00	0.0000	6.734	6.799	0.0900	6	0.56	NA	0
151.30	Acid Soluble As, ICP (ppm)	0541	12.15	0.1000	6.734	6.799	0.0900	6	0.71	NA	0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
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151.30	Acid Soluble As, ICP (ppm)	0450	12.85	0.3000	6.734	6.799	0.0900	6	0.80	NA	0
151.30	Acid Soluble As, ICP (ppm)	0027	< 10		6.734	6.799	0.0900	6			5
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0220	3.700	0.4000				2			0
151.32	Acid Soluble As, ICP, 2006.03 (ppm)	0405	11.00	0.0000				2			0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0037	10.89	0.2050	18.40	10.54	1.575	3	-0.71		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0527	13.85	1.020	18.40	10.54	1.575	3	-0.43		0
151.33	Acid Soluble As, ICP, 2017.02 (ppm)	0494	30.45	3.500	18.40	10.54	1.575	3	1.14		0
151.34	Acid Soluble As, ICP, EPA 3050B/6010C (ppm)	0368	4.400	0.0000				1			0
151.99	Acid Soluble As, Other (ppm)	0220	3.400	0.0000				1			0
165.30	Acid Soluble B, ICP, test portion in 982.01 (%)	0494	0.0860	0.0065				1			0
165.99	Acid Soluble B, Other (%)	0527	0.0064	0.0002				2			0
165.99	Acid Soluble B, Other (%)	0472	0.0200	0.0000				2			0
181.00	Acid Soluble Cd, AA, test portion 2006.03 modified w/dual acid	0534	2.060	0.2400				1			0
181.30	Acid Soluble Cd, ICP (ppm)	0593	0.0270	0.0001	14.00	20.05	0.4650	4	-0.70		0
181.30	Acid Soluble Cd, ICP (ppm)	0586	4.500	1.000	14.00	20.05	0.4650	4	-0.47		0
181.30	Acid Soluble Cd, ICP (ppm)	0541	7.755	0.0600	14.00	20.05	0.4650	4	-0.31		0
181.30	Acid Soluble Cd, ICP (ppm)	0096	43.70	0.8000	14.00	20.05	0.4650	4	1.48		0
181.30	Acid Soluble Cd, ICP (ppm)	0027	< 10		14.00	20.05	0.4650	4			5
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0220	2.350	0.3000				2			0
181.32	Acid Soluble Cd, ICP, 2006.03 (ppm)	0405	3.000	0.0000				2			0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0037	2.879	0.0440	3.007	0.1332	0.0925	3	-0.96		0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0527	2.998	0.1434	3.007	0.1332	0.0925	3	-0.07		0
181.33	Acid Soluble Cd, ICP, 2017.02 (ppm)	0494	3.145	0.0900	3.007	0.1332	0.0925	3	1.03		0
181.34	Acid Soluble Cd, ICP, EPA 3050B/6010C (ppm)	0368	2.550	0.1000				1			0
181.99	Acid Soluble Cd, Other (ppm)	0220	2.350	0.1000				1			0
191.30	Acid Soluble Cr, ICP (ppm)	0593	1.095	0.0900	105.0	44.85	4.098	6	-2.06	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0027	97.50	5.000	105.0	44.85	4.098	6	-0.15	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0586	105.5	3.000	105.0	44.85	4.098	6	0.01	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0541	108.0	2.000	105.0	44.85	4.098	6	0.06	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0450	109.0	10.00	105.0	44.85	4.098	6	0.08	NA	0
191.30	Acid Soluble Cr, ICP (ppm)	0096	241.9	4.500	105.0	44.85	4.098	6	2.72	NA	0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0220	101.7	10.60				2			0
191.32	Acid Soluble Cr, ICP, 2006.03 (ppm)	0405	105.0	2.000				2			0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0037	99.46	1.858	102.7	3.559	3.023	3	-0.90		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0527	102.1	0.2098	102.7	3.559	3.023	3	-0.17		0
191.33	Acid Soluble Cr, ICP, 2017.02 (ppm)	0494	106.5	7.000	102.7	3.559	3.023	3	1.07		0
191.34	Acid Soluble Cr, ICP, EPA 3050B/6010C (ppm)	0368	99.25	5.500				1			0
191.99	Acid Soluble Cr, Other (ppm)	0220	100.5	1.000				1			0
202.30	Acid Soluble Co, ICP (ppm)	0450	3.050	0.3000				2			0
202.30	Acid Soluble Co, ICP (ppm)	0586	4.000	0.0000				2			0
202.30	Acid Soluble Co, ICP (ppm)	0593	< 0.03					2			5
202.30	Acid Soluble Co, ICP (ppm)	0027	< 10					2			5
202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0220	3.800	0.4000				2			0



Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
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202.32	Acid Soluble Co, ICP, 2006.03 (ppm)	0405	4.000	0.0000				2			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0527	3.552	0.1060				2			0
202.33	Acid Soluble Co, ICP, 2017.02 (ppm)	0037	3.950	0.0680				2			0
202.34	Acid Soluble Co, ICP, EPA 3050B/6010C (ppm)	0368	4.850	0.7000				1			0
202.99	Acid Soluble Co, Other (ppm)	0220	3.700	0.0000				1			0
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				2			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0541	0.0124	0.0008				2			0
221.33	Acid Soluble Cu, ICP, 2017.02 (%)	0494	< 0.0002					2			5
221.99	Acid Soluble Cu, Other (%)	0368	0.0001	0.0001				0			4
221.99	Acid Soluble Cu, Other (%)	0586	< 0.01					0			5
241.30	Acid Soluble Fe, ICP, test portion inorganic 965.09 (%)	0096	0.6250	0.0100				1			0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0527	1.115	0.0017	1.128	0.0156	0.0055	3	-0.82		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0494	1.123	0.0048	1.128	0.0156	0.0055	3	-0.29		0
241.33	Acid Soluble Fe, ICP, 2017.02 (%)	0472	1.145	0.0100	1.128	0.0156	0.0055	3	1.11		0
251.30	Acid Soluble Pb, ICP (ppm)	0593	0.0166	0.0003	3.239	4.474	0.5196	4	-0.72		0
251.30	Acid Soluble Pb, ICP (ppm)	0450	1.100	0.0000	3.239	4.474	0.5196	4	-0.48		0
251.30	Acid Soluble Pb, ICP (ppm)	0586	2.000	2.000	3.239	4.474	0.5196	4	-0.28		0
251.30	Acid Soluble Pb, ICP (ppm)	0541	9.839	0.0780	3.239	4.474	0.5196	4	1.48		0
251.30	Acid Soluble Pb, ICP (ppm)	0027	< 10		3.239	4.474	0.5196	4			5
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0220	1.500	0.6000				2			0
251.32	Acid Soluble Pb, ICP, 2006.03 (ppm)	0405	7.500	1.000				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0527	1.770	0.0325				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0037	1.986	1.715				2			0
251.33	Acid Soluble Pb, ICP, 2017.02 (ppm)	0494	< 1.27					2			5
251.34	Acid Soluble Pb, ICP, EPA 3050B/6010C (ppm)	0368	< 0.6					0			5
251.99	Acid Soluble Pb, Other (ppm)	0220	1.550	0.3000				1			0
261.30	Acid Soluble Mn, ICP, test portion 972.02a (%)	0096	0.0120	0.0000				1			0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0527	0.0290	0.0008	0.0296	0.0005	0.0004	3	-1.10		0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0494	0.0297	0.0004	0.0296	0.0005	0.0004	3	0.26		0
261.35	Acid Soluble Mn, ICP, 2017.02 (%)	0472	0.0300	0.0000	0.0296	0.0005	0.0004	3	0.84		0
281.30	Acid Soluble Hg, ICP (ppm)	0593	0.0738	0.0017				1			0
281.30	Acid Soluble Hg, ICP (ppm)	0527	< 0.001					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0450	< 0.5					1			5
281.30	Acid Soluble Hg, ICP (ppm)	0405	< 2					1			5
281.99	Acid Soluble Hg, Other (ppm)	0368	0.0056	0.0034				1			0
289.30	Acid Soluble Mo, ICP (ppm)	0593	0.1590	0.0140	8.360	7.052	0.5508	5	-1.02		0
289.30	Acid Soluble Mo, ICP (ppm)	0096	2.850	1.900	8.360	7.052	0.5508	5	-0.68		0
289.30	Acid Soluble Mo, ICP (ppm)	0541	10.19	0.6400	8.360	7.052	0.5508	5	0.23		0
289.30	Acid Soluble Mo, ICP (ppm)	0450	10.60	0.2000	8.360	7.052	0.5508	5	0.28		0
289.30	Acid Soluble Mo, ICP (ppm)	0586	18.00	0.0000	8.360	7.052	0.5508	5	1.19		0
289.30	Acid Soluble Mo, ICP (ppm)	0027	< 10		8.360	7.052	0.5508	5			5
289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0220	11.65	0.9000				2			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
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289.32	Acid Soluble Mo, ICP, 2006.03 (ppm)	0405	13.00	0.0000				2			0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0527	11.52	0.2234	12.33	1.191	0.1435	3	-0.68		0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0037	11.78	0.0070	12.33	1.191	0.1435	3	-0.47		0
289.33	Acid Soluble Mo, ICP, 2017.02 (ppm)	0494	13.70	0.2000	12.33	1.191	0.1435	3	1.15		0
289.34	Acid Soluble Mo, ICP, EPA 3050B/6010C (ppm)	0368	11.40	2.200				1			0
289.99	Acid Soluble Mo, Other (ppm)	0220	11.30	0.2000				1			0
291.30	Acid Soluble Ni, ICP (ppm)	0593	0.2600	0.0200	14.18	4.615	0.9367	6	-2.69	NA	0
291.30	Acid Soluble Ni, ICP (ppm)	0096	12.35	0.5000	14.18	4.615	0.9367	6	-0.35	NA	0
291.30	Acid Soluble Ni, ICP (ppm)	0586	14.50	3.000	14.18	4.615	0.9367	6	0.06	NA	0
291.30	Acid Soluble Ni, ICP (ppm)	0450	15.00	0.0000	14.18	4.615	0.9367	6	0.16	NA	0
291.30	Acid Soluble Ni, ICP (ppm)	0027	17.00	2.000	14.18	4.615	0.9367	6	0.55	NA	0
291.30	Acid Soluble Ni, ICP (ppm)	0541	18.95	0.1000	14.18	4.615	0.9367	6	0.92	NA	0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0220	16.15	1.900				2			0
291.32	Acid Soluble Ni, ICP, 2006.03 (ppm)	0405	17.50	1.000				2			0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0527	15.99	0.5314	16.77	1.201	0.5925	3	-0.65		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0037	16.17	0.1460	16.77	1.201	0.5925	3	-0.50		0
291.33	Acid Soluble Ni, ICP, 2017.02 (ppm)	0494	18.15	1.100	16.77	1.201	0.5925	3	1.15		0
291.34	Acid Soluble Ni, ICP, EPA 3050B/6010C (ppm)	0368	16.45	0.9000				1			0
291.99	Acid Soluble Ni, Other (ppm)	0220	16.15	0.3000				1			0
301.30	Acid Soluble Se, ICP (ppm)	0541	5.615	0.0100				1			0
301.30	Acid Soluble Se, ICP (ppm)	0027	< 10					1			5
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0220	0.6500	0.1000				1			0
301.32	Acid Soluble Se, ICP, 2006.03 (ppm)	0405	< 10					1			5
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0037	3.826	0.8550				2			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0527	4.210	0.3708				2			0
301.33	Acid Soluble Se, ICP, 2017.02 (ppm)	0494	< 0.95					2			5
301.34	Acid Soluble Se, ICP, EPA 3050B/6010C (ppm)	0368	< 1.1					0			5
301.99	Acid Soluble Se, Other (ppm)	0220	0.6000	0.0000				1			0
301.99	Acid Soluble Se, Other (ppm)	0586	< 0.1					1			5
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0527	0.1775	0.0019				2			0
311.33	Sodium, ICP, test portion as in 2017.02 (%)	0494	0.1874	0.0028				2			0
311.99	Sodium, Other (%)	0096	0.8400	0.0200				1			0
321.30	Acid Soluble Zn, ICP, test portion inorganic 965.09 (%)	0096	0.0168	0.0019				1			0
321.32	Acid Soluble Zn, ICP, test portion 2006.03A-C (%)	0405	0.0085	0.0001				1			0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0582	0.0050	0.0000	15.98	35.71	0.2274	5	-0.39		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0527	0.0080	0.0001	15.98	35.71	0.2274	5	-0.39		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0472	0.0100	0.0000	15.98	35.71	0.2274	5	-0.39		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0593	0.0100	0.0000	15.98	35.71	0.2274	5	-0.39		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0037	79.87	1.137	15.98	35.71	0.2274	5	1.56		0
321.33	Acid Soluble Zn, ICP, 2017.02 (%)	0494	97.00	14.00	15.98	35.71	0.2274	5	1.98		1
321.99	Acid Soluble Zn, Other (%)	0368	0.0067	0.0001				2			0
321.99	Acid Soluble Zn, Other (%)	0586	0.0100	0.0000				2			0
325.30	Water Soluble Zn, ICP (%)	0541	109.0	0.1000				1			0

Method Code	Analyte Name and Method (Units)	Lab Code	Lab Data		Method Values			# Tests	Magruder CS Z Score	Method IA Status	Flag
			Value	Range	Rob Mean	Rob SD	R-bar				

**Interpreting Z Scores and Flags:**

Interpreting Z Scores: Red indicates a normally distributed Z value >3 or <-3 (requires action), Orange = Z between 2 and 3 or -2 and -3 (warning) and Green = Z < 2 and >-2 (OK at 95%). Flags indicate data usage: 0 = Used, 1 = rejected for duplicates too far apart, 2 = rejected as extreme outlier, 3 = removed from stats, 4 = rejected due to 0s submitted and 5 = LOD. A 9 flag indicates a data problem - scores not calculated.

**Notes:**

Robust statistics not used if < 6 labs used in calculations, in this case Values and Z Scores are grayed out and should be interpreted with extreme caution. IA Status describes where your result is relative to the Assigned Value ± IA. Red indicates Higher or Lower and Green indicates within the IA range about the Robust mean. Method codes in light green indicate a guaranteed analyte. Individual lab values may be below detection limits but are reported solely for the purpose of this Proficiency Testing program.