

- Pass 1 Results for 85 Labs - - Pass 2 Results for 82 Labs -

Method	AOAC Ref.	Method Code	No. of Labs	Grand Avg.	Std. Dev.	Average Range of Dups	No. of Labs	Grand Avg.	Std. Dev.	Average Range of Dups
Ammoniacal Nitrogen, MgO Distillation	920.03	001.10	7	4.38	0.51	0.08	7	4.38	0.51	0.08
Ammoniacal Nitrogen, Other		001.99	10	4.30	0.37	0.08	10	4.30	0.37	0.08
Method Group 001.XX PCT			17	4.34	0.43	0.08	17	4.34	0.43	0.08
Nitrate Nitrogen, Other		002.99	1	0.04	0.01	0.01	1	0.04	0.01	0.01
Water Insoluble Nitrogen, Meth I	945.01	003.10	4	3.43	0.21	0.03	4	3.43	0.21	0.03
Water Insoluble Nitrogen, Other		003.99	1	3.37	0.01	0.01	1	3.37	0.01	0.01
Method Group 003.XX PCT			5	3.42	0.19	0.03	5	3.42	0.19	0.03
Nitrogen From Urea, Urease (as N)	959.03	005.00	2	10.88	4.89	0.20	2	10.88	4.89	0.20
Nitrogen From Urea, Other		005.99	4	15.02	2.16	0.06	4	15.02	2.16	0.06
Method Group 005.XX PCT			6	13.64	3.70	0.11	5	13.35	4.01	0.06
Percent Urea, Other		007.99	1	14.97	0.01	0.01	1	14.97	0.01	0.01
Ammon & Nitrate N, Devarda	892.01	009.10	1	4.44	0.02	0.03	1	4.44	0.02	0.03
Ammon & Nitrate N, Other		009.99	1	3.96	0.08	0.12	1	3.96	0.08	0.12
Method Group 009.XX PCT			2	4.20	0.28	0.07	2	4.20	0.28	0.07
Total Nitrogen, Modified Comprehensive	978.02	010.11	8	22.71	0.39	0.11	7	22.67	0.40	0.07
Total Nitrogen, Salicylic	955.04D	010.12	3	22.68	0.11	0.08	3	22.68	0.11	0.08
Total Nitrogen, Raney	970.03	010.16	1	22.84	0.08	0.12	1	22.84	0.08	0.12
Total Nitrogen, Combustion		010.60	60	23.03	0.37	0.18	55	23.02	0.34	0.13
Total Nitrogen, Other		010.99	2	22.60	0.26	0.31	2	22.60	0.26	0.31
Method Group 010.XX PCT			74	22.97	0.39	0.17	68	22.97	0.35	0.12
Total Phosphate, Grav Quimociac	962.02	020.10	1	1.62	0.11	0.15	1	1.62	0.11	0.15
Total Phosphate, Spectrometric	958.01	020.20	4	1.49	0.08	0.04	4	1.49	0.08	0.04
Total Phosphate, Automated	978.01	020.40	2	1.54	0.10	0.05	2	1.54	0.10	0.05
Total Phosphate, ICP		020.50	6	1.51	0.13	0.04	6	1.51	0.13	0.04
Total Phosphate, Other		020.99	1	1.24	0.00	0.00	1	1.24	0.00	0.00
Method Group 020.XX PCT			14	1.49	0.13	0.04	13	1.49	0.13	0.04
Insoluble Phosphate, Automated	978.01	030.40	1	0.18	0.00	0.00	1	0.18	0.00	0.00
InDir Available Phosphate, Automated	960.02	040.40	1	1.44	0.01	0.02	1	1.44	0.01	0.02
Dir Available Phosphate, Grav Quimociac	960.03E	041.10	2	1.74	0.39	0.09	2	1.74	0.39	0.09
Dir Available Phosphate, Spectrometric	960.03D	041.20	1	1.91	0.01	0.02	1	1.91	0.01	0.02
Dir Available Phosphate, ICP		041.50	5	1.47	0.08	0.06	5	1.47	0.08	0.06
Dir Available Phosphate, EDTA Extract	993.01	041.60	1	1.40	0.04	0.06	1	1.40	0.04	0.06
Method Group 041.XX PCT			9	1.57	0.24	0.06	9	1.57	0.24	0.06
Water Soluble Phosphate, Spectrometric	970.01	048.20	1	1.32	0.04	0.05	1	1.32	0.04	0.05
Soluble Potash, STPB Oxalate	958.02	050.00	9	1.84	0.40	0.16	10	1.93	0.47	0.18
Soluble Potash, STPB Citrate	969.04	050.10	1	2.30	0.11	0.16	1	2.30	0.11	0.16
Soluble Potash, AA (Oxalate)		050.30	11	1.88	0.18	0.07	10	1.85	0.14	0.03
Soluble Potash, AA (Citrate)		050.31	1	1.26	0.07	0.10	1	1.26	0.07	0.10
Soluble Potash, ICP (Oxalate)		050.50	5	2.00	0.34	0.04	5	2.00	0.34	0.04

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Soluble Potash, ICP (Citrate)		050.51	13	1.96	0.14	0.05	13	1.96	0.14	0.05
Soluble Potash, Flame (Oxalate)	983.02(a)	050.60	5	1.91	0.23	0.07	5	1.91	0.23	0.07
Soluble Potash, Flame (Citrate)	983.02(b)	050.61	9	2.02	0.25	0.07	9	2.02	0.25	0.07
Soluble Potash, Other		050.99	12	1.96	0.30	0.10	11	1.93	0.27	0.07
Method Group 050.XX PCT			66	1.93	0.28	0.08	61	1.94	0.24	0.06
Free Water, Vacuum Oven	965.08B	060.00	3	0.80	0.11	0.02	3	0.80	0.11	0.02
Acid Soluble Calcium, ICP		101.30	16	6.29	0.36	0.12	15	6.30	0.37	0.09
Acid Soluble Magnesium, ICP		121.30	19	3.69	0.16	0.08	19	3.69	0.16	0.08
Sulfur, Gravimetric	980.02a	144.01	13	5.03	0.11	0.06	12	5.04	0.10	0.05
Sulfur, Other		144.99	23	4.91	0.34	0.09	22	4.95	0.35	0.06
Method Group 144.XX PCT			36	4.96	0.29	0.08	33	4.95	0.26	0.05
Arsenic, ICP		151.30	4	1.18	1.24	0.03	4	1.18	1.24	0.03
Arsenic, Other		151.99	2	1.51	0.43	0.19	2	1.51	0.43	0.19
Method Group 151.XX PPM			6	1.29	1.03	0.09	5	1.18	1.10	0.03
Acid Soluble Boron, Spectrometric	982.01	165.00	1	0.002	0.000	0.000	1	0.002	0.000	0.000
Acid Soluble Boron, Other		165.99	6	0.008	0.010	0.001	6	0.008	0.010	0.001
Method Group 165.XX PCT			7	0.007	0.009	0.001	7	0.007	0.009	0.001
Cadmium, ICP		181.30	6	0.31	0.20	0.04	5	0.29	0.21	0.02
Cadmium, Other		181.99	1	0.24	0.01	0.01	1	0.24	0.01	0.01
Method Group 181.XX PPM			7	0.30	0.18	0.04	6	0.28	0.19	0.02
Water Soluble Chlorine, Titrimetric	928.02	190.00	1	0.30	0.00	0.00	1	0.30	0.00	0.00
Chromium, ICP		191.30	13	107.10	14.90	2.68	12	106.53	15.32	2.07
Chromium, Other		191.99	3	56.67	49.25	3.18	3	56.67	49.25	3.18
Method Group 191.XX PPM			17	94.31	33.09	2.62	16	93.08	33.72	2.16
Acid Soluble Cobalt, ICP	965.11	202.30	11	12.56	5.96	0.59	11	12.56	5.96	0.59
Acid Soluble Cobalt, Other		202.99	2	12.85	7.63	1.62	2	12.85	7.63	1.62
Method Group 202.XX PPM			13	12.60	6.07	0.75	13	12.60	6.07	0.75
Acid Soluble Copper, Atomic Absorption	975.01	221.00	4	0.0098	0.0016	0.0011	4	0.0098	0.0016	0.0011
Acid Soluble Copper, ICP		221.30	21	0.0097	0.0015	0.0005	20	0.0096	0.0015	0.0004
Acid Soluble Copper, Other		221.99	3	0.0108	0.0010	0.0010	3	0.0108	0.0010	0.0010
Method Group 221.XX PCT			28	0.0098	0.0015	0.0006	28	0.0098	0.0015	0.0006
Acid Soluble Iron, Atomic Absorption	980.01	241.00	12	1.63	0.18	0.06	12	1.63	0.18	0.06
Acid Soluble Iron, ICP		241.30	33	1.38	0.42	0.07	32	1.37	0.42	0.07
Acid Soluble Iron, Other		241.99	4	1.35	0.43	0.07	4	1.35	0.43	0.07
Method Group 241.XX PCT			50	1.43	0.39	0.08	48	1.43	0.39	0.06
Lead, ICP		251.30	8	4.04	1.06	0.52	7	4.11	1.05	0.32
Lead, Other		251.99	2	4.42	0.39	0.12	2	4.42	0.39	0.12
Method Group 251.XX PPM			10	4.12	0.96	0.44	9	4.18	0.94	0.28
Acid Soluble Manganese, ICP	972.02a	261.30	10	0.031	0.003	0.001	10	0.031	0.003	0.001

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Acid Soluble Manganese, Other		261.99	2	0.031	0.007	0.001	2	0.031	0.007	0.001
Method Group 261.XX PCT			13	0.031	0.004	0.002	12	0.031	0.003	0.001
Mercury, ICP		281.30	2	0.25	0.50	0.50	2	0.25	0.50	0.50
Molybdenum, ICP		289.30	12	9.60	0.76	0.55	12	9.60	0.76	0.55
Molybdenum, Other		289.99	1	11.75	0.78	1.10	1	11.75	0.78	1.10
Method Group 289.XX PPM			14	9.86	1.05	0.76	13	9.77	0.95	0.60
Nickel, ICP		291.30	8	57.77	6.83	1.33	8	57.77	6.83	1.33
Nickel, Other		291.99	1	59.30	6.65	9.40	1	59.30	6.65	9.40
Method Group 291.XX PPM			9	57.94	6.64	2.23	8	57.77	6.83	1.33
Selenium, ICP		301.30	3	0.49	0.77	0.14	3	0.49	0.77	0.14
Sodium, Other		311.99	5	0.06	0.05	0.01	5	0.06	0.05	0.01
Acid Soluble Zinc, Atomic Absorption	975.02	321.00	4	0.026	0.002	0.001	4	0.026	0.002	0.001
Acid Soluble Zinc, ICP		321.30	27	0.025	0.003	0.002	26	0.025	0.003	0.001
Acid Soluble Zinc, Other		321.99	2	0.028	0.002	0.003	2	0.028	0.002	0.003
Method Group 321.XX PCT			33	0.025	0.003	0.002	32	0.025	0.003	0.001
Water Soluble Zinc, Atomic Absorption		325.00	1	0.025	0.001	0.001	1	0.025	0.001	0.001
Water Soluble Zinc, ICP		325.30	1	0.022	0.002	0.003	1	0.022	0.002	0.003
Method Group 325.XX PCT			2	0.023	0.002	0.002	2	0.023	0.002	0.002





Laboratory Averages & Accuracy Indexes

Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index
Meth: 030.40 PCT			Meth: 041.10 PCT			Meth: 050.30 PCT			Meth: 050.51 PCT		
Insoluble Phosphate			Dir Available Phosph			Soluble Potash			Soluble Potash		
Automated	0.18	.00	055	2.07	2.07	AA (Oxalate)	450	2.22	ICP (Citrate)	455	10.02
			055	1.91	1.40	R	3.00		Avg	455	10.02
			Avg	1.57		450	1.99	1.03	444	455	10.02
Meth: 040.40 PCT			007	1.56	-.09	040	1.99	1.03	444	455	10.02
InDir Available Phos			360	1.52	-.29	073	1.97	.86	377	455	10.02
Automated			325	1.45	-.53	157	1.93	.73	009	455	10.02
096	1.44	.71	009	1.42	-.64	451	1.94	.66	022	455	10.02
			377	1.40	-.70	169	1.91	.46	361	455	10.02
			009	1.40	-.71	351	1.90	.38	452	455	10.02
			024	1.40	-.71	234	1.87	.19	043	455	10.02
						Avg	1.85		393	455	10.02
Meth: 041.20 PCT			369	1.75	-.71	425	1.61	-1.67	Avg	455	10.02
Dir Available Phosph			425	1.61	-1.67	185	1.60	-1.74	Meth: 050.60 PCT		
Spectrometric			420	1.32	.71	Meth: 050.31 PCT			Soluble Potash		
055	1.91	.71				Soluble Potash			Soluble Potash		
						AA (Citrate)	254	1.26	AA (Citrate)	406	1.92
						STPB Oxalate		.71	Avg	406	1.92
Meth: 041.50 PCT			114	3.99	4.36	Meth: 050.50 PCT			105	406	1.92
Dir Available Phosph			372	3.02	2.29	Soluble Potash			200	406	1.92
ICP			022	2.76	1.79	ICP (Oxalate)	422	10.20	131	406	1.92
007	1.56	1.23	029	2.37	.91	422	10.20	24.36	Meth: 050.61 PCT		
360	1.52	.94	296	2.12	.42	372	2.61	1.80	Soluble Potash		
Avg	1.47		211	2.10	X	Avg	2.00		Flame (Citrate)		
325	1.45	-.72	049	2.04	.31	420	1.94	-1.18	030	9.75	s
009	1.42	-.85	Avg	1.84		324	1.92	-.24	114	3.99	s
377	1.40	-.93	397	1.85	-.21	106	1.88	-.39	372	3.02	s
			009	1.79	-.33	426	1.66	-1.01	022	2.76	s
			043	1.82	-.42				372	2.61	s
			102	1.45	X				372	2.61	s
			230	1.06	-1.86				456	2.50	s
Meth: 041.60 PCT									325	2.35	R
Dir Available Phosph									354	2.35	R
EDTA Extract									029	2.37	R
024	1.40	.71							029	2.37	R
									443	2.33	R
									444	2.30	R
									450	2.22	R
									432	2.25	R
									034	2.24	R
									291	2.17	R
									296	2.12	R
									029	2.13	R
									211	2.10	R

\* X=Excluded from lab performance S/s=Screened Outlier R=Duplicate Range too large A=Analysis beyond 3-s limits

Laboratory Averages & Accuracy Indexes

Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index			
Meth: 050.XX PCT																	
<u>Soluble Potash</u>																	
049	2.04	.57	009	1.79	-.68										Meth: 144.99 PCT		
453	2.07	.52	200	1.76	-.76										Sulfur		
042	2.05	.48	131	1.76	-.78										Other		
035	1.96	.43	369	1.75	-.81										450	4.71	-.69
007	2.05	.42	043	1.82 R	-.83										372	4.67 X	-.79
255	2.01	.38	028	1.74	-.85										291	4.63	-.92
095	2.03	.36	393	1.72	-.92										232	4.53	-1.21
360	2.00	.26	041	1.67	-1.14										255	4.52	-1.22
377	1.95	.21	426	1.66	-1.17										368	4.43 R	-1.61
040	1.99	.19	425	1.61	-1.37										389	4.25	-1.99
389	1.98	.16	185	1.60	-1.41										422	3.24 s	-4.90
390	1.98	.15	102	1.45 R	-2.24										Meth: 144.XX PCT		
073	1.97	.11	254	1.26	-2.81										<u>Sulfur</u>		
444	1.95	.09	322	1.19	-3.12										157	5.75 s	3.12
131	1.96	.08	230	1.06 A	-3.65										230	5.51 R	2.33
024	1.95	.02	025	0.88 s	-4.39										393	5.55 X	2.32
Meth: 060.00 PCT																	
<u>Free Water</u>																	
027	1.94	-.04													360	5.48	2.04
420	1.94	-.04													029	5.17	.87
324	1.92	-.10													351	5.12 R	.85
451	1.94 X	-.11													043	5.14	.74
406	1.92	-.13													296	5.12	.70
169	1.91	-.14													361	5.12	.67
232	1.90	-.18													324	5.11	.60
351	1.90	-.19													330	5.10	.58
037	1.91	-.21													409	5.07	.53
402	1.91	-.22													009	5.06	.52
009	1.90	-.27													095	5.08	.51
157	1.93	-.28													397	5.07	.46
105	1.93	-.29													102	5.05	.39
234	1.87	-.31													055	5.05	.37
022	1.87	-.31													035	5.04	.35
106	1.88	-.32													105	5.04	.33
361	1.87	-.33													390	5.03	.31
452	1.84	-.42													390	5.03	.31
043	1.84	-.43													354	5.00	.21
397	1.85	-.44													Avg	5.00	
105	1.79	-.68													354	5.00	.21
Meth: 101.30 PCT																	
<u>Acid Soluble Calcium</u>																	
<u>ICP</u>																	
029	5.17	1.33										Meth: 144.01 PCT					
296	5.12	1.03										Sulfur					
043	5.14	.98										<u>Gravimetric</u>					
324	5.11	.65										029	5.17	1.33			
095	5.08	.44										296	5.12	1.03			
397	5.07	.29										043	5.14	.98			
102	5.05	.16										324	5.11	.65			
055	5.05	.15										095	5.08	.44			
Avg	5.04											397	5.07	.29			
105	5.04	-.15										102	5.05	.16			
372	4.92	-1.19										055	5.05	.15			
028	4.93 R	-1.52										Avg	5.04				
114	4.87	-1.66										105	5.04	-.15			
444	4.88	-1.67										372	4.92	-1.19			
030	3.16 s	-18.67										028	4.93 R	-1.52			
Meth: 144.99 PCT																	
<u>Sulfur</u>																	
<u>Other</u>																	
157	5.75 s	3.12										Meth: 144.99 PCT					
230	5.51 R	2.33										Sulfur					
393	5.55 X	2.32										028	4.93 R	-1.52			
360	5.48	2.04										114	4.87	-1.66			
029	5.17	.87										444	4.88	-1.67			
351	5.12 R	.85										030	3.16 s	-18.67			
043	5.14	.74										Meth: 144.99 PCT					
296	5.12	.70										<u>Sulfur</u>					
361	5.12	.67										157	5.75 s	3.12			
324	5.11	.60										230	5.51 R	2.33			
330	5.10	.58										393	5.55 X	2.32			
409	5.07	.53										360	5.48	2.04			
009	5.06	.52										351	5.12	.63			
095	5.08	.51										361	5.12	.50			
397	5.07	.46										330	5.10	.44			
102	5.05	.39										409	5.07	.40			
055	5.05	.37										009	5.06	.39			
035	5.04	.35										035	5.06	.39			
105	5.04	.33										035	5.04	.27			
390	5.03	.31										390	5.03	.24			
390	5.03	.31										390	5.03	.24			
354	5.00	.21										354	5.00	.17			
Avg	5.00											Avg	4.91				
354	5.00	.21										Avg	4.92	-.08			
354	5.00	.21										027	4.92	-.08			
354	5.00	.21										117	4.90	-.16			
354	5.00	.21										452	4.85	-.28			
354	5.00	.21										049	4.83	-.34			
354	5.00	.21										453	4.71	-.68			

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Laboratory Averages & Accuracy Indexes

Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index
Meth: 144.XX PCT											
<u>Sulfur</u>											
444	4.88	-.36									
452	4.85	-.40									
028	4.93	-.42									
049	4.83	-.47									
453	4.71	-.94									
450	4.71	-.95									
372	4.67 X	-1.09									
291	4.63	-1.27									
232	4.53	-1.65									
255	4.52	-1.67									
368	4.43 R	-2.20									
389	4.25	-2.72									
422	3.24 s	-6.66									
030	3.16 s	-7.09									
Meth: 151.30 PPM											
<u>Arsenic</u>											
372	49.82 s	39.14									
255	2.97	1.44									
230	1.43	.20									
Avg	1.18										
393	0.33	-.69									
450	0.00	-.95									
Meth: 151.99 PPM											
<u>Arsenic</u>											
231	1.86	.92									
Avg	1.51										
409	1.16	-.81									
Meth: 151.30 PPM											
<u>Cadmium</u>											
372	49.82 s	44.39									
255	2.97	1.64									
231	1.86 R	.65									
230	1.43	.23									
Meth: 151.30 PPM											
<u>Cadmium</u>											
255	0.38 R	.53									
Avg	0.29										
102	0.23	-.30									
450	0.23	-.34									
372	0.00	-1.38									
Meth: 165.00 PCT											
<u>Acid Soluble Boron</u>											
393	0.002	-.71									
Meth: 165.99 PCT											
<u>Acid Soluble Boron</u>											
368	0.028	2.06									
444	0.009	.16									
Avg	0.008										
422	0.004	-.43									
409	0.002	-.55									
232	0.002	-.57									
433	0.001	-.64									
Meth: 181.30 PPM											
<u>Cadmium</u>											
452	2.38 s	10.85									
393	0.60	1.61									
230	0.42	.70									
255	0.38 R	.63									
Avg	0.28										
409	0.24	-.25									
102	0.23	-.28									
450	0.23	-.33									
372	0.00	-1.47									
Meth: 190.00 PCT											
<u>Water Soluble Chlori</u>											
422	0.30	.00									
Meth: 191.30 PPM											
<u>Chromium</u>											
390	137.00	1.30									
096	126.00	.98									
409	120.00	.80									
450	118.50	.76									
009	114.00 R	.64									
035	110.00	.50									
452	107.74	.44									
037	106.86	.41									
065	105.85	.38									
255	101.63	.25									
102	98.41	.16									
230	97.00	.12									
Avg	93.08										
232	91.00	-.08									
444	78.36	-.44									
372	40.98	-1.55									
231	29.21	-1.89									
Meth: 181.99 PPM											
<u>Chromium</u>											
409	120.00	1.29									
Avg	56.67										
231	29.21	-.56									
027	20.80	-.73									
Meth: 191.99 PPM											
<u>Chromium</u>											
409	137.00	1.30									
096	126.00	.98									
409	120.00	.80									
450	118.50	.76									
009	114.00 R	.64									
035	110.00	.50									
452	107.74	.44									
037	106.86	.41									
065	105.85	.38									
255	101.63	.25									
102	98.41	.16									
230	97.00	.12									
Avg	93.08										
232	91.00	-.08									
444	78.36	-.44									
372	40.98	-1.55									
231	29.21	-1.89									
Meth: 191.30 PPM											
<u>Chromium</u>											
390	137.00	1.30									
096	126.00	.98									
409	120.00	.80									
450	118.50	.76									
009	114.00 R	.64									
035	110.00	.50									
452	107.74	.44									
037	106.86	.41									
065	105.85	.38									
255	101.63	.25									
102	98.41	.16									
230	97.00	.12									
Avg	93.08										
232	91.00	-.08									
444	78.36	-.44									
372	40.98	-1.55									
231	29.21	-1.89									
Meth: 191.30 PPM											
<u>Chromium</u>											
390	137.00	1.30									
096	126.00	.98									
409	120.00	.80									
450	118.50	.76									
009	114.00 R	.64									
035	110.00	.50									
452	107.74	.44									
037	106.86	.41									
065	105.85	.38									
255	101.63	.25									
102	98.41	.16									
230	97.00	.12									
Avg	93.08										
232	91.00	-.08									
444	78.36	-.44									
372	40.98	-1.55									
231	29.21	-1.89									
Meth: 181.99 PPM											
<u>Cadmium</u>											
390	137.00	1.30									
096	126.00	.98									
409	120.00	.80									
450	118.50	.76									
009	114.00 R	.64									
035	110.00	.50									
452	107.74	.44									
037	106.86	.41									
065	105.85	.38									
255	101.63	.25									
102	98.41	.16									
230	97.00	.12									
Avg	93.08										
232	91.00	-.08									
444	78.36	-.44									
372	40.98	-1.55									
231	29.21	-1.89									
Meth: 191.30 PPM											
<u>Chromium</u>											
390	137.00	1.30									
096	126.00	.98									
409	120.00	.80									
450	118.50	.76									
009	114.00 R	.64									
035	110.00	.50									
452	107.74	.44									
037	106.86	.41									
065	105.85	.38									
255	101.63	.25									
102	98.41	.16									
230	97.00	.12									
Avg	93.08										
232	91.00	-.08									
444	78.36	-.44									
372	40.98	-1.55									
231	29.21	-1.89									
Meth: 202.99 PPM											
<u>Acid Soluble Cobalt</u>											
409	19.40	.87									
Avg	12.85										
231	6.30	-.86									
Meth: 202.30 PPM											
<u>Acid Soluble Cobalt</u>											
452	51.80 s	6.46									
450	19.50	1.17									
037	18.71	1.03									
009	17.90	.91									
057	17.43	.82									
035	16.35	.65									
Avg	12.56										
065	11.44	-.19									
230	10.85	-.29									
232	10.80	-.30									
102	8.89	-.62									
372	6.25	-1.06									
368	0.00	-2.11									
Meth: 191.30 PPM											
<u>Chromium</u>											
027	20.80	-2.14									
Meth: 202.30 PPM											
<u>Acid Soluble Cobalt</u>											
452	51.80 s	6.46									
450	19.50	1.17									
037	18.71	1.03									
009	17.90	.91									
057	17.43	.82									
035	16.35	.65									
Avg	12.56										
065	11.44	-.19									
230	10.85	-.29									
232	10.80	-.30									
102	8.89	-.62									
372	6.25	-1.06									
368	0.00	-2.11									

\* X=Excluded from lab performance S/s=Screened Outlier R=Duplicate Range too large A=Analysis beyond 3-s limits

Laboratory Averages & Accuracy Indexes

Lab Average* Index	Lab Average* Index	Lab Average* Index	Lab Average* Index	Lab Average* Index	Lab Average* Index
Meth: 202.XX PPM	Meth: 221.30 PCT	Meth: 221.XX PCT	Meth: 241.30 PCT	Meth: 241.99 PCT	
<u>Acid Soluble Cobalt</u>	<u>Acid Soluble Copper</u>	<u>Acid Soluble Copper</u>	<u>Acid Soluble Iron</u>	<u>Acid Soluble Iron</u>	
232 10.80 -0.30	ICP	324 0.0095 -0.20	ICP	Other	
102 8.89 -0.61	102 0.0095 -0.34	232 0.0095 -0.29	106 1.79 .99	402 0.71 -1.52	
231 6.30 -1.04	453 0.0090 -0.40	102 0.0095 -0.39	390 1.79 .99		
372 6.25 -1.05	393 0.0082 -0.92	368 0.0095 -0.39	057 1.77 .96		
368 0.00 -2.08	452 0.0063 -2.22	422 0.0095 -0.39	096 1.76 .93		
	041 0.0060 -2.42	433 0.0092 -0.44	041 1.76 .93		
		453 0.0090 -0.54	009 1.65 .69		
Meth: 221.00 PCT	Meth: 221.99 PCT	393 0.0082 -1.05	409 1.62 .60		
<u>Acid Soluble Copper</u>	<u>Acid Soluble Copper</u>	428 0.0076 -1.47	324 1.61 .58		
<u>Atomic Absorption</u>	<u>Other</u>	452 0.0063 -2.34	035 1.56 .45		
043 0.0115 1.22	231 0.0112 .98	041 0.0060 -2.54	354 1.55 .44		
028 0.0099 .50	402 0.0115 .81		255 1.52 .41		
095 0.0100 .23	Avg 0.0108		368 1.52 .40		
Avg 0.0098	409 0.0099 -0.95		422 1.43 .16		
428 0.0076 -1.31			073 1.39 .08		
			Avg 1.37 .86		
Meth: 221.30 PCT	Meth: 221.XX PCT		095 1.76 .86		
<u>Acid Soluble Copper</u>	<u>Acid Soluble Copper</u>		096 1.76 .84		
ICP	ICP		041 1.76 .84		
330 0.1000 s 60.92	330 0.1000 s 60.26		234 1.75 .83		
255 0.0150 s 3.88	255 0.0150 s 3.72		028 1.74 .78		
073 0.0140 s 3.26	073 0.0140 s 3.11		029 1.72 .74		
230 0.0120 1.62	230 0.0120 1.47		055 1.71 .70		
354 0.0115 1.33	043 0.0115 1.32		040 1.70 .68		
035 0.0114 1.22	354 0.0115 1.18		296 1.67 .61		
389 0.0110 R 1.16	402 0.0115 1.18		009 1.65 .58		
009 0.0107 .79	231 0.0112 1.10		409 1.62 .48		
450 0.0103 .47	035 0.0114 1.07		351 1.62 .47		
065 0.0098 .36	389 0.0110 1.04		324 1.61 .46		
057 0.0100 .29	009 0.0107 .66		117 1.60 .43		
372 0.0100 .29	028 0.0099 .54		157 1.59 .41		
444 0.0100 .27	450 0.0103 .34		035 1.56 .33		
106 0.0100 .27	065 0.0098 .33		354 1.55 .31		
Avg 0.0096	095 0.0100 .24		255 1.52 .30		
324 0.0095 -0.11	057 0.0100 .19		368 1.52 .30		
232 0.0095 -0.24	372 0.0100 .15		Avg 1.43		
433 0.0092 -0.30	444 0.0100 .13		422 1.43 -0.08		
368 0.0095 -0.34	106 0.0100 .13		073 1.39 -0.14		
422 0.0095 -0.34	409 0.0099 .06		042 1.36 -0.19		
	Avg 0.0098				

\* X=Excluded from lab performance S/s=Screened Outlier R=Duplicate Range too large A=Analysis beyond 3-s limits

Laboratory Averages & Accuracy Indexes

Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index	Lab	Average*	Index
Meth: 241.XX PCT											
<u>Acid Soluble Iron</u>											
291	1.30	-.37									
022	1.26	-.47									
397	1.25	-.49									
232	1.20	-.60									
065	1.17	-.70									
231	1.12	-.83									
433	1.11	-.84									
426	1.08	-.93									
114	1.04	-1.03									
452	1.04	-1.03									
102	0.97	-1.24									
030	1.01 R	-1.33									
389	0.84	-1.54									
230	0.80	-1.64									
372	0.72	-1.85									
402	0.71	-1.89									
453	0.64	-2.05									
393	0.50 X	-2.41									
Meth: 251.30 PPM											
<u>Lead</u>											
ICP	12.52 s	8.02									
452	5.50	1.41									
009	5.20	1.04									
372	4.77	.63									
Avg	4.11										
230	3.94	-.18									
444	3.45	-.64									
102	3.25	-.85									
065	3.54 R	-1.07									
255	2.68	-1.37									
Meth: 251.99 PPM											
<u>Lead</u>											
231	4.08	-.87									
Meth: 251.XX PPM											
ICP	12.52 s	8.87									
450	5.50	1.50									
009	5.20	1.09									
372	4.77	.63									
409	4.75	.61									
Avg	4.18										
231	4.08	-.12									
230	3.94	-.27									
444	3.45	-.78									
102	3.25	-1.02									
065	3.54 R	-1.24									
255	2.68	-1.60									
Meth: 261.30 PCT											
<u>Acid Soluble Manganese</u>											
ICP	0.035 s	2.48									
131	0.035	1.56									
035	0.034	1.37									
009	0.034	.99									
065	0.032	.47									
Avg	0.031										
102	0.031	-.41									
057	0.030	-.49									
106	0.030	-.50									
433	0.030	-.58									
444	0.030	-.92									
232	0.028	-1.46									
Meth: 261.99 PCT											
<u>Acid Soluble Manganese</u>											
Meth: 261.XX PCT											
ICP	0.035 R	1.89									
422	0.036	1.57									
131	0.035	1.21									
035	0.034	1.06									
009	0.034	.78									
065	0.032	.37									
Avg	0.031										
102	0.031	-.30									
057	0.030	-.33									
106	0.030	-.34									
433	0.030	-.40									
444	0.030	-.67									
232	0.028	-1.06									
393	0.025	-1.90									
Meth: 281.30 PPM											
<u>Mercury</u>											
ICP	0.50	1.12									
450	0.25										
Avg	0.00	-.50									
Meth: 289.30 PPM											
<u>Molybdenum</u>											
ICP	11.05 s	2.72									
035	10.85	1.70									
450	10.50	1.35									
102	9.62	.93									
230	10.17	.86									
393	9.72	.16									
Avg	9.60										
Meth: 289.99 PPM											
<u>Molybdenum</u>											
ICP	11.75	2.17									
255	11.05 R	2.06									
035	10.85	1.20									
450	10.50	.94									
230	10.17	.55									
Avg	9.77										
393	9.72	-.05									
009	9.55	-.23									
232	9.60	-.27									
057	9.60	-.36									
065	9.40	-.39									
102	9.62	-.76									
037	8.93	-.94									
433	8.88	-.94									
452	8.40	-1.55									
231	3.22 s	-6.90									
Meth: 289.30 PPM											
<u>Molybdenum</u>											
ICP	9.55	-.09									
009	9.60	-.26									
232	9.40	-.27									
065	9.40	-.39									
057	9.60	-.95									
433	8.88	-.97									
037	8.93	-1.73									
452	8.40	-1.73									
Meth: 289.99 PPM											
<u>Molybdenum</u>											
ICP	11.75	.71									
409	11.75										
Avg	11.75										
231	3.22 S	-10.97									
Meth: 291.30 PPM											
<u>Nickel</u>											
ICP	66.55	1.29									
444	66.00	1.21									
450	64.95	1.05									
009	57.77										
Avg	55.32	-.36									
065	54.27	-.51									
037	54.95	-.52									
035	51.00	-1.00									
102	49.10	-1.27									
232	30.04 s	-4.14									
393											
Meth: 291.99 PPM											
<u>Nickel</u>											
ICP	59.30	.71									
409											
Meth: 291.XX PPM											
<u>Nickel</u>											
ICP	66.55	1.29									
444	66.00	1.21									
450	64.95	1.05									
009	57.77										
Avg	55.32	-.36									
065	54.27	-.51									
037	54.95	-.52									
035	51.00	-1.00									
102	49.10	-1.27									
232	30.04 s	-4.14									
393											
Meth: 301.30 PPM											
<u>Selenium</u>											
ICP	1.47	1.30									
393	0.49										
Avg	0.00	-.64									
450	0.00	-.64									
372	0.00	-.64									

\* X=Excluded from lab performance S/s=Screened Outlier R=Duplicate Range too large A=Analysis beyond 3-s limits

Laboratory Averages & Accuracy Indexes

Lab Average\* Index Lab Average\* Index Lab Average\* Index Lab Average\* Index

Meth: 311.99 PCT  
 Sodium  
 Other  
 422 0.16 1.87  
 Avg 0.06  
 035 0.05 -.33  
 057 0.03 -.47  
 009 0.03 -.57  
 232 0.03 -.60

Meth: 321.00 PCT  
 Acid Soluble Zinc  
 Atomic Absorption  
 043 0.028 1.35  
 095 0.026 .27  
 Avg 0.026  
 296 0.026 -.14  
 028 0.024 -1.26  
 200 0.003 S -15.37

Meth: 321.30 PCT  
 Acid Soluble Zinc  
 ICP  
 330 0.100 s 27.23  
 450 0.030 1.84  
 422 0.030 1.78  
 390 0.029 1.58  
 131 0.029 1.35  
 037 0.027 1.03  
 324 0.027 1.00  
 255 0.027 .69  
 009 0.026 .68  
 354 0.026 .49  
 096 0.026 .43  
 409 0.026 .39  
 041 0.026 .32  
 022 0.026 .23  
 027 0.025 .10  
 Avg 0.025  
 389 0.025 -.04

Meth: 321.30 PCT  
 Acid Soluble Zinc  
 ICP  
 452 0.025 -.29  
 065 0.024 -.65  
 057 0.023 -.68  
 372 0.023 -.76  
 433 0.023 -.82  
 453 0.023 -.97  
 230 0.023 -.97  
 232 0.022 -1.10  
 444 0.022 -1.19  
 102 0.022 -1.33  
 368 0.021 -1.55  
 106 0.025 R -1.82

Meth: 321.99 PCT  
 Acid Soluble Zinc  
 Other  
 231 0.029 .51  
 Avg 0.028  
 402 0.028 -1.11

Meth: 321.99 PCT  
 Acid Soluble Zinc  
 330 0.100 s 27.54  
 450 0.030 1.75  
 422 0.030 1.68  
 390 0.029 1.51  
 231 0.029 1.39  
 131 0.029 1.25  
 402 0.028 1.19  
 043 0.028 1.03  
 037 0.027 .96  
 324 0.027 .93  
 009 0.026 .67  
 255 0.027 .57  
 354 0.026 .42  
 095 0.026 .35  
 096 0.026 .31

Meth: 321.99 PCT  
 Acid Soluble Zinc  
 ICP  
 409 0.026 .30  
 041 0.026 .20  
 296 0.026 .20  
 022 0.026 .19  
 Avg 0.025  
 027 0.025 -.03  
 389 0.025 -.17  
 452 0.025 -.40  
 028 0.024 -.44  
 065 0.024 -.77  
 057 0.023 -.82  
 372 0.023 -.90  
 433 0.023 -.96  
 453 0.023 -1.11  
 230 0.023 -1.11  
 232 0.022 -1.24  
 444 0.022 -1.33  
 102 0.022 -1.47  
 368 0.021 -1.70  
 106 0.025 R -1.85  
 200 0.003 s -8.35

Meth: 325.00 PCT  
 Water Soluble Zinc  
 Atomic Absorption  
 428 0.025 .71

Meth: 325.30 PCT  
 Water Soluble Zinc  
 ICP  
 393 0.022 .71

Meth: 325.99 PCT  
 Water Soluble Zinc  
 ICP  
 428 0.025 .77  
 Avg 0.023  
 393 0.022 -.95

\* X=Excluded from lab performance S/s=Screened Outlier R=Duplicate Range too large A=Analysis beyond 3-s limits

## Method Evaluation - Z Values Based on 1 Reports

Method Code	Number Of Labs	Avg Bias of Labs	Std Dev of Biases	Std Dev Within Labs	Method Code	Number Of Labs	Avg Bias of Labs	Std Dev of Biases	Std Dev Within Labs
001.10	9	3.94	9.32	0.29	151.30	5	7.83	17.53	0.07
001.99	11	- 0.39	1.60	0.33	151.99	2	0.00	1.15	0.30
001.XX	19	2.10	8.00	0.32	151.XX	7	6.43	16.76	0.09
003.10	4	0.00	1.07	0.09	165.99	6	0.000	1.047	0.062
003.XX	5	0.00	1.06	0.09	165.XX	7	0.000	1.039	0.061
005.00	2	0.00	1.22	0.03	181.30	7	1.46	3.79	0.22
005.99	4	0.00	1.08	0.02	181.XX	8	1.42	3.91	0.22
005.XX	6	0.07	0.97	0.02	191.30	14	- 0.27	1.49	0.12
009.XX	2	0.00	1.20	0.16	191.99	3	0.00	1.12	0.04
010.11	10	- 0.65	1.81	0.18	191.XX	17	0.04	0.99	0.05
010.12	5	- 7.90	11.47	0.50	202.30	12	0.55	2.14	0.07
010.60	63	- 0.22	1.50	0.45	202.99	2	0.00	1.21	0.12
010.99	4	- 4.83	6.57	0.72	202.XX	14	0.46	1.98	0.08
010.XX	79	- 0.63	2.27	0.50	221.00	4	0.0000	0.9765	0.3998
020.20	4	0.00	1.02	0.31	221.30	24	2.8529	12.436	0.4504
020.40	2	0.00	1.16	0.28	221.99	3	0.0000	0.8358	0.6063
020.50	7	0.49	1.61	0.16	221.XX	31	2.1462	10.852	0.4428
020.99	2	- 293.1	414.50	0.50	241.00	13	- 0.26	1.34	0.47
020.XX	16	- 0.43	3.30	0.22	241.30	33	0.03	1.00	0.13
041.10	2	0.00	1.21	0.12	241.99	4	0.00	1.07	0.09
041.50	5	0.00	0.90	0.50	241.XX	50	0.00	1.00	0.16
041.XX	7	- 0.15	0.87	0.20	251.30	9	0.83	2.84	0.36
050.00	12	0.55	1.63	0.24	251.99	2	0.00	1.20	0.16
050.30	11	0.24	1.24	0.47	251.XX	11	0.74	2.85	0.37
050.50	6	4.06	9.99	0.06	261.30	11	0.135	1.004	0.700
050.51	13	0.00	1.00	0.19	261.99	2	0.000	1.221	0.069
050.60	5	0.00	1.04	0.19	261.XX	13	0.089	0.995	0.488
050.61	11	2.40	9.61	0.66	281.30	2	0.00	0.71	0.71
050.99	13	2.39	8.22	0.30	281.XX	2	0.00	0.71	0.71
050.XX	65	1.57	7.17	0.48	289.30	13	0.15	1.01	0.70
060.00	3	0.00	1.10	0.14	289.99	2	- 5.48	7.75	0.50
060.XX	3	0.00	1.10	0.14	289.XX	15	- 0.37	2.03	0.54
101.30	17	0.24	1.42	0.22	291.30	9	- 0.45	1.66	0.30
101.XX	17	0.24	1.42	0.22	291.XX	10	- 0.38	1.58	0.36
121.30	20	- 1.06	4.84	0.28	301.30	3	0.00	1.10	0.16
121.XX	20	- 1.06	4.84	0.28	301.XX	3	0.00	1.10	0.16
144.01	14	- 1.39	4.97	1.02	311.99	5	0.00	1.05	0.14
144.99	25	- 0.19	1.43	0.22	311.XX	5	0.00	1.05	0.14
144.XX	38	- 0.24	1.95	0.35	321.00	5	- 3.074	6.933	0.242

Method Evaluation - Z Values Based on 1 Reports

Method Code	Number Of Labs	Avg Bias of Labs	Std Dev of Biases	Std Dev Within Labs	Method Code	Number Of Labs	Avg Bias of Labs	Std Dev of Biases	Std Dev Within Labs
321.30	28	0.971	5.225	0.485					
321.99	2	0.000	0.480	0.797					
321.XX	35	0.544	4.986	0.473					