Ultra Yield Micronutrients

2018
Annual Monitoring Wells Report

January 18, 2019

Compiled By: Terry Kelley, EH&S Supervisor

February 20, 2019
Mr. Tom Mackie
Hazardous Waste Toxics Reduction Program– Hydrogeologist
Washington Department of Ecology
1250 Alder Street, Union Gap, WA 98903

Re: 2018 Annual Report for Well Water Sampling
Ultra Yield Micronutrients Facility
Moxee, Washington

Dear Mr. Mackie:

Please find the 2018 Annual Report for Well Water Sampling in the binder accompanying this letter. Monitoring wells 1B, 2, 3, 5, 8, 9, and 10 were sampled spring and fall.

Groundwater depths were measured for wells 1B, 2, 3, 5, 6, 7, 8, 9, and 10 at the same time as the samples were taken on 11 April 2018 and 04 October 2018. In reviewing the fall data and comparing to historical information, it was determined that the test samples were inadvertently transposed for well #8 and well #9. The two wells were retested on 27 November 2018. The data from the retest was reviewed and observed to be more in line with historical findings. The data from the retest is used in the report.

We are continuing to use ALS Environmental, formerly Columbia Analytical Services Inc., located in Kelso, WA to do our analytical work. If you have any questions, please do not hesitate to call me.

Sincerely, Terry Kelley
Technical Support
Ultra Yield Micronutrients
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2018 MONITORING WELLS ANNUAL REPORT

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2018 MONITORING WELLS ANNUAL REPORT

Ultra Yield Micronutrients - January 27, 2019

GROUNDWATER MONITORING PROCEDURES

In 2018, we sampled, semi-annually per the Washington Department of Ecology October 2009 Amendment to Agreed Order DE02HWTRCR-4661, monitoring wells MW-1B, MW-2, MW-3, MW-5, MW-8, MW-9, and MW-10 which are in the uppermost aquifer. The testing parameters did not change and included pH, total chloride and sulfate, dissolved cadmium, manganese, and zinc.

Semi-annual groundwater sampling was conducted on the following dates in 2018:

- April 11, 2018
- October 04, 2018
- November 27, 2018 (repeated well MW8 and MW9).

We did not pump from any of the monitoring wells this year.

Prior to purging and sampling, the water depth was measured and recorded for each well using an electronic water level indicator. At least three casing volumes were removed from each well before sampling.

Sampling of each well was conducted using dedicated vinyl tubing and a peristaltic pump. The groundwater samples were packed on gel ice and shipped to ALS in Kelso, WA for analysis. Chain-of-custody documentation was completed and accompanied the samples. The samples were analyzed for dissolved cadmium, dissolved manganese, dissolved zinc, total chloride, and total sulfate. We did the pH and temperature in our own lab.

The results of the groundwater monitoring conducted in 2018 are summarized in the table of historical analytical data and the table of historical water levels for each well. These tables follow this report in the Tables and Charts section.

Included in this report is a section for the Annual Site Inspection. This is required as of the Site Management Plan submitted by Linebach Funkhouser Inc. in February of 2007. It will consist of a copy of the Annual Inspection and Monitoring Checklist, any additional comments, and any reports from completion of any asphalt/ pavement/gravel/soil disturbance in deed-restricted areas.

LABORATORY ANALYSES

An historical summary including the years 2003 through 2018 laboratory analytical results is in the Tables and Charts section. Comments on the analytical results and trend lines for the dissolved metals and chloride and sulfate from 2008 to 2018 follow.

Dissolved Cadmium

The overall trend for dissolved cadmium levels in 2018 is again downward except for MW-8, though MW-5 and 9 are essentially level. However, the cleanup goal is 0.005 mg/L. That goal has been met with all wells except MW-1B, 3, and 8. MW 2, 5, 9, and 10 all had no detectable cadmium in either the spring or fall samplings.

Dissolved Manganese

The cleanup goal for dissolved manganese is 0.05 mg/L. MW 5 has been below the goal since 2008 for fall results. MW-1B, 5, and 10 have downward trend lines. MW-9 has been between 4.0 and 6.5 mg/L since 2011. MW-10 at 0.0269 in the spring of 2012 was below the goal, but has increased slightly to above the goal since then, ending 2018 with 0.106 mg/L.

Dissolved Zinc

The cleanup goal is 5.0 mg/L. All the monitoring wells have downward trend lines and are ending lower than their starting analyses in 2003 except for MW-8 with an upward trend line, though MW-8 was lower in the fall. MW-2, 5, 9 and 10 are below the 5.0 mg/L goal.

Dissolved Total Chloride

The cleanup goal is 250 mg/L. All the monitoring wells except MW-2 and 8 have downward trend lines. All the wells except MW-8 and 9 were below the goal of 250 mg/L for the year. MW-2 was above in the spring 2018 with 348 mg/L.

Dissolved Total Sulfate

The cleanup goal is 250 mg/L. MW-1B, 3, and 10 have downward trend lines. MW-5 is almost level, due to an anomaly in 2009 when there was a spike to almost 300 mg/L. However with the one exception in 2009, MW-5 has been below 250 mg/L since 2003. MW-2, 8, and 9 have upward trend lines. The cleanup goal for most wells has not been reached except for MW- 5 at 53.8 mg/ in the fall and MW-1B at 118 mg/L in fall of 2018.

MONITORING WELL OBSERVATIONS

In the previous section dealing with the analytical results and trend lines, dissolved cadmium, manganese, and zinc, and total chloride, and sulfate were dealt with separately. The following section will include more detailed information on each individual well.

MW-1B

MW-1B continues to show a downward trend line in all parameters except Chloride However, MW-1b has always been below the cleanup goal of 250 mg/L.All parameters showed higher results in 2016 and 2017. But they came down to levels more in line with pre-2016 result by end of 2018.

Sulfate, with the same cleanup level as chloride, has been below the cleanup level in the fall since 2009, with the exception of 2016 and 2017. 2018 ended with results of 118 mg/L.

MW-1B has been below 0.1 mg/L with dissolved cadmium since 2004, with one exception, 0.18 mg/L in October of 2017. The results of fall 2018 are 0.006mg/L, almost the cleanup level of 0.005 mg/L.

Results from spring 2015 are the lowest since fall of 2011. 2016 saw increase in cadmium for the fall with result of 0.18 mg/L.

MW-1B has remained below the cleanup level of 0.05 mg/L for dissolved manganese since the third quarter sampling 2008 through 2015. Three of four samplings in 2016 and 2017 went above the 0.05 mg/L. But the 2018 results were easily below the 0.05 mg/L at 0.021 mg/L.

Dissolved zinc continues downward trend with results in fall of 2018 of 5.31 mg/L the lowest it has ever been.

MW-2

Though there is only a slight upward trend line for chloride and sulfate, fall data has been below the cleanup level of 250 mg/L for chloride since 2003. There is actually only a slight upward trend for chloride since 2016, with the peaks around 400 mg/L. October 2018 ended at 203 mg/L.

The trend line for sulfate is up. Sulfate has had some fairly large swings but they have been narrowing in the last three years. The highest fall result was in 2009 with 642 mg/L. Fall results have stayed below 600 mg/L since then up until 2014, which ended with 615 mg/L. Spring 2018 ended with result of 1370 and results from the fall with results of 393. Spring of 2011 had the highest peak at 1710 mg/L, but the trend has been down since then.

Dissolved cadmium for MW-2 has been non-detectable since August of 2007.

For manganese, the trend is slightly up. Fall of 2018 ended with 0.0039mg/L, the lowest results recorded and below the cleanup goal of 0.05mg/L.

Dissolved zinc is showing a definite downward trend. It has been well below the cleanup level of 5.0 mg/L since 2003. Results of 0.004mg/L for fall of 2018.

MW-3

Chloride has stayed consistently below the cleanup goal of 250 mg/L for 15 years. The trend line continues to be downward with lowering levels of chloride since 2008.

The trend line for sulfate is down. The results have not been over 1,200 mg/L since the spring of 2008. Fall results have been mostly between 400 and 1,000 mg/L since 2008. 2018 ended with 843 mg/L. The cleanup goal is of 250 mg/L.

The downward trend for dissolved cadmium continues. Three samplings in 2016 and 2017 had results as low as 0.03 to 0.05 mg/L. MW-3 ending at 0.09mg/Lin the fall. The goal is 0.005 mg/L.

Dissolved manganese is showing a very slight downward trend line, Three of the 2016 and 2017 sampling results were less than 2.0 mg/L which is the lowest since 2004. The fall of 2018 ended at 4.19 mg/L, the lowest since the spring of 2011 (4.01 mg/L) other than 2016 and 2017. The cleanup goal is 0.05 mg/L.

The dissolved zinc trend line continues downward. The fall of 2010 had results of 4.51 mg/L below the cleanup goal of 5.0 mg/L. The spring of 2017 also came close at 4.6 mg/L. Since then, results have gone up to 15 mg/L in the spring of 2018 and ended at 7.72 mg/L for the fall of 2018. The cleanup goal is 5.o m/L.

MW-5

MW-5 is one of three wells that has downward or level trends in all categories, except for manganese which has been at or very near the cleanup goal of 0.05 mg/L virtually the whole sampling history. 2018 ended with 0.014 mg/L in the fall.

Chloride has a slight upward trend line and has been well below the cleanup goal of 250 mg/L since 2003, floating around 20 mg/L. 2018 ended with 23 mg/L.

Sulfate has essentially a level trend but has stayed consistently well below the cleanup level of 250 mg/L over the years, and around 50 mg/L from 2010 on. Spring had 51.4 mg/L, and fall had 53.8 mg/L for sulfate.

There has been no detectable trace of dissolved cadmium since 2004.

There is a downward trend line for dissolved manganese. Dissolved manganese has been below the cleanup goal of 0.05 mg/L every fall since 2008. However; in spring of 2018, there was a result of 0.067 mg/L. Fall 2018 ended with 0.014mg/L.

There has been at least one result of non-detectable dissolved zinc a year since 2007, except for 2011 and 2018. The trend line is down, and 2018 ended with 0.009 mg/L. MW-5 has always been below the cleanup goal of 5.0 mg/L, and has never been above 1.0 mg/L.

MW-8

MW-8 is the one well that is showing an upward trend in varying degrees since 2003 for the dissolved metals, and chloride and sulfate. It is also above the cleanup level in all the areas. Chloride, with a cleanup goal of 250 mg/L, spiked to the highest ever in the spring of 2014 with 579 mg/L. It dropped to 555 mg/L in the fall of 2018.

Sulfates are also on an upward trend. The cleanup goal is 250 mg/L for sulfate. 2018 results were 1660 mg/L in the spring and 1430 mg/L in the fall. The highest MW-8 has been was 2,000 mg/L in 2007.

Though dissolved cadmium has an upward trend line, 2015 saw a drop from the highest result of 0.189 mg/L in 2012 to 0.0108 mg/L at the end of 2015. 2015 and 2016 are definitely on a downward trend with a slight increase in 2017 and down again to 0.032 in fall of 2018. The cleanup goal is 0.005 mg/L.

Dissolved manganese is on a general upward trend. 2015 ended with 8.65 mg/L in the fall. The highest level reached was 35.7 mg/L in the spring of 2016. From that point on, the dissolved manganese has continued to drop to where it was 22.1 mg/L in the fall of 2018. The cleanup goal is 0.05 mg/L.

The dissolved zinc trend line is upward in the last several years. There was a big increase between 2007 and the start of 2011, the highest result being 140 mg/L. Since then the results have been generally decreasing to where fall of 2018 ended with 22.10 mg/L. The cleanup goal is 5.0 mg/L.

MW-9

Chloride has a downward trend, and has been hovering around 600 mg/L since 2011. October 2018 was 521 mg/L, down from 612 mg/L in 2015. The cleanup goal is 250 mg/L.

Sulfate, with an upward trend, hit a high of 1,830 mg/L September 2013, and has hit a new high of 1,910 mg/L at the end of 2014 then dropping slightly to 1820 in fall 2018. It has been above 1,400 mg/L since spring of 2011. The cleanup goal is 250 mg/L.

Dissolved cadmium has been non-detectable in all but two samplings since 2003, and those were below the cleanup goal of 0.005 mg/L.

Dissolved manganese, with a cleanup goal of 0.05 mg/L, has an upward trend. Spring of 2016 ended with high of 6.54 but has decreased to level of 5.51 mg/L in fall of 2018.

Dissolved zinc continues its downward trend and has consistently been well below the cleanup level of 5.0 mg/L. Results have been below 0.05 since fall of 2009. October 2018 was 0.024 mg/L.

MW-10

This is the last of the three wells with downward trend lines in all categories, though chloride was essentially a level trend line this year. There was a spike above 418 mg/L in the spring of 2016. Since 2008, the results have been below the cleanup goal of 250 mg/L every fall. The fall 2018 ended at 137 mg/L

Sulfate was very high, up to above 3,500 mg/L in 2007, so it is good to see the levels staying below 1,500 mg/L from 2008 on. 2018 ended with 341 mg/L. The cleanup goal is 250 mg/L.

Dissolved cadmium has been non-detectable for MW-10 since 2003 except for one sample in 2004 when there was a result of 0.004 mg/L, which was below the cleanup goal of 0.005 mg/L.

Dissolved manganese has a downward trend and is staying below 0.5 mg/L since spring of 2008, except for 0.9 mg/L in the fall of 2018, the highest since 2007. The cleanup goal is 0.05 mg/L. The fall of 2018 dropped to 0.106 mg/L, the lowest it has been since the fall of 2015.

Dissolved zinc has been well below the cleanup goal of 5.0 mg/L from 2003, only once above 0.08 mg/L in 2004. 2018 yielded results of .011mg/L in the fall, below clean up limit.

SUMMARY

It is encouraging to see so many downward trend lines. Except for MW-8, all wells have down trends for cadmium and zinc. Four wells have down trends for sulfate and manganese, and three have down trends for chloride. And MW-8 has been decreasing in cadmium and zinc since 2012.

Additionally, all goals have been met in MW-5. MW-9, in the critical metals of cadmium and zinc, has continued to stay well beneath the cleanup goals. MW-10 has met the goals for cadmium and zinc, and every fall since 2008 for chloride. Additionally, there has been no detection of cadmium for years in MW-2 {10 years (only once in 2008)}, MW-5 (14 years), MW-9 (13 years), and MW-10 (14 years).

As has been stated in previous reports, there is a consideration that a higher background level of manganese and sulfates in this region could impact the dissolved manganese and total sulfate levels, as referenced in the Linebach, Funkhouser Summary of Groundwater Corrective Action Progress – 2004, Section 4.0 Summary and Conclusions. Generally, there also appears to be higher analytical results with higher water levels. More research would need to be done to conclusively prove this or show that it occurs with all wells. There was an exceptionally wet spring in 2016 and 2018 with the depth to water levels were at the lowest recorded at the facility.

With all the above in mind, the following charting shows a comparison of results from 2003 to results from 2015, 2016, 2017 and 2018 spring and fall samplings. All the results are in mg/L.

MW-1B	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	89.8	2190	0.2	1.39	286
Fall 2003	42	805	0.073	0.45	73
Spring 2015	65	1060	0.0052	0.0276	59.2
Spring 2016	249	2320	0.061	0.170	71.40
Spring 2017	185	1950	.032	0.449	36.7
Spring 2018	70	540	0.016	0.009	16.10
Fall 2015	22.9	141	0.0119	0.0123	12.9
Fall 2016	69	805	0.0197	0.043	21.8
Fall 2017	71	904	0.018	0.244	16.1
Fall 2018	25.5	118	0.006	0.021	5.31
Cleanup Goal	250	250	0.005	0.05	5.0

This shows improvement in each category. Cadmium and zinc have not met the cleanup goals yet.

MW-2	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	487	1117	ND	0.28	0.097
Fall 2003	42	71.8	0.001	0.63	0.25
Spring 2015	354	992	ND	0.0039	ND
Spring 2016	404	1320	ND	0.135	0.005
Spring 2017	420	1380	ND	0.151	0.009
Spring 2018	348	1370	ND	0.083	0.006
Fall 2015	111	413	ND	0.293	ND
Fall 2016	121	390	ND	0.0061	0.005
Fall 2017	134	386	0.1	0.09	0.003
Fall 2018	203	393	ND	0.004	0.004
Cleanup Goal	250	250	0.005	0.05	5.0

There has been a decrease in zinc since 2013, which has always been well below the cleanup level. Manganese remained inconsistent. Goals were met with chloride, cadmium, and zinc.

MW-3	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	105	1191	0.84	3.4	13.6
Fall 2003	70	480	0.043	1.5	5.0
Spring 2015	114	884	0.176	11.4	22.6
Spring 2016	99	859	0.039	1.64	5.93
Spring 2017	63	788	.033	1.43	4.6
Spring 2018	107	896	0.125	7.59	15.0
Fall 2015	118	786	0.0789	6.81	7.87
Fall 2016	138	971	0.050	1.22	5.67
Fall 2017	143	1190	0.1	4.85	11.40
Fall 2018	173	843	0.091	4.19	7.72
Cleanup Goal	250	250	0.005	0.05	5.0

Goals were met with chloride only.

MW-5	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	19.5	46.3	ND	0.11	0.014
Fall 2003	19	42.5	ND	0.039	0.076
Spring 2015	19.2	44.8	ND	0.0637	ND
Spring 2016	22.6	494	ND	0.0537	ND
Spring 2017	22.8	49.4	ND	0.036	ND
Spring 2018	23.5	51.4	ND	0.067	0.004
Fall 2015	23.3	50.8	ND	0.0094	ND
Fall 2016	22.8	51.1	ND	0.009	0.003
Fall 2017	23.4	58.1	ND	0.031	0.004
Fall 2018	23	53.8	ND	0.014	0.009
Cleanup Goal	250	250	0.005	0.05	5.0

Manganese and zinc are less than they were in 2003. Cadmium has been detected only once in 6 years, the last time in 2004. All cleanup goals are met.

MW-8	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	418	1518	ND	25.2	0.014
Fall 2003	160	580	0.006	3.3	3.1
Spring 2015	507	1740	0.0646	33.9	57.4
Spring 2016	568	1760	0.0562	35.70	52.8
Spring 2017	537	1600	0.0497	30.20	54.4
Spring 2018	602	1660	0.066	27.3	47.3
Fall 2015	213	689	0.0108	8.65	10.7
Fall 2016	376	1140	0.0185	18.00	17.60
Fall 2017	530	1570	0.050	24.0	32.1
Fall 2018	555	1430	0.03	22.1	22.1
Cleanup Goal	250	250	0.005	0.05	5.0

Trend lines from the chart are upward. However, as discussed elsewhere, the more recent trends in cadmium and zinc are steady.

MW-9	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	448	727	ND	0.99	0.3
Fall 2003	600	1020	ND	0.02	0.34
Spring 2015	440	1420	ND	6.0	0.026
Spring 2016	562	1580	ND	6.54	0.025
Spring 2017	432	1400	ND	5.11	0.022
Spring 2018	405	1530	ND	4.57	0.019
Fall 2015	612	1750	ND	5.2	0.028
Fall 2016	609	1840	ND	6.33	0.0025
Fall 2017	419	1790	ND	5.22	0.032
Fall 2018	521	1820	ND	5.51	0.024
Cleanup Goal	250	250	0.005	0.05	5.0

Chloride is similar; sulfate is only slightly higher in 2018. Cadmium has stayed non-detectable. Zinc has improved since 2003. Chloride, sulfate, and manganese have not met the cleanup goals. Cadmium and zinc have.

MW-10	Chloride	Sulfate	Cadmium	Manganese	Zinc
January 2003	543	1576	ND	0.4	0.021
Fall 2003	130	615	ND	0.63	0.059
Spring 2015	213	918	ND	0.185	ND
Spring 2016	418	1440	ND	.0.306	ND
Spring 2017	256	1010	ND	0.31	0.003
Spring 2018	298	1080	ND	0.004	0.002
Fall 2015	75	380	ND	0.118	ND
Fall 2016	141	600	ND	0.222	0.0031
Fall 2017	133	541	ND	0.027	0.012
Fall 2018	137	341	ND	0.106	0.011
Cleanup Goal	250	250	0.005	0.05	5.0

All cleanup goals have been met except for sulfate and manganese; but remain steady. All categories in the spring were better than 2003 results (cadmium was the same). Manganese and zinc in the fall also had improved over 2003. Cadmium was not detected since 2013.

To recap:

MW-1B has overall improvement. Chloride, Sulfate (fall 2018), and manganese, have met their goals.

MW-2 has improved in zinc. Sulfate is about the same. Manganese is inconsistent. Goals have been met for chloride and manganese in the fall, for cadmium and for zinc. There has been no detection of cadmium since 2007.

MW-3 has a down trend in everything. Only chloride has met the cleanup goal.

MW-5 has met all the cleanup goals.

MW-8 has not met any cleanup goals. However, sulfate and manganese are steadier

MW-9 has met the cleanup goals for cadmium and zinc. Chloride is about the same, sulfate is up, cadmium remains non-detectable, manganese is up again, and zinc is about the same.

MW-10 has met the cleanup for chloride, cadmium, and zinc. The trend for all parameters is down. Chloride is staying pretty consistent since 2009. Manganese had reached the cleanup goal, but has been slightly up since.

Except for MW-8, all wells have downward trend lines in cadmium, and zinc. And even MW-8 has had decreasing amounts of cadmium in the last five years.

All wells, MW-1B and 5 have downward trend lines in four of five parameters; MW-2 and 9 have downward trend lines in three of five parameters; and MW-3 and 10 have downward trend lines in all five parameters.

MW-10, the downstream and off-site well, had meet the cleanup goal (0.05 mg/L) in the fall of 2012 for manganese, but went back above the cleanup goal. However, MW-10 has had no cadmium detected since 2008, and at least one sample a year with no zinc detected since 2004. The indication is that there is no contamination going off-site.

Ultra Yield™
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ANNUAL SITE INSPECTION

Comments on the 2018 Annual Inspection and Monitoring Checklist as Part of the Site Management Plan for Ultra Yield_Micronutrients

These are comments for the Annual Site Inspection for the Site Management Plan for the Ultra Yield Micronutrients in Moxee, Washington. Reference numbers are from the Figure 2 of the Site Management Plan.

The inspection for 2018 as part of the 2018 Annual Report for Well Sampling took place on 25 October 2018. The inspection was conducted by Terry Kelley.

O&M Component
1.0 Field Survey/Pavement Cover/Inspection

Parking/Asphalt Paved Areas:

A. Generally, there are no open cracks observed in the asphalt areas where equipment or production material are moved. Annually, UYM policy is to inspect the asphalt and paved area in the Spring after complete thaw of any snow and ice. A If any discrepancies are observed, a contractor will be contacted to clean, fill, and seal cracks as needed to prevent contamination from flowing into the soil under the pavement.
B. In WH-1-5, the ground around Well 11A had sunk in with a crack in the dirt from it to the Warehouse. This is the same as it was for the previous year 2015, 2016 inspection.
C. MW-1A has the SW and NE corners and W side of the concrete pad broken off, but the area around the casing is fine.
D. By the railroad spur, sections SWMU-1-8 & 9 have some crumbling of asphalt on either side of the track, but the area underlying the track is not paved. This is the same as has been for several years and would have no significant affect on the spur area.
E. There are slight cracks in a couple of berm spots: (1) at the drain along the west fence just north of the fueling area. It needs to be monitored. (2) Along the east fence approximately AOC-2-2, there is a slight crack slanted toward the new building which should also be monitored.
F. There were no odors anywhere.
G. The containment areas have no interior cracks.
H. There did not appear to be any areas of concern with the unpaved restricted areas.

These are my observations for the 2018 annual Ultra Yield Micronutrients Site Inspection, which will be included in the annual monitoring wells report.

Terry Kelley
EH& S Supervisor
Ultra Yield Micronutrients (509) 248-4911
213 West Moxee Avenue Moxee, WA 98936

Operation and Maintenance
Annual Inspection and Monitoring Checklist
Ultra Yield Micronutrients Facility Moxee, Washington

The following is a checklist that was developed to assist Ultra Yield Micronutrients with implementing the environmental Operations and Maintenance (OM) activities specified in Site Management Plan.

O&M Component				
1.0 Field Survey/Payment Cover/Inspection				
Perform a walking survey/inspection to ensure that the material serving as an environmental cover is being maintained and to detect any potential breaches in the cover such that the underlying affected soils could be exposed. Survey/Inspection should include the following areas.				**Corrective Action Maintenance Plan**
*	Parking / Asphalt Paved Areas Observe paved areas covering affected soil (See figure 2 Site Management Plan). Note any odors, visible discoloration, or cracks or other breaches where underlying fill may be exposed.	Inspection Completed Yes / No	No open cracks were observed in the asphalt areas where equipment or production material are moved. Area will be inspected again in spring after cold weather has subsided.	Annually, UYM policy is to inspect the asphalt and paved area in the Spring after complete thaw of any snow and ice. A If any discrepancies are observed, a contractor will be contacted to clean, fill, and seal cracks as needed to prevent contamination from flowing into the soil under the pavement.
-	West Warehouse Entryway and Adjoining Areas South of the East and West Storage Buildings	Yes / No		. No action required
-	Area Northeast of the West Warehouse/North of the East and West Storage Buildings	Yes / No		No action required
-	Corridor Between Warehouse and West Storage Building	Yes / No		No action required
*	Unpaved Areas (Soil / Graveled Covered) Observe all unpaved areas of the site covering affected soils (See figure 2 Site Management Plan). Note any signs of subsidence (e.g. obvious visible low areas where standing water may accumulate). Check for the presence of large cracks on the surface. Note any signs of significant erosion that may lead to exposure of underlying affected soil.	Yes / No	The ground around Well 11A had sunk in with a crack in the dirt from it to the Warehouse. Well is not used as part of the well monitoring process. The well itself is intact.	No action required
*	Monitoring Wells Observe the condition of each monitoring well, noting the condition of the concrete pad and steel protective casing. Ensure that each well is properly closed with a locking		MW-1A has the SW and NE corners and W side of the concrete pad broken off, but the area around the casing is fine.	No action required

Operation and Maintenance
Annual Inspection and Monitoring Checklist
Ultra Yield Micronutrients Facility Moxee, Washington

	plug and steel protective casing.			
-	Bone Yard	Yes / No		No action required
-	Railroad Spur	Yes / No	By the railroad spur, sections SWMU-1-8 & 9 have some crumbling of asphalt on either side of the track, but the area underlying the track is not paved. This is the same as has been for several years and would have no significant effect on the spur area. The section SWMU-1-14 is concrete covered.	Continue to monitor for change.
2.0 Recording Keeping				
Within 30 days following each inspection, a copy of the following information should be provided to the Washington Department of Ecology, Hazardous Waste and Toxics Reduction Program in Yakima. Originals should be filed on-site with other pertinent environment records maintained by Kronos Micronutrients representative responsible for environmental, health and safety issues.				
-	Date, nature of work, and names & affiliations of involved parties when asphalt/pavement/gravel/soil is disturbed in deed restricted areas. Attach photographs and a map noting the specific locations disturbed.	Yes/ No Not Applicable	Comments	No action required
-	Laboratory results of soil waste profile testing for any soil from deed-restricted areas that is excavated and disposed of off-site.	Yes/ No Not Applicable		No action required
-	Bill-of-lading or manifest pertaining to soil disposed of.	Yes/ No Not Applicable	.	No action required
-	Copy of any pertinent reports, surveys or studies involving future assessment/removal of affected soil conducted by engineers/consultants.	Yes/ No Not Applicable		No action required

Operation and Maintenance
Annual Inspection and Monitoring Checklist
Ultra Yield Micronutrients Facility Moxee, Washington

3.0 Miscellaneous Comments			
Any additional comments or Observations made during annual inspection?	Yes/ No Not Applicable		No action required

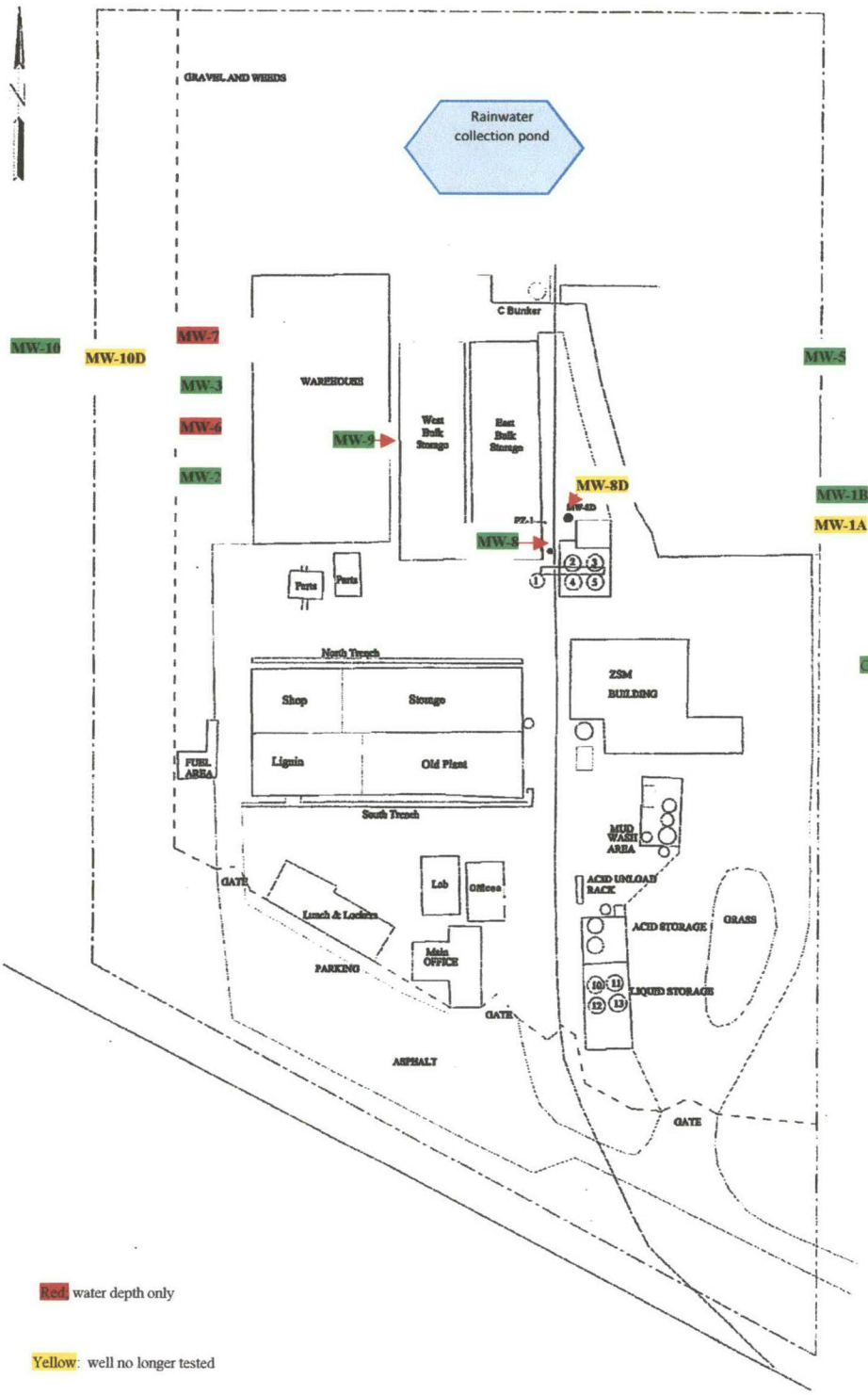
Inspected By: Terry L Kelley **Date:** **25 Oct 2018**

Terry Kelley, EH&S Supervisor, Ultra Yield Micronutrients

Ultra Yield™
MICRONUTRIENTS

TABLES AND CHARTS

Ultra Yield Micronutrients Wells 2018



SPRING 2018
ULTRA YIELD MICRONUTRIENTS
SEMI-ANNUAL ANALYTICAL RESULTS

Sampling date: 04/15/18		SAMPLE LOCATION							
Analytical Parameter	Target Clean-up Level	MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10	DUB
Chloride	250 mg/l	70	**348**	107	23.5	**602**	**405**	**298**	**655**
Sulfate	250 mg/l	**540**	**1370**	**896**	51.4	**1660**	**1530**	**1080**	**1820**
Cadmium	0.005 mg/l	**0.016**	ND	**0.125**	ND	**0.066**	ND	ND	**0.067**
Manganese	0.05 mg/l	0.009	**0.083**	**7.590**	**0.067**	**27.3**	**4.57**	**0.936**	**21.9**
Zinc	5.0 mg/l	**16.10**	0.006	**15.000**	0.004	**47.3**	0.019	0.0039	**49.9**

FALL 2018
ULTRA YIELD MICRONUTRIENTS
SEMI-ANNUAL ANALYTICAL RESULTS

Sampling date: 10/04/18 & 11/27/18		SAMPLE LOCATION							
Analytical Parameter	Target Clean-up Level	MW-1B	MW-2	MW-3	MW-5	MW-8*	MW-9*	MW-10	DUP
Chloride	250 mg/l	25.5	203	**173**	23	**555**	**521**	137	**470**
Sulfate	250 mg/l	118	**393**	**843**	53.8	**1430**	**1820**	**341**	**1710**
Cadmium	173.000	**0.006**	ND	0.091	ND	**0.03**	ND	ND	ND
Manganese	0.05 mg/l	**0.021**	0.004	**4.19**	0.014	**22.10**	**5.51**	**0.106**	**4.86**
Zinc	5.0 mg/L	**5.31**	0.004	**7.72**	0.009	**22.10**	0.024	0.011	**0.02**

Notes:

ND - Not detected above laboratory detection limit shown

All data shown in **bold** indicates cleanup level exceeded

mg/l - Milligrams per Liter

* corrected results from 11/27/18, trtanscription error on previous samples in 10/14/18

SR

Historical Summary of Groundwater Analytical Results: 2003-2018
Ultra Yield Micronutrients/Bay Zinc Company
Moxee, Washington

WELL ID NUMBER		MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
PARAMETER	DATE							
CHLORIDE								
	1/31/2003	89.8	**487**	105	19.5	**418**	**448**	**543**
	6/16/2003	64	**416**	203	18.4			212
	9/16/2003	42	42	70	19	160	**600**	130
	12/9/2003	46	71	87	21	150	**650**	110
	3/17/2004	50	**410**	180	19	140	**800**	120
	6/16/2004	29	71	110	19	**440**	**450**	110
	9/20/2004	20	43	42	20	130	**720**	110
	12/13/2004	25	59	85	20	130	**800**	120
	3/21/2005	26	160	190	23	120	**620**	120
	6/21/2005	22.5	51	92	19.5	129	**600**	125
	9/19/2005	22.5	122	192	22.5	**300**	**650**	122
	11/14/2005	23.4	88.4	225	21.4	**390**	**648**	160
	3/27/2006		**521**	151	19	**295**	**550**	
	4/5/2006	48						**410**
	6/12/2006	60.2	**417**	158	23.2	110	**606**	**322**
	9/11/2006	30.4	169	181	22.2	79	**535**	**364**
	11/9/2006	66	118	155	21.8	143	**650**	**303**
	3/26/2007	172	**582**	216	23.3	**313**	**683**	**661**
	6/18/2007	49.5	180	181	22.9	**330**	**800**	**725**
	8/27/2007	29	115	113	22.7	168	**650**	**463**
	11/19/2007	29.9	210	164	21.9	**277**	**745**	**320**
	3/24/2008	78.5	**555**	220	27.5	**350**	**700**	245
	6/16/2008	44.5	**284**	170	24	**303**	**678**	200
Cleanup Goal -	8/18/2008	30	121	101	23	242	**567**	155
250 mg/l	11/17/2008	26.5	203	130	22.5	**269**	**601**	136
	3/16/2009	50	**484**	160	21	**374**	**632**	**380**
	6/15/2009	30.8	**416**	116	21.2	**336**	**690**	**266**
	8/24/2009	26	146	116	23.2	244	**500**	196
	3/22/2010	60	**402**	81.7	17.9	**310**	**522**	**388**
	9/20/2010	21.8	137	135	18.2	**264**	**425**	114
	3/28/2011	52.8	**445**	63	18.9	**377**	**600**	**353**
	9/19/2011	24.5	131	166	20.3	**352**	**590**	152
	3/26/2012	25	**368**	101	17.7	**426**	**573**	168
	9/17/2012	21	139	151	20.4	**405**	**628**	90
	3/18/2013	22.8	**341**	123	16.5	**406**	**579**	203
	9/16/2013	26	113	115	19	**390**	**560**	84
	3/17/2014	40	**363**	140	21.5	**579**	**607**	**339**
	9/29/2014	21	140	128	21.5	**478**	**610**	136
	3/23/2015	65	**354**	114	19.2	**507**	**440**	213
	9/14/2015	22.9	111	118	23.3	213	**612**	75
	3/23/2016	249	**404**	99	22.6	**568**	**562**	418
	9/26/2016	69	121	138	22.8	**376**	**609**	141
	4/4/2017	185	**420**	63	22.8	**537**	**432**	**256**
	10/17/2017	71	134	143	23.4	**530**	**419**	133
	4/11/2018	70	**348**	107	23.5	**602**	**405**	**298**
	10/4/2018	25.5	203	173	23			137
	11/27/2019					**555**	**521**	

Historical Summary of Groundwater Analytical Results: 2003-2018
Ultra Yield Micronutrients/Bay Zinc Company
Moxee, Washington

WELL ID NUMBER		MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
PARAMETER	DATE							
SULFATE								
	1/31/2003	2190	1117	1191	46.3	1518	727	1576
	6/16/2003	1450	416	2020	42.4			1574
	9/16/2003	805	71.8	480	42.5	580	1020	615
	12/9/2003	613	ND	609	ND	677	1030	630
	3/17/2004	1610	1020	1540	108	630	1420	605
	6/16/2004	566	113	642	52	1170	797	578
	9/20/2004	114	83	174	50.6	46	1610	538
	12/13/2004	188	98.1	516	35.9	488	1430	578
	3/21/2005	356	273	1080	53	460	796	588
	6/21/2005	102	118	610	58.8	370	1350	589
	9/19/2005	89	233	1860	56.1	1290	950	752
	11/14/2005	93.8	126	1680	46.8	1290	978	693
	3/27/2006		1130	1300	62.3	1340	935	
	4/5/2006	1500						1800
	6/12/2006	1830	733	2050	130	659	1540	2170
	11/9/2006	399	284	1380	59	722	1440	1440
	3/26/2007	1840	1390	1460	65.1	1740	1140	2860
	6/18/2007	977	355	1500	60	2000	1490	3700
	8/27/2007	317	280	805	71	1150	1300	2320
	11/19/2007	252	319	1140	52	1480	1120	1500
	3/24/2008	1180	1110	1460	54.3	1540	1030	1050
	6/16/2008	602	499	1170	52	1570	1340	986
Cleanup Goal - 250 mg/l	8/18/2008	290	292	492	52.7	1250	1140	840
	11/17/2008	138	361	839	31.9	1380	1100	717
	3/16/2009	824	1070	921	287	1530	984	1320
	6/15/2009	329	1050	750	68.8	1490	1040	1250
	8/24/2009	163	642	748	75.6	1210	1390	1510
	3/22/2010	1070	1380	601	46.3	1750	1210	1450
	9/20/2010	208	503	731	48	1110	1190	498
	3/28/2011	925	1710	463	47.4	1810	1480	1230
	9/19/2011	172	550	828	48.2	1340	1520	847
	3/26/2012	472	1270	980	44.4	1780	1540	855
	9/17/2012	107	594	885	46.1	1360	1710	608
	3/18/2013	253	1280	1110	41.6	1610	1660	924
	9/16/2013	232	583	809	46.9	1330	1830	609
	3/17/2014	579	1170	1080	49.4	1870	1790	1240
	9/29/2014	95.7	615	904	50.4	1600	1910	747
	3/23/2015	1060	992	884	44.8	1740	1420	918
	9/14/2015	141	413	786	50.8	689	1750	380
	3/23/2016	2320	1320	859	49.5	1760	1580	1440
	9/26/2016	805	390	971	51.1	1140	1840	600
	4/4/2017	1950	1380	788	49.4	1600	1400	1010
	10/17/2017	904	386	1190	58.1	1570	1790	541
	4/11/2018	540	1370	896	51.4	1660	1530	1080
	10/4/2018	118	393	843	53.8			341
	11/27/2018					1430	1820	

Historical Summary of Groundwater Analytical Results: 2003-2018
Ultra Yield Micronutrients/Bay Zinc Company
Moxee, Washington

WELL ID NUMBER		MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
PARAMETER	DATE							
CADMIUM								
	1/31/2003	**0.2**	ND	**0.84**	ND	ND	ND	ND
	6/16/2003	**0.13**	ND	**0.14**	ND			ND
	9/16/2003	**0.073**	0.001	**0.043**	ND	**0.006**	ND	ND
	12/9/2003	**0.052**	ND	**0.031**	ND	0.004	ND	ND
	3/17/2004	**0.1**	ND	**0.23**	ND	**0.006**	ND	ND
	6/16/2004	**0.042**	0.003	**0.082**	**0.006**	**0.095**	0.003	0.004
	9/20/2004	**0.01**	ND	**0.007**	ND	ND	ND	ND
	12/13/2004	**0.015**	ND	**0.041**	ND	0.01	ND	ND
	3/21/2005	**0.028**	ND	**0.21**	ND	0.005	ND	ND
	6/21/2005	ND	ND	**0.08**	ND	0.005	ND	ND
	9/19/2005	**0.009**	ND	**0.26**	ND	**0.019**	ND	ND
	11/14/2005	**0.01**	ND	**0.27**	ND	**0.054**	0.002	ND
	3/27/2006		**0.006**	**0.084**	ND	**0.051**	ND	
	4/5/2006	**0.1**						ND
	6/12/2006	**0.081**	ND	**0.14**	ND	**0.009**	ND	ND
	9/11/2006	**0.025**	ND	**0.077**	ND	**ND**	ND	ND
	11/9/2006	**0.03**	ND	**0.063**	ND	**0.014**	ND	ND
	3/26/2007	ND	**0.026**	**0.022**	ND	ND	ND	ND
	6/18/2007	ND	ND	ND	ND	ND	ND	ND
	8/27/2007	**0.014**	**0.009**	**0.054**	ND	**0.014**	ND	ND
	11/19/2007	ND	ND	**0.013**	ND	ND	ND	ND
	3/24/2008	**0.094**	ND	**0.29**	ND	**0.066**	ND	ND
	6/16/2008	**0.047**	ND	**0.15**	ND	**0.062**	ND	ND
Cleanup Goal -	8/18/2008	**0.023**	ND	**0.052**	ND	**0.044**	ND	ND
0.005 mg/l	11/17/2008	**0.02**	ND	**0.08**	ND	**0.044**	ND	ND
	3/16/2009	**0.089**	ND	**0.154**	ND	**0.068**	ND	ND
	6/15/2009	**0.042**	ND	**0.106**	ND	**0.077**	ND	ND
	8/24/2009	**0.014**	ND	**0.044**	ND	**0.021**	ND	ND
	3/22/2010	**0.081**	ND	**0.067**	ND	**0.083**	ND	ND
	9/20/2010	**0.0179**	ND	**0.0422**	ND	**0.0277**	ND	ND
	3/28/2011	**0.0582**	ND	**0.0556**	ND	**0.112**	ND	ND
	9/19/2011	**0.0145**	ND	**0.049**	ND	**0.0391**	ND	ND
	3/26/2012	**0.0309**	ND	**0.152**	ND	**0.189**	ND	ND
	9/17/2012	**0.0105**	ND	**0.0683**	ND	**0.0485**	ND	ND
	3/18/2013	**0.02**	ND	**0.19**	ND	**0.132**	ND	ND
	9/16/2013	**0.014**	ND	**0.0656**	ND	**0.0319**	ND	ND
	3/17/2014	**0.0305**	ND	**0.145**	ND	**0.064**	ND	ND
	9/29/2014	**0.0086**	ND	**0.0701**	ND	**0.0245**	ND	ND
	3/23/2015	0.0052	ND	**0.176**	ND	**0.0646**	ND	ND
	9/14/2015	**0.0119**	ND	**0.0789**	ND	**0.0108**	ND	ND
	3/23/2016	**0.061**	ND	**0.039**	ND	**0.056**	ND	ND
	9/26/2016	**0.0197**	ND	**0.0502**	ND	**0.0185**	ND	ND
	4/4/2017	**0.032**	ND	**0.033**	ND	**0.0497**	ND	ND
	10/17/2017	**0.18**	ND	**0.100**	ND	**0.05**	ND	ND
	4/11/2018	**0.016**	ND	**0.125**	ND	**0.066**	ND	ND
	10/4/2018	**0.006**	ND	0.091	ND			ND
	11/27/2018					**0.03**	ND	

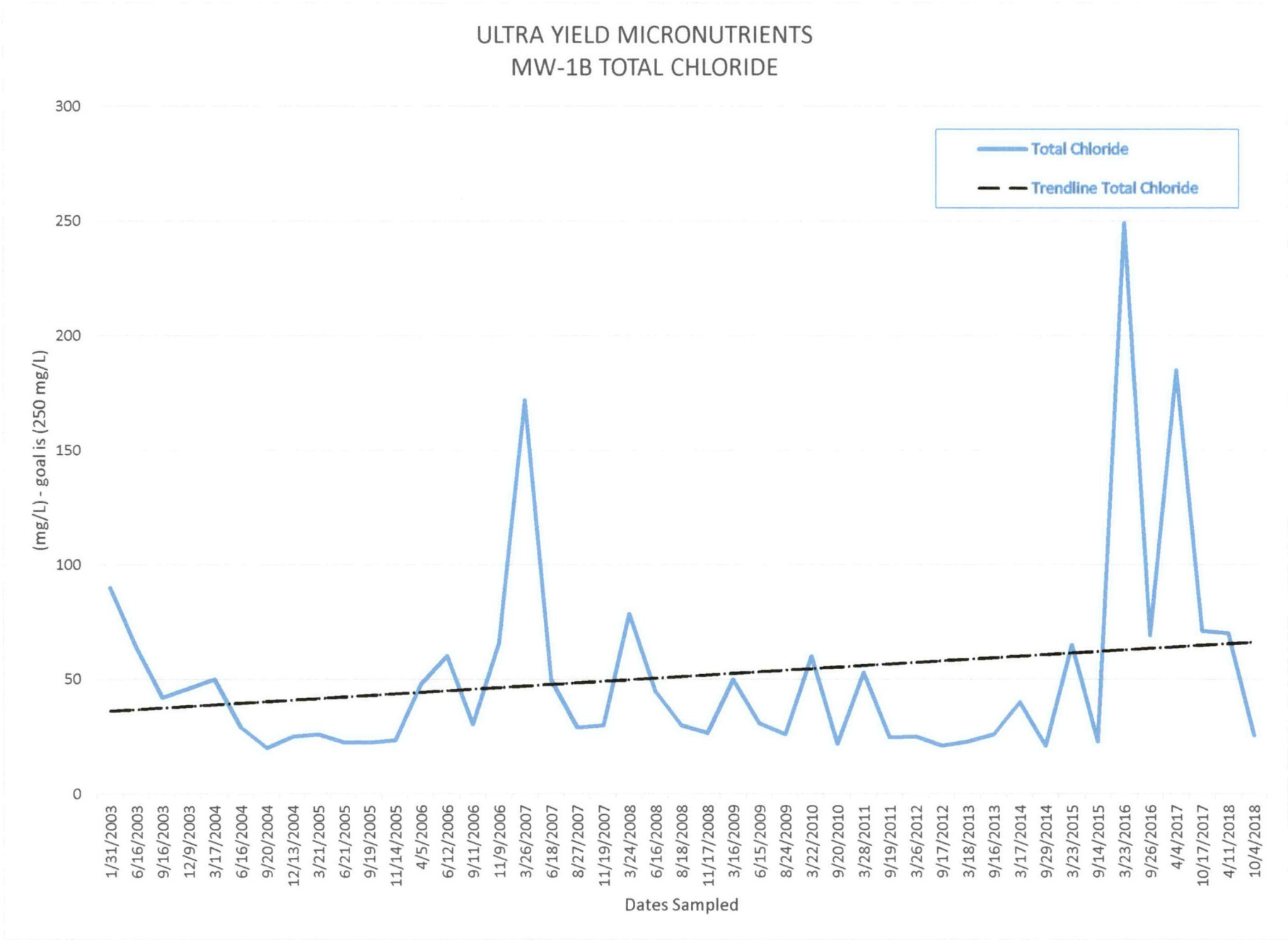
Historical Summary of Groundwater Analytical Results: 2003-2018
Ultra Yield Micronutrients/Bay Zinc Company
Moxee, Washington

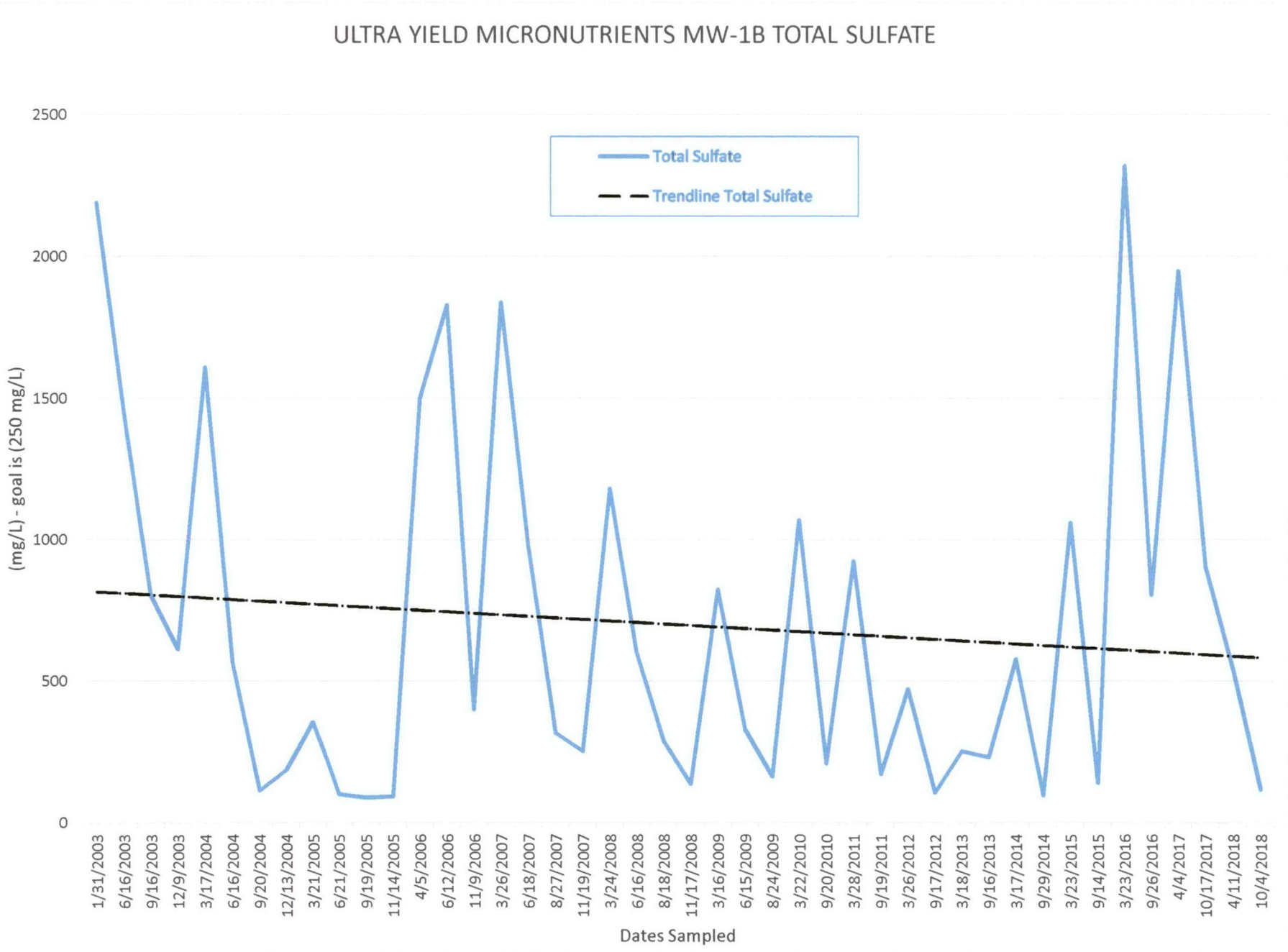
WELL ID NUMBER		MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
PARAMETER	DATE							
MANGANESE								
	1/31/2003	**1.39**	**0.28**	**3.4**	**0.11**	**25.2**	**0.99**	**0.4**
	6/16/2003	**1.29**	**0.73**	**5.24**	0.033			**0.097**
	9/16/2003	**0.45**	**0.63**	**1.5**	0.039	**3.3**	**0.02**	**0.63**
	12/9/2003	**0.083**	**0.44**	**1.5**	ND	**2.5**	**0.11**	**0.29**
	3/17/2004	**0.17**	**0.24**	**11**	0.027	**3.4**	**0.11**	0.005
	6/16/2004	**0.071**	**0.032**	**5.7**	**0.11**	**18**	**2.20**	0.031
	9/20/2004	**0.13**	**0.47**	**1.2**	0.051	**3.4**	**2.90**	**0.27**
	12/13/2004	**0.06**	**0.74**	**3.3**	0.047	**3.8**	**3.50**	**0.61**
	3/21/2005	**0.022**	0.026	**13**	0.033	**3.5**	**2.40**	0.016
	6/21/2005	**0.09**	0.029	**5.8**	**0.001**	**3.9**	**2.40**	**0.37**
	9/19/2005	**0.1**	**0.77**	**25**	**0.082**	**12**	**2.50**	**1.1**
	11/14/2005	**0.053**	**0.99**	**19**	**0.072**	**16**	**2.80**	**0.82**
	3/27/2006		**0.28**	**6.5**	**0.057**	**14**	**1.10**	
	4/5/2006	**0.24**						**1.2**
	6/12/2006	**0.17**	**1.3**	**8.7**	**0.096**	**3.5**	**1.70**	**1.4**
	9/11/2006	**0.12**	**1**	**6.5**	**0.048**	**2.1**	**1.80**	**2.1**
	11/9/2006	0.052	**1.4**	**5.2**	**0.084**	**5.3**	**2.30**	**1.9**
	3/26/2007	**0.14**	**0.24**	**8.9**	**0.067**	**18**	**1.60**	0.023
	6/18/2007	ND	**0.17**	**8.4**	ND	**19**	**1.20**	**2**
	8/27/2007	**0.093**	**0.36**	**4.9**	**0.063**	**7.7**	**2.20**	**2.4**
	11/19/2007	ND	**1.2**	**9.5**	ND	**15**	**2.60**	**1.4**
	3/24/2008	**0.088**	**0.33**	**16**	**0.059**	**29**	**2.00**	**0.11**
	6/16/2008	**0.23**	**2.3**	**11**	**0.072**	**25**	**2.00**	**0.28**
Cleanup Goal -	8/18/2008	0.043	**1.4**	**4.1**	0.022	**17**	**2.50**	**0.41**
0.05 mg/l	11/17/2008	ND	**2.1**	**6.4**	ND	**22**	**2.60**	**0.31**
	3/16/2009	0.037	**0.259**	**9.25**	0.054	**28.5**	**2.04**	**0.219**
	6/15/2009	0.037	**2.29**	**6.26**	0.045	**24.4**	**2.23**	**0.292**
	8/24/2009	0.032	**2.02**	**4.05**	0.028	**2.02**	**2.49**	**0.335**
	3/22/2010	0.0419	**0.14**	**4.39**	**0.0646**	**28**	**2.93**	**0.159**
	9/20/2010	0.0281	**2.88**	**5.1**	0.0273	**12.4**	**2.91**	**0.23**
	3/28/2011	0.0171	**0.254**	**4.01**	**0.0614**	**24.3**	**3.13**	**0.0925**
	9/19/2011	0.0077	**2.06**	**4.76**	0.0323	**15.2**	**6.01**	**0.0957**
	3/26/2012	0.0081	0.0339	**11.2**	**0.0664**	**33.6**	**4.66**	0.0269
	9/17/2012	0.0065	**3.05**	**6.32**	0.0293	**17.6**	**4.85**	0.0501
	3/18/2013	0.0064	0.0154	**14**	**0.0624**	**28.5**	**4.37**	**0.109**
	9/16/2013	0.0186	**0.617**	**4.78**	0.017	**15.2**	**4.55**	**0.142**
	3/17/2014	0.0075	0.0052	**10**	0.0537	**31.1**	**5.18**	**0.222**
	9/29/2014	0.0089	**3.04**	**6.79**	0.0216	**18.2**	**5.52**	**0.149**
	3/23/2015	0.0276	0.0039	**11.4**	**0.0637**	**33.9**	**6**	**0.185**
	9/14/2015	0.0123	**0.293**	**6.81**	0.0094	**8.65**	**5**	**0.118**
	3/23/2016	**0.170**	**0.140**	**1.64**	0.053	**35.70**	**6.54**	**0.31**
	9/26/2016	0.043	0.006	**1.22**	0.009	**18.00**	**6.33**	**0.22**
	4/4/2017	**0.450**	**0.159**	**1.430**	0.036	**30.2**	**5.11**	**0.31**
	10/17/2017	**0.24**	**0.09**	**4.85**	0.031	**24.0**	**5.22**	**0.27**
	4/11/2018	**0.009**	**0.083**	**7.590**	**0.067**	**27.3**	**4.57**	**0.936**
	10/4/2018	**0.021**	0.004	**4.19**	0.014			**0.106**
	11/27/2018					**22.10**	**5.51**	

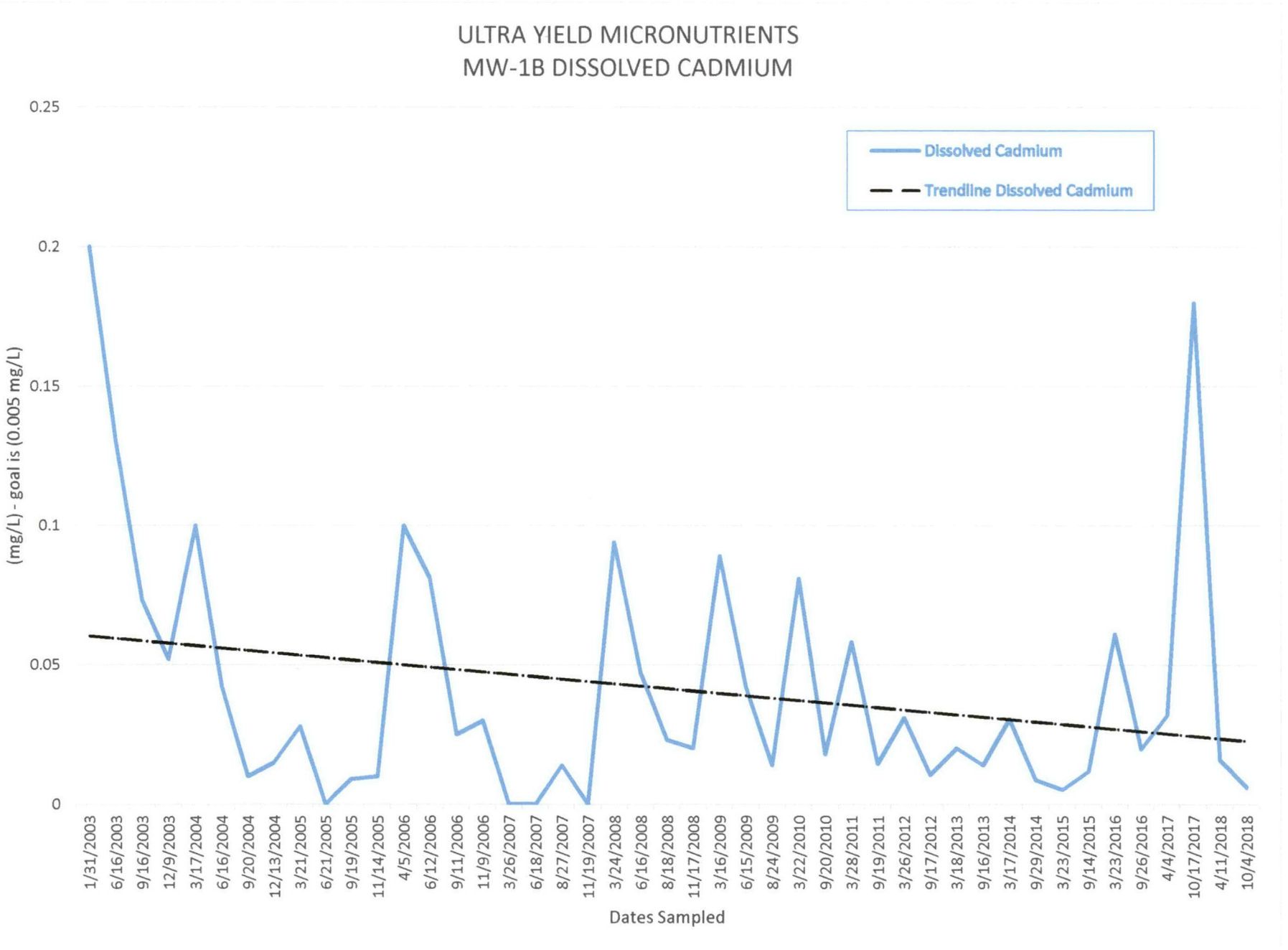
Historical Summary of Groundwater Analytical Results: 2003-2018
Ultra Yield Micronutrients/Bay Zinc Company
Moxee, Washington

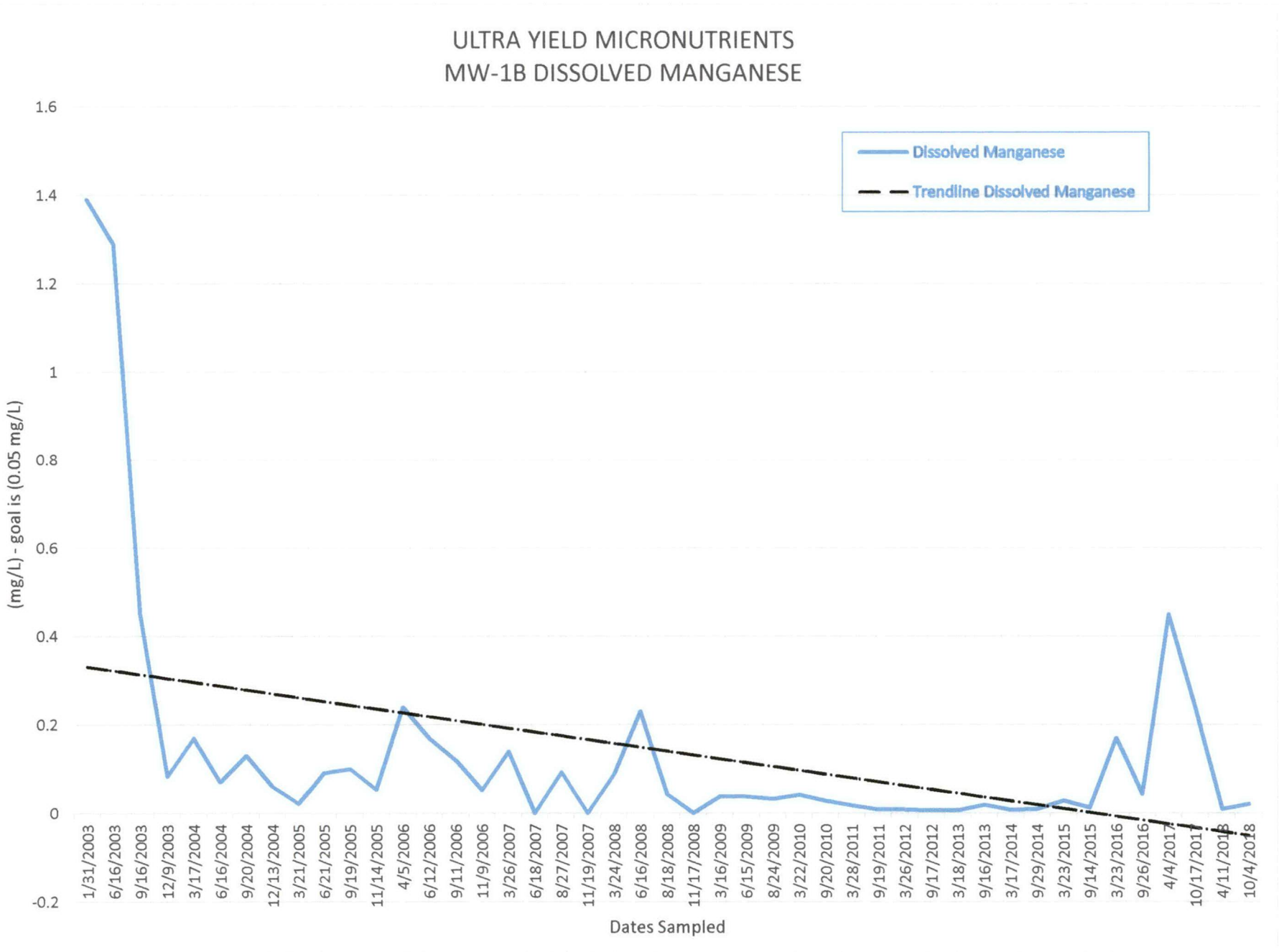
WELL ID NUMBER		MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
PARAMETER	DATE							
ZINC								
	1/31/2003	**286**	0.097	**13.6**	0.014	0.014	0.300	0.021
	6/16/2003	**175**	0.035	**19**	0.008			0.011
	9/16/2003	**73**	0.25	5	0.076	3.1	0.340	0.059
	12/9/2003	**47**	0.061	4.2	0.11	2.8	0.140	0.048
	3/17/2004	**190**	0.035	**45**	0.037	3.4	0.180	ND
	6/16/2004	**79**	0.22	**12**	0.38	**41**	0.250	0.081
	9/20/2004	**25**	0.003	1.8	0.052	2.8	0.210	0.033
	12/13/2004	**27**	0.18	**5.4**	0.085	4.4	0.160	0.053
	3/21/2005	**50**	0.46	**41**	0.1	3.7	0.110	0.036
	6/21/2005	**15**	0.025	**12**	0.063	3.7	0.098	0.005
	9/19/2005	**15**	0.023	**54**	0.082	**12**	0.078	0.004
	11/14/2005	**17**	0.009	**47**	0.031	**28**	0.063	0.006
	3/27/2006		0.099	**16**	0.03	**38**	0.059	
	4/5/2006	**170**						0.048
	6/12/2006	**130**	0.072	**38**	0.022	5.2	0.130	0.022
	9/11/2006	**43**	0.27	**12**	0.01	**0.94**	0.047	0.016
	11/9/2006	**55**	0.16	**10**	0.009	7.9	0.068	0.044
	3/26/2007	**200**	0.078	**30**	0.81	20	0.220	0.036
	6/18/2007	**110**	ND	**21**	0.087	89	0.370	ND
	8/27/2007	**31**	0.015	**8.9**	0.021	**20**	0.050	0.006
	11/19/2007	**25**	0.061	**19**	ND	**38**	0.140	ND
	3/24/2008	**130**	0.026	**43**	ND	**95**	0.050	0.028
	6/16/2008	**80**	0.022	**25**	ND	**97**	0.069	ND
Cleanup Goal -	8/18/2008	**32**	ND	**6.7**	0.036	**68**	0.120	ND
5.0 mg/l	11/17/2008	**22**	ND	**9.9**	ND	**84**	0.230	ND
	3/16/2009	**128**	0.081	**26.2**	0.037	**140**	0.107	0.054
	6/15/2009	**54.5**	ND	**17.3**	0.038	**125**	0.047	ND
	8/24/2009	**20.2**	ND	**5.68**	ND	**44.1**	0.034	ND
	3/22/2010	**110**	0.0045	**10.9**	0.0025	**131**	0.019	0.0022
	9/20/2010	**19.6**	0.0032	4.51	ND	**27.6**	0.018	ND
	3/28/2011	**86.1**	0.0051	**9.27**	0.0022	**124**	0.0210	ND
	9/19/2011	**19**	0.0309	**5.66**	0.0022	**38.5**	0.0215	0.0036
	3/26/2012	**41**	ND	**23.7**	ND	**11.7**	0.0316	0.0038
	9/17/2012	**11**	ND	**6.56**	0.0039	**35.2**	0.0338	ND
	3/18/2013	**23.8**	0.0041	**28.3**	ND	**79.9**	0.025	ND
	9/16/2013	**15.4**	0.006	**7.06**	0.0025	**22.8**	0.0397	0.0071
	3/17/2014	**40.7**	ND	**24.5**	0.002	**60.4**	0.021	ND
	9/29/2014	**9.53**	0.0035	**7.24**	ND	**20.5**	0.039	ND
	3/23/2015	**59.2**	ND	**22.6**	ND	**57.4**	0..026	ND
	9/14/2015	**12.9**	ND	**7.87**	ND	**10.7**	0.028	ND
	3/23/2016	**71.4**	0.005	**5.93**	ND	**52.8**	0.025	ND
	9/26/2016	**21.8**	.0.005	**5.67**	0.0025	**17.6**	0.0025	0.0031
	4/4/2017	**36.70**	0.01	4.600	ND	**54.4**	0.022	0.003
	10/17/2017	**16.1**	0.003	**11.4**	0.004	**32.1**	0.032	0.012
	4/11/2018	**16.10**	0.006	**15.000**	0.004	**47.3**	0.019	0.0039
	10/4/2018	**5.31**	0.004	**7.72**	0.009	*	*	0.011
	11/27/2018					**22.10**	0.024	

Notes: ND - Not detected at laboratory detection limit mg/l - milligrams per liter

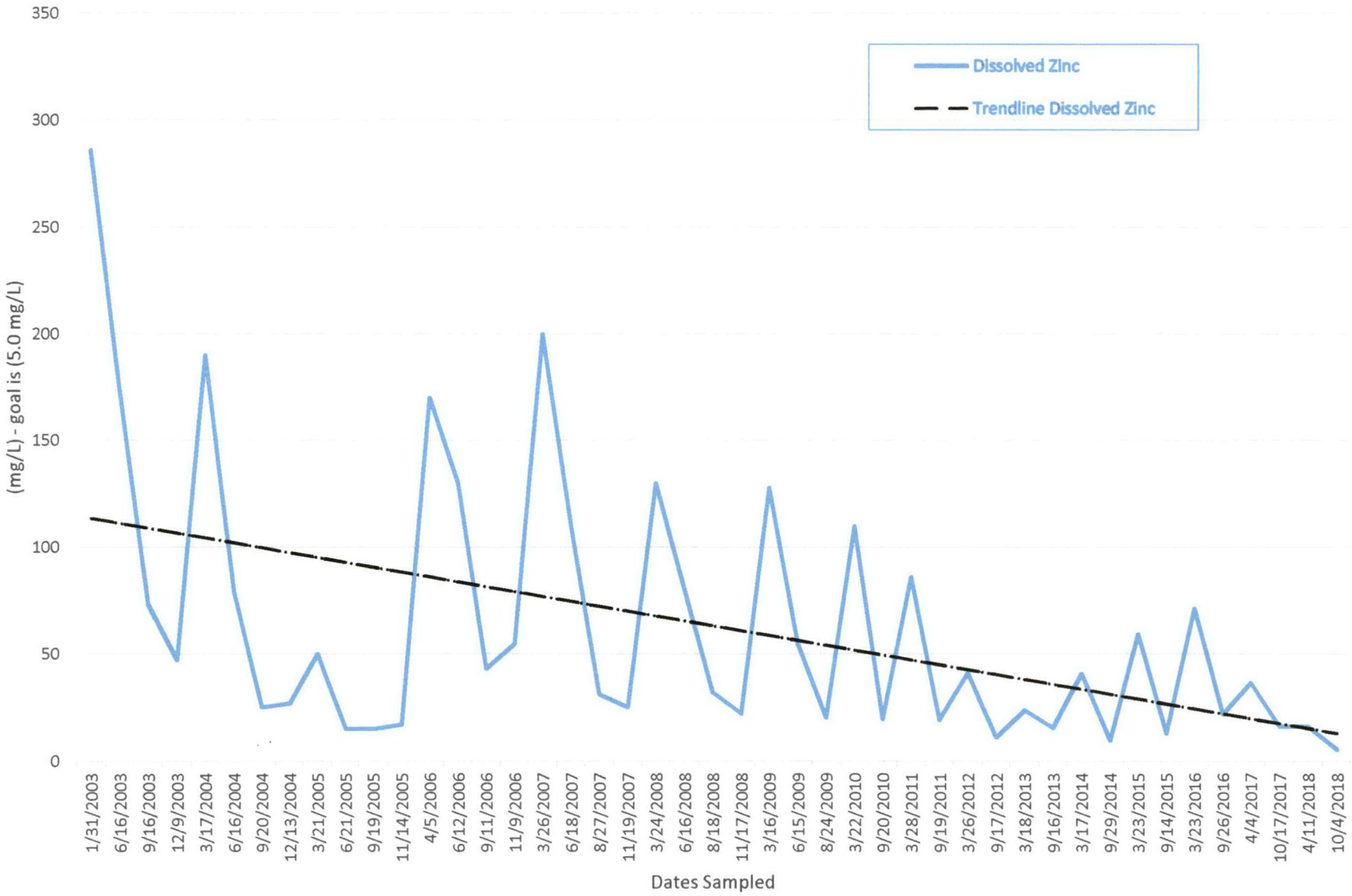

ULTRA YIELD MICRONUTRIENTS
MW-1B TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
300
250
200
150
100
50
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

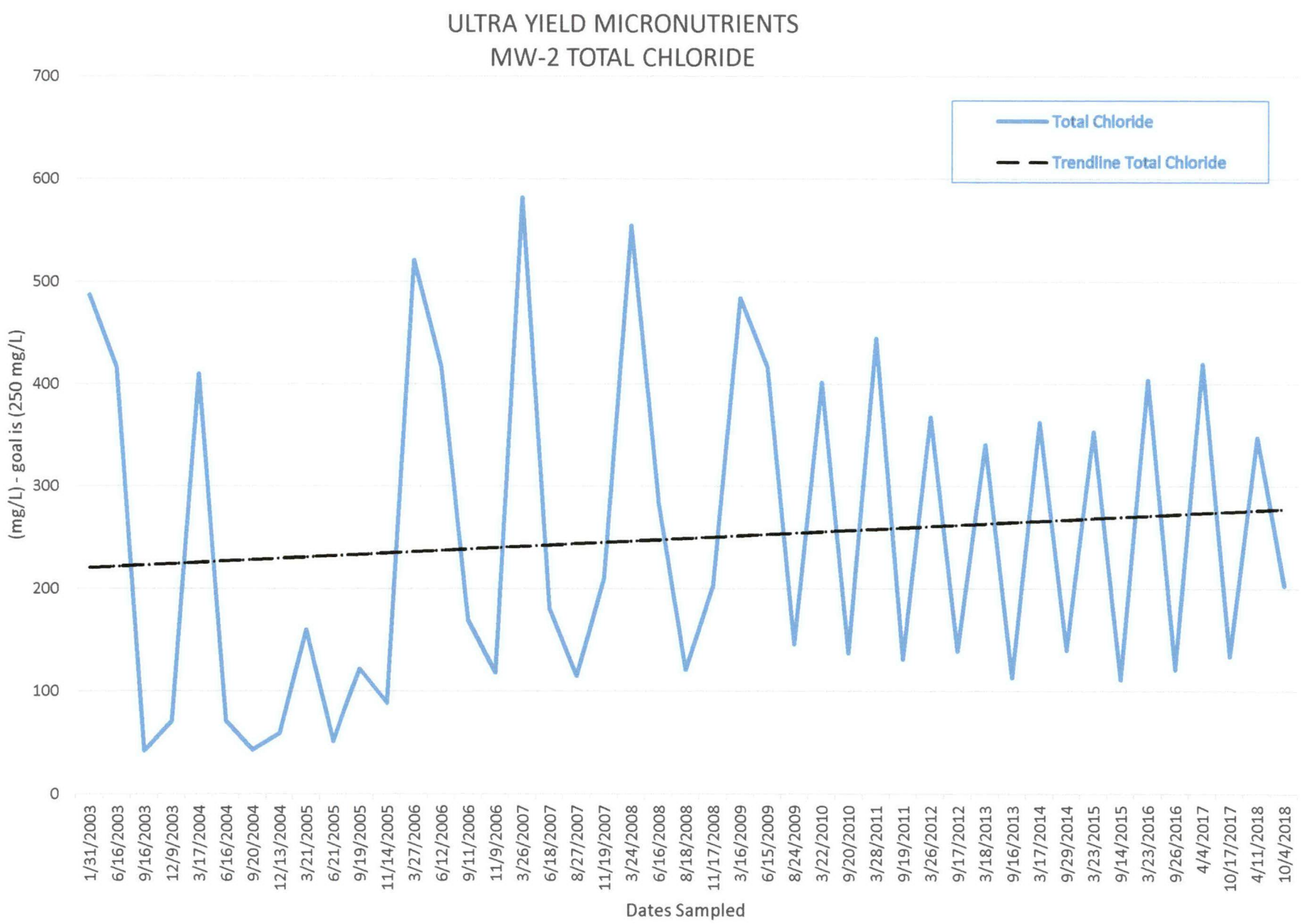

ULTRA YIELD MICRONUTRIENTS MW-1B TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) - goal is (250 mg/L)
2500
2000
1500
1000
500
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

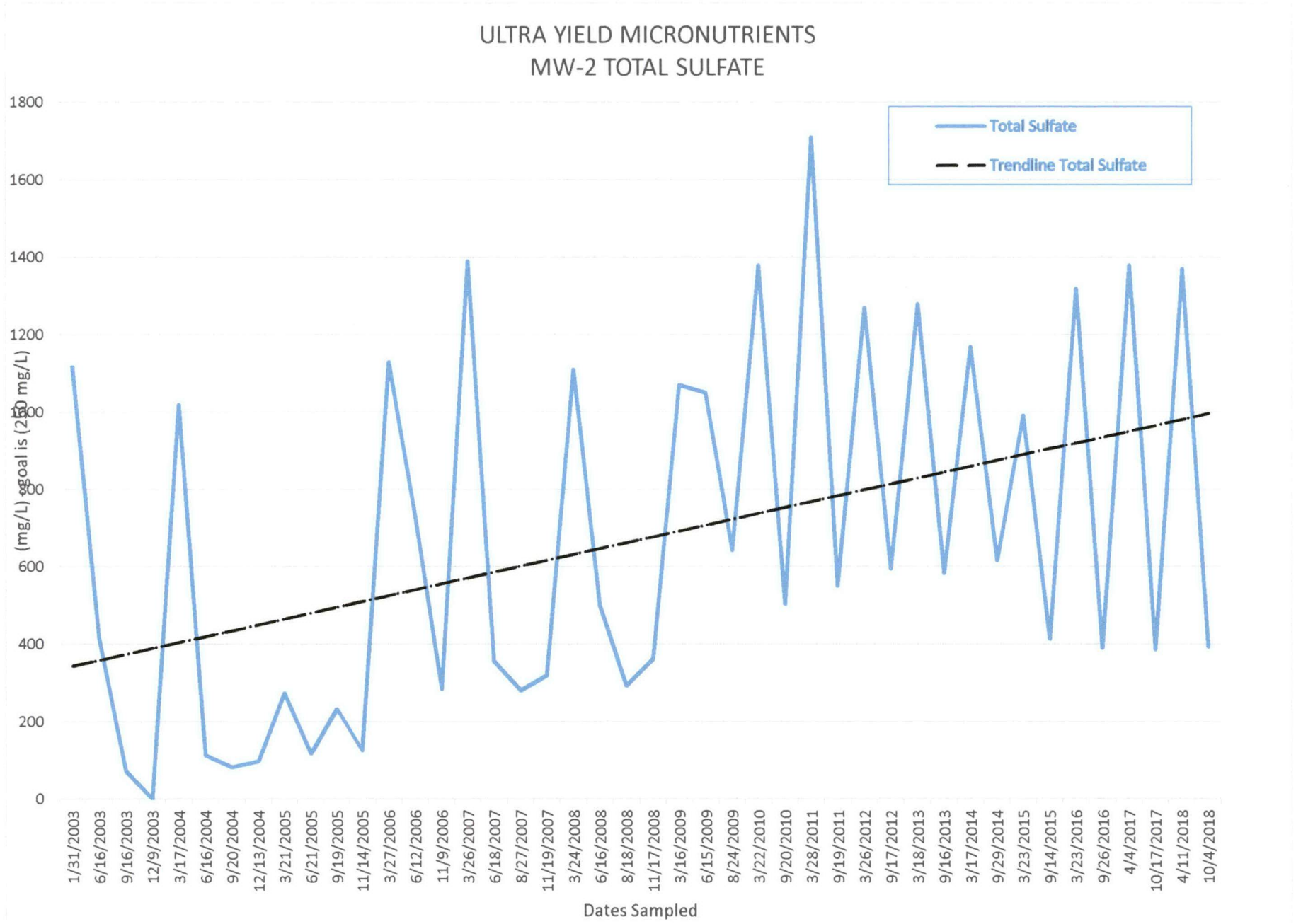

ULTRA YIELD MICRONUTRIENTS
MW-1B DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0.25
0.2
0.15
0.1
0.05
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

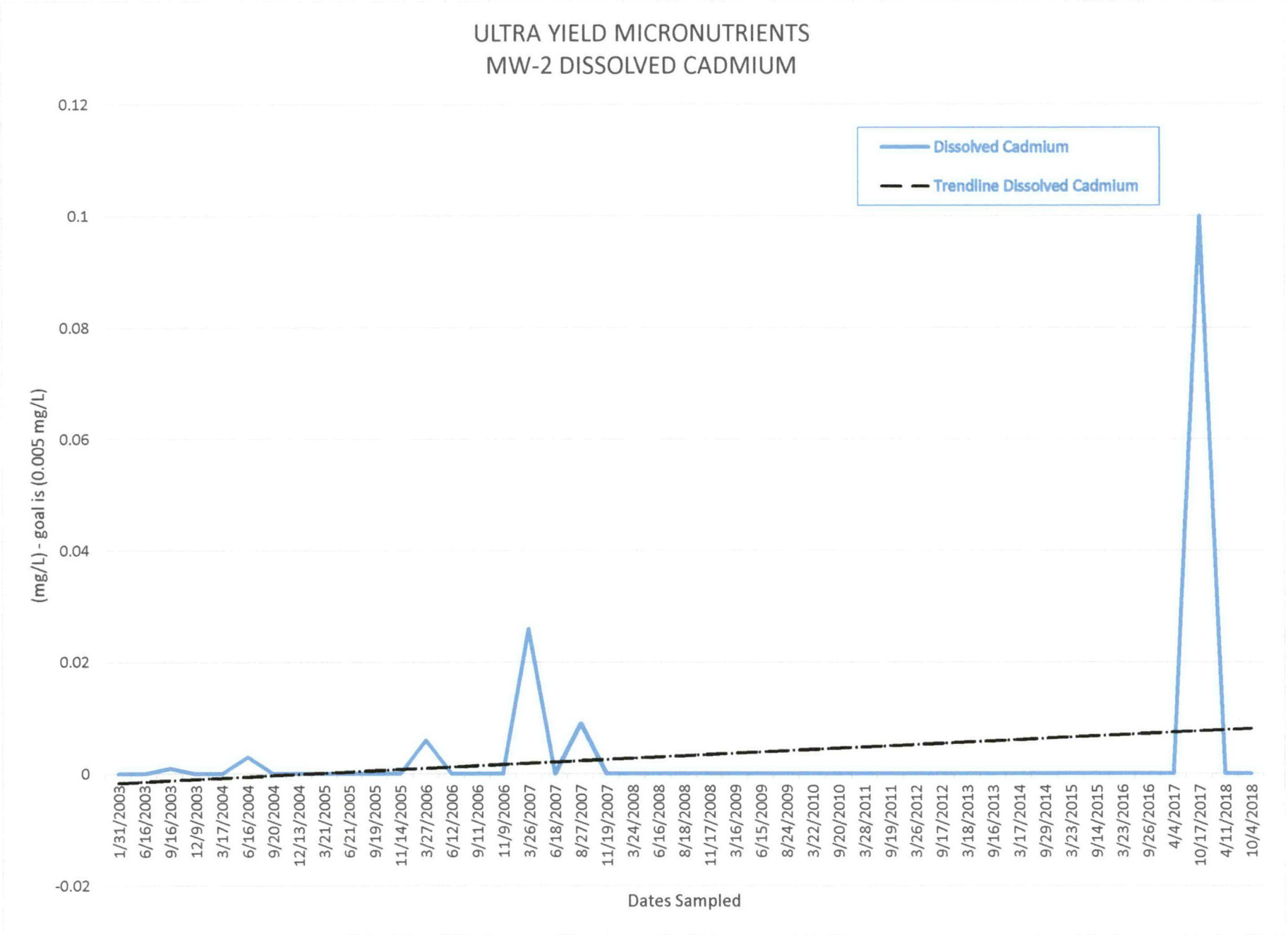

ULTRA YIELD MICRONUTRIENTS
MW-1B DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

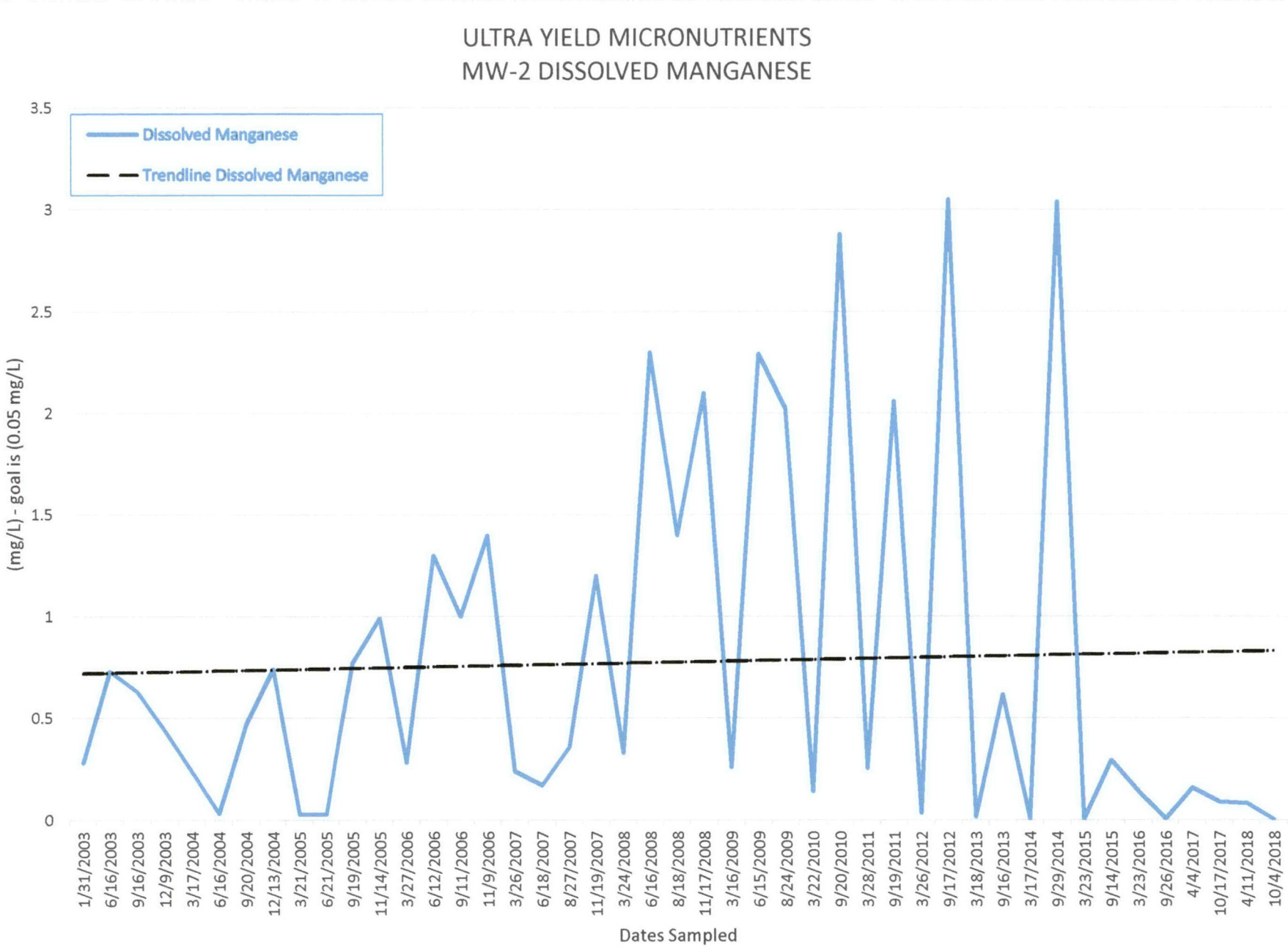
ULTRA YIELD MICRONUTRIENTS
MW-1B DISSOLVED ZINC

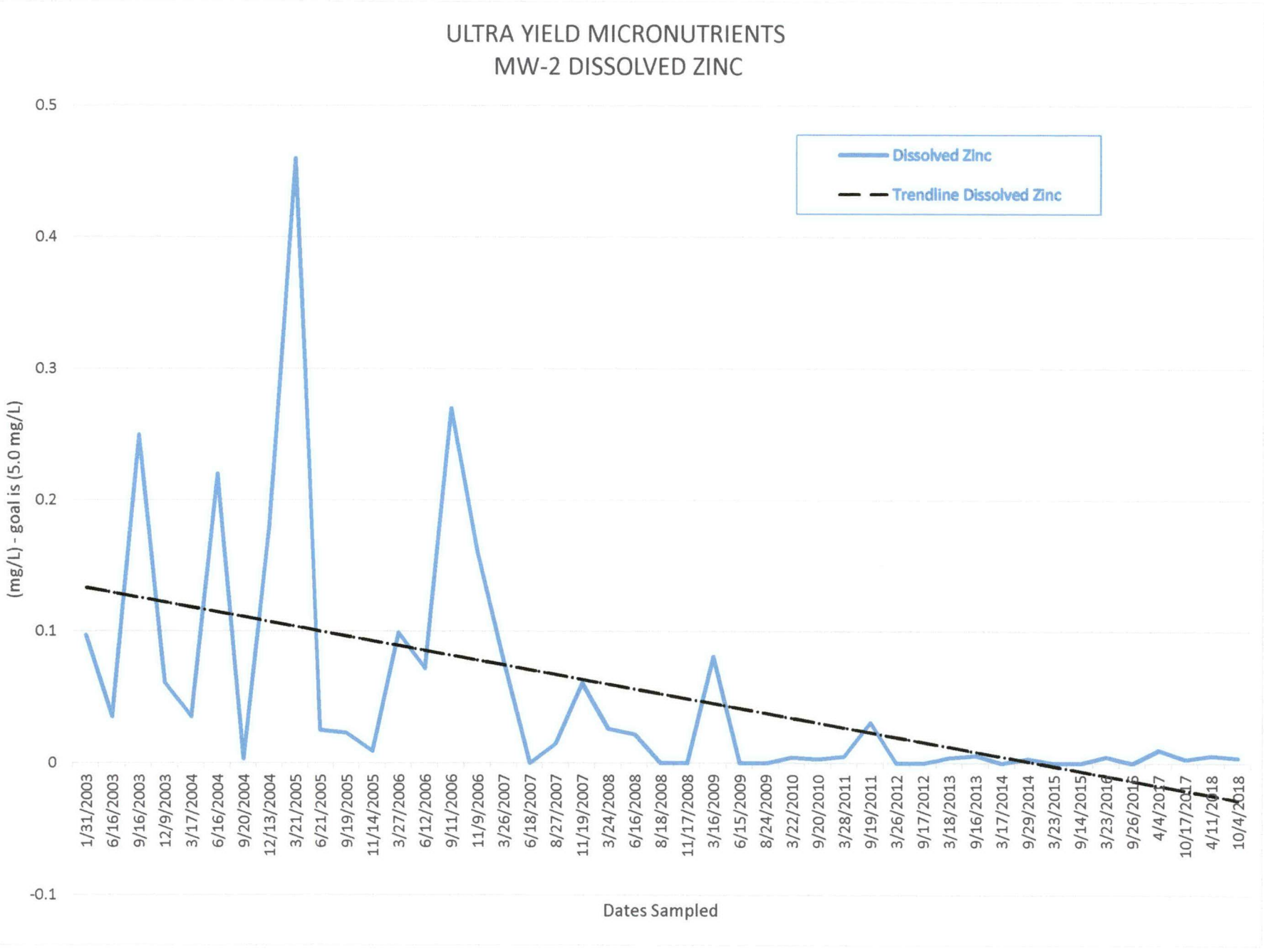


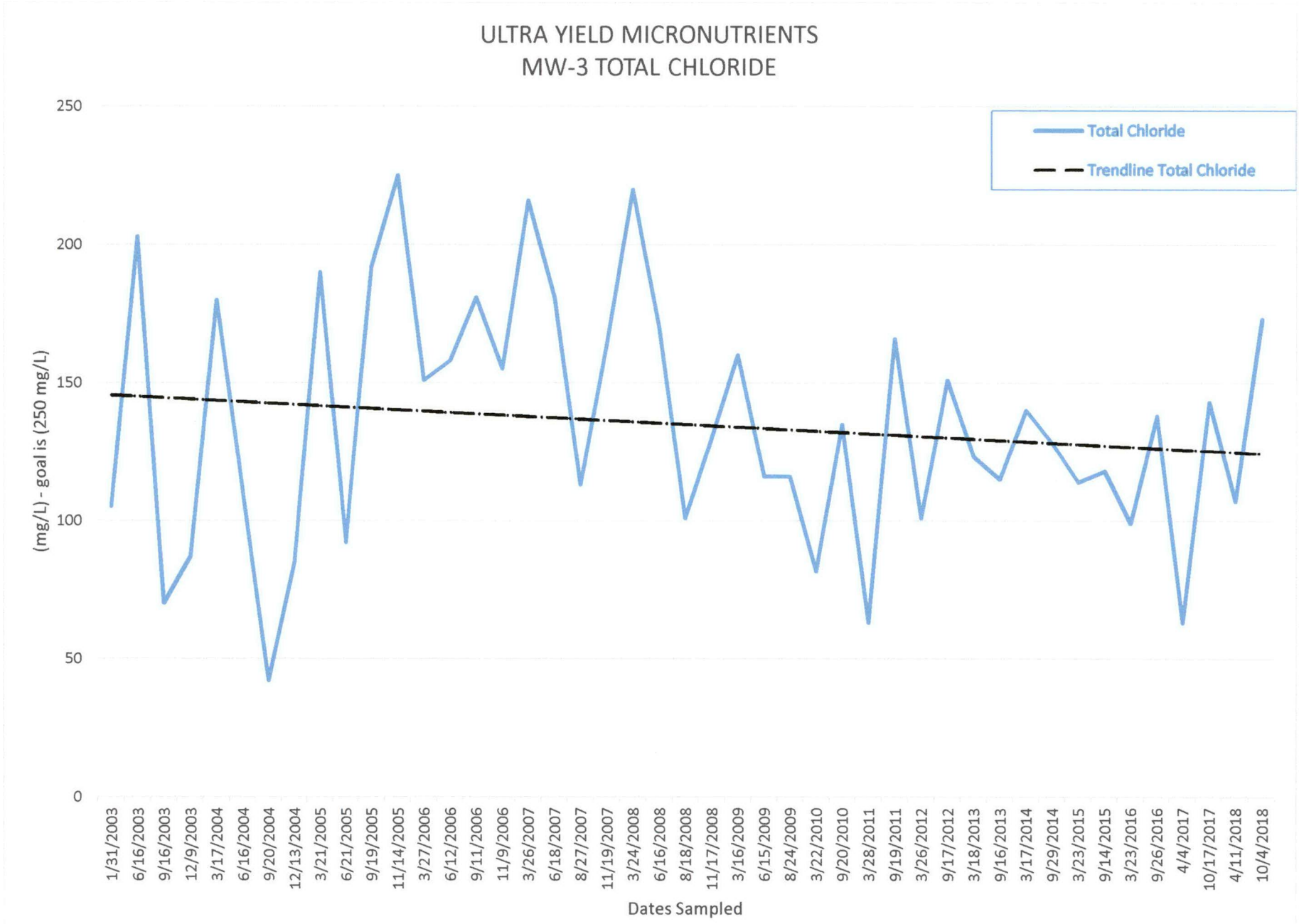

ULTRA YIELD MICRONUTRIENTS
MW-2 TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
700
600
500
400
300
200
100
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

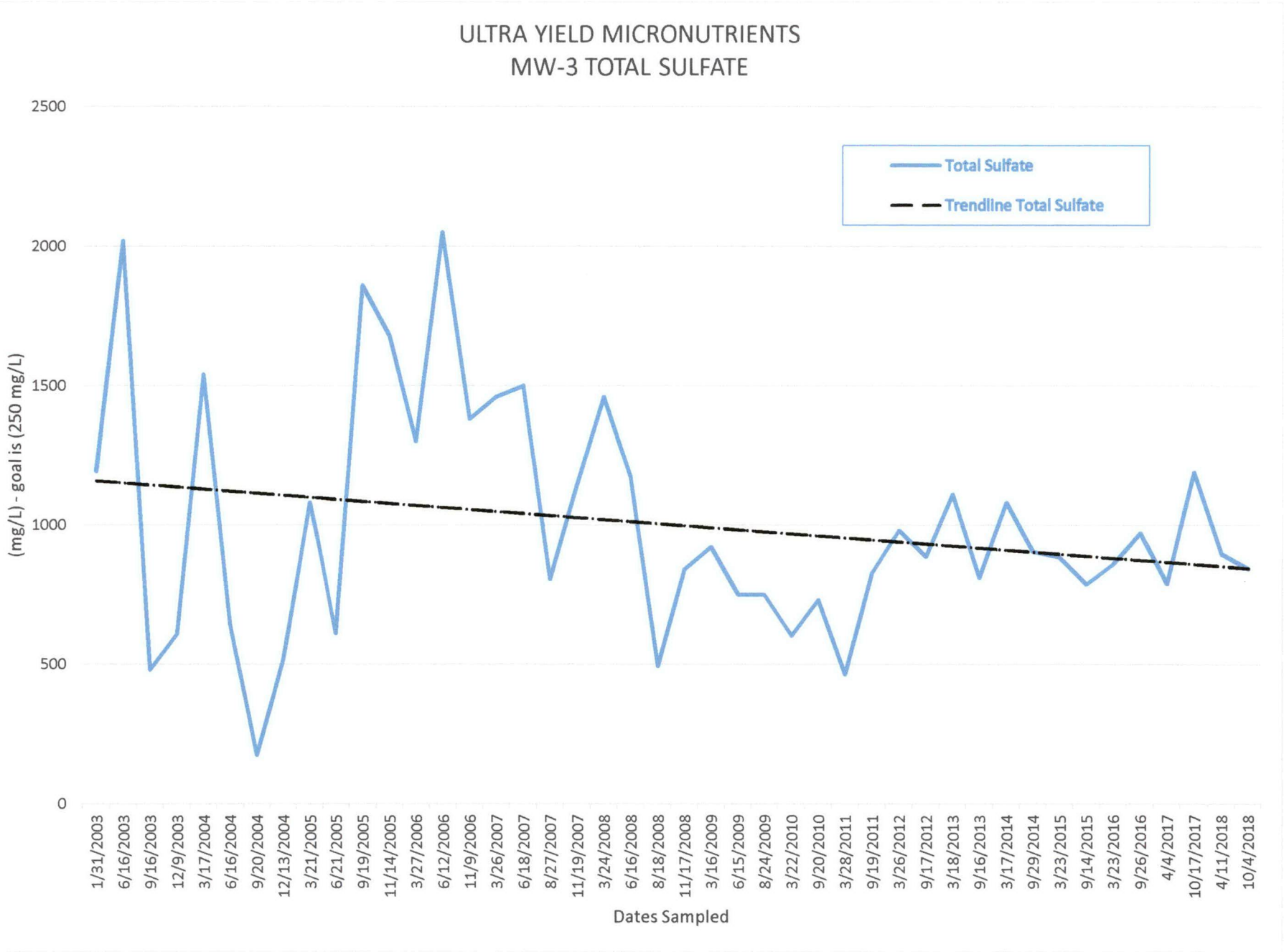

ULTRA YIELD MICRONUTRIENTS
MW-2 TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) goal is (2500 mg/L)
1800
1600
1400
1200
1000
800
600
400
200
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

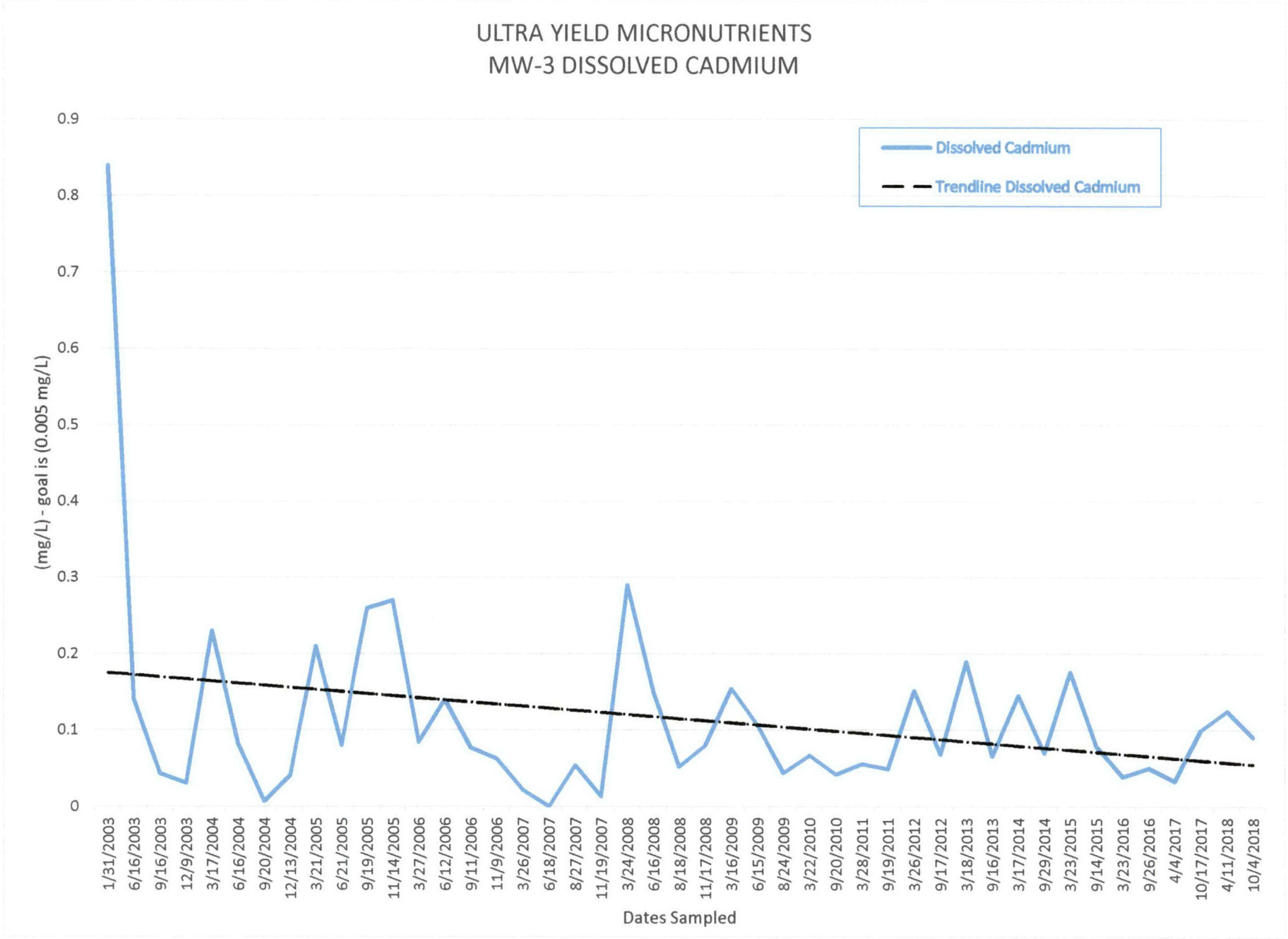

ULTRA YIELD MICRONUTRIENTS
MW-2 DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
-0.02
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

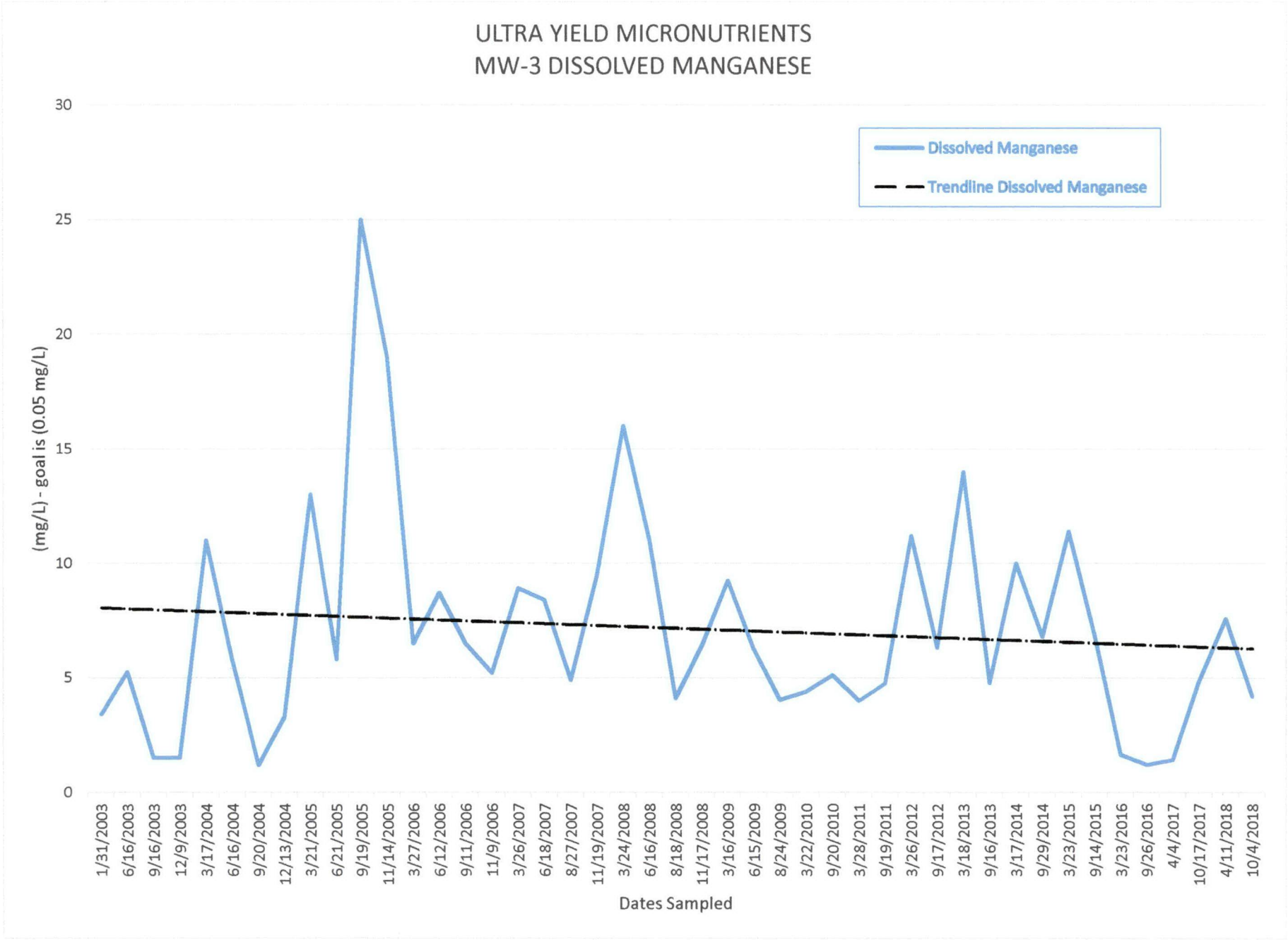

ULTRA YIELD MICRONUTRIENTS
MW-2 DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
3.5
3
2.5
2
1.5
1
0.5
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-2 DISSOLVED ZINC
Dissolved Zinc
Trendline Dissolved Zinc
(mg/L) - goal is (5.0 mg/L)
0.5
0.4
0.3
0.2
0.1
0
-0.1
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-3 TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
250
200
150
100
50
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-3 TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) - goal is (250 mg/L)
2500
2000
1500
1000
500
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-3 DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-3 DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
30
25
20
15
10
5
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
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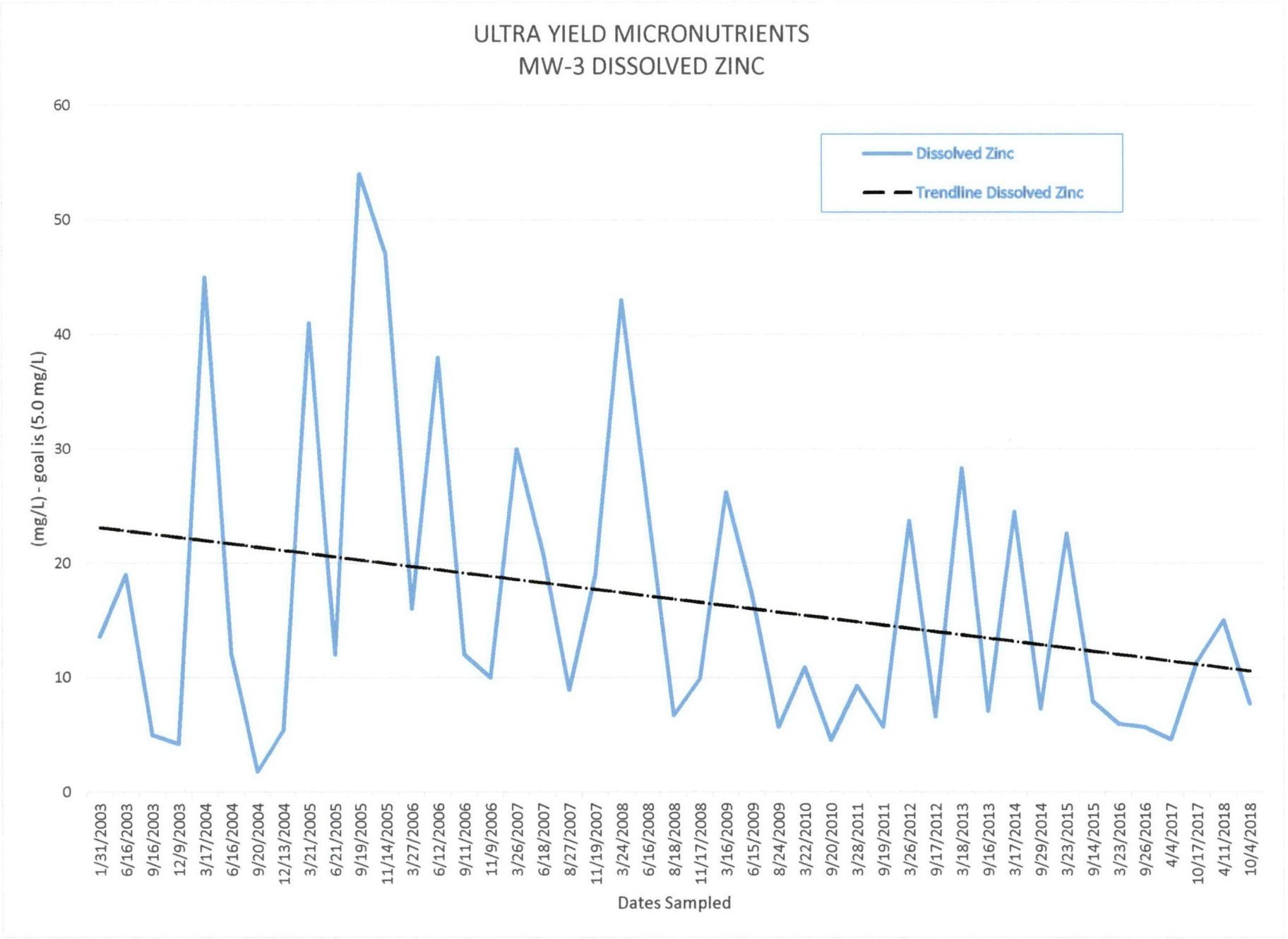
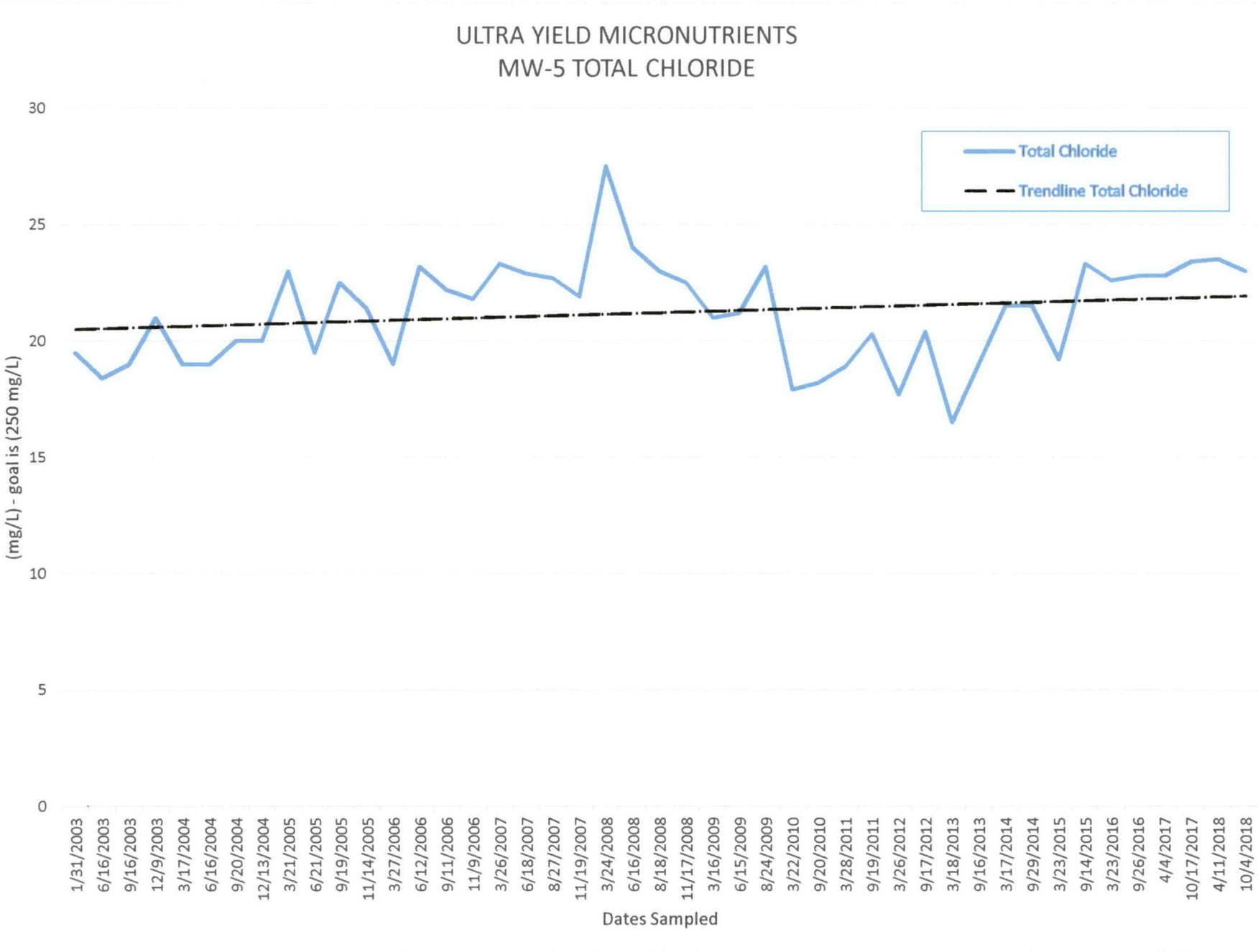
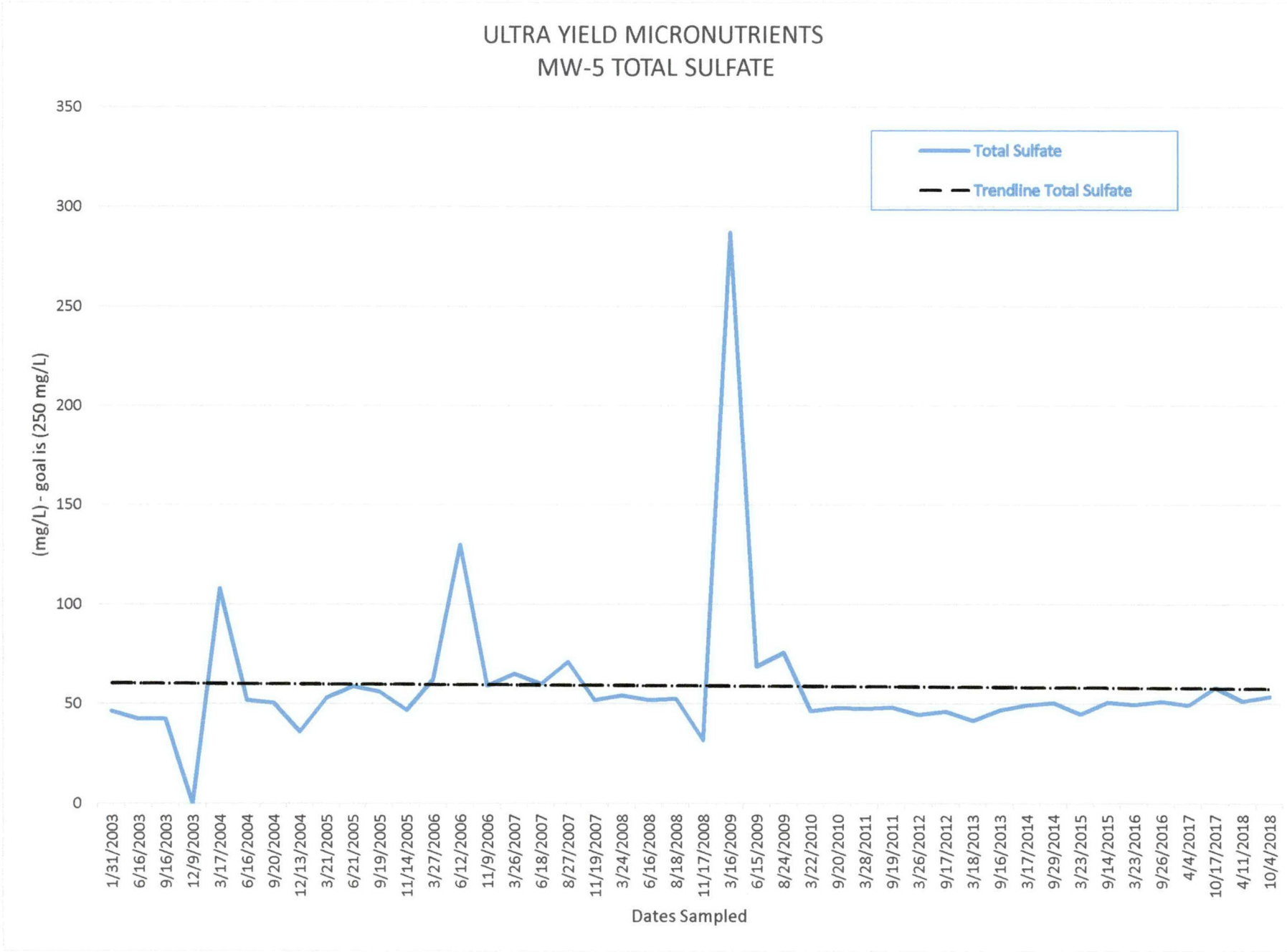
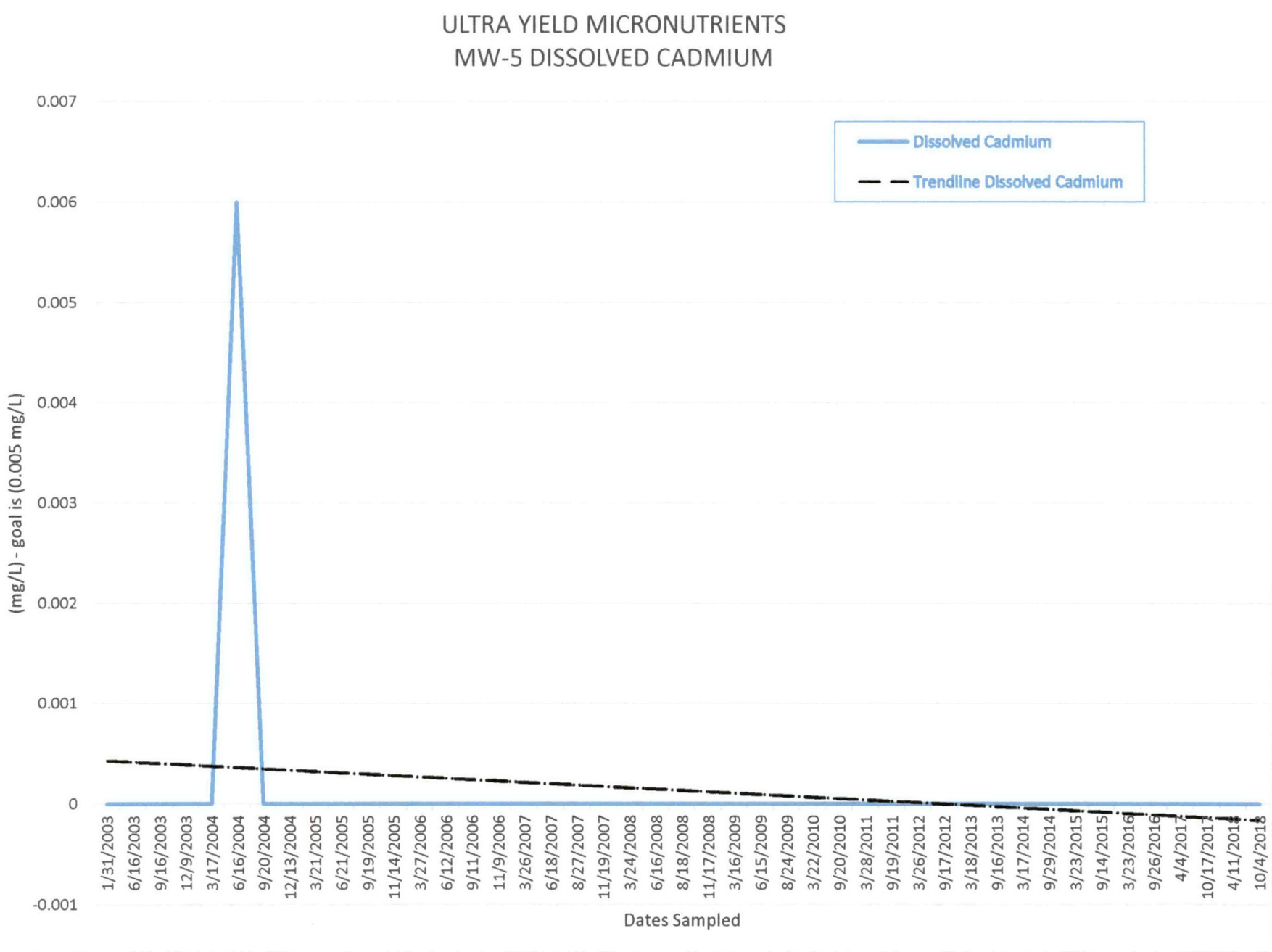
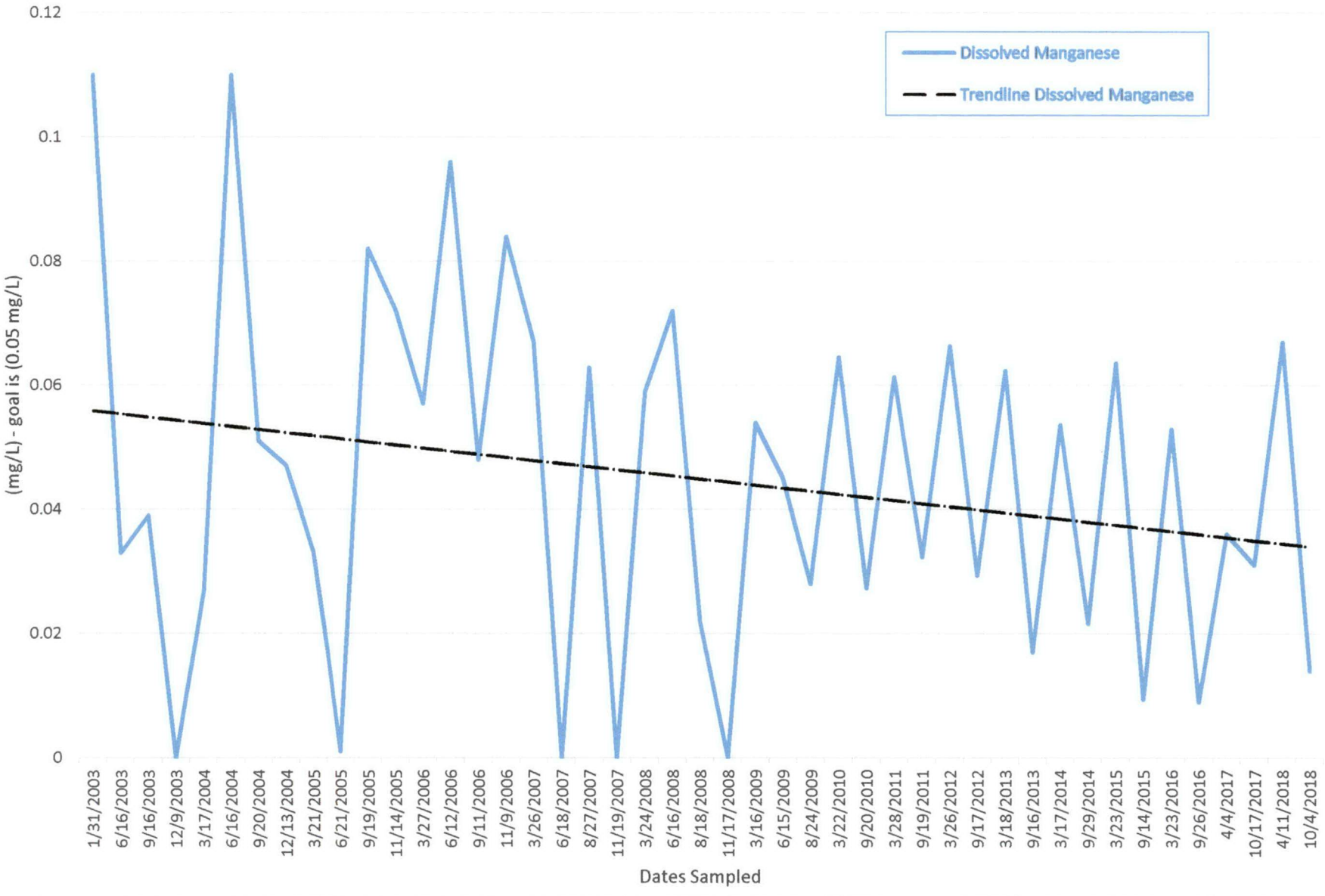
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

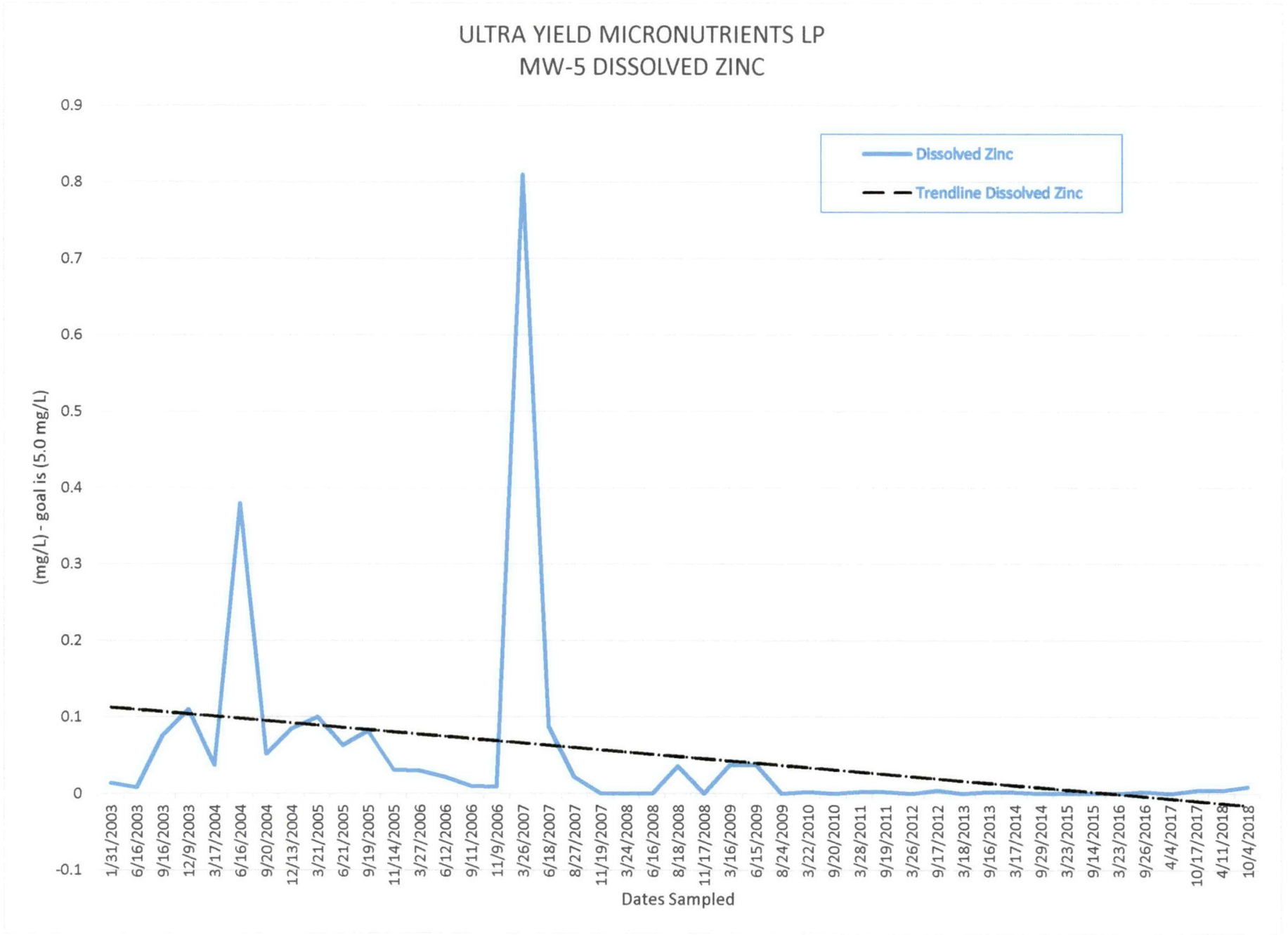

ULTRA YIELD MICRONUTRIENTS
MW-3 DISSOLVED ZINC
Dissolved Zinc
Trendline Dissolved Zinc
(mg/L) - goal is (5.0 mg/L)
60
50
40
30
20
10
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

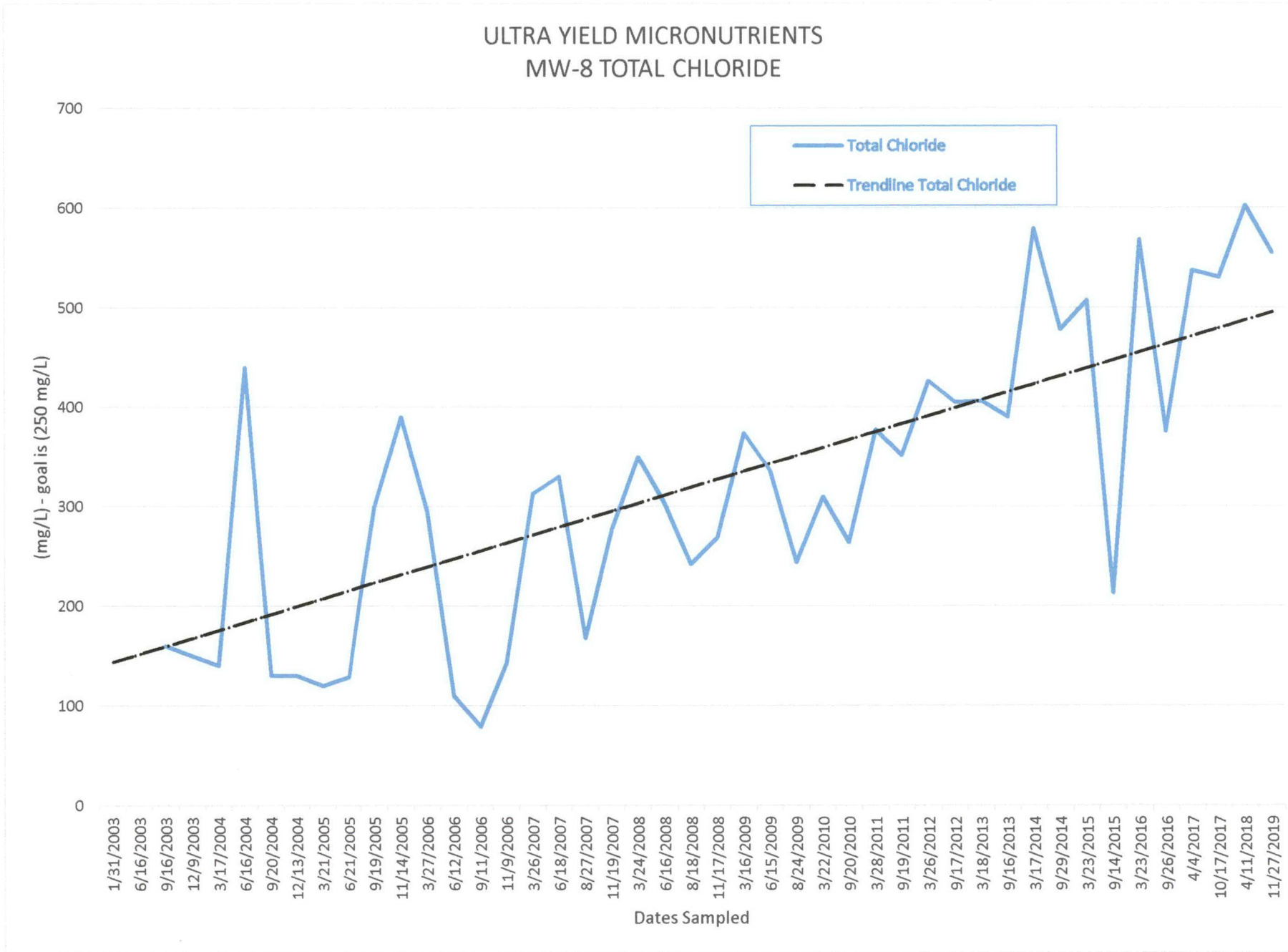

ULTRA YIELD MICRONUTRIENTS
MW-5 TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
30
25
20
15
10
5
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

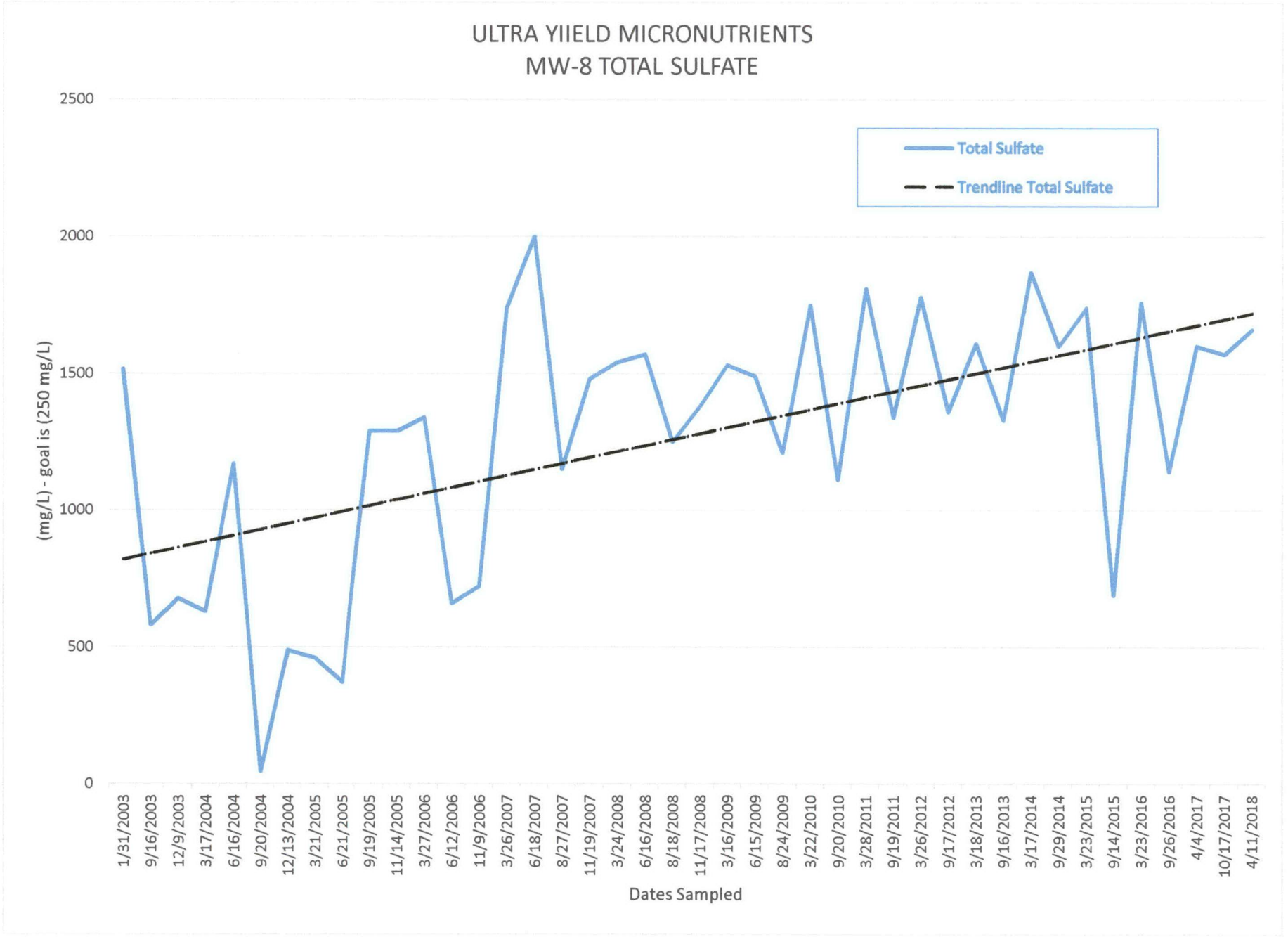

ULTRA YIELD MICRONUTRIENTS
MW-5 TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) - goal is (250 mg/L)
350
300
250
200
150
100
50
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

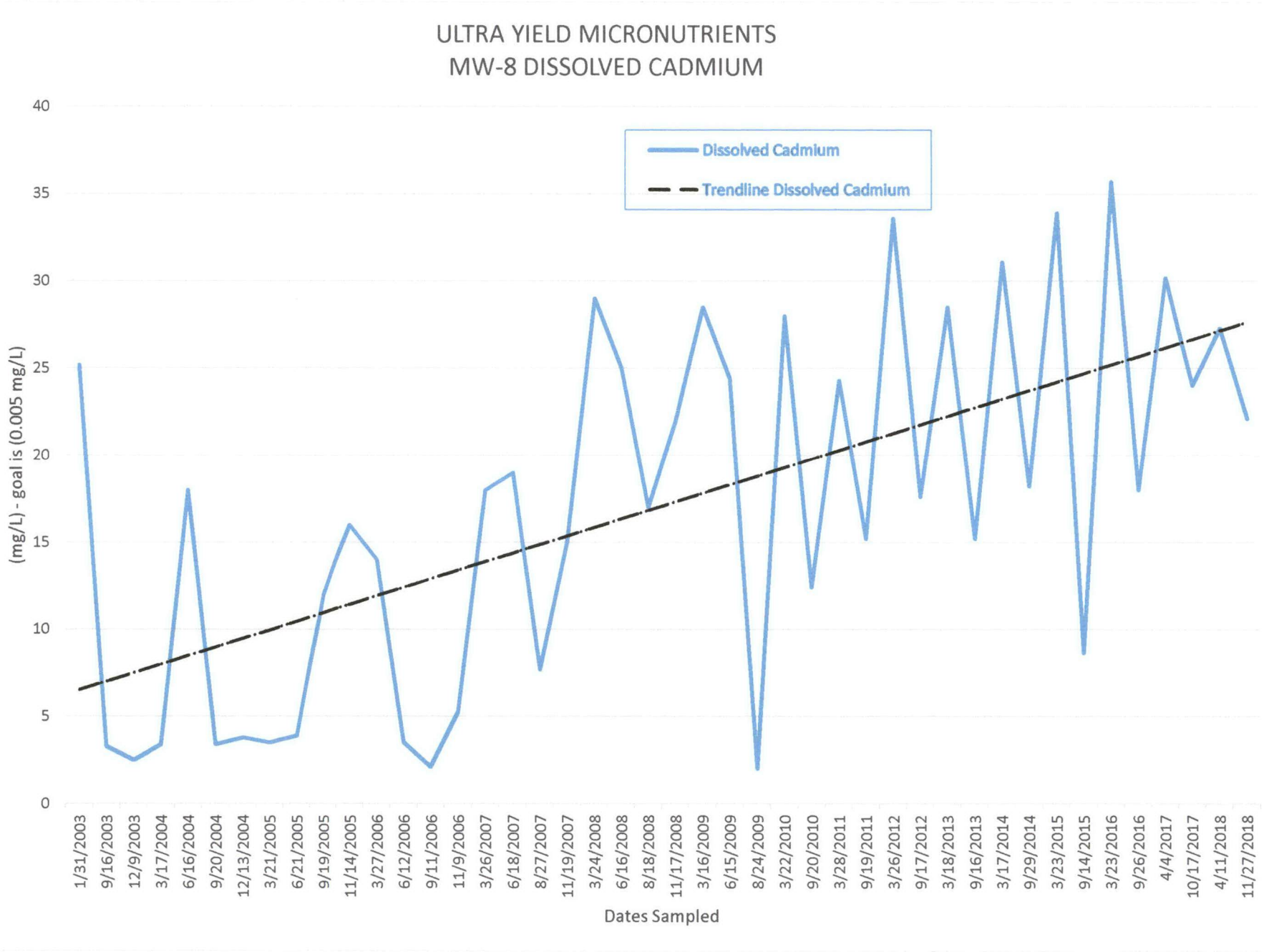

ULTRA YIELD MICRONUTRIENTS
MW-5 DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0.007
0.006
0.005
0.004
0.003
0.002
0.001
0
-0.001
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

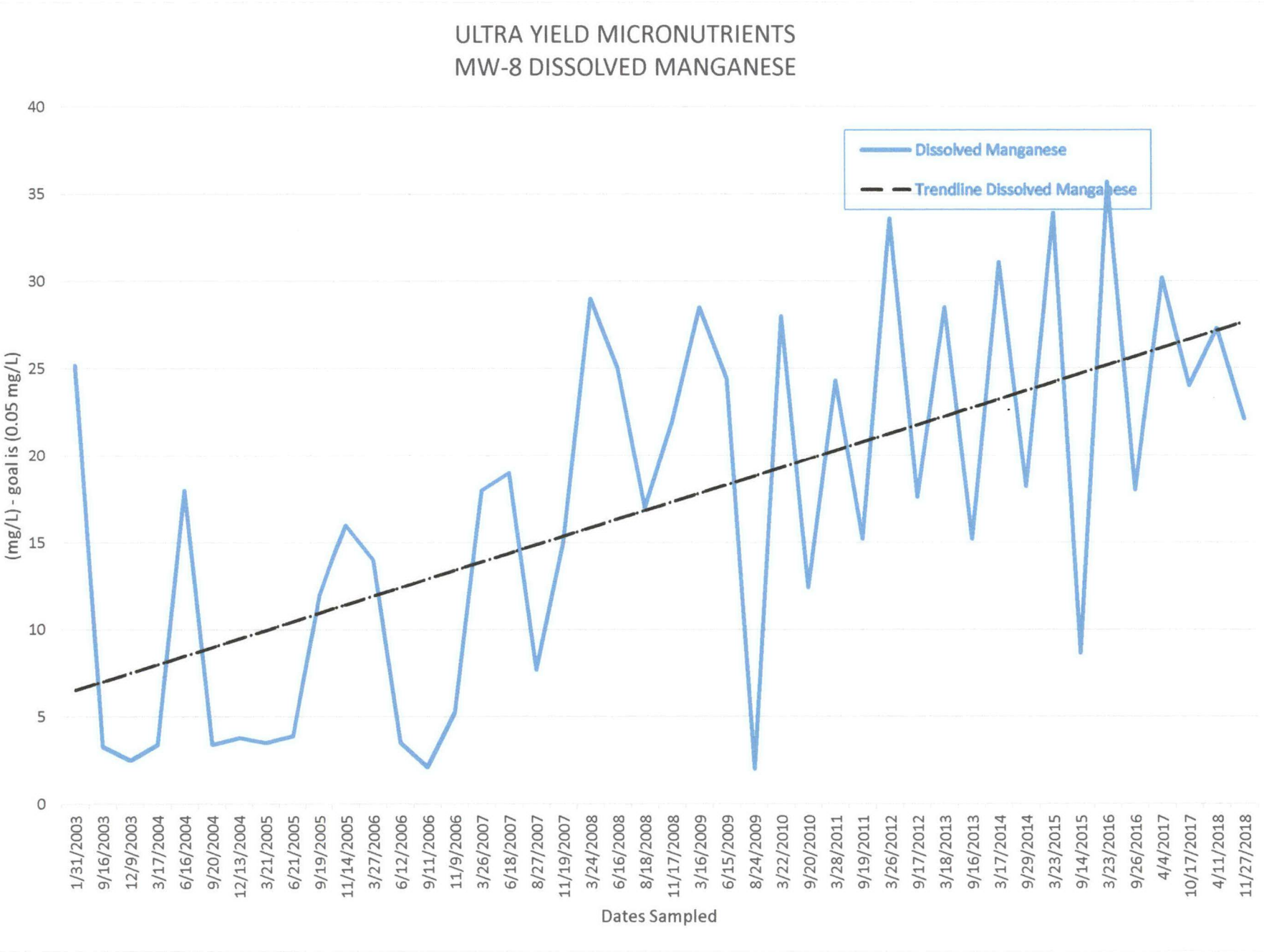

ULTRA YIELD MICRONUTRIENTS
MW-5 DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
0.12
0.1
0.08
0.06
0.04
0.02
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS LP
MW-5 DISSOLVED ZINC
Dissolved Zinc
Trendline Dissolved Zinc
(mg/L) - goal is (5.0 mg/L)
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-0.1
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-8 TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
0
100
200
300
400
500
600
700
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
11/27/2019
Dates Sampled


ULTRA YIIELD MICRONUTRIENTS
MW-8 TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) - goal is (250 mg/L)
2500
2000
1500
1000
500
0
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-8 DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0
5
10
15
20
25
30
35
40
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
11/27/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-8 DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
0
5
10
15
20
25
30
35
40
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
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6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
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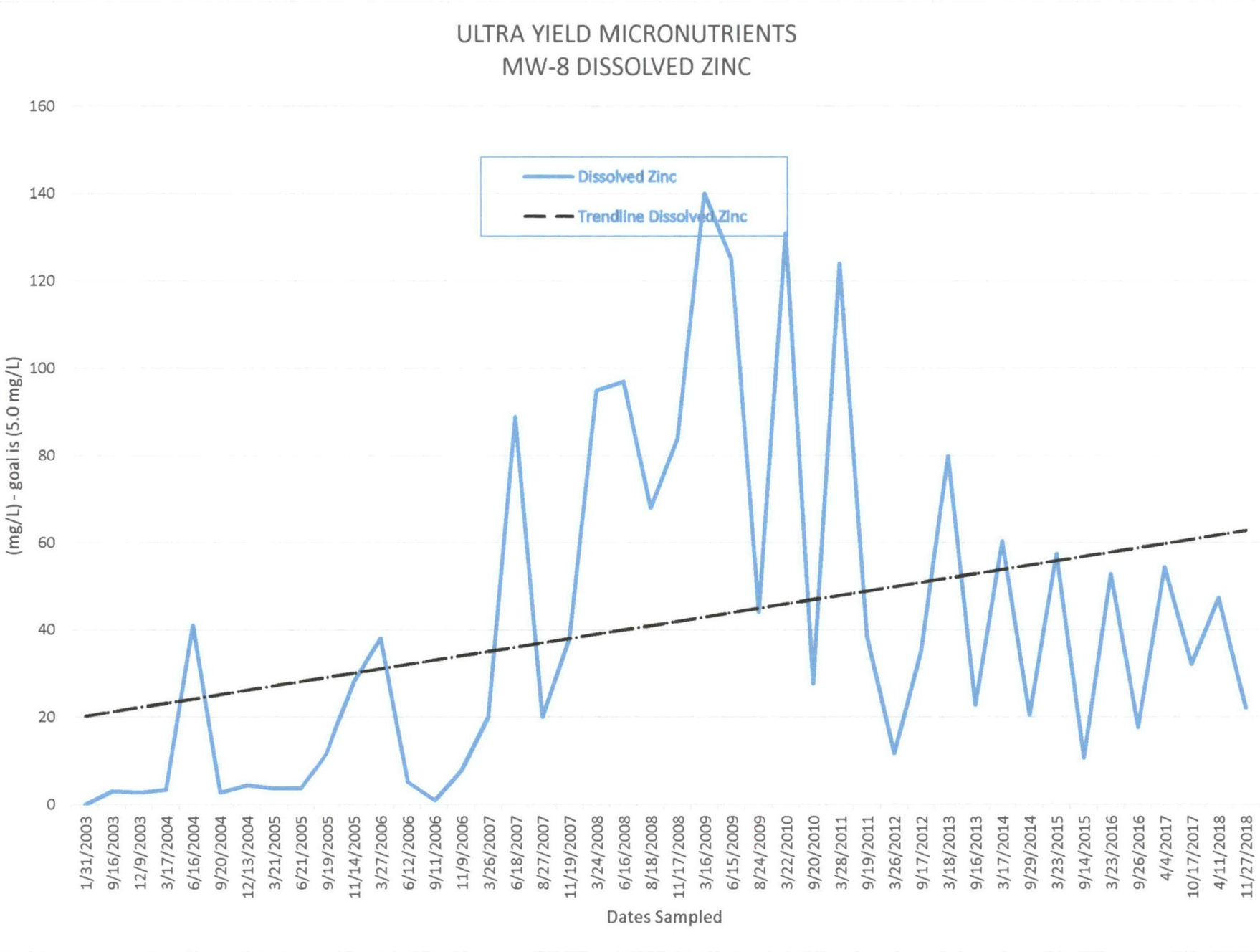
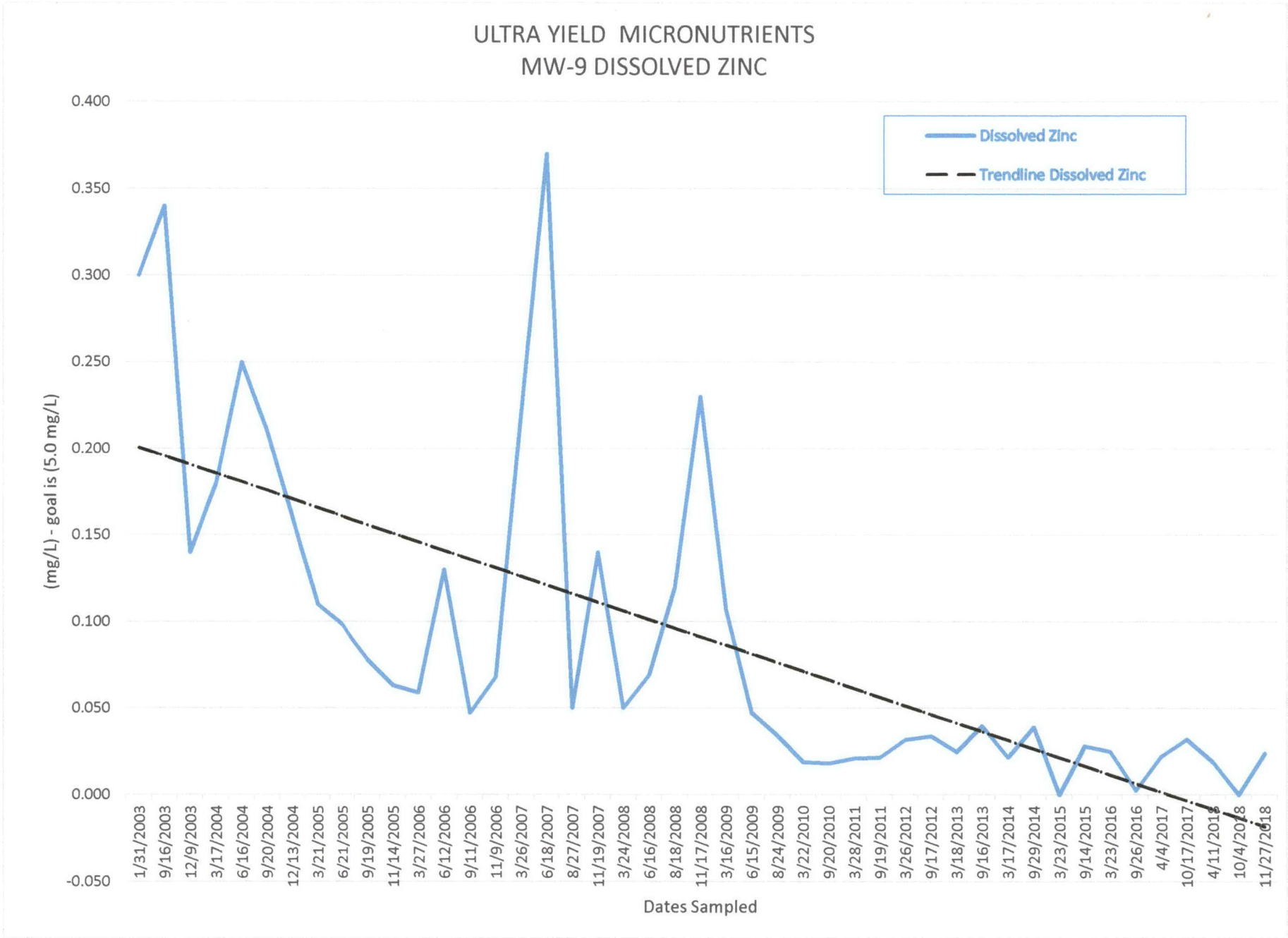
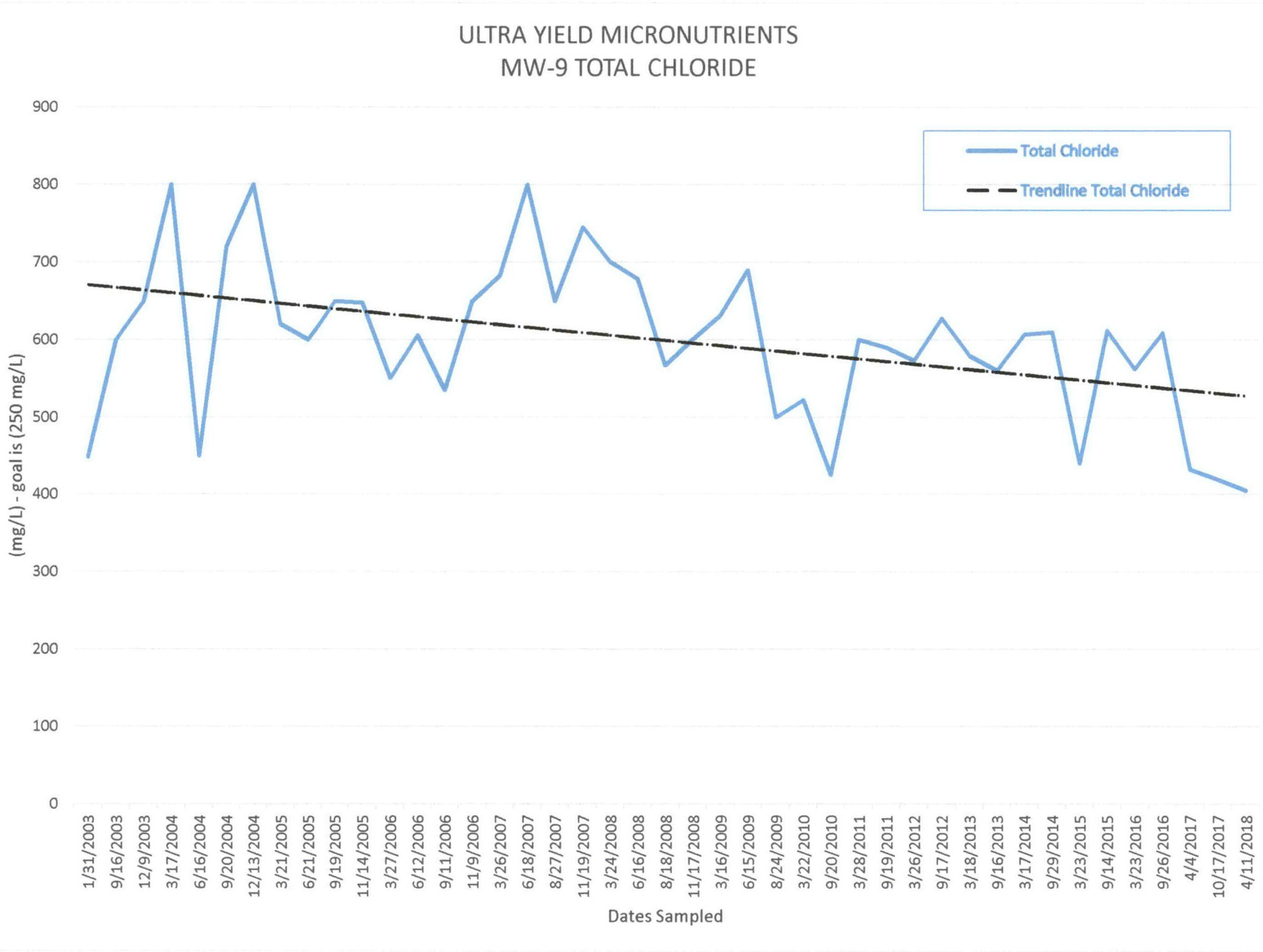
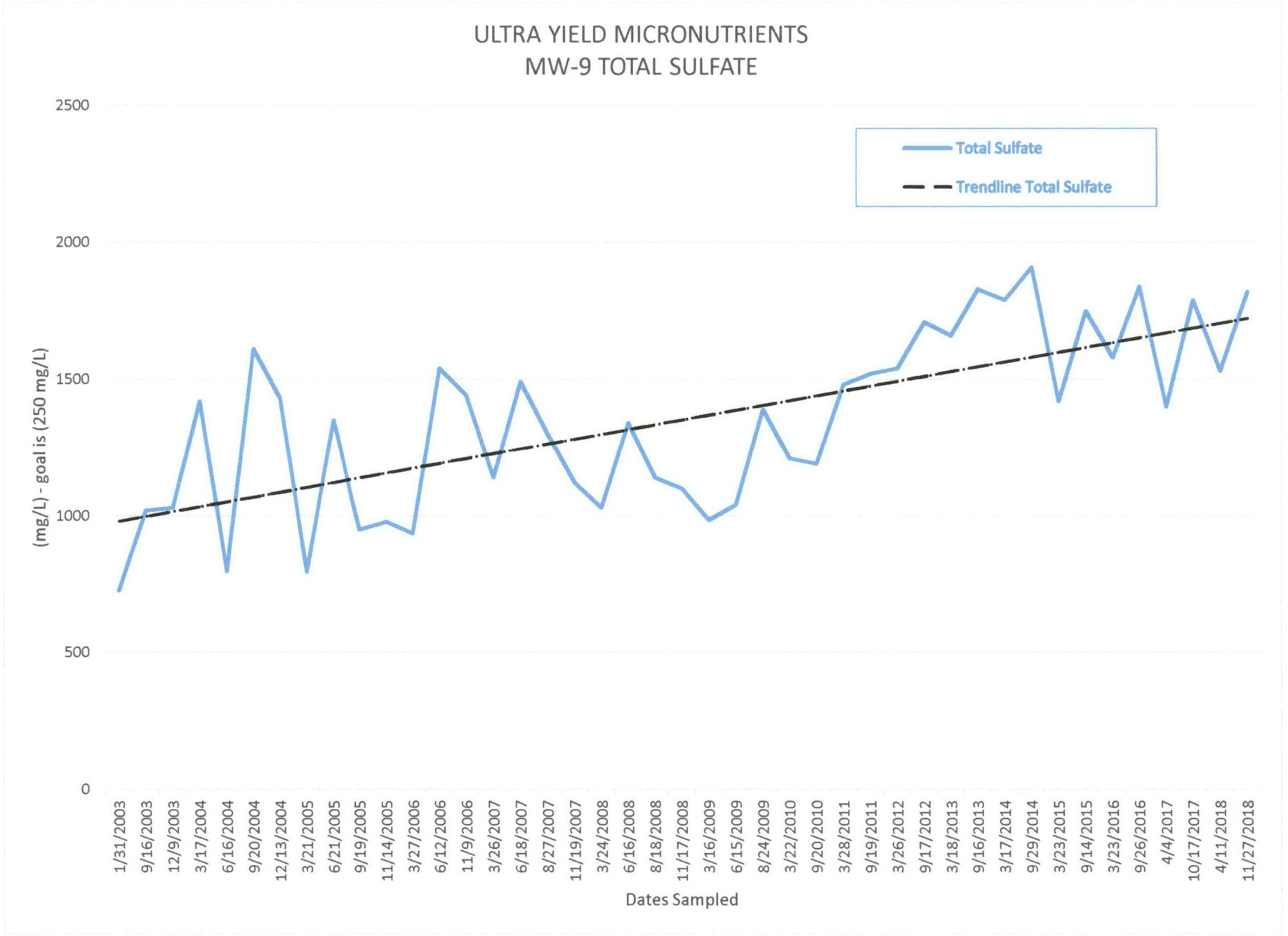
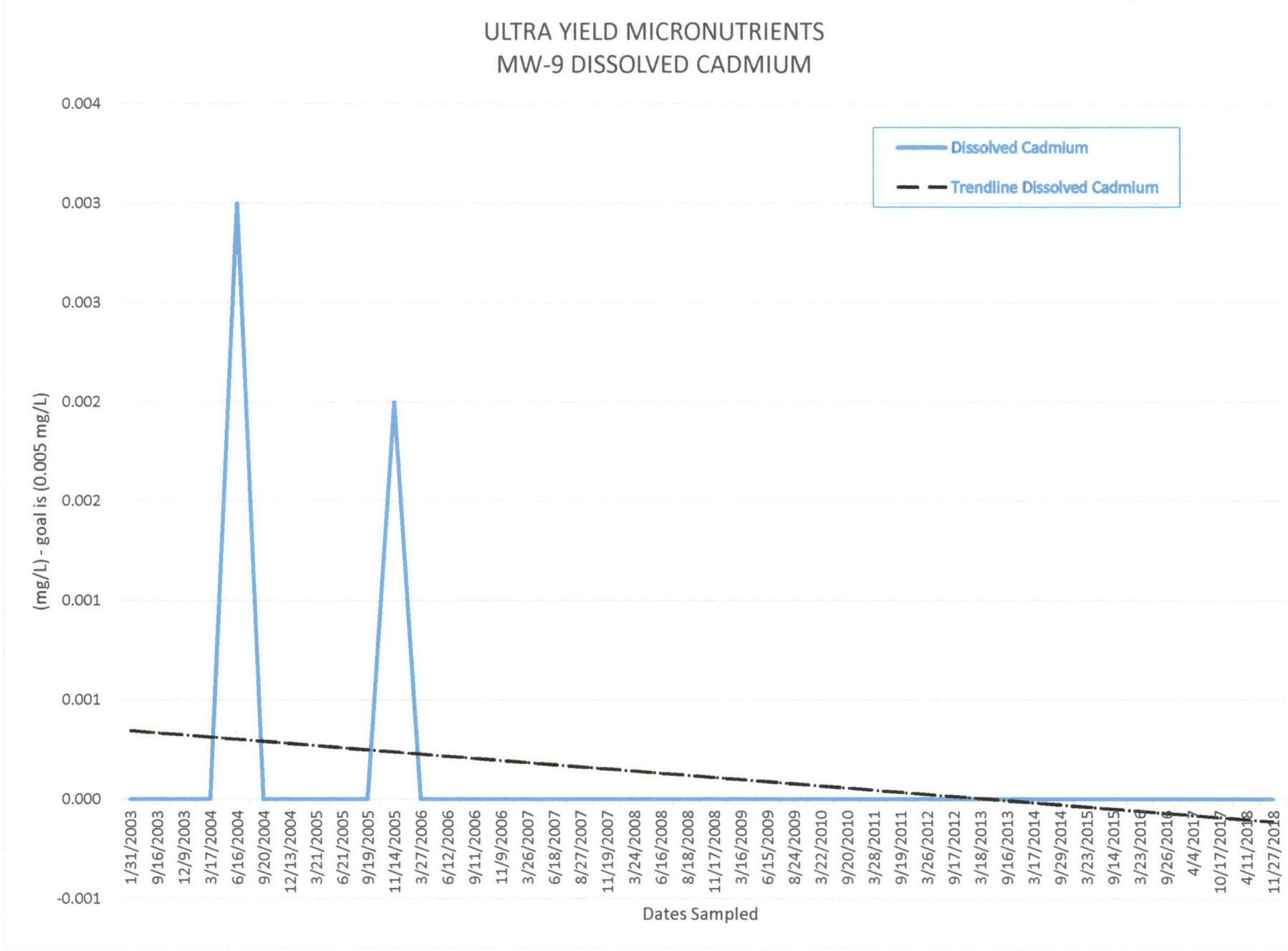
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
11/27/2018
Dates Sampled

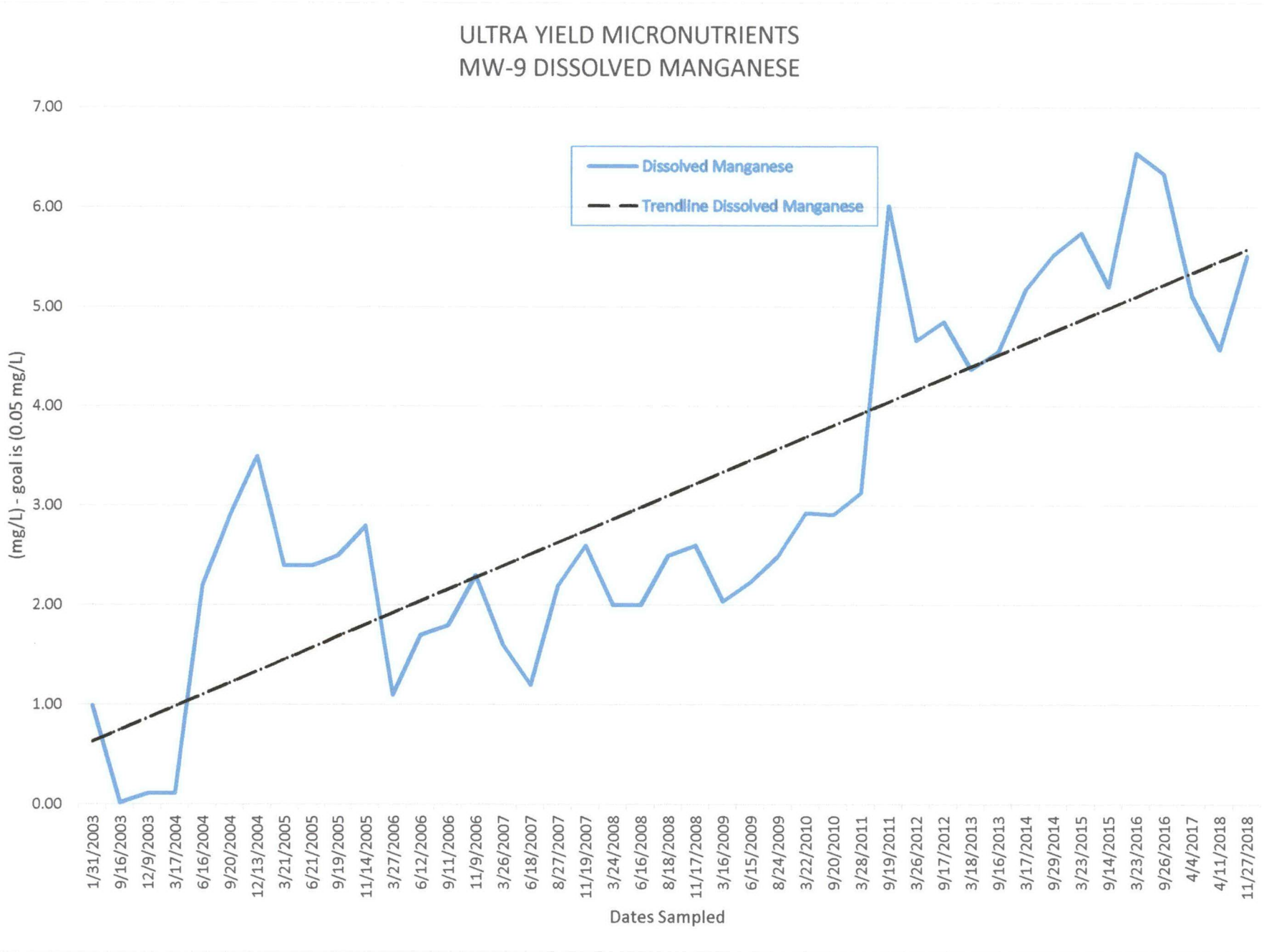

ULTRA YIELD MICRONUTRIENTS
MW-8 DISSOLVED ZINC
Dissolved Zinc
Trendline Dissolved Zinc
(mg/L) - goal is (5.0 mg/L)
160
140
120
100
80
60
40
20
0
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
11/27/2018
Dates Sampled

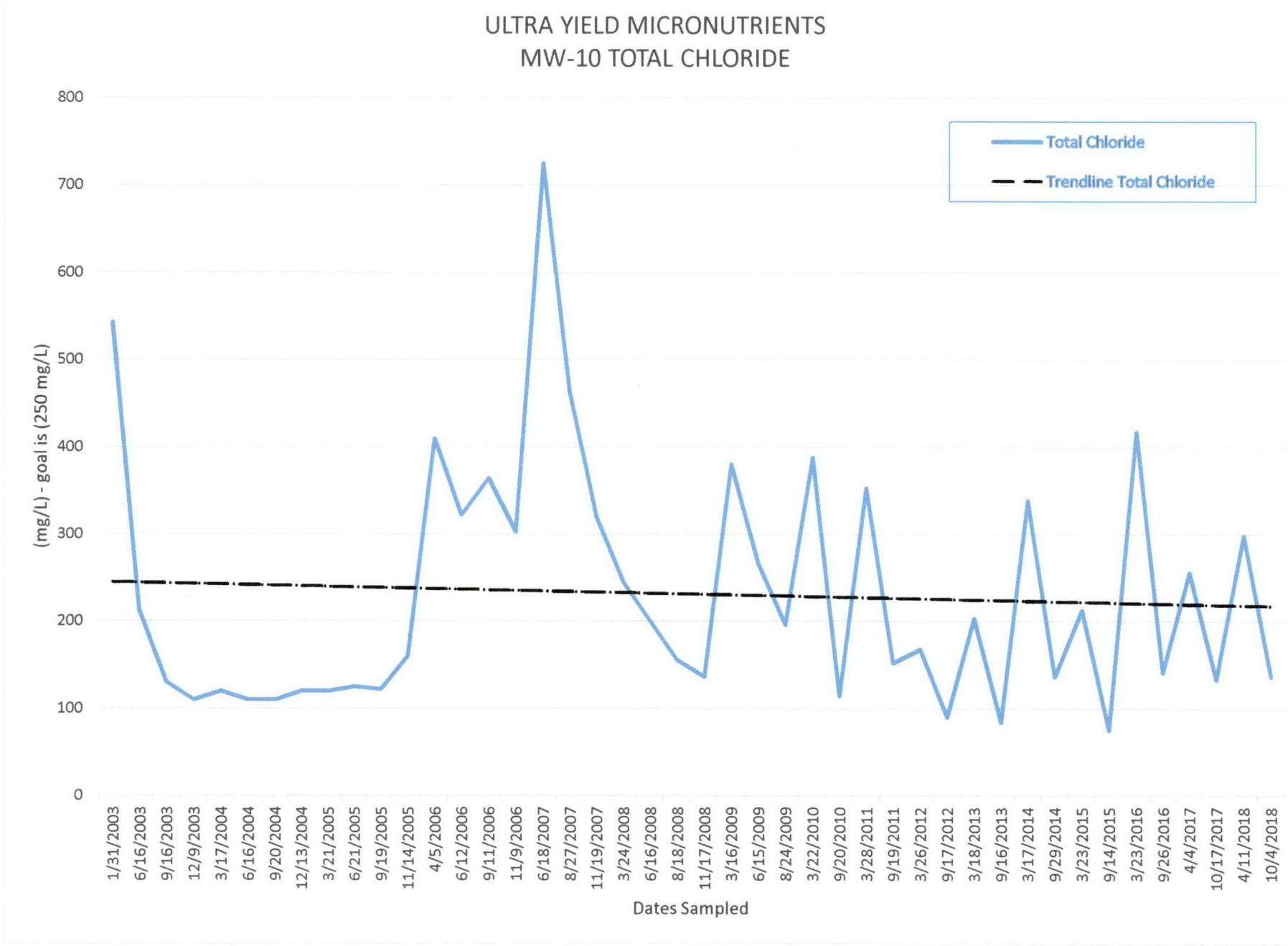

ULTRA YIELD MICRONUTRIENTS
MW-9 DISSOLVED ZINC
Dissolved Zinc
Trendline Dissolved Zinc
(mg/L) - goal is (5.0 mg/L)
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
-0.050
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
11/27/2018
Dates Sampled

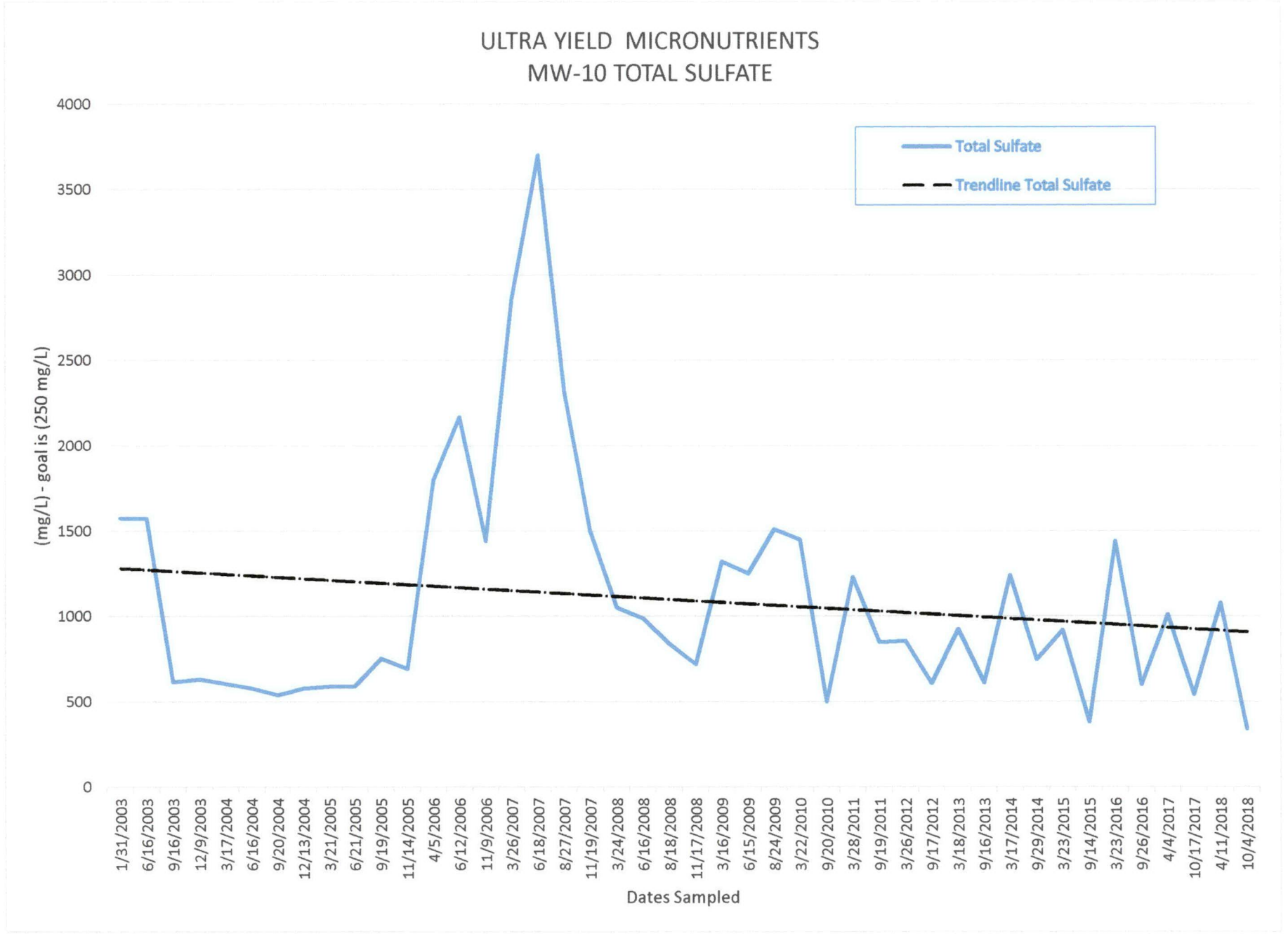

ULTRA YIELD MICRONUTRIENTS
MW-9 TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
900
800
700
600
500
400
300
200
100
0
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
Dates Sampled

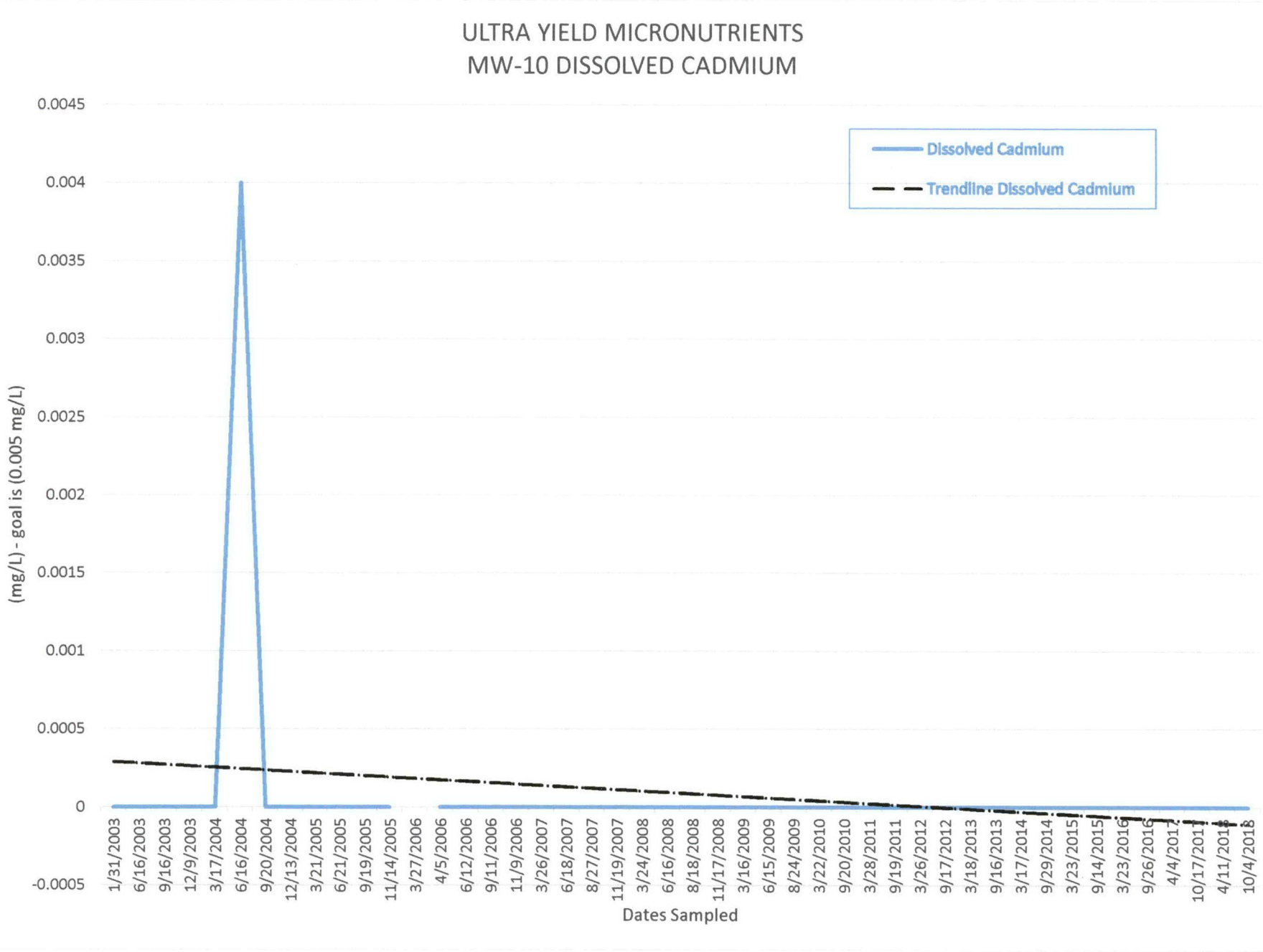

ULTRA YIELD MICRONUTRIENTS
MW-9 TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) - goal is (250 mg/L)
2500
2000
1500
1000
500
0
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
11/27/2018
Dates Sampled

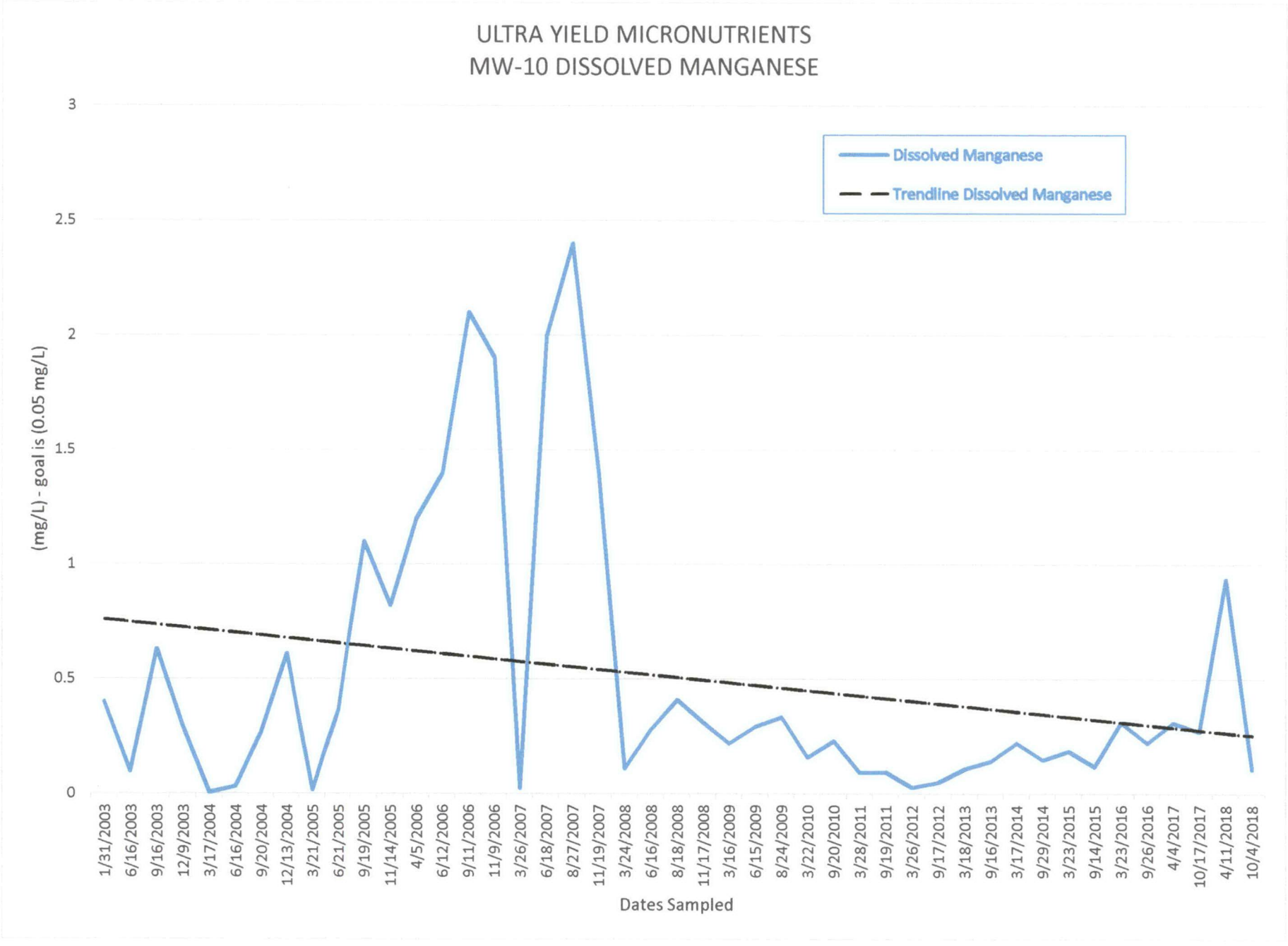

ULTRA YIELD MICRONUTRIENTS
MW-9 DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0.004
0.003
0.003
0.002
0.002
0.001
0.001
0.000
-0.001
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
11/27/2018
Dates Sampled

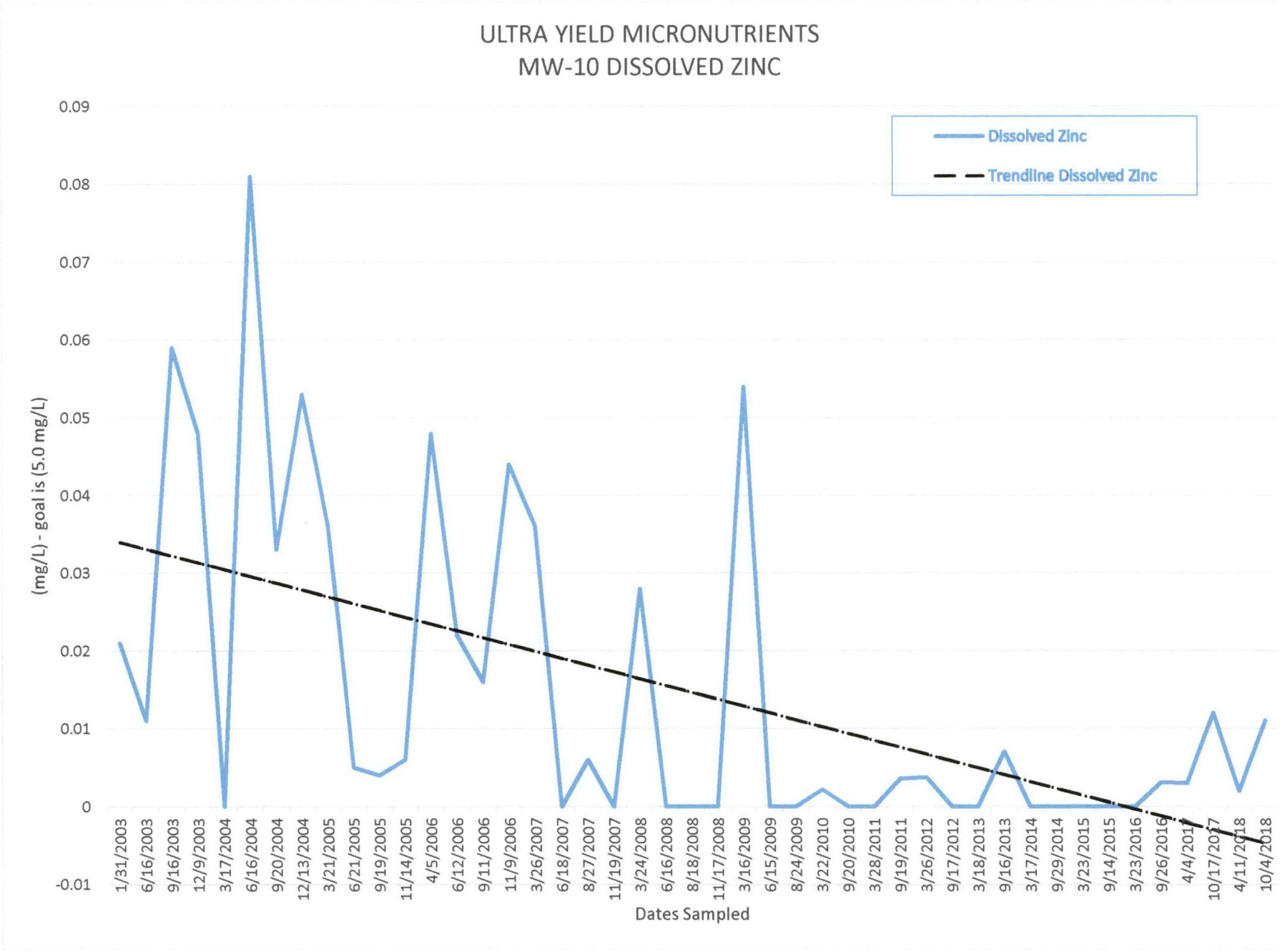

ULTRA YIELD MICRONUTRIENTS
MW-9 DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
1/31/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
4/11/2018
11/27/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-10 TOTAL CHLORIDE
Total Chloride
Trendline Total Chloride
(mg/L) - goal is (250 mg/L)
800
700
600
500
400
300
200
100
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
9/11/2006
11/9/2006
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-10 TOTAL SULFATE
Total Sulfate
Trendline Total Sulfate
(mg/L) - goal is (250 mg/L)
4000
3500
3000
2500
2000
1500
1000
500
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-10 DISSOLVED CADMIUM
Dissolved Cadmium
Trendline Dissolved Cadmium
(mg/L) - goal is (0.005 mg/L)
0.0045
0.004
0.0035
0.003
0.0025
0.002
0.0015
0.001
0.0005
0
-0.0005
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
3/27/2006
4/5/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-10 DISSOLVED MANGANESE
Dissolved Manganese
Trendline Dissolved Manganese
(mg/L) - goal is (0.05 mg/L)
3
2.5
2
1.5
1
0.5
0
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled


ULTRA YIELD MICRONUTRIENTS
MW-10 DISSOLVED ZINC
Dissolved Zinc
Trendline Dissolved Zinc
(mg/L) - goal is (5.0 mg/L)
0.09
0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
-0.01
1/31/2003
6/16/2003
9/16/2003
12/9/2003
3/17/2004
6/16/2004
9/20/2004
12/13/2004
3/21/2005
6/21/2005
9/19/2005
11/14/2005
4/5/2006
6/12/2006
9/11/2006
11/9/2006
3/26/2007
6/18/2007
8/27/2007
11/19/2007
3/24/2008
6/16/2008
8/18/2008
11/17/2008
3/16/2009
6/15/2009
8/24/2009
3/22/2010
9/20/2010
3/28/2011
9/19/2011
3/26/2012
9/17/2012
3/18/2013
9/16/2013
3/17/2014
9/29/2014
3/23/2015
9/14/2015
3/23/2016
9/26/2016
4/4/2017
10/17/2017
4/11/2018
10/4/2018
Dates Sampled

SUMMARY OF GROUNDWATER ELEVATION SPRING 2018
ULTRA YIELD MICRONUTRIENTS

MONITORING WELL NUMBER	TOTAL DEPTH OF WELL (FT)	TOP OF CASING ELEVATION* (FT)	FIRST QUARTER 2016	
			DEPTH TO GROUNDWATER (FT)	GROUNDWATER ELEVATION (FT)
MW-5	21.00	99.71	5.00	94.71
MW-1B	18.50	99.97	6.92	93.05
MW-8	22.50	99.12	5.50	93.62
MW-7	50.00	97.79	3.25	94.54
MW-3	18.00	98.81	5.75	93.06
MW-2	18.00	98.70	7.21	91.49
MW-6	51.00	98.52	3.81	94.71
MW-10	20.00	98.19	4.50	93.69
MW-9	22.00	100.39	7.00	93.39

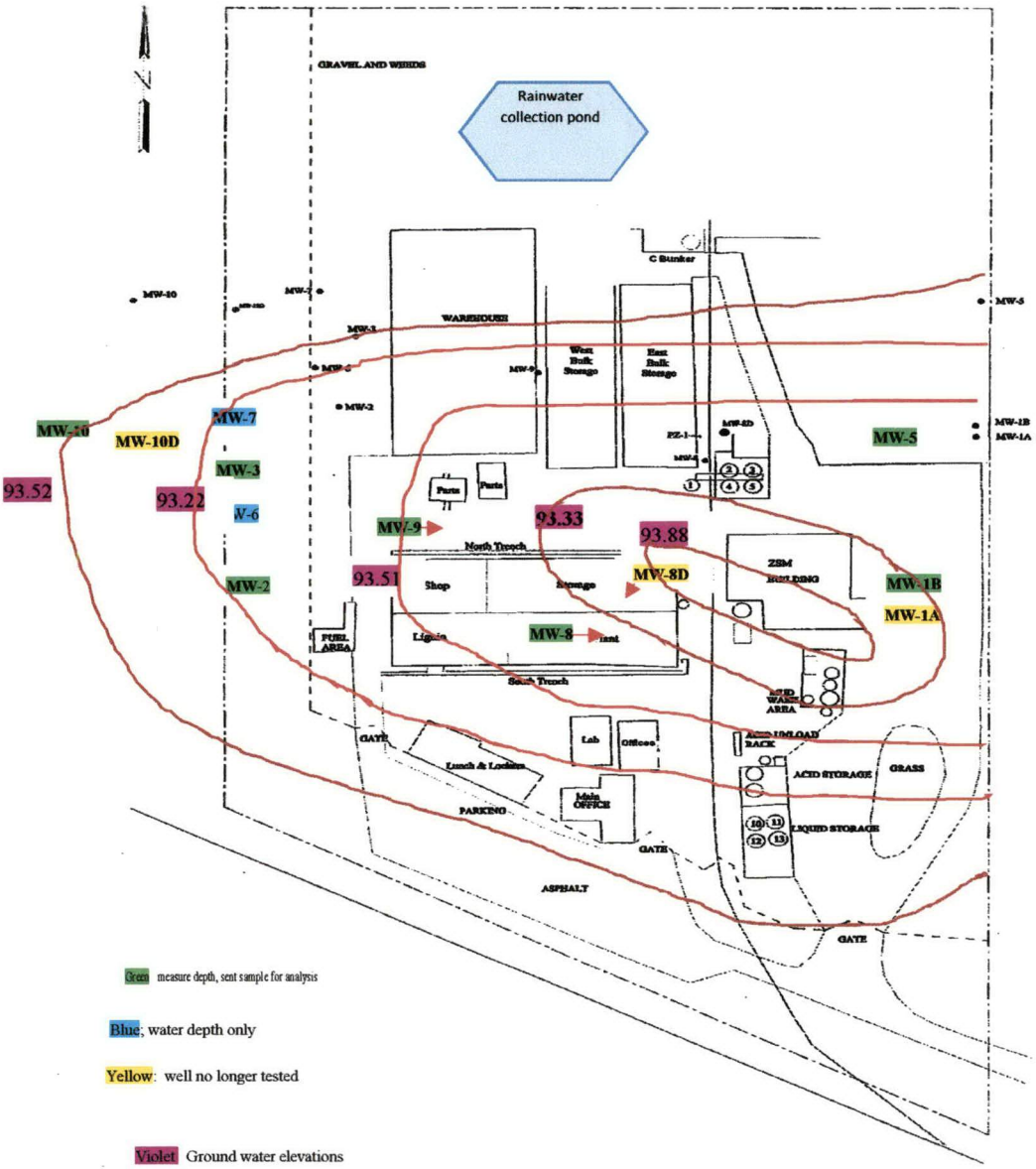
NG - Not Guaged or Included in Interpretation
** Casing Elevation Information supplied by Jaussaud-Seward & Associates PLS relative to assumed datum. December 2003.*
**Wells guaged on 3-21-05*

SUMMARY OF GROUNDWATER ELEVATION FALL 2018
ULTRA YIELDMICRONUTRIENTS

MONITORING WELL NUMBER	TOTAL DEPTH OF WELL (FT)	TOP OF CASING ELEVATION* (FT)	THIRD QUARTER 2016	
			DEPTH TO GROUNDWATER (FT)	GROUNDWATER ELEVATION (FT)
MW-1B	18.50	99.97	9.00	90.97
MW-5	21.00	99.71	8.67	91.04
MW-8	22.50	99.12	8.58	90.54
MW-9	20.00	100.39	10.25	90.14
MW-2	18.00	98.70	9.08	89.62
MW-6	51.00	98.52	9.00	89.52
MW-3	18.00	98.81	8.39	90.42
MW-7	50.00	97.79	8.15	89.64
MW-10	20.00	98.19	9.00	89.19

NG - Not Guaged or Included in Interpretation
** Casing Elevation Information supplied by Jaussaud-Seward & Associates PLS relative to assumed datum. December 2003.*
**Wells guaged on 3-21-05*

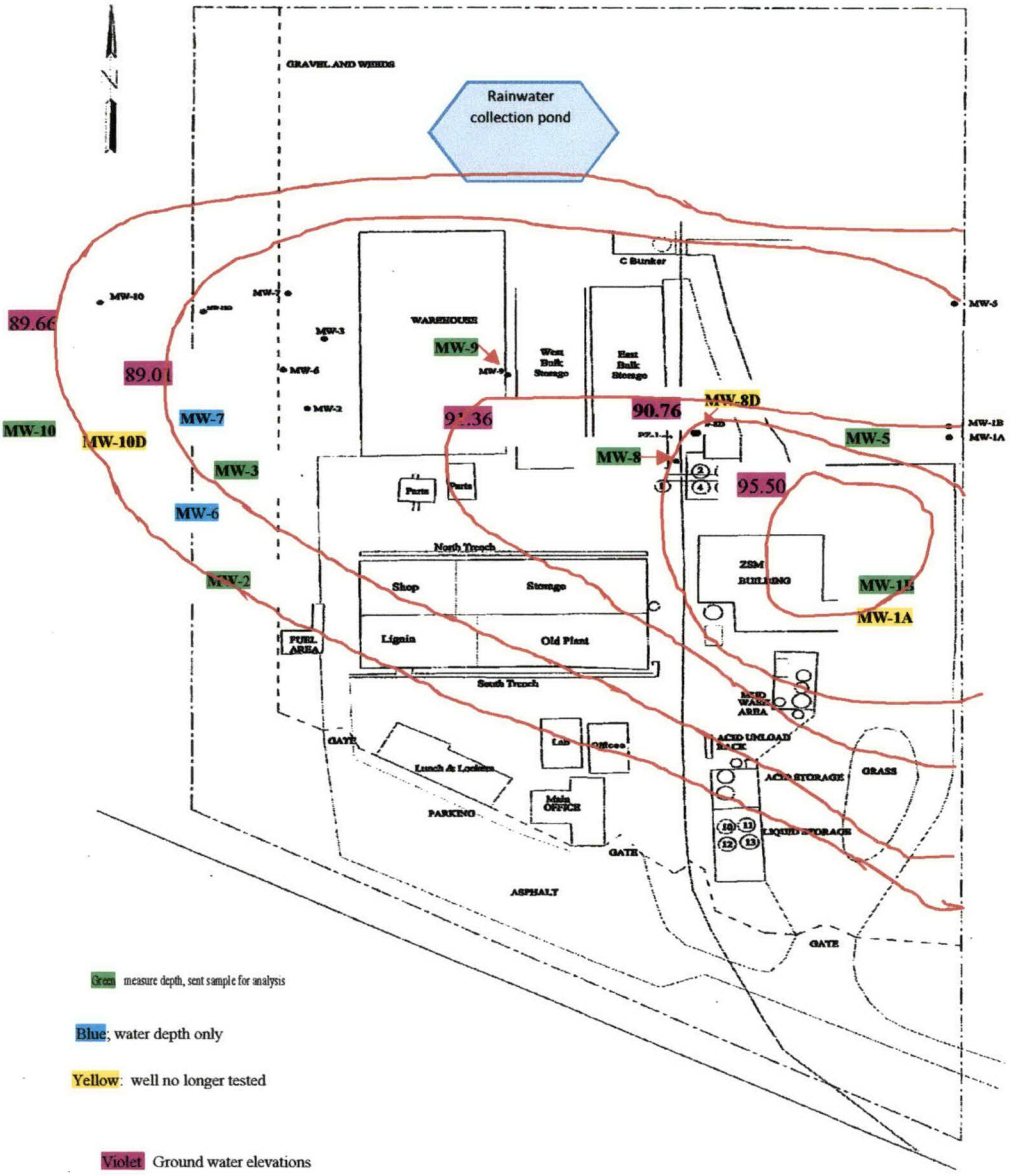
Ultra Yield Micronutrients Wells
Spring 2018 Potentiometic Map



MONITORING WELL NUMBER	TOTAL GROUNDWATER ELEVATION (FT)
MW-1B	93.05
MW-2	91.49
MW-3	93.06
MW-5	94.71
MW-8	93.62
MW-9	93.39
MW-10	93.69

K-20 600

Ultra Yield Micronutrients Wells
Fall 2018 Potentiometic Map



MONITORING WELL NUMBER	TOTAL GROUNDWATER ELEVATION (FT)
MW-1B	90.97
MW-2	89.62
MW-3	90.42
MW-5	91.04
MW-8	90.54
MW-9	90.14
MW-10	89.19

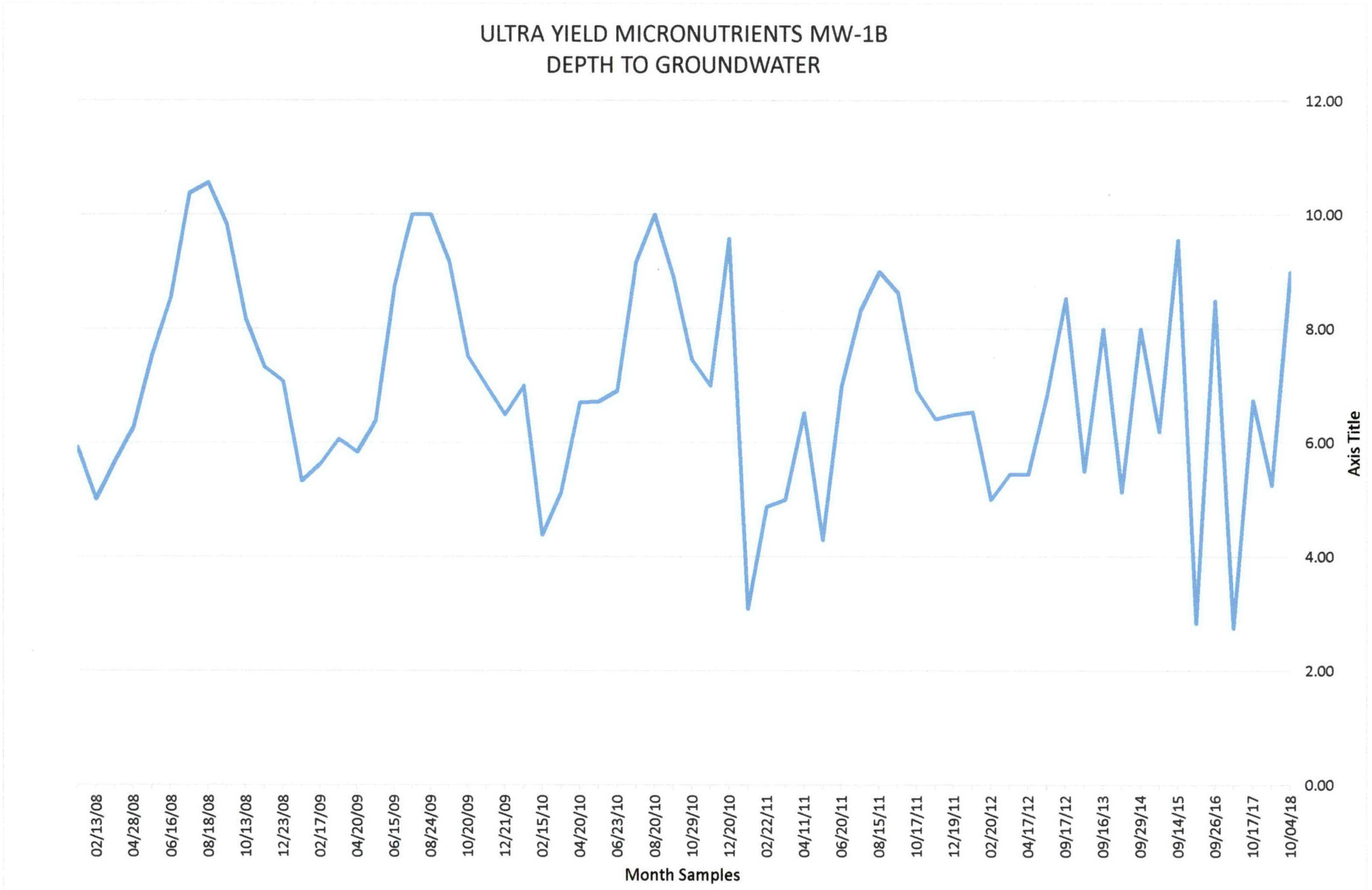
Historical Depth to Groundwater Data
2008 through 2018
Ultra Yield Micronutrients
Moxee, Washington

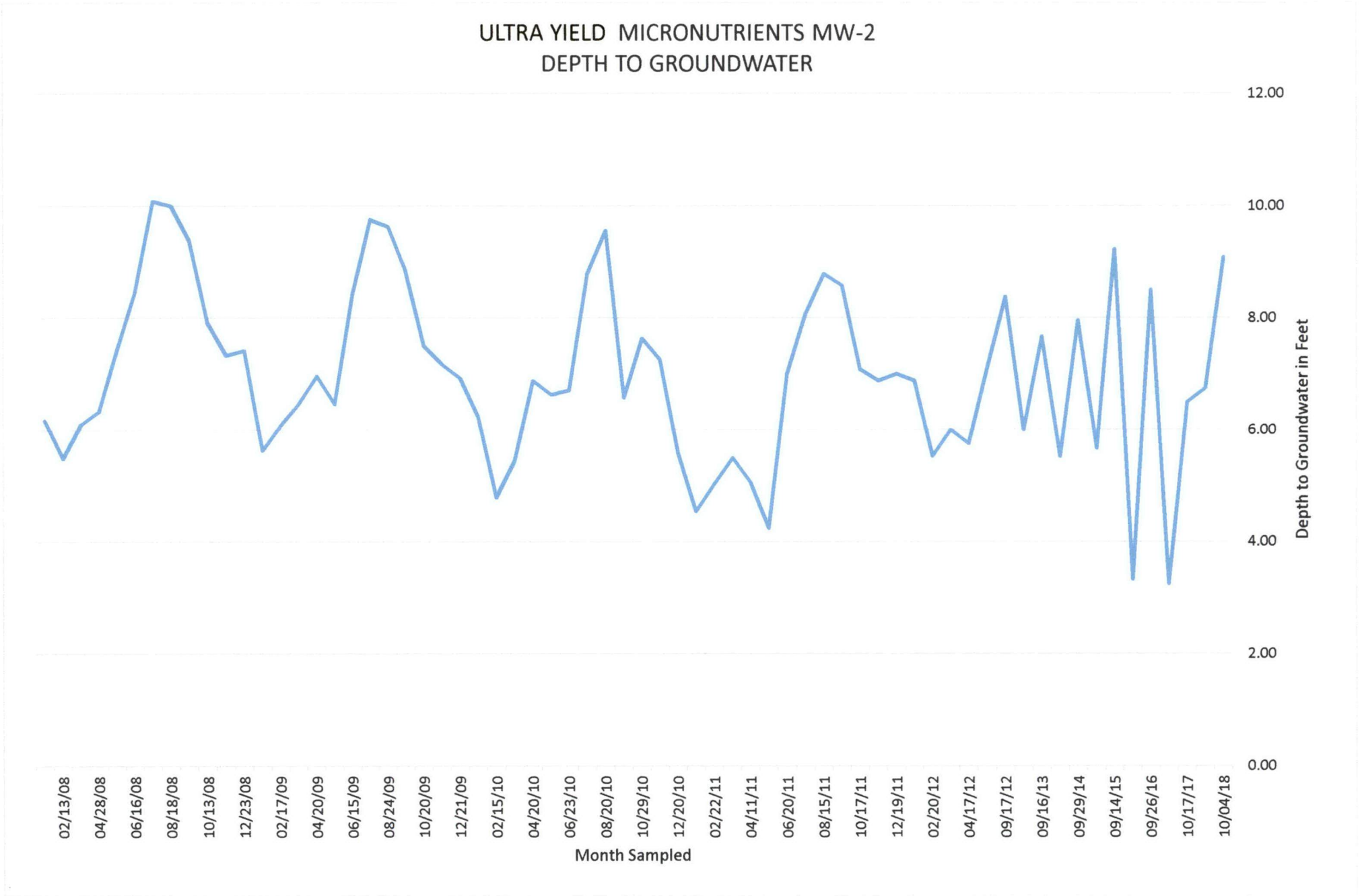
DATE	MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
10/04/18	9.00	9.08	8.39	8.67	8.58	10.25	9.00
04/11/18	5.25	6.75	5.75	5.00	5.50	7.00	4.50
10/17/17	6.75	6.50	4.25	6.50	9.25	8.25	7.25
04/04/17	2.75	3.25	3.00	2.17	3.00	4.33	2.67
09/26/16	8.50	8.50	9.00	8.50	8.33	9.00	8.73
03/23/16	2.83	3.33	3.33	2.17	2.92	6.67	3.00
09/14/15	9.56	9.23	9.50	9.40	9.21	10.60	9.10
03/23/15	6.19	5.67	5.67	5.00	5.15	6.92	8.54
09/29/14	8.00	7.96	8.00	7.06	7.42	9.08	8.00
03/17/14	5.13	5.52	5.58	4.71	5.00	7.17	5.42
09/16/13	8.00	7.67	8.00	7.71	7.29	9.00	7.65
03/18/13	5.50	6.00	6.00	5.13	5.46	7.00	6.00
09/17/12	8.54	8.38	8.63	8.33	8.21	9.79	8.38
05/21/12	6.83	7.08	7.17	6.67	7.58	8.25	7.08
04/17/12	5.44	5.75	5.86	5.00	5.17	7.08	5.69
03/26/12	5.44	6.00	6.00	5.00	5.42	7.00	5.75
02/20/12	5.00	5.53	5.42	4.70	4.83	6.57	5.38
01/16/12	6.54	6.88	6.83	6.17	6.25	8.00	6.84
12/19/11	6.50	7.00	7.08	6.21	6.46	8.00	6.75
11/21/11	6.42	6.88	7.00	6.19	6.33	8.00	6.83
10/17/11	6.92	7.08	7.25	6.75	6.58	8.38	6.92
09/19/11	8.63	8.58	8.79	8.38	8.27	10.00	8.60
08/15/11	9.00	8.79	9.08	8.83	8.42	9.83	8.83
07/18/11	8.32	8.08	8.29	8.21	7.08	9.25	8.08
06/20/11	7.00	7.00	7.08	6.83	6.42	8.00	6.47
05/16/11	4.29	4.24	4.08	4.21	4.00	5.42	4.19
04/11/11	6.53	5.06	5.83	5.17	5.35	7.00	5.83
03/28/11	5.00	5.50	5.56	4.63	5.00	6.58	5.38
02/22/11	4.88	5.04	4.06	4.63	4.15	6.50	5.25
01/17/11	3.08	4.54	4.50	3.79	4.08	5.75	4.04
12/20/10	9.58	5.58	5.67	5.00	5.17	7.08	5.54
11/19/10	7.00	7.25	7.33	6.75	9.04	8.42	7.25
10/29/10	7.46	7.63	7.75	7.21	7.00	7.83	7.56
09/20/10	8.92	6.58	8.83	8.67	7.46	10.00	8.58
08/20/10	10.00	9.56	10.00	10.00	9.46	11.13	9.67
07/20/10	9.17	8.79	9.08	9.08	8.42	10.04	9.06
06/23/10	6.92	6.71	6.92	6.73	6.17	8.06	6.75
05/18/10	6.73	6.63	6.83	6.46	6.26	7.92	6.60
04/20/10	6.71	6.88	5.92	5.50	5.42	8.00	6.81
03/22/10	5.13	5.46	5.52	4.71	6.00	6.65	5.40
02/15/10	4.38	4.79	4.71	4.00	4.29	6.00	4.67
01/11/10	7.00	6.23	6.33	6.65	5.92	7.42	6.13

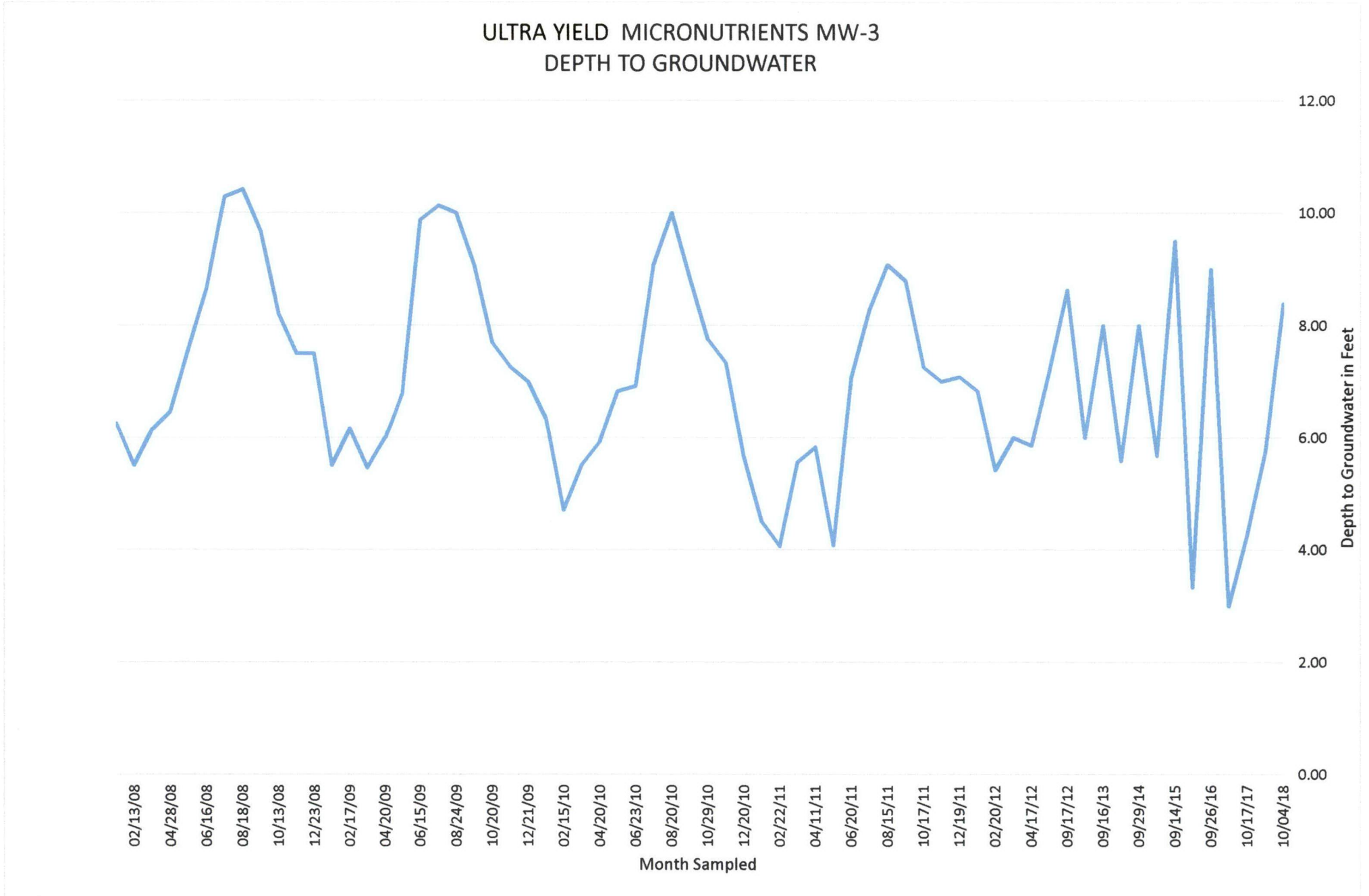
Historical Depth to Groundwater Data
2008 through 2018
Ultra Yield Micronutrients
Moxee, Washington

DATE	MW-1B	MW-2	MW-3	MW-5	MW-8	MW-9	MW-10
12/21/09	6.50	6.92	7.00	6.27	6.56	8.00	6.79
11/09/09	7.00	7.17	7.27	6.67	6.73	8.38	7.08
10/20/09	7.52	7.50	7.69	7.35	7.17	8.83	7.42
09/22/09	9.17	8.88	9.08	9.08	8.54	10.17	8.92
08/24/09	10.00	9.63	10.00	10.00	9.29	11.00	9.67
07/22/09	10.00	9.75	10.13	9.92	9.42	11.08	9.92
06/15/09	8.75	8.42	9.88	8.71	8.00	9.75	8.50
05/15/09	6.40	6.46	6.79	6.25	6.25	7.92	6.52
04/20/09	5.83	6.96	6.00	5.46	5.54	7.13	5.92
03/16/09	6.06	6.46	5.46	4.75	6.00	6.60	5.38
02/17/09	5.63	6.08	6.17	5.31	5.58	7.67	6.00
01/20/09	5.33	5.63	5.50	4.92	5.58	6.71	5.42
12/23/08	7.08	7.42	7.50	6.83	7.00	8.50	7.33
11/17/08	7.33	7.33	7.50	7.00	7.04	8.58	7.44
10/13/08	8.17	7.92	8.21	8.04	8.27	9.33	9.90
09/15/08	9.83	9.38	9.67	9.85	9.25	10.75	9.33
08/18/08	10.56	10.00	10.42	10.71	10.13	11.50	9.75
07/16/08	10.38	10.08	10.29	10.29	9.83	11.33	10.00
06/16/08	8.56	8.46	8.67	9.42	8.19	9.73	8.44
05/22/08	7.54	7.42	7.58	7.35	7.04	8.60	7.46
04/28/08	6.27	6.33	6.46	6.00	6.08	7.63	6.25
03/24/08	5.67	6.10	6.15	5.13	5.73	7.27	6.00
02/13/08	5.01	5.48	5.50	4.83	5.00	6.63	5.33
01/25/08	5.92	6.17	6.25	5.58	5.83	7.33	6.13

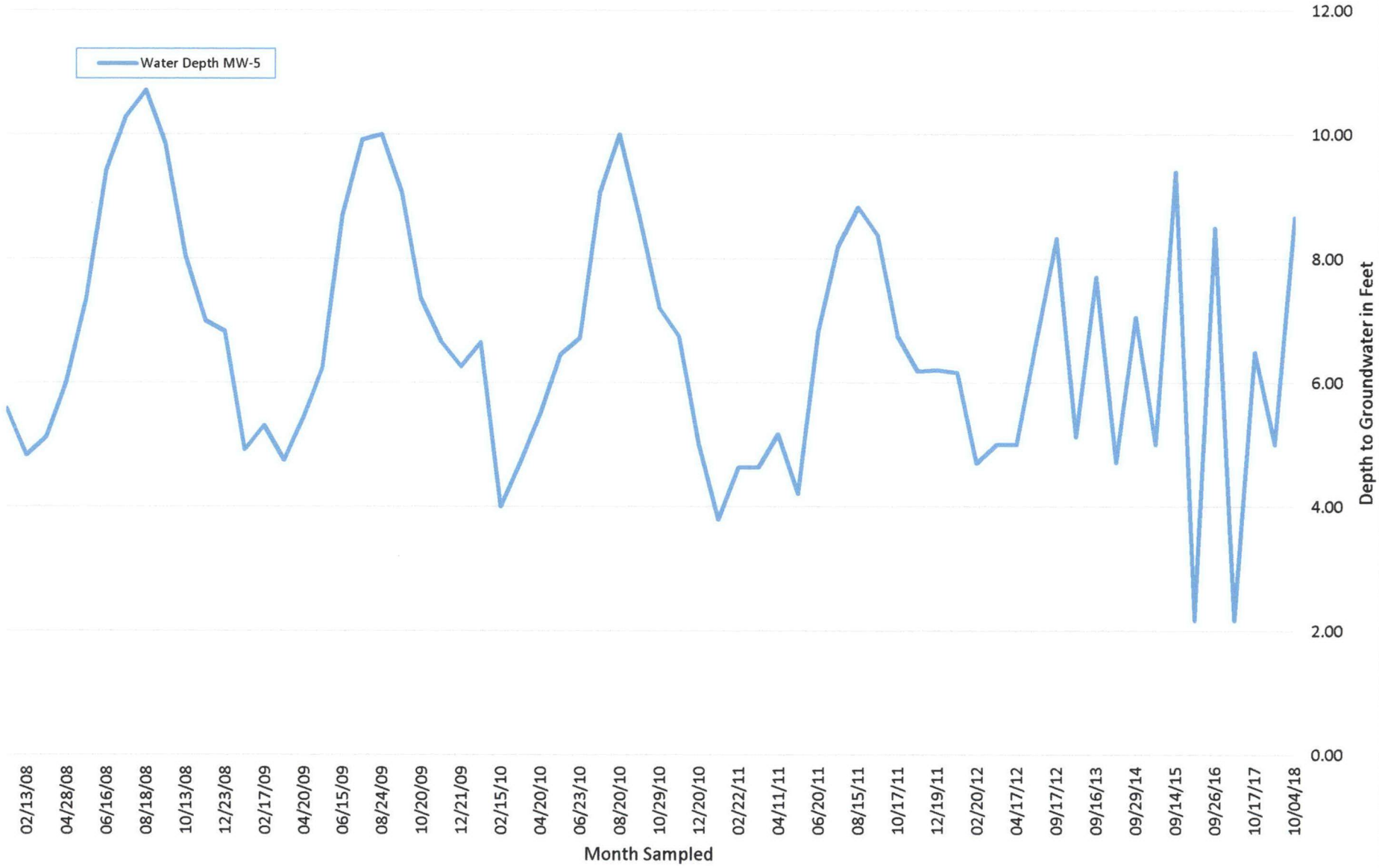
Notes:
N/A = Not Available


ULTRA YIELD MICRONUTRIENTS MW-1B
DEPTH TO GROUNDWATER
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Axis Title
02/13/08
04/28/08
06/16/08
08/18/08
10/13/08
12/23/08
02/17/09
04/20/09
06/15/09
08/24/09
10/20/09
12/21/09
02/15/10
04/20/10
06/23/10
08/20/10
10/29/10
12/20/10
02/22/11
04/11/11
06/20/11
08/15/11
10/17/11
12/19/11
02/20/12
04/17/12
09/17/12
09/16/13
09/29/14
09/14/15
09/26/16
10/17/17
10/04/18
Month Samples

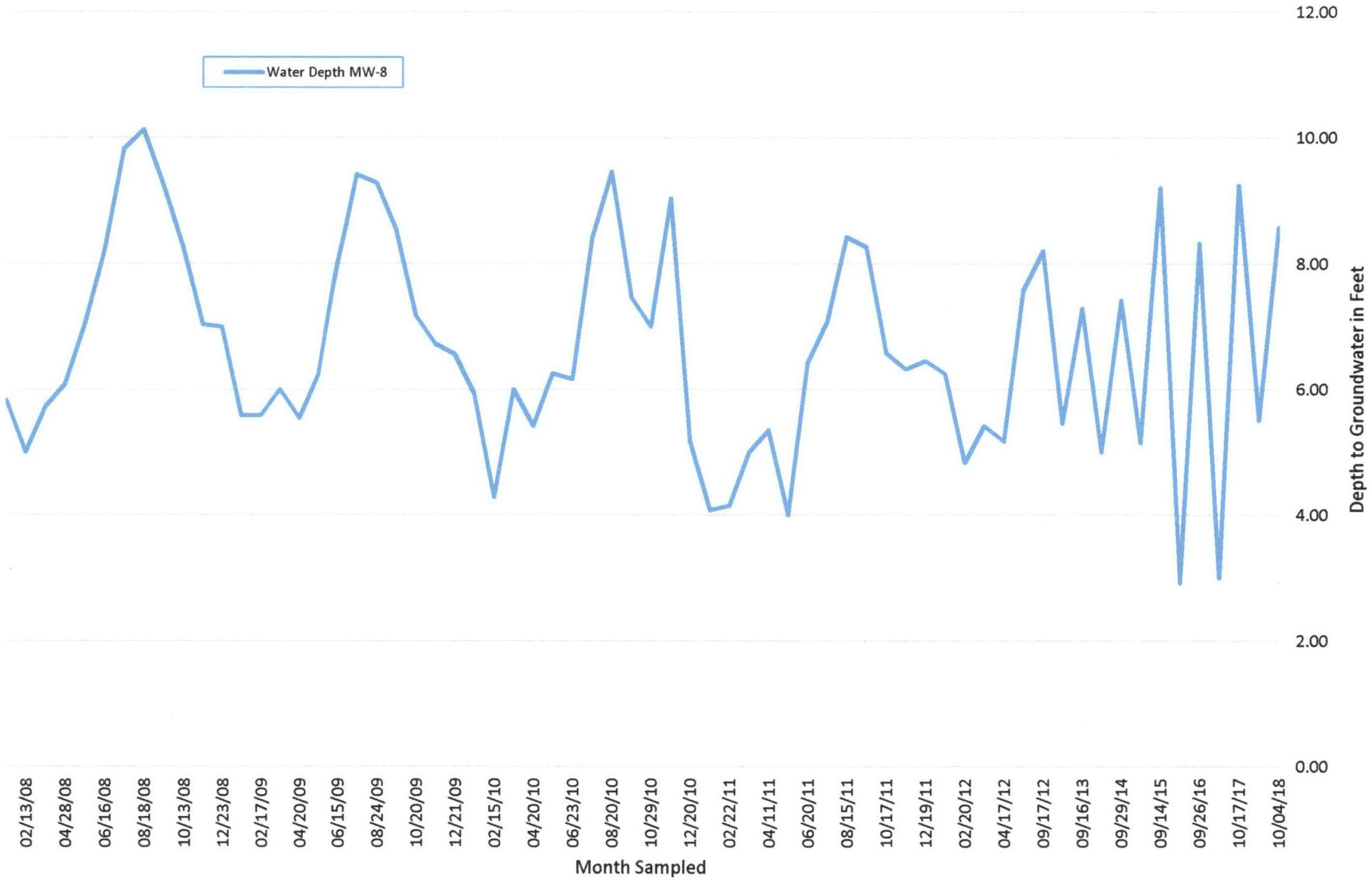

ULTRA YIELD MICRONUTRIENTS MW-2
DEPTH TO GROUNDWATER
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Depth to Groundwater in Feet
02/13/08
04/28/08
06/16/08
08/18/08
10/13/08
12/23/08
02/17/09
04/20/09
06/15/09
08/24/09
10/20/09
12/21/09
02/15/10
04/20/10
06/23/10
08/20/10
10/29/10
12/20/10
02/22/11
04/11/11
06/20/11
08/15/11
10/17/11
12/19/11
02/20/12
04/17/12
09/17/12
09/16/13
09/29/14
09/14/15
09/26/16
10/17/17
10/04/18
Month Sampled

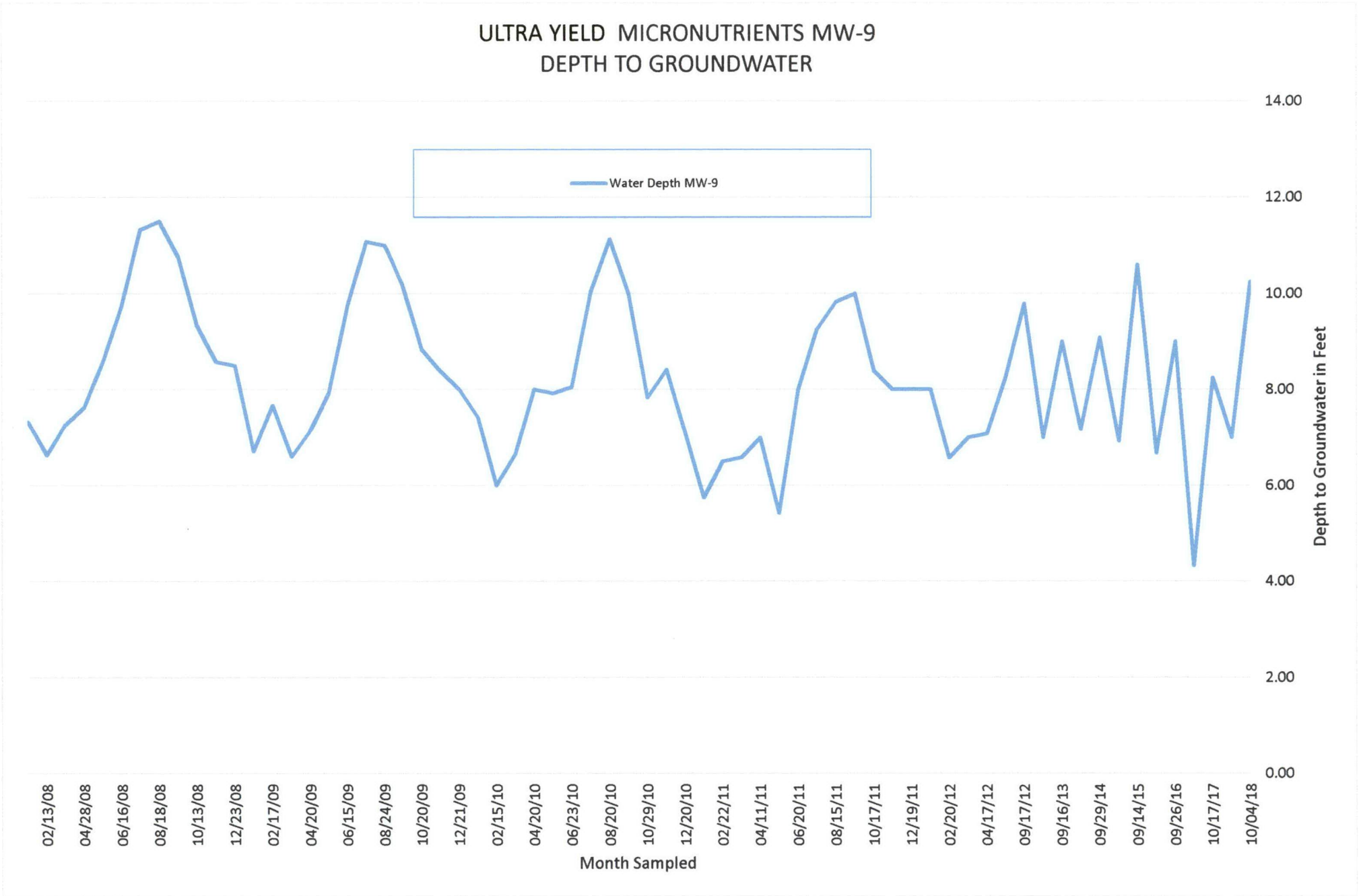

ULTRA YIELD MICRONUTRIENTS MW-3
DEPTH TO GROUNDWATER
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Depth to Groundwater in Feet
02/13/08
04/28/08
06/16/08
08/18/08
10/13/08
12/23/08
02/17/09
04/20/09
06/15/09
08/24/09
10/20/09
12/21/09
02/15/10
04/20/10
06/23/10
08/20/10
10/29/10
12/20/10
02/22/11
04/11/11
06/20/11
08/15/11
10/17/11
12/19/11
02/20/12
04/17/12
09/17/12
09/16/13
09/29/14
09/14/15
09/26/16
10/17/17
10/04/18
Month Sampled

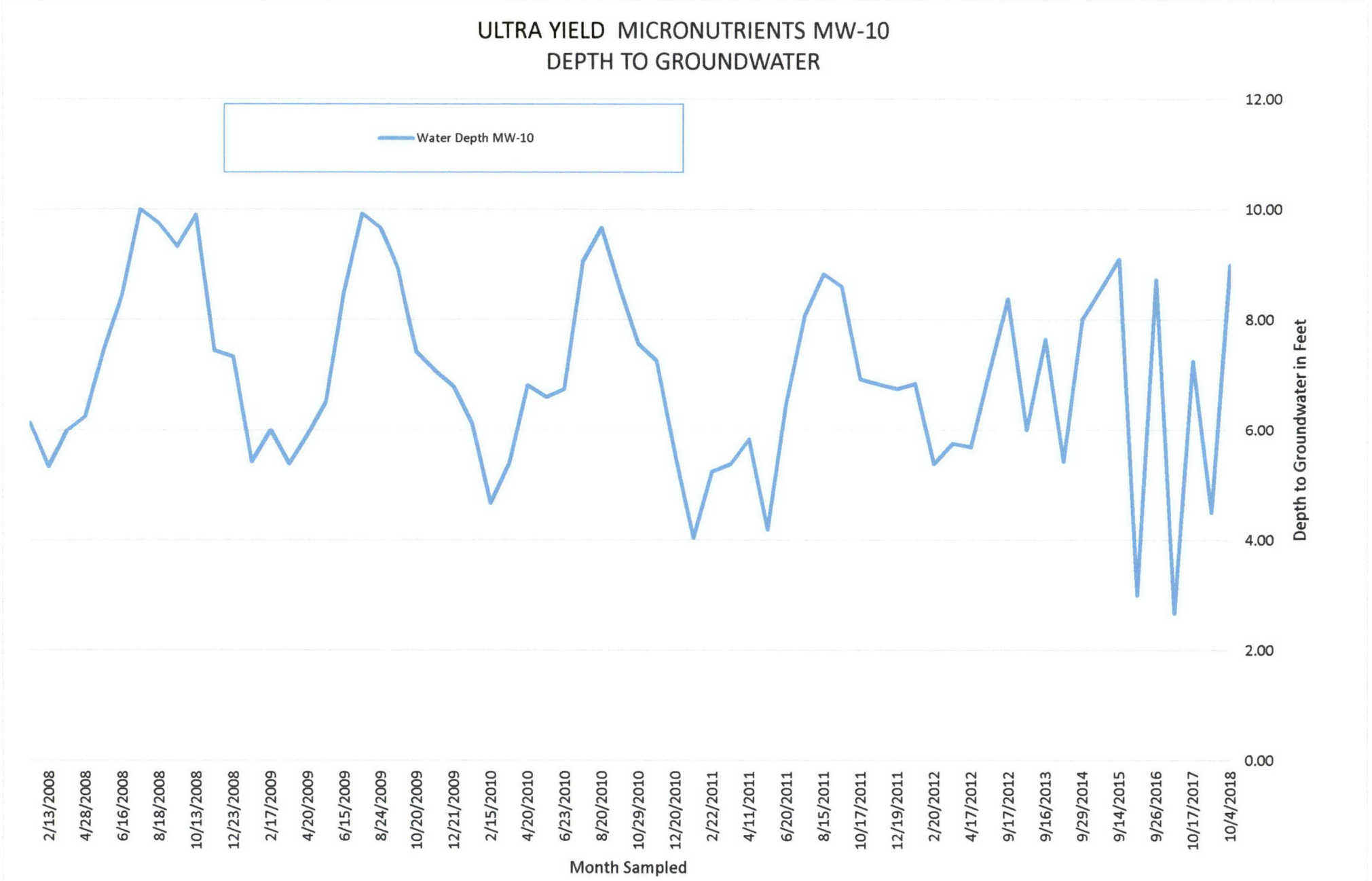
ULTRA YIELD MICRONUTRIENTS MW-5
DEPTH TO GROUNDWATER



ULTRA YIELD MICRONUTRIENTS MW-8
DEPTH TO GROUNDWATER




ULTRA YIELD MICRONUTRIENTS MW-9
DEPTH TO GROUNDWATER
Water Depth MW-9
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Depth to Groundwater in Feet
02/13/08
04/28/08
06/16/08
08/18/08
10/13/08
12/23/08
02/17/09
04/20/09
06/15/09
08/24/09
10/20/09
12/21/09
02/15/10
04/20/10
06/23/10
08/20/10
10/29/10
12/20/10
02/22/11
04/11/11
06/20/11
08/15/11
10/17/11
12/19/11
02/20/12
04/17/12
09/17/12
09/16/13
09/29/14
09/14/15
09/26/16
10/17/17
10/04/18
Month Sampled


ULTRA YIELD MICRONUTRIENTS MW-10
DEPTH TO GROUNDWATER
Water Depth MW-10
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Depth to Groundwater in Feet
2/13/2008
4/28/2008
6/16/2008
8/18/2008
10/13/2008
12/23/2008
2/17/2009
4/20/2009
6/15/2009
8/24/2009
10/20/2009
12/21/2009
2/15/2010
4/20/2010
6/23/2010
8/20/2010
10/29/2010
12/20/2010
2/22/2011
4/11/2011
6/20/2011
8/15/2011
10/17/2011
12/19/2011
2/20/2012
4/17/2012
9/17/2012
9/16/2013
9/29/2014
9/14/2015
9/26/2016
10/17/2017
10/4/2018
Month Sampled

Ultra Yield™
MICRONUTRIENTS

LABORATORY ANALYTICAL REPORTS
AND
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Ultra Yield Micronutrients

UYM 2018 Well Temperature and pH Results							
Well	**MW-1B**	**MW-2**	**MW-3**	**MW-5**	**MW-8**	**MW-9**	**MW-10**
pH							
3/26/12	7.04	7.37	7.11	8.17	7.01	7.72	7.8
9/17/12	6.83	7.46	7.05	7.96	7.05	7.64	7.87
3/18/13	6.92	7.46	7.09	8.14	7.13	7.87	7.97
9/16/13	6.54	7.35	7.01	7.92	6.95	7.57	7.72
3/17/14	6.58	7.20	6.80	7.87	6.79	7.47	7.53
09/29/14	6.73	7.43	6.98	7.78	6.94	7.41	7.57
03/23/15	7.02	7.35	7.0	8.04	7.0	7.59	7.62
09/14/15	7.0	7.68	7.28	7.98	7.37	7.6	7.73
03/23/16	6.81	7.36	6.95	7.89	6.91	7.52	7.61
09/26/16	6.59	7.23	6.9	7.54	6.91	7.24	7.51
04/04/17	6.82	7.09	6.98	7.51	6.71	7.33	7.30
10/17/17	7.06	7.39	7.09	7.71	6.90	7.52	7.89
04/11/18	6.9	7.21	7.08	7.89	6.79	7.61	7.59
10/04/18	7.02	7.62	7.06	7.96	7.67	7.23	7.85
11/27/18					6.82	7.33	

UYM 2018 Temperature in degrees Centigrade

3/26/12	15.0	15.1	16.2	16.5	16.9	17.1	17.3
9/17/12	18.4	19.8	19.6	19.1	19.4	19.5	19.5
3/18/13	16.1	16.5	16.7	17.2	17.8	17.6	17.0
9/16/13	17.3	18.3	18.2	16.9	16.6	17.1	18.4
3/17/14	14.2	15.6	16.1	13.4	16.0	16.7	17.7
9/29/14	17.4	15.9	16.8	16.4	15.8	17.6	16.5
3/23/15	12.5	11.5	13.5	13.7	14.9	13.3	13.8
9/14/15	16.3	16.9	17.9	16.3	18.0	17.4	18.2
3/23/16	16.1	14.8	14.8	15.9	15.0	15.6	15.6
9/26/16	18.4	17.4	17.8	17.3	10.0	18.2	18.5
4/4/17	19.9	20.8	19.9	20.1	16.7	18.9	20.1
10/10/17	11.2	11.1	11.7	11.2	13.1	13.3	14.3
04/11/18	11.9	13.9	13.5	14.1	14.90	15.3	12.1
10/04/18	11.1	11.2	11.6	12.8	11.5	11.3	11.2
11/27/18					11.5	11.3	

May 02, 2018 Service Request No:K1803450

Terry Kelley
Kronos Micronutrients
213 W. Moxee Avenue
P.O. Box 1167
Moxee, WA 98936

Laboratory Results for: Spring Well Monitoring 2018

Dear Terry,

Enclosed are the results of the sample(s) submitted to our laboratory April 13, 2018
For your reference, these analyses have been assigned our service request number **K1803450.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626
PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp.
dba ALS Environmental

Narrative Documents

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

ALS Environmental

Client: Ultra Yield Micronutrients
Project: Spring Well Monitoring 2018
Sample Matrix: Water

Service Request: K1803450
Date Received: 04/13/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt:

Eight water samples were received for analysis at ALS Environmental on 04/13/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 05/02/2018

ALS Environmental

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-1B — **Lab ID: K1803450-001**

Analyte	Results	Flag	MDL	PQL	Units	Method
Chloride	70			50	mg/L	300.0
Sulfate	540			50	mg/L	300.0
Cadmium	16.6		0.006	0.50	ug/L	200.8
Manganese	9.98		0.04	0.60	ug/L	200.8
Zinc	16100		40	400	ug/L	200.8

CLIENT ID: MW-2 — **Lab ID: K1803450-002**

Analyte	Results	Flag	MDL	PQL	Units	Method
Chloride	348			20	mg/L	300.0
Sulfate	1370			20	mg/L	300.0
Manganese	82.5		0.04	0.60	ug/L	200.8
Zinc	6.3		0.2	2.0	ug/L	200.8

CLIENT ID: MW-3 — **Lab ID: K1803450-003**

Analyte	Results	Flag	MDL	PQL	Units	Method
Chloride	107			20	mg/L	300.0
Sulfate	896			20	mg/L	300.0
Cadmium	125		0.006	0.50	ug/L	200.8
Manganese	7590		8	120	ug/L	200.8
Zinc	15000		40	400	ug/L	200.8

CLIENT ID: MW-5 — **Lab ID: K1803450-004**

Analyte	Results	Flag	MDL	PQL	Units	Method
Chloride	23.5			1.0	mg/L	300.0
Sulfate	51.4			1.0	mg/L	300.0
Manganese	66.5		0.04	0.60	ug/L	200.8
Zinc	3.9		0.2	2.0	ug/L	200.8

CLIENT ID: MW-8 — **Lab ID: K1803450-005**

Analyte	Results	Flag	MDL	PQL	Units	Method
Chloride	602			50	mg/L	300.0
Sulfate	1660			50	mg/L	300.0
Cadmium	65.5		0.006	0.50	ug/L	200.8
Manganese	27300		8	120	ug/L	200.8
Zinc	47300		40	400	ug/L	200.8

CLIENT ID: MW-9 — **Lab ID: K1803450-006**

Analyte	Results	Flag	MDL	PQL	Units	Method
Chloride	405			50	mg/L	300.0
Sulfate	1530			50	mg/L	300.0
Manganese	4570		8	120	ug/L	200.8
Zinc	18.9		0.2	2.0	ug/L	200.8

ALS Environmental

SAMPLE DETECTION SUMMARY

CLIENT ID: MW-10			Lab ID: K1803450-007			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Chloride	298			20	mg/L	300.0
Sulfate	1080			20	mg/L	300.0
Manganese	936		0.04	0.60	ug/L	200.8
Zinc	3.9		0.2	2.0	ug/L	200.8

CLIENT ID: Dup			Lab ID: K1803450-008			
Analyte	**Results**	**Flag**	**MDL**	**PQL**	**Units**	**Method**
Chloride	655			20	mg/L	300.0
Sulfate	1820			20	mg/L	300.0
Cadmium	67.0		0.006	0.50	ug/L	200.8
Manganese	29100		8	120	ug/L	200.8
Zinc	49900		40	400	ug/L	200.8

ALS Environmental

Sample Receipt Information

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Client: Ultra Yield Micronutrients **Service Request:**K1803450

Project: Spring Well Monitoring 2018/2018-01

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K1803450-001	MW-1B	4/11/2018	1252
K1803450-002	MW-2	4/11/2018	0920
K1803450-003	MW-3	4/11/2018	0950
K1803450-004	MW-5	4/11/2018	1400
K1803450-005	MW-8	4/11/2018	1250
K1803450-006	MW-9	4/11/2018	1128
K1803450-007	MW-10	4/11/2018	0840
K1803450-008	Dup	4/11/2018	1345

ALS Environmental

CHAIN OF CUSTODY
87841

001

SR# K1803450

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name	Spring well testing 2018
Project Number	2018-01
Project Manager	Terry Kelley
Company	Ultra Yield Micronutrients
Address	213 West Moxee, WA, 989
Phone #	(509) 248 4911
email	tkelley@ultrayieldmicros.com
Sampler Signature	Terry L. Kelley
Sampler Printed Name	Terry Kelley

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	28D 300.0 / Chloride	28D 300.0 / SO4	180D 200.8 / Metals D	1	2	3	4	5	Remarks
1. MW-1B		4-11-18	12:55	water	2	✓	✓	✓						
2. MW-2		4-11-18	0920	water	2	✓	✓	✓						
3. MW-3		4-11-18	0950	water	2	✓	✓	✓						
4. MW-5		4-11-18	1400	water	2	✓	✓	✓						
5. MW-8		4-11-18	1250	water	2	✓	✓	✓						
6. MW-9		4-11-18	11:28	water	2	✓	✓	✓						
7. MW-10		4-11-18	08:40	water	2	✓	✓	✓						
8. Dup		4-11-18	13:45	water	2	✓	✓	✓						
9.														
10.														

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

___ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 743891

Bill To: Ultra Yield Micronutrients

PO Box 1167

Moxee WA 98936

Turnaround Requirements

___ 24 hr. ___ 48 hr.

___ 5 Day

✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca (Cd) Co Cr Cu Fe Pb Mg (Mn) Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Terry L Kelley	Signature: DAVID PEARSON	Signature	Signature	Signature	Signature
Printed Name: Terry L Kelley	Printed Name: ALS-K	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Ultra Yield Micronutrients	Firm: 4-13-18 1035	Firm	Firm	Firm	Firm
Date/Time: 4-11-18 1000	Date/Time:	Date/Time	Date/Time	Date/Time	Date/Time

ALS

PC CV

Cooler Receipt and Preservation Form

Client Ultra Violet Microwaterworks Service Request K18 03450

eived: 4-13-18 Opened: 4-13-18 By: ASP Unloaded: 4-13-18 By: ASP

1. Samples were received via? *USPS* *Fed Ex* (*UPS*) *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler*) *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2 TAP (1) Front (1) Side

   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number NA	Filed
5.2	5.1	6.0	5.9	-0.1	370		1Z 843 932 03 5776 7840	

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* (*Gel Packs*) *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

ALS Environmental

Miscellaneous Forms

ALS Environmental—Kelso Laboratory
1317 South 13th Avenue, Kelso, WA 98626
Phone (360) 577-7222 Fax (360) 425-9096
www.alsglobal.com

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client: Ultra Yield Micronutrients **Service Request:** K1803450
Project: Spring Well Monitoring 2018/2018-01

Sample Name: MW-1B **Date Collected:** 04/11/18
Lab Code: K1803450-001 **Date Received:** 04/13/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Sample Name: MW-2 **Date Collected:** 04/11/18
Lab Code: K1803450-002 **Date Received:** 04/13/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Sample Name: MW-3 **Date Collected:** 04/11/18
Lab Code: K1803450-003 **Date Received:** 04/13/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Sample Name: MW-5 **Date Collected:** 04/11/18
Lab Code: K1803450-004 **Date Received:** 04/13/18
Sample Matrix: Water

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01		

Sample Name:	MW-8	**Date Collected:**	04/11/18
Lab Code:	K1803450-005	**Date Received:**	04/13/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Sample Name:	MW-9	**Date Collected:**	04/11/18
Lab Code:	K1803450-006	**Date Received:**	04/13/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Sample Name:	MW-10	**Date Collected:**	04/11/18
Lab Code:	K1803450-007	**Date Received:**	04/13/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

Sample Name:	Dup	**Date Collected:**	04/11/18
Lab Code:	K1803450-008	**Date Received:**	04/13/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		JCHAN

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Sample Results

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Metals

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 12:52
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-1B	**Basis:**	NA
Lab Code:	K1803450-001		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**16.6**	ug/L	0.50	1	04/26/18 07:35	04/23/18	
Manganese	200.8	**9.98**	ug/L	0.60	1	04/26/18 07:35	04/23/18	
Zinc	200.8	**16100**	ug/L	400	200	04/26/18 07:22	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 09:20
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-2	**Basis:**	NA
Lab Code:	K1803450-002		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	04/26/18 07:10	04/23/18	
Manganese	200.8	**82.5**	ug/L	0.60	1	04/26/18 07:10	04/23/18	
Zinc	200.8	**6.3**	ug/L	2.0	1	04/26/18 07:10	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 09:50
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-3	**Basis:**	NA
Lab Code:	K1803450-003		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**125**	ug/L	0.50	1	04/26/18 07:36	04/23/18	
Manganese	200.8	**7590**	ug/L	120	200	04/26/18 07:23	04/23/18	
Zinc	200.8	**15000**	ug/L	400	200	04/26/18 07:23	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 14:00
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-5	**Basis:**	NA
Lab Code:	K1803450-004		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	04/26/18 07:20	04/23/18	
Manganese	200.8	**66.5**	ug/L	0.60	1	04/26/18 07:20	04/23/18	
Zinc	200.8	**3.9**	ug/L	2.0	1	04/26/18 07:20	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 12:50
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-8	**Basis:**	NA
Lab Code:	K1803450-005		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**65.5**	ug/L	0.50	1	04/26/18 07:11	04/23/18	
Manganese	200.8	**27300**	ug/L	120	200	04/26/18 07:29	04/23/18	
Zinc	200.8	**47300**	ug/L	400	200	04/26/18 07:29	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 11:28
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-9	**Basis:**	NA
Lab Code:	K1803450-006		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	04/26/18 07:37	04/23/18	
Manganese	200.8	**4570**	ug/L	120	200	04/26/18 07:24	04/23/18	
Zinc	200.8	**18.9**	ug/L	2.0	1	04/26/18 07:37	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 08:40
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-10	**Basis:**	NA
Lab Code:	K1803450-007		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	DiL	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	04/26/18 07:17	04/23/18	
Manganese	200.8	**936**	ug/L	0.60	1	04/26/18 07:17	04/23/18	
Zinc	200.8	**3.9**	ug/L	2.0	1	04/26/18 07:17	04/23/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 13:45
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	Dup	**Basis:**	NA
Lab Code:	K1803450-008		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**67.0**	ug/L	0.50	1	04/26/18 07:39	04/23/18	
Manganese	200.8	**29100**	ug/L	120	200	04/26/18 07:27	04/23/18	
Zinc	200.8	**49900**	ug/L	400	200	04/26/18 07:27	04/23/18	

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
'roject:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 12:52
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-1B	**Basis:**	NA
Lab Code:	K1803450-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**70**	mg/L	50	500	04/18/18 17:04	
Sulfate	300.0	**540**	mg/L	50	500	04/18/18 17:04	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 09:20
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-2	**Basis:**	NA
Lab Code:	K1803450-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**348**	mg/L	20	200	04/18/18 17:14	
Sulfate	300.0	**1370**	mg/L	20	200	04/18/18 17:14	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
roject:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 09:50
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-3	**Basis:**	NA
Lab Code:	K1803450-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**107**	mg/L	20	200	04/18/18 17:25	
Sulfate	300.0	**896**	mg/L	20	200	04/18/18 17:25	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 14:00
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-5	**Basis:**	NA
Lab Code:	K1803450-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**23.5**	mg/L	1.0	10	04/18/18 16:21	
Sulfate	300.0	**51.4**	mg/L	1.0	10	04/18/18 16:21	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
roject:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 12:50
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-8	**Basis:**	NA
Lab Code:	K1803450-005		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**602**	mg/L	50	500	04/18/18 17:36	
Sulfate	300.0	**1660**	mg/L	50	500	04/18/18 17:36	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 11:28
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-9	**Basis:**	NA
Lab Code:	K1803450-006		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**405**	mg/L	50	500	04/18/18 17:46	
Sulfate	300.0	**1530**	mg/L	50	500	04/18/18 17:46	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
roject:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 08:40
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	MW-10	**Basis:**	NA
Lab Code:	K1803450-007		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**298**	mg/L	20	200	04/18/18 18:18	
Sulfate	300.0	**1080**	mg/L	20	200	04/18/18 18:18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18 13:45
Sample Matrix:	Water	**Date Received:**	04/13/18 10:35
Sample Name:	Dup	**Basis:**	NA
Lab Code:	K1803450-008		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**655**	mg/L	20	200	04/18/18 18:29	
Sulfate	300.0	**1820**	mg/L	20	200	04/18/18 18:29	

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QC Summary Forms

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Metals

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
roject:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1805166-01		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	04/26/18 06:44	04/23/18	
Manganese	200.8	ND U	ug/L	0.60	1	04/26/18 06:44	04/23/18	
Zinc	200.8	ND U	ug/L	2.0	1	04/26/18 06:44	04/23/18	

Client: Ultra Yield Micronutrients
Project: Spring Well Monitoring 2018/2018-01
Sample Matrix: Water

Service Request: K1803450
Date Analyzed: 04/26/18

Lab Control Sample Summary
Dissolved Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ1805166-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	200.8	24.1	25.0	96	85-115
Manganese	200.8	24.7	25.0	99	85-115
Zinc	200.8	24.3	25.0	97	85-115

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
Project:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K1803450-MB1		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	DiL	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	1	04/18/18 11:16	
Sulfate	300.0	ND U	mg/L	0.10	1	04/18/18 11:16	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1803450
roject:	Spring Well Monitoring 2018/2018-01	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K1803450-MB2		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	1	04/18/18 20:37	
Sulfate	300.0	ND U	mg/L	0.10	1	04/18/18 20:37	

Client: Ultra Yield Micronutrients
Project: Spring Well Monitoring 2018/2018-01
Sample Matrix: Water

Service Request:K1803450
Date Collected:04/11/18
Date Received:04/13/18
Date Analyzed:4/18/18

Duplicate Matrix Spike Summary
General Chemistry Parameters

Sample Name: MW-5
Lab Code: K1803450-004

Units:mg/L
Basis:NA

			Matrix Spike K1803450-004MS			Duplicate Matrix Spike K1803450-004DMS					
Analyte Name	**Method**	**Sample Result**	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
Chloride	300.0	23.5	62.2	40.0	97	65.7	40.0	105	90-110	6	20
Sulfate	300.0	51.4	90.0	40.0	97	91.3	40.0	100	90-110	1	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

lient:	Ultra Yield Micronutrients	**Service Request:**	K1803450
rroject	Spring Well Monitoring 2018/2018-01	**Date Collected:**	04/11/18
Sample Matrix:	Water	**Date Received:**	04/13/18
		Date Analyzed:	04/18/18

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	MW-5	**Units:**	mg/L
Lab Code:	K1803450-004	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample K1803450-004DUP Result	Average	RPD	RPD Limit
Chloride	300.0	1.0	23.5	23.7	23.6	<1	20
Sulfate	300.0	1.0	51.4	52.0	51.7	1	20

sults flagged with an asterisk (*) indicate values outside control criteria.

sults flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Ultra Yield Micronutrients
Project: Spring Well Monitoring 2018/2018-01
Sample Matrix: Water

Service Request: K1803450
Date Analyzed: 04/18/18

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K1803450-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.90	5.00	98	90-110
Sulfate	300.0	4.90	5.00	98	90-110

lient:	Ultra Yield Micronutrients	**Service Request:**	K1803450
. roject:	Spring Well Monitoring 2018/2018-01	**Date Analyzed:**	04/18/18
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K1803450-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.96	5.00	99	90-110
Sulfate	300.0	4.97	5.00	99	90-110

October 24, 2018 Service Request No:K1809798

Terry Kelley
Kronos Micronutrients
213 W. Moxee Avenue
P.O. Box 1167
Moxee, WA 98936

Laboratory Results for: Fall 2018 Well Test

Dear Terry,

Enclosed are the results of the sample(s) submitted to our laboratory October 08, 2018
For your reference, these analyses have been assigned our service request number **K1809798.**

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

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ALS Group USA, Corp.
dba ALS Environmental

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Narrative Documents

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Client: Ultra Yield Micronutrients
Project: Fall 2018 Well Test
Sample Matrix: Water

Service Request: K1809798
Date Received: 10/08/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt:

Eight water samples were received for analysis at ALS Environmental on 10/08/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

Approved by _____ Date 10/24/2018

ALS Environmental

SAMPLE DETECTION SUMMARY

CLIENT ID: Well 1B — **Lab ID: K1809798-001**

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloride	25.5			2.0	mg/L	300.0
Sulfate	118			2.0	mg/L	300.0
Cadmium, Dissolved	5.97		0	0.50	ug/L	200.8
Manganese, Dissolved	21.1		0	0.20	ug/L	200.8
Zinc, Dissolved	5310		0	40	ug/L	200.8

CLIENT ID: Well 2 — **Lab ID: K1809798-002**

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloride	203			10	mg/L	300.0
Sulfate	393			10	mg/L	300.0
Manganese, Dissolved	3.57		0	0.20	ug/L	200.8
Zinc, Dissolved	4.3		0	2.0	ug/L	200.8

CLIENT ID: Well 3 — **Lab ID: K1809798-003**

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloride	173			20	mg/L	300.0
Sulfate	843			20	mg/L	300.0
Cadmium, Dissolved	91.3		0	5.0	ug/L	200.8
Manganese, Dissolved	4190		0	2.0	ug/L	200.8
Zinc, Dissolved	7720		0	20	ug/L	200.8

CLIENT ID: Well 5 — **Lab ID: K1809798-004**

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloride	23.0			5.0	mg/L	300.0
Sulfate	53.8			5.0	mg/L	300.0
Manganese, Dissolved	13.5		0	0.20	ug/L	200.8
Zinc, Dissolved	9.8		0	2.0	ug/L	200.8

CLIENT ID: Well 8 — **Lab ID: K1809798-005**

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloride	478			20	mg/L	300.0
Sulfate	1710			20	mg/L	300.0
Manganese, Dissolved	4820		0	4.0	ug/L	200.8
Zinc, Dissolved	22.5		0	2.0	ug/L	200.8

CLIENT ID: Well 9 — **Lab ID: K1809798-006**

Analyte	Results	Flag	MDL	MRL	Units	Method
Chloride	357			50	mg/L	300.0
Sulfate	1030			50	mg/L	300.0
Cadmium, Dissolved	20.0		0	5.0	ug/L	200.8
Manganese, Dissolved	13900		0	2.0	ug/L	200.8
Zinc, Dissolved	13900		0	20	ug/L	200.8

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SAMPLE DETECTION SUMMARY

CLIENT ID: Well 10			Lab ID: K1809798-007			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chloride	137			20	mg/L	300.0
Sulfate	341			20	mg/L	300.0
Manganese, Dissolved	106		0	0.20	ug/L	200.8
Zinc, Dissolved	10.8		0	2.0	ug/L	200.8

CLIENT ID: Dup			Lab ID: K1809798-008			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chloride	470			20	mg/L	300.0
Sulfate	1710			20	mg/L	300.0
Manganese, Dissolved	4860		0	4.0	ug/L	200.8
Zinc, Dissolved	19.3		0	2.0	ug/L	200.8

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Sample Receipt Information

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Client: Ultra Yield Micronutrients **Service Request:**K1809798
Project: Fall 2018 Well Test/2018-2

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K1809798-001	Well 1B	10/4/2018	1411
K1809798-002	Well 2	10/4/2018	0930
K1809798-003	Well 3	10/4/2018	1008
K1809798-004	Well 5	10/4/2018	1505
K1809798-005	Well 8	10/4/2018	1200
K1809798-006	Well 9	10/4/2018	1050
K1809798-007	Well 10	10/4/2018	0820
K1809798-008	Dup	10/4/2018	1610

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CHAIN OF CUSTODY
92568

001

SR# K1809798

COC Set____of____

COC#_____

1317 South 13th Ave, Kelso, WA 98626 Phone (360) 577-7222 / 800-695-7222 / FAX (360) 636-1068
www.alsglobal.com

Project Name: Fall 2018 well test	Project Number: 2018-2
Project Manager: Terry Kelley	
Company: Ultra Yield Micro nutrients	
Address: 213 W. Moxee Ave Moxee WA 98936	
Phone #: 509 248-4911	email: tkelley@ultrayieldmicros.com
Sampler Signature: Terry Kelley	Sampler Printed Name: Terry Kelley

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	28D 300.0 / Chloride	28D 300.0 / SO4	180D 200.8 / Metals D	F	2	B	4	5	Remarks
1. well 1B		10-4-18	1411	water	2	✓	✓	✓						
2. well 2		10-4-18	0930	water	2	✓	✓	✓						
3. well 3		10-4-18	1008	water	2	✓	✓	✓						
4. well 5		10-4-18	1505	water	2	✓	✓	✓						
5. well 8		10-4-18	1200	water	2	✓	✓	✓						
6. well 9		10-4-18	1050	water	2	✓	✓	✓						
7. well 10		10-4-18	0820	water	2	✓	✓	✓						
8. Dup		10-4-18	1610	water	2	✓	✓	✓						
9.														
10.														

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

✓ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 08181

Bill To: Ultra Yield Micronutrients
PO Box 1167
Moxee WA 98936

Turnaround Requirements

___ 24 hr. ___ 48 hr.
___ 5 Day
✓ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca (Cd) Co Cr Cu Fe Pb Mg (Mn) Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Terry L Kelley	Signature: Cody Graves	Signature	Signature	Signature	Signature
Printed Name: Terry L Kelley	Printed Name: ALS	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Ultra Yield Micronutrients	Firm: 10/8/18 0940	Firm	Firm	Firm	Firm
Date/Time: 10/5/18 1100	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client Ultra Yield Micro Nutrients Service Request K18 09798

Received: 10/8/18 Opened: 10/8/18 By: CG Unloaded: 10/8/18 By: CG

1. Samples were received via? *USPS* *Fed Ex* (*UPS* circled) *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) (*Cooler* circled) *Box* *Envelope* *Other* + Flowers *NA*
3. Were custody seals on coolers? NA (Y circled) N If yes, how many and where? 1 Front 1 Right

   If present, were custody seals intact? (Y circled) N If present, were they signed and dated? (Y circled) N

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
11.7	11.7	12.1	12.1	0.0	390	97568	1Z8439824459 7323	

4. Packing material: *Inserts* *Baggies* (*Bubble Wrap* circled) *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves*
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y circled) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA Y (N circled)

   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y circled) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y circled) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y circled) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA (Y circled) N
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA circled) Y N
12. Was C12/Res negative? (NA circled) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
All		X								

Notes, Discrepancies, & Resolutions:

7/25/16

Page ____ ***of*** ____

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Miscellaneous Forms

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Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water-	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2		

Sample Name:	Well 1B	**Date Collected:**	10/4/18
Lab Code:	K1809798-001	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Sample Name:	Well 2	**Date Collected:**	10/4/18
Lab Code:	K1809798-002	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Sample Name:	Well 3	**Date Collected:**	10/4/18
Lab Code:	K1809798-003	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Sample Name:	Well 5	**Date Collected:**	10/4/18
Lab Code:	K1809798-004	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2		

Sample Name:	Well 8	**Date Collected:**	10/4/18
Lab Code:	K1809798-005	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Sample Name:	Well 9	**Date Collected:**	10/4/18
Lab Code:	K1809798-006	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Sample Name:	Well 10	**Date Collected:**	10/4/18
Lab Code:	K1809798-007	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

Sample Name:	Dup	**Date Collected:**	10/4/18
Lab Code:	K1809798-008	**Date Received:**	10/8/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		GJASPER
300.0		MRODRIGUEZ

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Sample Results

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Metals

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 14:11
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 1B	**Basis:**	NA
Lab Code:	K1809798-001		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**5.97**	ug/L	0.50	1	10/23/18 09:44	10/18/18	
Manganese	200.8	**21.1**	ug/L	0.20	1	10/23/18 09:44	10/18/18	
Zinc	200.8	**5310**	ug/L	40	20	10/23/18 09:46	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 09:30
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 2	**Basis:**	NA
Lab Code:	K1809798-002		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	10/23/18 09:48	10/18/18	
Manganese	200.8	**3.57**	ug/L	0.20	1	10/23/18 09:48	10/18/18	
Zinc	200.8	**4.3**	ug/L	2.0	1	10/23/18 09:48	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 10:08
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 3	**Basis:**	NA
Lab Code:	K1809798-003		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**91.3**	ug/L	5.0	10	10/23/18 09:55	10/18/18	
Manganese	200.8	**4190**	ug/L	2.0	10	10/23/18 09:55	10/18/18	
Zinc	200.8	**7720**	ug/L	20	10	10/23/18 09:55	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 15:05
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 5	**Basis:**	NA
Lab Code:	K1809798-004		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	10/23/18 09:56	10/18/18	
Manganese	200.8	**13.5**	ug/L	0.20	1	10/23/18 09:56	10/18/18	
Zinc	200.8	**9.8**	ug/L	2.0	1	10/23/18 09:56	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 12:00
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 8	**Basis:**	NA
Lab Code:	K1809798-005		

Dissolved Metals

Analyte Name	Analysis Method	Result		Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND	U	ug/L	0.50	1	10/23/18 09:58	10/18/18	
Manganese	200.8	**4820**		ug/L	4.0	20	10/23/18 09:59	10/18/18	
Zinc	200.8	**22.5**		ug/L	2.0	1	10/23/18 09:58	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 10:50
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 9	**Basis:**	NA
Lab Code:	K1809798-006		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**20.0**	ug/L	5.0	10	10/23/18 10:01	10/18/18	
Manganese	200.8	**13900**	ug/L	2.0	10	10/23/18 10:01	10/18/18	
Zinc	200.8	**13900**	ug/L	20	10	10/23/18 10:01	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 08:20
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 10	**Basis:**	NA
Lab Code:	K1809798-007		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	10/23/18 10:03	10/18/18	
Manganese	200.8	**106**	ug/L	0.20	1	10/23/18 10:03	10/18/18	
Zinc	200.8	**10.8**	ug/L	2.0	1	10/23/18 10:03	10/18/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 16:10
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Dup	**Basis:**	NA
Lab Code:	K1809798-008		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	10/23/18 10:04	10/18/18	
Manganese	200.8	**4860**	ug/L	4.0	20	10/23/18 10:06	10/18/18	
Zinc	200.8	**19.3**	ug/L	2.0	1	10/23/18 10:04	10/18/18	

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General Chemistry

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
roject:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 14:11
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 1B	**Basis:**	NA
Lab Code:	K1809798-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**25.5**	mg/L	2.0	20	10/12/18 11:34	
Sulfate	300.0	**118**	mg/L	2.0	20	10/12/18 11:34	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 09:30
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 2	**Basis:**	NA
Lab Code:	K1809798-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**203**	mg/L	10	100	10/11/18 19:44	
Sulfate	300.0	**393**	mg/L	10	100	10/11/18 19:44	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
roject:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 10:08
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 3	**Basis:**	NA
Lab Code:	K1809798-003		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**173**	mg/L	20	200	10/11/18 19:55	
Sulfate	300.0	**843**	mg/L	20	200	10/11/18 19:55	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 15:05
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 5	**Basis:**	NA
Lab Code:	K1809798-004		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**23.0**	mg/L	5.0	50	10/11/18 20:05	
Sulfate	300.0	**53.8**	mg/L	5.0	50	10/11/18 20:05	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
roject:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 12:00
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 8	**Basis:**	NA
Lab Code:	K1809798-005		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**478**	mg/L	20	200	10/11/18 20:16	
Sulfate	300.0	**1710**	mg/L	20	200	10/11/18 20:16	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 10:50
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 9	**Basis:**	NA
Lab Code:	K1809798-006		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**357**	mg/L	50	500	10/11/18 20:26	
Sulfate	300.0	**1030**	mg/L	50	500	10/11/18 20:26	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
roject:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 08:20
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Well 10	**Basis:**	NA
Lab Code:	K1809798-007		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**137**	mg/L	20	200	10/11/18 20:37	
Sulfate	300.0	**341**	mg/L	20	200	10/11/18 20:37	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	10/04/18 16:10
Sample Matrix:	Water	**Date Received:**	10/08/18 09:40
Sample Name:	Dup	**Basis:**	NA
Lab Code:	K1809798-008		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**470**	mg/L	20	200	10/11/18 21:09	
Sulfate	300.0	**1710**	mg/L	20	200	10/11/18 21:09	

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QC Summary Forms

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Metals

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
roject:	Fall 2018 Well Test/2018-2	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1814807-01		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	10/23/18 09:10	10/18/18	
Manganese	200.8	ND U	ug/L	0.20	1	10/23/18 09:10	10/18/18	
Zinc	200.8	ND U	ug/L	2.0	1	10/23/18 09:10	10/18/18	

Client: Ultra Yield Micronutrients
Project: Fall 2018 Well Test/2018-2
Sample Matrix: Water

Service Request: K1809798
Date Analyzed: 10/23/18

Lab Control Sample Summary
Dissolved Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ1814807-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	200.8	23.4	25.0	94	85-115
Manganese	200.8	23.2	25.0	93	85-115
Zinc	200.8	23.1	25.0	92	85-115

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General Chemistry

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K1809798-MB1		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	1	10/11/18 12:13	
Sulfate	300.0	ND U	mg/L	0.10	1	10/11/18 12:13	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
roject:	Fall 2018 Well Test/2018-2	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K1809798-MB2		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	1	10/12/18 03:51	
Sulfate	300.0	ND U	mg/L	0.10	1	10/12/18 03:51	

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dba ALS Environmental

QA/QC Report

Client: Ultra Yield Micronutrients
Project: Fall 2018 Well Test/2018-2
Sample Matrix: Water

Service Request: K1809798
Date Analyzed: 10/11/18

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K1809798-LCS1

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.87	5.00	97	90-110
Sulfate	300.0	4.98	5.00	100	90-110

Client:	Ultra Yield Micronutrients	**Service Request:**	K1809798
Project:	Fall 2018 Well Test/2018-2	**Date Analyzed:**	10/12/18
Sample Matrix:	Water		

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K1809798-LCS2

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.89	5.00	98	90-110
Sulfate	300.0	5.07	5.00	101	90-110

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January 29, 2019

Analytical Report for Service Request No: K1811514
Revised Service Request No: K1811514.01

Terry Kelley
Ultra Yield Micronutrients
213 W. Moxee Avenue
P.O. Box 1167
Moxee, WA 98936

RE: 2018 Fall Well Retest / 2018-03

Dear Terry,

Enclosed are the revised report for the samples submitted to our laboratory November 28, 2018 For your reference, these analyses have been assigned our service request number **K1811514.**

The business name has been updated as requested. This revision supersedes the report dated November 20, 2018.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please contact me if you have any questions. My extension is 3275. You may also contact me via email at Chris.Leaf@ALSGlobal.com.

Respectfully submitted,

ALS Group USA, Corp. dba ALS Environmental

Chris Leaf
Project Manager

REVISED
1:23 pm, Jan 29, 2019

ALS Environmental

Client: Ultra Yield Micronutrients
Project: 2018 Fall Well Retest
Sample Matrix: Water

Service Request: K1811514
Date Received: 11/28/2018

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of ALS Environmental. This report contains analytical results for samples designated for Tier II data deliverables. When appropriate to the method, method blank results have been reported with each analytical test. Surrogate recoveries have been reported for all applicable organic analyses. Additional quality control analyses reported herein include: Laboratory Duplicate (DUP), Matrix Spike (MS), Matrix/Duplicate Matrix Spike (MS/DMS), Laboratory Control Sample (LCS), and Laboratory/Duplicate Laboratory Control Sample (LCS/DLCS).

Sample Receipt:

Two water samples were received for analysis at ALS Environmental on 11/28/2018. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Metals:

No significant anomalies were noted with this analysis.

General Chemistry:

No significant anomalies were noted with this analysis.

. .pproved by _____ Date 11/30/2018

SAMPLE DETECTION SUMMARY

CLIENT ID: Well #8			Lab ID: K1811514-001			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chloride	555			5.0	mg/L	300.0
Sulfate	1430			20	mg/L	300.0
Cadmium, Dissolved	32		0	10	ug/L	200.8
Manganese, Dissolved	22100		0	8.0	ug/L	200.8
Zinc, Dissolved	22100		0	40	ug/L	200.8

CLIENT ID: Well #9			Lab ID: K1811514-002			
Analyte	**Results**	**Flag**	**MDL**	**MRL**	**Units**	**Method**
Chloride	521			10	mg/L	300.0
Sulfate	1820			50	mg/L	300.0
Manganese, Dissolved	5510		0	4.0	ug/L	200.8
Zinc, Dissolved	24.0		0	2.0	ug/L	200.8

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Sample Receipt Information

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Client: Ultra Yield Micronutrients **Service Request:**K1811514
Project: 2018 Fall Well Retest/2018-03

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
K1811514-001	Well #8	11/27/2018	0845
K1811514-002	Well #9	11/27/2018	1022

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CHAIN OF CUSTODY
94980

001

SR# 418113

COC Set 1 of 1

COC#

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Project Name: 2018 Fall well rotation	Project Number: 2018-03
Project Manager: Terry Kelley	
Company: Ultra Yield Micronutrients	
Address: 213 West Moxee, Moxee WA 98936	
Phone #: 509 248-4911	email: tkelley@ultrayieldmicro.com
Sampler Signature: Terry L Kelley	Sampler Printed Name: Terry L Kelley

CLIENT SAMPLE ID	LABID	SAMPLING Date	Time	Matrix	NUMBER OF CONTAINERS	28D 300.0 / Chloride	28D 300.0 / SO4	180D 200.8 / Metals D	F	G	H	I	J	Remarks
1. Well # 8		11-27-18	0845	water	2	✓	✓	✓						
2. Well # 9		11-27-18	1022	water	2	✓	✓	✓						
3.														
4.														
5.														
6.														
7.														
8.														
9.														
10.														

Report Requirements

___ I. Routine Report: Method Blank, Surrogate, as required

✓ II. Report Dup., MS, MSD as required

___ III. CLP Like Summary (no raw data)

___ IV. Data Validation Report

___ V. EDD

Invoice Information

P.O.# 0818 29

Bill To: Ultra Yield Micronutrients

PO Box 1167

Moxee WA 98936

Turnaround Requirements

✓ 24 hr. ✓ 48 hr.

___ 5 Day

___ Standard

Requested Report Date

Circle which metals are to be analyzed

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca (Cd) Co Cr Cu Fe Pb Mg (Mn) Mo Ni K Ag Na Se Sr Tl Sn V (Zn) Hg

Special Instructions/Comments:

*Indicate State Hydrocarbon Procedure: AK CA WI Northwest Other____(Circle One)

Relinquished By:	Received By:	Relinquished By:	Received By:	Relinquished By:	Received By:
Signature: Terry L Kelley	Signature: [illegible]	Signature	Signature	Signature	Signature
Printed Name: Terry L Kelley	Printed Name: AES	Printed Name	Printed Name	Printed Name	Printed Name
Firm: Ultra Yield Micronutrients	Firm: 11/28/18 0920	Firm	Firm	Firm	Firm
Date/Time: 11-27-18 1300	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time

PC CL

Cooler Receipt and Preservation Form

Client Ultra Yield Micronutrients Service Request K18 1151/4

Received: 11/28/18 Opened: 11/28/18 By: L Unloaded: 11/28/18 By: A

1. Samples were received via? *USPS* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA (Y) N If yes, how many and where? 2, sides
   If present, were custody seals intact? (Y) N If present, were they signed and dated? (Y) N

Raw Cooler Temp	Corrected Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID (NA)	Tracking Number NA	Filed
1.4	1.3	0.4	0.3	-0.1	360		1Z 843 782 01 5821 6	375

4. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____
5. Were custody papers properly filled out (ink, signed, etc.)? NA (Y) N
6. Were samples received in good condition (temperature, unbroken)? *Indicate in the table below.* NA (Y) N
   If applicable, tissue samples were received: *Frozen* *Partially Thawed* *Thawed*
7. Were all sample labels complete (i.e analysis, preservation, etc.)? NA (Y) N
8. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA (Y) N
9. Were appropriate bottles/containers and volumes received for the tests indicated? NA (Y) N
10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y (N)
11. Were VOA vials received without headspace? *Indicate in the table below.* (NA) Y N
12. Was C12/Res negative? (NA) Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
MW9	125 ml				X	HNO_3	0.5 ml	RE/1-48-U	JS	0930

Notes, Discrepancies, & Resolutions:

RUSH

7/25/16

Page____of____

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Miscellaneous Forms

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Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

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State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEH	http://dec.alaska.gov/eh/lab/cs/csapproval.htm	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2795
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L16-58-R4
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Hawaii DOH	http://health.hawaii.gov/	-
ISO 17025	http://www.pjlabs.com/	L16-57
Louisiana DEQ	http://www.deq.louisiana.gov/page/la-lab-accreditation	03016
Maine DHS	http://www.maine.gov/dhhs/	WA01276
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-457
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA01276
New Jersey DEP	http://www.nj.gov/dep/enforcement/oqa.html	WA005
New York - DOH	https://www.wadsworth.org/regulatory/elap	12060
North Carolina DEQ	https://deq.nc.gov/about/divisions/water-resources/water-resources-data/water-sciences-home-page/laboratory-certification-branch/non-field-lab-certification	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA100010
South Carolina DHEC	http://www.scdhec.gov/environment/EnvironmentalLabCertification/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	T104704427
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C544
Wyoming (EPA Region 8)	https://www.epa.gov/region8-waterops/epa-region-8-certified-drinking-water	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.ALSGlobal.com or at the accreditation bodies web site.
Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
Project:	2018 Fall Well Retest/2018-03		

Sample Name:	Well #8	**Date Collected:**	11/27/18
Lab Code:	K1811514-001	**Date Received:**	11/28/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		RMOORE
300.0		MVALVERDE

Sample Name:	Well #9	**Date Collected:**	11/27/18
Lab Code:	K1811514-002	**Date Received:**	11/28/18
Sample Matrix:	Water		

Analysis Method	Extracted/Digested By	Analyzed By
200.8		RMOORE
300.0		MVALVERDE

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Sample Results

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Metals

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
Project:	2018 Fall Well Retest/2018-03	**Date Collected:**	11/27/18 08:45
Sample Matrix:	Water	**Date Received:**	11/28/18 09:20
Sample Name:	Well #8	**Basis:**	NA
Lab Code:	K1811514-001		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	DiL	Date Analyzed	Date Extracted	Q
Cadmium	200.8	**32**	ug/L	10	20	11/30/18 13:12	11/29/18	
Manganese	200.8	**22100**	ug/L	8.0	20	11/30/18 13:12	11/29/18	
Zinc	200.8	**22100**	ug/L	40	20	11/30/18 13:12	11/29/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
roject:	2018 Fall Well Retest/2018-03	**Date Collected:**	11/27/18 10:22
Sample Matrix:	Water	**Date Received:**	11/28/18 09:20
Sample Name:	Well #9	**Basis:**	NA
Lab Code:	K1811514-002		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	11/30/18 13:32	11/29/18	
Manganese	200.8	**5510**	ug/L	4.0	10	11/30/18 13:10	11/29/18	
Zinc	200.8	**24.0**	ug/L	2.0	1	11/30/18 13:32	11/29/18	

ALS Environmental

General Chemistry

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
roject:	2018 Fall Well Retest/2018-03	**Date Collected:**	11/27/18 08:45
ample Matrix:	Water	**Date Received:**	11/28/18 09:20
Sample Name:	Well #8	**Basis:**	NA
Lab Code:	K1811514-001		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**555**	mg/L	5.0	50	11/28/18 14:20	
Sulfate	300.0	**1430**	mg/L	20	200	11/28/18 12:41	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
Project:	2018 Fall Well Retest/2018-03	**Date Collected:**	11/27/18 10:22
Sample Matrix:	Water	**Date Received:**	11/28/18 09:20
Sample Name:	Well #9	**Basis:**	NA
Lab Code:	K1811514-002		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Q
Chloride	300.0	**521**	mg/L	10	100	11/28/18 14:30	
Sulfate	300.0	**1820**	mg/L	50	500	11/28/18 12:52	

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QC Summary Forms

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Metals

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
roject:	2018 Fall Well Retest/2018-03	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	KQ1817405-01		

Dissolved Metals

Analyte Name	Analysis Method	Result	Units	MRL	Dil.	Date Analyzed	Date Extracted	Q
Cadmium	200.8	ND U	ug/L	0.50	1	11/30/18 13:01	11/29/18	
Manganese	200.8	ND U	ug/L	0.40	1	11/30/18 13:01	11/29/18	
Zinc	200.8	ND U	ug/L	2.0	1	11/30/18 13:01	11/29/18	

Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
Project:	2018 Fall Well Retest/2018-03	**Date Collected:**	11/27/18
Sample Matrix:	Water	**Date Received:**	11/28/18
		Date Analyzed:	11/30/18
		Date Extracted:	11/29/18

Matrix Spike Summary
Dissolved Metals

Sample Name:	Well #8	**Units:**	ug/L
Lab Code:	K1811514-001	**Basis:**	NA
Analysis Method:	200.8		
Prep Method:	EPA CLP ILM04.0		

Matrix Spike
KQ1817405-04

Analyte Name	Sample Result	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	32	54	25	89	70-130
Manganese	22100	22500	25.0	1534 #	70-130
Zinc	22100	22500	25	1705 #	70-130

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

lient:	Ultra Yield Micronutrients	**Service Request:**	K1811514
r roject	2018 Fall Well Retest/2018-03	**Date Collected:**	11/27/18
Sample Matrix:	Water	**Date Received:**	11/28/18
		Date Analyzed:	11/30/18

Replicate Sample Summary
Dissolved Metals

Sample Name:	Well #8	**Units:**	ug/L
Lab Code:	K1811514-001	**Basis:**	NA

Analyte Name	Analysis Method	MRL	Sample Result	Duplicate Sample KQ1817405-03 Result	Average	RPD	RPD Limit
Cadmium	200.8	10	32	34	33	6	20
Manganese	200.8	8.0	22100	22800	22500	3	20
Zinc	200.8	40	22100	22300	22200	<1	20

esults flagged with an asterisk (*) indicate values outside control criteria.

esults flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Client: Ultra Yield Micronutrients
Project: 2018 Fall Well Retest/2018-03
Sample Matrix: Water

Service Request: K1811514
Date Analyzed: 11/30/18

Lab Control Sample Summary
Dissolved Metals

Units:ug/L
Basis:NA

Lab Control Sample
KQ1817405-02

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Cadmium	200.8	23.9	25.0	96	85-115
Manganese	200.8	24.0	25.0	96	85-115
Zinc	200.8	24.3	25.0	97	85-115

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General Chemistry

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Client:	Ultra Yield Micronutrients	**Service Request:**	K1811514
Project:	2018 Fall Well Retest/2018-03	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Basis:**	NA
Lab Code:	K1811514-MB		

General Chemistry Parameters

Analyte Name	Analysis Method	Result	Units	MRL	DiL	Date Analyzed	Q
Chloride	300.0	ND U	mg/L	0.10	1	11/28/18 15:08	
Sulfate	300.0	ND U	mg/L	0.10	1	11/28/18 15:08	

lient: Ultra Yield Micronutrients
roject: 2018 Fall Well Retest/2018-03
Sample Matrix: Water

Service Request: K1811514
Date Analyzed: 11/28/18

Lab Control Sample Summary
General Chemistry Parameters

Units:mg/L
Basis:NA

Lab Control Sample
K1811514-LCS

Analyte Name	Analytical Method	Result	Spike Amount	% Rec	% Rec Limits
Chloride	300.0	4.96	5.00	99	90-110
Sulfate	300.0	5.21	5.00	104	90-110