Electronic Report Transmittal Form

Attention: Brendan Kenny (916) 464-4635

Discharger: Wild Wings County Service Area
Name of Facility: Wild Wings Water Recycling Facility
WDRs Order Number: R5-2002-0077
CIWQS Place 1D: 272537
County: Yolo

I am hereby submitting to the Central Valley Water Board the following information:

Check all that apply:

Technical Report Title and Date Wild Wings Water Recycling Facility – Fourth Quarter 2020 Groundwater Monitoring Report WDR Order No. R5-2002-0077 March 2021

Monthly Monitoring Report for the month of N/A

1st/ 2nd / 3rd / (4th) (circle one) Quarterly Monitoring Report for the year of 2020

1st/ 2nd (circle one) Semi-annual Monitoring Report for the year N/A

Annual Monitoring Report for the year N/A

Violation Notification:

During the monitoring period, there (were) / were not (circle one) any violations of the WDRs

1. The violations were:
   Boron, Nitrate, Total Nitrogen

2. Have the violations been corrected? Yes / (No) If no, what will be done to correct the violations:
   Boron normally exceeds WDR levels; other constituents in exceedance have historically fluctuated slightly above WDR levels.

Certification Statement:

"I certify under penalty of law that I have personally examined and am familiar with the Information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there am significant penalties for submitting false information, including the possibility of fine and imprisonment."

Signature: _____ Phone: _____

Printed Name: _____ Date: _____

Wild Wings Water Recycling Facility – Fourth Quarter 2020
Groundwater Monitoring Report
WDR Order No. R5-2002-0077

Prepared for:

Yolo County, California

March 31, 2021

Prepared by:

California Rural Water Association

California
Rural Water Association

California
Rural Water Association

March 31, 2021

Ms. Kimberly Villa
Yolo County
625 Court Street,
Room 202
Woodland, CA 95695

VIA Email.

Re: Groundwater Monitoring Report Fourth Quarter 2020
Wild Wings Water Recycling Facility, Yolo County, CA WDR No. R5-2002-0077

Dear Ms. Villa:

California Rural Water Association is pleased to present this report as a summary of the Groundwater Monitoring Data from the Fourth Quarter of 2020.

If you have any questions regarding this report, please call our Senior Hydrogeologist, Thomas Ballard, CHG, at (916) 761-3700 or Dan DeMoss at (916) 553-4900.

Sincerely,
California Rural Water Association

Dan DeMoss
Executive
Director

Thomas Ballard
Senior
Hydrogeologist

PROFESSIONAL GEOLOGIST
THOMAS E. BALLARD
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1.0 INTRODUCTION

California Rural Water Association (CRWA) prepared this groundwater monitoring report on behalf of Yolo County for the Wild Wings Water Recycling Facility (WWRF) at the Wild Wings residential development, in Yolo County, California. This report represents and summarizes data collected and analyzed by CRWA, in conjunction with contract laboratory work, in December 2021; and also includes historical data and information from previous reports, consultants and laboratories.

Yolo County requested that CRWA provide groundwater monitoring and reporting for the WWRF to comply with Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements (WDR) Order R5-2002-0077. The WDR requires quarterly monitoring and reporting of the groundwater levels and quality at the monitoring wells. National, under contract with Yolo County, began operating the WWRF on April 1, 2016. CRWA performed the groundwater monitoring at the site on December 8, 2020 and the groundwater sample collection on December 9, 2020.

1.1 LOCATION

The Wild Wings development is located north of Highway 16 and west of County Road 94B at 18530 Wildwings Drive, Woodland, CA 95695, and is surrounded by agricultural land to the west, Cache Creek and the Yolo Fliers Golf Club to the north, the Watts-Woodland Airport to the east, and several rural residences to the south. In early 2015, almond orchards were planted in the agricultural land to the west of the site and water wells were installed to provide water for the orchards. The WWRF encompasses 3.67 acres (400 by 400 feet) along the southwestern side of the Wild Wings development. Figure 1 shows the location of the WWRF along with general site information and locations of seven (7) monitoring wells.

1.2 SITE INFORMATION

The Wild Wings development consists of over 300 homes, a nine-hole golf course (including several ponds/lakes), and the WWRF, all built on 238 acres of previously undeveloped land. The WWRF has been operating since February 2005. Domestic wastewater from the Wild Wings development is treated to a tertiary level at the WWRF. The treated water is then blended with groundwater obtained from two deep on-site water supply wells and is used for irrigation of the golf course. The mixture of applied irrigation water typically consists of approximately one-fourth recycled water, but this ratio will vary by month. When irrigation demands are reduced, a lined storage pond on the WWRF site stores the recycled water. National does not operate or maintain the golf course irrigation system or ponds on the golf course.

1.3 MONITORING WELLS

Seven monitoring wells, MW-1 through MW-7, were constructed in May through June 2004. The monitoring wells were installed on the Wild Wings development in the vicinity of the WWRF. The locations of the monitoring wells are shown on Figure 1.

The WDR required that the monitoring wells be constructed to monitor the uppermost aquifer. While drilling, soil samples were collected to assess the subsurface lithology and to locate the uppermost aquifer. Review of the well logs shows that clays with various amounts of silt, sand, and gravel are predominant at the site. However, beds of coarse-grained materials, sands and gravels, with trace amounts of silt and clay were also logged at all monitoring well sites.

The monitoring wells were completed to depths ranging from 31 to 74 feet below ground surface (bgs). Each well is constructed with 2-inch schedule 40 PVC well casing and screen. The screen intervals are 10 feet in length at most wells, with the exception of MW-4 and MW-5R, which have 15-foot and 20-foot screen intervals, respectively. The top of each well casing is fitted with an expandable plug to prevent surface water from entering the wells. The top of each well is secured in a subsurface vault. Table 1 summarizes the well construction details. The well screens are not at the same depth in all of the monitoring wells. The depths varied based on when groundwater was first encountered. Thick clay beds were encountered at MW-4 and MW-5R and continued to relatively deep depths. MW-4 and MW-5R have deeper screen intervals than the other monitoring wells, ranging from an elevation of 51 to 71 feet mean sea level (msl). In contrast, MW-1, MW-2, MW-6, and MW-7 are screened at shallower depths, between 73 to 95 feet msl. MW-3 has the shallowest screen interval ranging from an elevation of 90 to 100 feet msl.

The lithologic sequences of strata encountered during well drilling show a heterogeneous appearance across the site making lateral geologic correlation difficult on a site scale (Luhdorff and Scalmanini, 2006). Furthermore, the uppermost water-bearing zone in which all monitoring wells are screened has weak to no lateral continuity across the site based on the lithologic logs. Based on evaluation of the lithology and well construction details, the consistent anomalously high groundwater elevations, and analytical results from previous monitoring reports, MW-3 appears to be screened in a perched water zone and not within the unconfined to semi-confined aquifers in which the other monitoring wells are screened. Therefore, groundwater in MW-3 does not appear to be in direct hydraulic communication with the other network wells.

1.4. SAMPLING PUMP DETAILS

Sampling and purging of the monitoring wells is accomplished with the use of a low flow electric submersible pump powered by portable battery system. Plastic tubing, which is disinfected prior to purging, between purging and sampling and after sampling, is used to conduct both the purging of the well and collection of groundwater samples. The pump is portable and is transported between wells.

1.5 HISTORIC MONITORING RESULTS

The WWRF has been active since February 2005. The WDR required that three monitoring events take place prior to the startup of the WWRF; however, only one monitoring event was performed. Quarterly monitoring commenced in March 2005. Historic monitoring results are summarized below:

- Groundwater levels have ranged from 19.7 to 56.7 feet below top of casing (btoc) or 64.0 to 101.7 feet mean sea level (msl). Groundwater has consistently been the shallowest at MW-3 and the deepest at MW-4. Since the fourth quarter 2008 MW-7 has been dry about 75 percent of the sampling events and has been dry from the third quarter 2013 until the first quarter of 2017 – corresponding to the California regional drought conditions. Table 2 summarizes the historic groundwater levels and Figure 2 displays a line graph of these historical groundwater levels.

- Groundwater flow direction has been consistently towards the northeast to east-northeast. Using MW-1, MW-4, and MW-5R to determine flow direction and gradient, the flow direction has varied from 53.3 to 75.0 degrees and the groundwater gradient has ranged from 0.005 to 0.009 ft./ft. The gradient has gradually steepened and the flow direction has changed to a more easterly direction since monitoring started in 2005. The most recent monitoring event in February 2018 indicates a 3-point gradient of 0.006 ft./ft. and a direction of 72 degrees. Table 3 summarizes historic groundwater flow directions and gradients.

- MW-1 has been consistently up-gradient of the recycled water effluent pond, whereas MW-4, MW-6, and MW-7 have consistently been down-gradient of the recycled water effluent pond. MW-2 is located adjacent to the recycled water effluent pond. MW-5R appears to be an up-gradient well that is recharged from Cache Creek, but is slightly down-gradient to the recycled water effluent pond.

- MW-3 has consistently had higher groundwater surface elevations than the other monitoring wells. Because of this, supplemented by the shallow screen interval, poor recharge, persistent presence of total coliform organisms as well as an overall different water quality than the other wells, and often gray to tan color of the water, MW-3 appears to be screened in a perched water zone. This perched or mounded water table appears prominently in the August 2017 data – but the November 2017 data did not look as pronounced.

- The WDR requires that monitoring wells be sampled and analyzed for the following constituents: pH, total dissolved solids (TDS), sodium, chloride, boron, iron, manganese, nitrate (as nitrogen), nitrite (as nitrogen), ammonia (as nitrogen), total nitrogen, total coliform organisms, and total trihalomethanes (TTHMs). In addition to the WDR requirements, samples collected up to February 2008 were analyzed for fecal coliform. Historical monitoring results are summarized in Table 4. Figures 3 through 9 show concentration trend graphs for the monitoring parameters.

- Metals analyses are required from the monitoring wells. Sampling protocol requires that the turbidity be below 5 Nephelometric Units (NTU) when collecting water samples for metal analyses, otherwise the sample must be filtered prior to being collected and reported as dissolved metals. Due to historical issues with turbidity and purging, the sampling protocol for Q4 2017 was adopted to field filter and continued for Q1 of 2018.

- Total coliform organisms have been sporadically detected at all wells since monitoring commenced. They have been most consistently detected at MW-3, which also has had positive results for fecal bacteria; however, since the second quarter 2013, total coliform organisms at MW-3 have only been detected four times. MW-3 has had past worm-like organisms and has been treated with disinfection products. Recently, no organisms have been visible and the Q3 sampling event had no detections for disinfection by-products, as analyzed for TTHM's.

- Groundwater quality samples were not obtained from MW-7 between November 2006 and November 2016, except for May and August 2011, due to either the well being dry or an insufficient amount of water in the well to collect samples. Since the wet weather in winter 2016 -2017, sufficient amounts of sample water from MW-7 have been retrieved for laboratory analyses – Until November 2017. In November 2017, there was not sufficient water to purge in MW-7 to collect samples and perform laboratory analyses. Again, in February 2018, there was insufficient water in MW-7 for sample collection.

- Groundwater quality analytical results were not available for the fourth quarter 2006 (except for total coliform results), first quarter 2007, and first quarter 2008.

- MW-2 has had historical security issues related to soils and foreign water entering the well vault. Previous reports contain details of this issue.

1.6 GROUNDWATER QUALITY LIMITATIONS

Interim Groundwater Limitations

Borings HB-2, HB-3, HB-7, and B-27 were drilled prior to the startup of the WWRF and within the vicinity of the WWRF. Water samples collected from these borings were used as the background water quality, using the average value for each constituent. Interim groundwater limitations for the WWRF were developed by comparing the basin plan Water Quality Objectives (WQOs) and background water quality data and using the highest value as the interim groundwater limitation. The interim groundwater limitations are listed at the top of Table 4.

The following summarizes how the WWRF monitoring wells have historically compared to the interim groundwater limitations:

- Boron has exceeded the interim groundwater limitations at all wells since quarterly monitoring commenced. Down-gradient monitoring wells MW-2 and MW-6 have had higher concentrations than up-gradient well MW-1.

- Up-gradient MW-1 is typically at or exceeding the interim groundwater limitations for TDS, chloride, nitrate (as nitrogen), and total nitrogen. Historically the TDS is higher at MW-1 than at any other well in the monitoring well network.

- MW-2, the closest well to the WWRF, regularly exceeded the interim groundwater limitations for total nitrogen prior to 2008, from 2008 through 2016 total nitrogen had been less than the interim limitations. But since 2017, is again above the interim limit. Since Q1 2018, MW-2 depicts higher nitrate and total nitrogen than the recent past, although nitrate detections are subject to wide swings. Prior to the fourth quarter 2013 the interim groundwater limitations were occasionally exceeded for sodium at MW-2, but since this time they have been below the interim groundwater limitations, until June 2017 when they again were slightly above the interim limit. Sodium in MW-2 has declined in recent sampling events but remains barely above the interim standard. Chloride levels at MW-2 exceeded the interim groundwater limitations from the fourth quarter 2010 through the first quarter 2012, but since this time the levels have been less than the interim limitations.

- Quarterly monitoring results at cross-gradient MW-5R and down-gradient MW-4, MW-6, and MW-7 have rarely exceeded the interim groundwater limitations for any constituent (except boron), with the exception of chloride and total nitrogen at MW-4 and sodium at MW-6 (with some exceptions).

Final Groundwater Limitations

On January 8, 2008, the RWQCB requested Yolo County prepare a Background Groundwater Quality Study/Groundwater Degradation Assessment Report to establish statistically derived water quality limitations. Central Valley Environmental, Incorporated (CVEI) prepared a Background Groundwater Quality Study/Groundwater Degradation Assessment Report dated April 1, 2009. Yolo County submitted the report to the RWQCB. CVEI used statistical methods to derive tolerance intervals representing the 95th quantile of all water quality sampling results from 2004 through February 2009. CVEI used these values in conjunction with the WQOs, using the greater of the two, to recommend Final Groundwater Limitations. Approval of the Final Groundwater Limitations by the RWQCB is still pending. However, since 2009 the sample population has more than doubled and therefore the analyses may be outdated.

2.0 GROUNDWATER MONITORING AND SAMPLING

Groundwater monitoring was performed on December 8, 2020 and sample collection on December 9, 2020 by CRWA personnel experienced with groundwater sampling. The following

sections describe the monitoring protocol used to measure the depth to water, purge the wells, and collect water quality samples from the monitoring wells.

2.1 GROUNDWATER LEVELS

CRWA personnel measured the depth to groundwater at the monitoring wells using an electric water level sounder accurate to 0.01 foot. The sounder was cleaned and decontaminated prior to the first monitoring well measurement and between each well site by thoroughly washing and scrubbing the sounding probe and line with a laboratory-grade detergent (Alconox) and distilled water, followed by a triple rinse with distilled water. The sounding probe and line was then sprayed with a 10 percent bleach solution to kill any bacteria. The sounding probe was allowed to air dry between wells.

2.2 PRE-SAMPLING ACTIVITIES

After the depth to groundwater was measured at a monitoring well, the well was purged. Each monitoring well was purged through the use of a portable low flow submersible pump. Prior to purging, the top 6 inches of the polyethylene tubing was decontaminated. The polyethylene tube was then connected to a vinyl tube via a double-barbed nipple and the vinyl tubing was routed to an empty 5-gallon bucket. The double-barbed nipple and vinyl tubing were cleaned and decontaminated prior to initial use and between each well (primary disinfection). The procedures for cleaning and decontaminating are the same as listed above (Groundwater Levels) except the vinyl tubing received six rinses with distilled water after cleaning.

Prior to collecting the groundwater samples, each monitoring well was micro purged (verbal approval, RWQCB 2008). Micro purging consisted of pumping each well until field parameters such as pH, temperature, and EC stabilized. Field parameters were measured by collecting purge water from the discharge line at select intervals and using a calibrated multi-parameter meter to record the readings. The volume purged and field parameters are documented on field data sheets, which are presented in Appendix A. The purge water was collected in 5-gallon buckets and then transported back to the WWRF and discharged to the wastewater holding tanks.

2.3 GROUNDWATER SAMPLING

Once each monitoring well was purged, CRWA personnel collected water samples in laboratory-prepared bottles. Prior to collecting the first sample, the vinyl tube connected to the 5-gallon bucket was disconnected from the bucket and the tip was sprayed with a 10 percent bleach solution to kill any bacteria that may have been present in the bucket and inadvertently transferred to the sampling tube (secondary disinfection). To eliminate any residual chlorine, pumping was then resumed for about 30 to 60 seconds (approximately 0.25 to 0.5 gallons) and the end of the vinyl tube was elevated and pinched so that the entire tubing surface was in contact with the purge water prior to sampling. The bacteriological (total coliform) sample was the first sample collected and was collected directly from the end of the vinyl tube, followed by

collection of samples for TTHMs. The samples for all other constituents analyzed were collected next. Water samples for metals were filtered in the field using a disposable 0.45-micron filter before being placed into acidified laboratory prepared sample bottles. Trip blanks are included by CLS for TTHM's analysis, when requested.

Nitrile gloves were worn while collecting samples. A new set of gloves was used at every monitoring well. The samples were placed in an ice chest and cooled to 4 degrees Celsius and delivered to California Laboratory Services (CLS) of Rancho Cordova, California, a California-certified laboratory, under standard chain-of-custody procedures. Samples collected from the monitoring wells were analyzed for TDS, sodium, boron, iron, manganese, nitrate (as N), nitrite (as N), ammonia (as N), total N, total coliform organisms, and total trihalomethanes per the WDR requirements. Table 4 presents the results for the monitoring wells and Table 5 presents the results for any trip blank and equipment blank samples. Appendix A presents the field data sheets and Appendix B contains the laboratory data sheets and chain-of-custody forms.

2.4 GROUNDWATER LEVELS AND FLOW DIRECTION

The measured groundwater levels in each well were subtracted from the surveyed ground surface elevation at each well. Table 2 lists the elevation of the top of the well casing (TOC) (reference point) at each well and presents the current and historic depths-to-water and groundwater surface elevations. The groundwater surface elevations were used to generate groundwater contours from which the groundwater gradient was calculated. Figure 2 shows the groundwater contours and flow direction for September 2020. Groundwater gradients and flow directions were estimated using wells MW-1, MW-4, and MW-5R. Table 3 summarizes these estimates.

3.0 FINDINGS

3.1 GROUNDWATER LEVELS

Groundwater elevations in December 2020 (Fourth Quarter 2020) ranged from 67.77 feet msl in MW-4 to 92.4 feet msl in MW-1, all within historical ranges. Monitoring well MW-4 showed the greatest change in groundwater levels this quarter, with a decrease of 1.52 feet from the prior quarter. Water levels have been impacted by a drier than normal winter season. Table 2 lists the water level measurements. Chart 1 shows the current and historic groundwater levels.

Due to MW-3 being screened within a perched water zone it was left out of groundwater contouring, flow direction, and gradient calculations.

Between the Third Quarter of 2020 and Fourth Quarter of 2020, groundwater levels dropped an average of 0.902 feet –a continued unusual trend for the winter season which reflects a dryer than normal weather pattern for this time of year. Based on the generalized pattern of rainfall and groundwater levels in the area, the trends in those two parameters tend to correlate.

There is generally a strong correlation between precipitation/recharge with water levels in the shallow groundwater zone.

3.2 GROUNDWATER FLOW DIRECTION AND GRADIENT

The groundwater flow direction and gradient for December2020 were calculated using wells MW-1, MW-4, and MW-5R, which is consistent with past practice and historically reported data. Using these wells, the groundwater flow direction was to the east-northeast (71.2 degrees) with a gradient of 0.008 feet/feet. The groundwater gradient is generally consistent with historic results. Figure 2 displays the groundwater surface elevations at each well, the groundwater contours, and flow direction. In the northern portion of the site the groundwater flow direction appears to be influenced by Cache Creek. Table 3 lists the historic and current groundwater flow directions and gradients.

3.3 GROUNDWATER QUALITY

Tables 4 and 5 summarize the analytical results in table format and Charts 2 through 8 show the historical water quality parameter concentrations in graphical format.

Current (Fourth Quarter 2020) water quality results were compared to historic water quality results to assess potential increasing trends. Overall, the water quality analytical testing results for the Fourth Quarter of 2020 were within historical ranges and trends and did not vary significantly from the prior quarter with a few exceptions. Nitrates and total nitrogen have been cyclical at the site the last several years, with concentration spikes in the summer months of 2017 and 2019, and generally been consistent this quarter with the exception of MW-2 which showed an increase from 8.9 to 20 mg/L for both nitrate and Total Nitrogen. pH levels this quarter are consistent with historical ranges, with MW-1 moving back to within more normal ranges from its drop in the prior quarter. Boron and sodium are generally consistent with past analytical data, although sodium dropped in MW-4 to near historic lows. Overall TDS levels show little variability from prior quarter results at each well. The spatial variation of TDS, nitrate and boron concentrations over the recent past are best explained by the recent rainfall/dryness patterns, recharge and pumping changes in the area groundwater. Total Coliform was not detected in any of the samples this quarter. Chloride samples are generally consistent with previous quarter results, with the exception of the sampled from MW-5R which recorded a record high concentration for chloride in this well. No other significant trends in groundwater quality trends were observed from these monitoring results.

MW-3 has been an outlier in water quality with results that are often significantly different from the remaining monitoring wells, however there was insufficient water in the well to collect a groundwater sample this quarter. MW-7 also had insufficient water to collect a sample.

Well MW-2 had the highest concentrations of TDS this quarter at 1100 mg/L, the same as the prior quarter. Overall TDS results were generally consistent with the prior quarter.

Sodium levels increased in the samples from MW-1 and MW-6, and decreased in samples from MW-2, MW-4, and MW-5R. Sodium results remain within historical ranges.

Chloride levels increased in the sample from MW-5R to a historic high, although still below Water Quality Objectives, decreased in samples from MW-1 and MW-4, and increased in the samples from MW-1 and MW-4. The sample MW-4, which has normally had chloride concentrations above site background, showed a decrease from 230 to 120 mg/L.

The highest nitrate (as N) (20 mg/L) and the highest Total Nitrogen (20 mg/L) were detected in the sample from MW-2.

The sample from MW-2 had the highest boron (5.2 mg/L) concentration detected this quarter. Typically all boron results are elevated in all samples from the site, usually exceeding Water Quality Objectives.

For Fourth Quarter 2020 sampling, Total Coliform was not detected in any of the wells sampled. Stricter handling requirements were implemented the last several quarters to reduce the likelihood of cross contamination and these measures will be maintained.

Ammonia (as N) was not detected in any of the samples this quarter. Ammonia (as N) is typically not detected at any of the wells in the monitoring network, aside from MW-3, which was not sampled this quarter.

Iron and manganese were not reported in samples from any of the wells sampled this quarter.

TTHMs were detected in two of the five wells sampled this quarter, with the sample from MW-5R the highest at 25 ug/L. TTHMs included chloroform, bromoform, dibromochloromethane and bromodichloromethane. Trip blanks were submitted this quarter with no TTHMs detected.

3.4 COMPARISON TO INTERIM GROUNDWATER LIMITATIONS

The water quality results from the Fourth Quarter 2020 monitoring event show that every monitoring well sampled exceeded the interim groundwater limitation for boron, which is generally consistent with historic results.

Based on the understanding that the interim groundwater quality limits remain the higher of the background level for the site and the basin wide WQO (water quality objective), the following is a summary of each wells exceedances for the current quarter (Fourth Quarter 2020). Comparing to the previous quarter, the number of parameters in exceedance is less, although the constituents in exceedance varies somewhat from the prior quarter.

MW-1: Boron, Total Nitrogen
MW-2: Boron, Nitrate, Total Nitrogen

MW-3: Not sampled
MW-4: Boron, Total Nitrogen
MW-5R: Boron
MW-6: Boron, Total Nitrogen
MW-7: Not sampled

4.0 CONCLUSIONS

The groundwater contours and flow directions show there are two potential sources of groundwater to the area. MW-5R monitors water entering the area that is recharged by Cache Creek, north of the WWRF area. Water also enters the area from the south near MW-1 and MW-2 from regions used for agriculture. MW-4, MW-6, and MW-7 are in a mixing zone between these water sources and as such minor shifts in groundwater gradients may result in a change in water quality that reflects these two different water sources. In 2015, almond orchards were planted in the fields just west of the monitoring area and water wells were installed to provide water for the orchards. Deep percolation from irrigation or pumping for water supply could affect groundwater levels and flow directions, but to date they do not appear to be affecting groundwater beneath the WWRF area. In past monitoring events, it appeared groundwater pumping east of the monitoring well network was affecting MW-4 and could be affecting MW-7.

In general, the annual rainfall amounts, irrigation practices at farm lands and golf courses, and variations in groundwater pumping to meet local domestic water needs can impact the local groundwater contours, flow direction and gradients. However, for the Fourth Quarter 2020 monitoring event, these parameters remained within historical ranges for groundwater levels. The most recent groundwater levels reflect an overall decrease from the Third Quarter 2020 data corresponding to a dry winter. Generally, groundwater levels changes track each other across the various monitoring wells, although water levels increased slightly in three wells and decreased slightly in four wells this quarter. GW flow gradients remain in the range of historical observations at 0.008 ft/ft for the quarter, although on the higher end reflecting generally dryer conditions and the direction of flow is east-northeast.

The analytical results from the Fourth Quarter 2020 sampling event show a number of results slightly above the interim groundwater limitations. All wells sampled exceeded the interim groundwater limitations for boron, which is consistent with historic monitoring results. Additionally one well had nitrate concentrations above interim limits and four wells had Total Nitrogen concentrations which were at or exceeded the interim limits. All exceedances of the interim limits were small and in line with historical ranges.

TDS concentrations were up in one well, down in four wells this quarter and the same in one well this quarter, with all the changes within historical ranges.

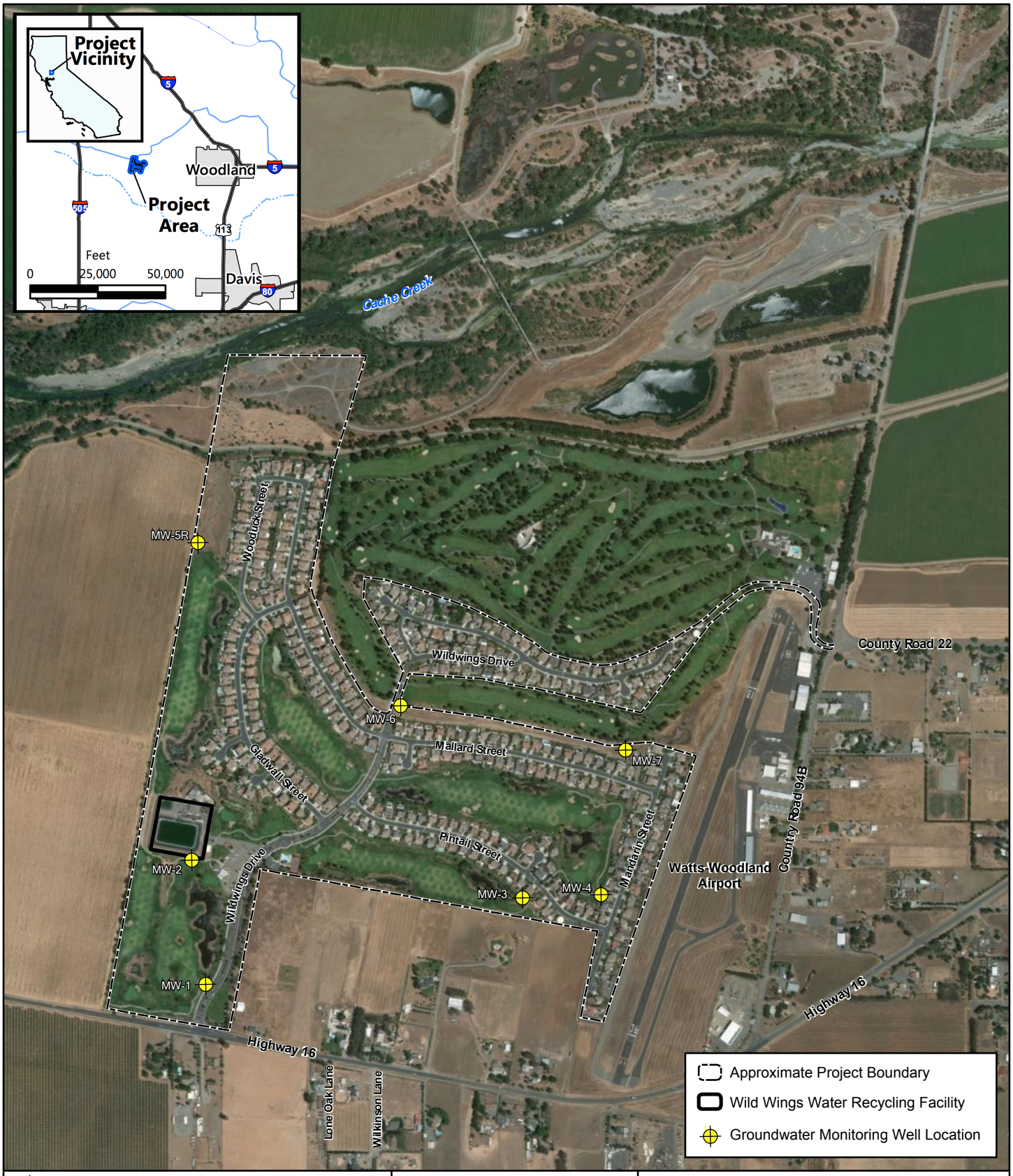
Overall chloride trends are generally consistent within historical ranges, although an anomalously low chloride concentration was recorded in the sample from MW-4 and an anomalously high concentration was recorded in the sample from MW-5R.

The Fourth Quarter 2020 analyses for TTHMs shows that samples from two of the five wells sampled this quarter detected TTHMs, but none exceeded interim limits. TTHMs included chloroform, bromoform, dibromochloromethane and bromodichloromethane. This is a decrease from the Third Quarter 2020 where five wells had TTHM detections. The trip blank sample did not detect TTHMs.

Fourth Quarter 2020 analyses for Total Coliform showed no detections in any of the wells sampled. Implementation of more strict sample handling protocols has reduced the likelihood of cross contamination of samples, however measures will continue to be taken to further reduce potential contamination of samples.

Review of the current quarter and historical data trends indicate the local groundwater quality appears to remain in historical ranges since before and after the operations of the WWRF.

FIGURES



Notes:
All locations are approximate.
Aerial Source: *USDA, National Agriculture Imagery Program*,8 July 2016

California Rural Water Association

Figure 1
Site and Vicinity

Third Quarter 2018 Monitoring Report
Wild Wings Water Recycling Facility
18530 Wildwings Drive
Woodland, Yolo County, California

Feet
0 500 1,000

Notes:
All locations are approximate
ft msl = feet above mean sea level
*Groundwater monitoring well is screened at a shallower depth, therefore it is not included in groundwater elevation contouring
Aerial Source: *USDA, National Agriculture Imagery Program, 8 July 2016*

California Rural Water Association

Figure 2
Groundwater Elevation Contours

Fourth Quarter 2020 Monitoring Report
Wild Wings Water Recycling Facility
18530 Wildwings Drive
Woodland, Yolo County, California

TABLES

Table 1
Monitoring Well Construction Details
Wild Wings Water Recycling Facility, Yolo County, CA

Well	Date Installed	Depth of Borehole (feet bgs)	Depth of Well Casing (feet bgs)	Screened Interval (feet bgs)	Slot Size (inches)	Grout (feet bgs)	Bentonite Seal (feet bgs)	Sand Pack (feet bgs)	Casing Material	TOC Elevation (feet msl)	Screen Elevations (feet msl)
MW-1	6/3/2004	46	41	31-41	0.010	0.5-25.5	25.5-28.5	28.5-45	2-inch Sch. 40 PVC, flush thread	126.22	95.22 - 85.22
MW-2	6/2/2004	51.5	47	37-47	0.010	0.5-31	31-34.5	34.5-47	2-inch Sch. 40 PVC, flush thread	124.93	87.93 - 77.93
MW-3	6/3/2004	31.5	31	21-31	0.010	0.5-14.5	14.5-19	19-32	2-inch Sch. 40 PVC, flush thread	121.37	100.37 - 90.37
MW-4	6/1/2004	71.5	70	55-70	0.010	0.5-48	48-52	52-70	2-inch Sch. 40 PVC, flush thread	120.71	65.71 - 50.71
MW-5R	6/10/2004	75	74	54-74	0.010	0.5-47	47-52	52-75	2-inch Sch. 40 PVC, flush thread	125.42	71.42 - 51.42
MW-6	5/27/2004	50	49	39-49	0.010	0.5-33	33-37	37-50	2-inch Sch. 40 PVC, flush thread	121.59	82.59 - 72.59
MW-7	5/28/2004	45	39	29-39	0.010	0.5-22	22-26.5	26.5-45	2-inch Sch. 40 PVC, flush thread	114.55	85.55 - 75.55

Notes:

Information for monitoring wells was extracted from Monitoring Well Installation Report (Geologic and Hydrogeologic Study) for the Wild Wings Residential Development , Jacobson Helgoth Consultants, Inc., August 2004.

All monitoring wells were drilled and constructed by PC Exploration of Rocklin, CA. An Ingersol Rand A-400 drill rig with an 8-inch diameter hollow stem auger was used. Oversight was provided by Jacobson Helgoth Consultants. Wellheads were constructed in subsurface vaults with flush mount covers and locking well caps. The top of the PVC casing is approximately 1.3 feet below ground surface (bgs).

TOC = top of casing; surveyed in reference to mean sea level by Morrow Surveying of West Sacramento, CA, on June 26, 2004

Table 2
Static Water Level Measurement in Monitoring Wells
Wild Wings Water Recycling Facility, Yolo County, CA

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-1	6/15/2004	126.22	32.81	93.41
MW-1	3/29/2005	126.22	30.62	95.6
MW-1	6/16/2005	126.22	29.62	96.6
MW-1	9/29/2005	126.22	31.75	94.47
MW-1	12/6/2005	126.22	31.4	94.82
MW-1	2/16/2006	126.22	29.99	96.23
MW-1	5/16/2006	126.22	27.25	98.97
MW-1	8/21/2006	126.22	29.73	96.49
MW-1	11/20/2006	126.22	30.27	95.95
MW-1	2/8/2007	126.22	31.37	94.85
MW-1	5/7/2007	126.22	30.79	95.43
MW-1	8/29/2007	126.22	32.38	93.84
MW-1	2/21/2008	126.22	29.96	96.26
MW-1	5/27/2008	126.22	29.7	96.52
MW-1	8/27/2008	126.22	30.49	95.73
MW-1	11/24/2008	126.22	32.43	93.79
MW-1	2/18/2009	126.22	30.72	95.5
MW-1	5/21/2009	126.22	31.28	94.94
MW-1	8/7/2009	126.22	32.96	93.26
MW-1	11/5/2009	126.22	34.34	91.88
MW-1	2/8/2010	126.22	32.05	94.17
MW-1	5/7/2010	126.22	31.85	94.37
MW-1	8/18/2010	126.22	31.22	95.0
MW-1	11/2/2010	126.22	32	94.22
MW-1	12/28/2010	126.22	30.76	95.46
MW-1	2/23/2011	126.22	31.33	94.89
MW-1	5/5/2011	126.22	29.44	96.78
MW-1	8/16/2011	126.22	30.23	95.99
MW-1	11/8/2011	126.22	31.95	94.27
MW-1	2/27/2012	126.22	32.84	93.38
MW-1	5/21/2012	126.22	32.8	93.42
MW-1	8/9/2012	126.22	33.84	92.38
MW-1	11/19/2012	126.22	34.39	91.83
MW-1	2/21/2013	126.22	32.1	94.12
MW-1	5/15/2013	126.22	31.73	94.49
MW-1	8/15/2013	126.22	32.84	93.38
MW-1	11/7/2013	126.22	33.69	92.53
MW-1	2/25/2014	126.22	34.38	91.84
MW-1	5/22/2014	126.22	35.22	91.0

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-1	8/27/2014	126.22	36.65	89.57
MW-1	11/12/2014	126.22	36.93	89.29
MW-1	2/26/2015	126.22	34.88	91.34
MW-1	5/13/2015	126.22	35.6	90.62
MW-1	8/4/2015	126.22	36.03	90.19
MW-1	11/5/2015	126.22	36.9	89.32
MW-1	2/4/2016	126.22	35.33	90.89
MW-1	6/30/2016	126.22	34.37	91.85
MW-1	8/25/2016	126.22	34.59	91.63
MW-1	11/17/2016	126.22	34.9	91.32
MW-1	3/7/2017	126.22	26.18	100.04
MW-1	6/27/2017	126.22	28.14	98.08
MW-1	8/23/2017	126.22	30.09	96.13
MW-1	11/14/2017	126.22	31.07	95.15
MW-1	2/21/2018	126.22	32.94	93.28
MW-1	5/24/2018	126.22	33.03	93.19
MW-1	9/27/2018	126.22	34.07	92.15
MW-1	12/28/2018	126.22	31.34	94.88
MW-1	2/28/2019	126.22	28.39	97.83
MW-1	6/18/2019	126.22	27.91	98.31
MW-1	9/3/2019	126.22	29.69	96.53
MW-1	12/3/2019	126.22	30.98	95.24
MW-1	3/6/2020	126.22	31.50	94.72
MW-1	4/8/2020	126.22	31.68	94.54
MW-1	9/16/2020	126.22	33.19	93.03
MW-1	12/8/2020	126.22	33.81	92.41
MW-2	6/15/2004	124.93	34.75	90.18
MW-2	3/29/2005	124.93	33.2	91.73
MW-2	6/16/2005	124.93	31.71	93.22
MW-2	9/29/2005	124.93	36.67	88.26
MW-2	12/6/2005	124.93	36.29	88.64
MW-2	2/16/2006	124.93	31.85	93.08
MW-2	5/16/2006	124.93	28.12	96.81
MW-2	8/21/2006	124.93	33.17	91.76
MW-2	11/20/2006	124.93	34.75	90.18
MW-2	2/8/2007	124.93	34.81	90.12
MW-2	5/7/2007	124.93	35.53	89.4
MW-2	8/29/2007	124.93	39.92	85.01
MW-2	2/21/2008	124.93	33.15	91.78
MW-2	5/27/2008	124.93	34.25	90.68
MW-2	8/27/2008	124.93	37.59	87.34
MW-2	11/25/2008	124.93	37.3	87.63

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-2	2/19/2009	124.93	36.01	88.92
MW-2	5/21/2009	124.93	36.47	88.46
MW-2	8/7/2009	124.93	40.14	84.79
MW-2	11/5/2009	124.93	41.38	83.55
MW-2	2/8/2010	124.93	38.48	86.45
MW-2	5/7/2010	124.93	35.8	89.13
MW-2	8/18/2010	124.93	36.66	88.27
MW-2	11/2/2010	124.93	38.25	86.68
MW-2	12/28/2010	124.93	37.08	87.85
MW-2	2/23/2011	124.93	35.68	89.25
MW-2	5/5/2011	124.93	30.87	94.06
MW-2	8/16/2011	124.93	33.73	91.2
MW-2	11/8/2011	124.93	35.93	89
MW-2	2/27/2012	124.93	36.04	88.89
MW-2	5/21/2012	124.93	35.89	89.04
MW-2	8/9/2012	124.93	37.54	87.39
MW-2	11/19/2012	124.93	37.9	87.03
MW-2	2/21/2013	124.93	34.6	90.33
MW-2	5/15/2013	124.93	36.4	88.53
MW-2	8/15/2013	124.93	38.8	86.13
MW-2	11/7/2013	124.93	38.74	86.19
MW-2	2/25/2014	124.93	38.78	86.15
MW-2	5/22/2014	124.93	41.17	83.76
MW-2	8/27/2014	124.93	dry	
MW-2	11/12/2014	124.93	45.07	79.86
MW-2	2/26/2015	124.93	39.83	85.1
MW-2	5/13/2015	124.93	39.72	85.21
MW-2	8/4/2015	124.93	39.35	85.58
MW-2	11/5/2015	124.93	41.79	83.14
MW-2	2/4/2016	124.93	40.41	84.52
MW-2	6/30/2016	124.93	37.44	87.49
MW-2	8/25/2016	124.93	38.39	86.54
MW-2	11/17/2016	124.93	37.67	87.26
MW-2	3/7/2017	124.93	27.4	97.53
MW-2	6/27/2017	124.93	30.42	94.51
MW-2	8/23/2017	124.93	33.31	91.62
MW-2	11/14/2017	124.93	35.97	88.96
MW-2	2/21/2018	124.93	35.87	89.06
MW-2	5/24/2018	124.93	35.5	89.43
MW-2	9/27/2018	124.93	37.08	87.85
MW-2	12/28/2018	124.93	34.06	90.87
MW-2	2/28/2019	124.93	31.39	93.54
MW-2	6/18/2019	124.93	29.1	95.83

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-2	9/3/2019	124.93	31.7	93.23
MW-2	12/3/2019	124.93	34.05	90.88
MW-2	3/6/2020	124.93	34.26	90.67
MW-2	4/8/2020	124.93	34.31	90.62
MW-2	9/16/2020	124.93	35.34	89.59
MW-2	12/8/2020	124.93	36.24	88.69
MW-3	6/15/2004	121.37	20.42	100.95
MW-3	3/29/2005	121.37	21.33	100.04
MW-3	6/16/2005	121.37	20.14	101.23
MW-3	9/29/2005	121.37	22.45	98.92
MW-3	12/6/2005	121.37	21.54	99.83
MW-3	2/16/2006	121.37	21.65	99.72
MW-3	5/16/2006	121.37	26.51	94.86
MW-3	8/21/2006	121.37	21.49	99.88
MW-3	11/20/2006	121.37	21.14	100.23
MW-3	2/8/2007	121.37	23.02	98.35
MW-3	5/7/2007	121.37	20.63	100.74
MW-3	8/29/2007	121.37	22.99	98.38
MW-3	2/21/2008	121.37	21.24	100.13
MW-3	5/27/2008	121.37	22.19	99.18
MW-3	8/28/2008	121.37	23	98.37
MW-3	11/25/2008	121.37	24.39	96.98
MW-3	2/19/2009	121.37	19.67	101.7
MW-3	5/21/2009	121.37	21.31	100.06
MW-3	8/7/2009	121.37	22.49	98.88
MW-3	11/5/2009	121.37	24.29	97.08
MW-3	2/8/2010	121.37	20.2	101.17
MW-3	5/7/2010	121.37	23.21	98.16
MW-3	8/18/2010	121.37	23.55	97.82
MW-3	11/2/2010	121.37	25.13	96.24
MW-3	12/28/2010	121.37	19.95	101.42
MW-3	2/23/2011	121.37	20.66	100.71
MW-3	5/5/2011	121.37	21.64	99.73
MW-3	8/16/2011	121.37	23.3	98.07
MW-3	11/8/2011	121.37	25.03	96.34
MW-3	2/27/2012	121.37	24.69	96.68
MW-3	5/21/2012	121.37	24.44	96.93
MW-3	8/9/2012	121.37	25.58	95.79
MW-3	11/19/2012	121.37	25.96	95.41
MW-3	2/21/2013	121.37	24.15	97.22
MW-3	5/15/2013	121.37	25.45	95.92
MW-3	8/16/2013	121.37	26.67	94.7

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-3	11/7/2013	121.37	25.97	95.4
MW-3	2/25/2014	121.37	25.44	95.93
MW-3	5/22/2014	121.37	26.5	94.87
MW-3	8/27/2014	121.37	28.75	92.62
MW-3	11/12/2014	121.37	29.53	91.84
MW-3	2/26/2015	121.37	21.33	100.04
MW-3	5/13/2015	121.37	23.53	97.84
MW-3	8/4/2015	121.37	25.7	95.67
MW-3	11/5/2015	121.37	28.7	92.67
MW-3	2/4/2016	121.37	24.81	96.56
MW-3	6/30/2016	121.37	25.89	95.48
MW-3	8/25/2016	121.37	27.74	93.63
MW-3	11/17/2016	121.37	29.6	91.77
MW-3	3/7/2017	121.37	19.13	102.24
MW-3	6/27/2017	121.37	22.75	98.62
MW-3	8/23/2017	121.37	23.33	98.04
MW-3	11/14/2017	121.37	25.87	95.5
MW-3	2/21/2018	121.37	26.98	94.39
MW-3	5/24/2018	121.37	25.54	95.83
MW-3	9/27/2018	121.37	27.37	94.0
MW-3	12/28/2018	121.37	24.25	97.1
MW-3	2/28/2019	121.37	16.75	104.6
MW-3	6/18/2019	121.37	21.52	99.9
MW-3	9/3/2019	121.37	23.35	98.0
MW-3	12/3/2019	121.37	21.99	99.4
MW-3	3/6/2020	121.37	23.67	97.7
MW-3	4/8/2020	121.37	26.52	94.9
MW-3	9/22/2020	121.37	28.58	92.8
MW-3	12/8/2020	121.37	dry	
MW-4	6/15/2004	120.71	44.59	76.12
MW-4	3/29/2005	120.71	42.83	77.88
MW-4	6/16/2005	120.71	41.93	78.78
MW-4	9/29/2005	120.71	na	
MW-4	12/6/2005	120.71	46.6	74.11
MW-4	2/16/2006	120.71	42.31	78.4
MW-4	5/16/2006	120.71	37.61	83.1
MW-4	8/21/2006	120.71	42.25	78.46
MW-4	11/20/2006	120.71	41.8	78.91
MW-4	2/8/2007	120.71	40.85	79.86
MW-4	5/7/2007	120.71	40.92	79.79
MW-4	8/29/2007	120.71	46.13	74.58
MW-4	2/21/2008	120.71	41.2	79.51

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-4	5/27/2008	120.71	42.34	78.37
MW-4	8/28/2008	120.71	45.65	75.06
MW-4	11/25/2008	120.71	46.07	74.64
MW-4	2/19/2009	120.71	45.29	75.42
MW-4	5/21/2009	120.71	44.44	76.27
MW-4	8/7/2009	120.71	49.54	71.17
MW-4	11/5/2009	120.71	51	69.71
MW-4	2/8/2010	120.71	49.31	71.4
MW-4	5/7/2010	120.71	45.94	74.77
MW-4	8/18/2010	120.71	48.05	72.66
MW-4	11/2/2010	120.71	49.05	71.66
MW-4	12/28/2010	120.71	48.01	72.7
MW-4	2/23/2011	120.71	46.31	74.4
MW-4	5/5/2011	120.71	42.04	78.67
MW-4	8/16/2011	120.71	45.02	75.69
MW-4	11/8/2011	120.71	46.64	74.07
MW-4	2/27/2012	120.71	44.72	75.99
MW-4	5/21/2012	120.71	44.56	76.15
MW-4	8/9/2012	120.71	48.08	72.63
MW-4	11/19/2012	120.71	49.78	70.93
MW-4	2/21/2013	120.71	45.9	74.81
MW-4	5/15/2013	120.71	46.69	74.02
MW-4	8/16/2013	120.71	50.67	70.04
MW-4	11/7/2013	120.71	51.99	68.72
MW-4	2/25/2014	120.71	50.88	69.83
MW-4	5/22/2014	120.71	51.08	69.63
MW-4	8/27/2014	120.71	55.49	65.22
MW-4	11/12/2014	120.71	56.36	64.35
MW-4	2/26/2015	120.71	53.85	66.86
MW-4	5/13/2015	120.71	53.9	66.81
MW-4	8/4/2015	120.71	55.42	65.29
MW-4	11/5/2015	120.71	56.74	63.97
MW-4	2/4/2016	120.71	56.4	64.31
MW-4	6/30/2016	120.71	54.22	66.49
MW-4	8/25/2016	120.71	55.21	65.5
MW-4	11/17/2016	120.71	55.54	65.17
MW-4	3/7/2017	120.71	48.46	72.25
MW-4	6/27/2017	120.71	47.06	73.65
MW-4	8/23/2017	120.71	48.59	72.12
MW-4	11/14/2017	120.71	49.98	70.73
MW-4	2/21/2018	120.71	49.98	70.73
MW-4	5/24/2018	120.71	49.69	71.02
MW-4	9/27/2018	120.71	53.11	67.6

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-4	12/28/2018	120.71	53.42	67.29
MW-4	2/28/2019	120.71	49.4	71.31
MW-4	6/18/2019	120.71	44.4	76.31
MW-4	9/17/2019	120.71	46.57	74.14
MW-4	12/3/2019	120.71	48.05	72.66
MW-4	2/13/2020	120.71	46.58	74.13
MW-4	4/8/2020	120.71	46.62	74.09
MW-4	9/22/2020	120.71	51.42	69.29
MW-4	12/8/2020	120.71	52.94	67.77
MW-5R	6/15/2004	125.42	39.37	86.05
MW-5R	3/29/2005	125.42	37.65	87.77
MW-5R	6/16/2005	125.42	35.62	89.8
MW-5R	9/29/2005	125.42	40.73	84.69
MW-5R	12/6/2005	125.42	40.78	84.64
MW-5R	2/16/2006	125.42	36.02	89.4
MW-5R	5/16/2006	125.42	37.05	88.37
MW-5R	8/21/2006	125.42	36.12	89.3
MW-5R	11/20/2006	125.42	38.95	86.47
MW-5R	2/8/2007	125.42	38.97	86.45
MW-5R	5/7/2007	125.42	38.42	87
MW-5R	8/29/2007	125.42	42.97	82.45
MW-5R	2/21/2008	125.42	37.5	87.92
MW-5R	5/27/2008	125.42	38.06	87.36
MW-5R	8/27/2008	125.42	41.41	84.01
MW-5R	11/24/2008	125.42	41.84	83.58
MW-5R	2/18/2009	125.42	40.73	84.69
MW-5R	5/21/2009	125.42	40.54	84.88
MW-5R	8/7/2009	125.42	43.1	82.32
MW-5R	11/5/2009	125.42	45.2	80.22
MW-5R	2/8/2010	125.42	42.4	83.02
MW-5R	5/7/2010	125.42	39.77	85.65
MW-5R	8/18/2010	125.42	40.15	85.27
MW-5R	11/2/2010	125.42	42.53	82.89
MW-5R	12/28/2010	125.42	41.53	83.89
MW-5R	2/23/2011	125.42	40.1	85.32
MW-5R	5/5/2011	125.42	34.65	90.77
MW-5R	8/16/2011	125.42	36.78	88.64
MW-5R	11/8/2011	125.42	40.14	85.28
MW-5R	2/27/2012	125.42	40.31	85.11
MW-5R	5/21/2012	125.42	38.6	86.82
MW-5R	8/9/2012	125.42	40.68	84.74
MW-5R	11/19/2012	125.42	42.11	83.31

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-5R	2/21/2013	125.42	39.03	86.39
MW-5R	5/15/2013	125.42	39.69	85.73
MW-5R	8/15/2013	125.42	41.55	83.87
MW-5R	11/7/2013	125.42	42.43	82.99
MW-5R	2/25/2014	125.42	42.28	83.14
MW-5R	5/22/2014	125.42	44.12	81.3
MW-5R	8/27/2014	125.42	49.26	76.16
MW-5R	11/12/2014	125.42	48.34	77.08
MW-5R	2/26/2015	125.42	43.39	82.03
MW-5R	5/13/2015	125.42	43.03	82.39
MW-5R	8/4/2015	125.42	42.8	82.62
MW-5R	11/5/2015	125.42	45.3	80.12
MW-5R	2/4/2016	125.42	43.76	81.66
MW-5R	6/30/2016	125.42	41.06	84.36
MW-5R	8/25/2016	125.42	42.23	83.19
MW-5R	11/17/2016	125.42	41.53	83.89
MW-5R	3/7/2017	125.42	32.08	93.34
MW-5R	6/27/2017	125.42	34.96	90.46
MW-5R	8/23/2017	125.42	38.11	87.31
MW-5R	11/14/2017	125.42	39.69	85.73
MW-5R	2/21/2018	125.42	40.39	85.03
MW-5R	5/24/2018	125.42	38.03	87.39
MW-5R	9/27/2018	125.42	41.65	83.77
MW-5R	12/28/2018	125.42	40.7	84.72
MW-5R	2/28/2019	125.42	35.59	89.83
MW-5R	6/18/2019	125.42	31.69	93.73
MW-5R	9/4/2019	125.42	31.72	93.7
MW-5R	12/3/2019	125.42	38.74	86.68
MW-5R	3/6/2020	125.42	38.90	86.52
MW-5R	4/8/2020	125.42	38.15	87.27
MW-5R	9/16/2020	125.42	40.21	85.21
MW-5R	12/8/2020	125.42	41.04	84.38
MW-6	6/15/2004	121.59	37.96	83.63
MW-6	3/29/2005	121.59	37.26	84.33
MW-6	6/16/2005	121.59	34.92	86.67
MW-6	9/29/2005	121.59	40.59	81
MW-6	12/6/2005	121.59	40.77	80.82
MW-6	2/16/2006	121.59	35.32	86.27
MW-6	5/16/2006	121.59	30.28	91.31
MW-6	8/21/2006	121.59	35.59	86
MW-6	11/20/2006	121.59	38.57	83.02
MW-6	2/8/2007	121.59	38.46	83.13

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-6	5/7/2007	121.59	37.97	83.62
MW-6	8/29/2007	121.59	42.96	78.63
MW-6	2/21/2008	121.59	37.02	84.57
MW-6	5/27/2008	121.59	37.56	84.03
MW-6	8/27/2008	121.59	41.26	80.33
MW-6	11/24/2008	121.59	41.98	79.61
MW-6	2/18/2009	121.59	40.67	80.92
MW-6	5/21/2009	121.59	39.94	81.65
MW-6	8/7/2009	121.59	42.98	78.61
MW-6	11/5/2009	121.59	45.37	76.22
MW-6	2/8/2010	121.59	42.51	79.08
MW-6	5/7/2010	121.59	39.51	82.08
MW-6	8/18/2010	121.59	40.14	81.45
MW-6	11/2/2010	121.59	42	75.57
MW-6	12/28/2010	121.59	41.67	79.92
MW-6	2/23/2011	121.59	40.1	81.49
MW-6	5/5/2011	121.59	34.03	87.56
MW-6	8/16/2011	121.59	36.23	85.36
MW-6	11/8/2011	121.59	40.27	81.32
MW-6	2/27/2012	121.59	40.2	81.39
MW-6	5/21/2012	121.59	38.67	82.92
MW-6	8/9/2012	121.59	41.03	80.56
MW-6	11/19/2012	121.59	42.47	79.12
MW-6	2/21/2013	121.59	38.91	82.68
MW-6	5/15/2013	121.59	39.64	81.95
MW-6	8/15/2013	121.59	41.84	79.75
MW-6	11/7/2013	121.59	42.65	78.94
MW-6	2/25/2014	121.59	42.34	79.25
MW-6	5/22/2014	121.59	44.14	77.45
MW-6	8/27/2014	121.59	dry	
MW-6	11/12/2014	121.59	dry	
MW-6	2/26/2015	121.59	43.62	77.97
MW-6	5/13/2015	121.59	43.65	77.94
MW-6	8/4/2015	121.59	43.2	78.39
MW-6	11/5/2015	121.59	45.58	76.01
MW-6	2/4/2016	121.59	43.92	77.67
MW-6	6/30/2016	121.59	41.31	80.28
MW-6	8/25/2016	121.59	42.62	78.97
MW-6	11/17/2016	121.59	41.8	79.79
MW-6	3/7/2017	121.59	31.88	89.71
MW-6	6/27/2017	121.59	34.37	87.22
MW-6	8/23/2017	121.59	37.96	83.63
MW-6	11/14/2017	121.59	39.71	81.88

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-6	2/21/2018	121.59	40.15	81.44
MW-6	5/24/2018	121.59	39.25	82.34
MW-6	9/27/2018	121.59	41.78	79.81
MW-6	12/28/2018	121.59	40.71	80.88
MW-6	2/28/2019	121.59	35.6	85.99
MW-6	6/18/2019	121.59	32.69	88.9
MW-6	9/17/2019	121.59	35.57	86.02
MW-6	12/3/2019	121.59	38.4	83.19
MW-6	2/13/2020	121.59	38.37	83.22
MW-6	4/8/2020	121.59	37.78	83.81
MW-6	9/220/2	121.59	40.38	81.21
MW-6	12/8/2020	121.59	40.98	80.61
MW-7	6/15/2004	114.55	36.22	78.33
MW-7	3/29/2005	114.55	35.8	78.75
MW-7	6/16/2005	114.55	33.77	80.78
MW-7	9/29/2005	114.55	38.09	76.46
MW-7	12/6/2005	114.55	dry	
MW-7	2/16/2006	114.55	34.08	80.47
MW-7	5/16/2006	114.55	28.69	85.86
MW-7	8/21/2006	114.55	34.29	80.26
MW-7	11/20/2006	114.55	36.96	77.59
MW-7	2/8/2007	114.55	36.85	77.7
MW-7	5/7/2007	114.55	36.22	78.33
MW-7	8/29/2007	114.55	dry	
MW-7	2/21/2008	114.55	35.55	79
MW-7	5/27/2008	114.55	35.92	78.63
MW-7	8/27/2008	114.55	38.16	76.39
MW-7	11/24/2008	114.55	dry	
MW-7	2/18/2009	114.55	dry	
MW-7	5/21/2009	114.55	dry	
MW-7	8/7/2009	114.55	dry	
MW-7	11/5/2009	114.55	dry	
MW-7	2/8/2010	114.55	dry	
MW-7	5/7/2010	114.55	37.4	77.15
MW-7	8/18/2010	114.55	dry	
MW-7	11/2/2010	114.55	dry	
MW-7	12/28/2010	114.55	dry	
MW-7	2/23/2011	114.55	37.95	76.6
MW-7	5/5/2011	114.55	33.15	81.4
MW-7	8/16/2011	114.55	34.92	79.63
MW-7	11/8/2011	114.55	dry	
MW-7	2/27/2012	114.55	38.04	76.51

Well	Date	TOC Elevation (feet msl)	DTW (feet btoc)	Water Surface Elevation (feet msl)
MW-7	5/21/2012	114.55	36.95	77.6
MW-7	8/9/2012	114.55	dry	
MW-7	11/19/2012	114.55	dry	
MW-7	2/21/2013	114.55	37.21	77.34
MW-7	5/15/2013	114.55	37.55	77
MW-7	8/15/2013	114.55	dry	
MW-7	11/7/2013	114.55	dry	
MW-7	2/25/2014	114.55	dry	
MW-7	5/22/2014	114.55	dry	
MW-7	8/27/2014	114.55	dry	
MW-7	11/12/2010	114.55	dry	
MW-7	2/26/2015	114.55	dry	
MW-7	5/13/2015	114.55	dry	
MW-7	8/4/2015	114.55	dry	
MW-7	11/5/2015	114.55	dry	
MW-7	2/4/2016	114.55	dry	
MW-7	6/30/2016	114.55	dry	
MW-7	8/25/2016	114.55	dry	
MW-7	11/17/2016	114.55	dry	
MW-7	3/7/2017	114.55	32.01	82.54
MW-7	6/27/2017	114.55	33.57	80.98
MW-7	8/23/2017	114.55	36.69	77.86
MW-7	11/14/2017	114.55	38.26	76.29
MW-7	2/21/18	114.55	38.42	76.13
MW-7	5/24/2018	114.55	39.35	75.20
MW-7	9/27/2018	114.55	dry	
MW-7	12/28/2018	114.55	dry	
MW-7	2/28/2019	114.55	34.9	79.65
MW-7	6/18/2019	114.55	31.85	82.70
MW-7	9/3/2019	114.55	dry	
MW-7	12/3/2019	114.55	37.39	77.16
MW-7	2/13/2020	114.55	36.87	77.68
MW-7	4/8/2020	114.55	36.5	78.05
MW-7	9/16/2020	114.55	38.45	76.10
MW-7	12/8/2020	114.55	dry	

Table 3
Groundwater Flow Direction and Gradient
Wild Wings Water Recycling Facility, Yolo County, CA

Sample Date	Water Surface Elevation [1] MW-1	MW-5R	MW-4	Gradient (ft/ft)	Flow Direction (degrees)[2]
6/15/2004	93.41	86.05	76.12	0.006	65
3/29/2005	95.6	87.77	77.88	0.006	64.2
6/16/2005	96.6	89.8	78.78	0.006	67.3
9/29/2005	94.47	84.69	n/a	n/a	n/a
12/6/2005	94.82	84.64	74.11	0.007	61.7
2/16/2006	96.23	89.4	78.4	0.006	67.2
5/16/2006	98.97	88.37	83.1	0.006	53.3
8/21/2006	96.49	89.3	78.46	0.006	66.4
11/20/2006	95.95	86.47	78.91	0.006	58.5
2/8/2007	94.85	86.45	79.86	0.005	58.3
5/7/2007	95.43	87	79.79	0.005	59.4
8/29/2007	93.84	82.45	74.58	0.007	56.9
2/21/2008	96.26	87.92	79.51	0.006	61.4
5/27/2008	96.52	87.36	78.37	0.006	61.1
8/27/2008	95.73	84.01	75.06	0.007	58
11/24/2008	93.79	83.58	74.64	0.007	59.7
2/18/2009	95.5	84.69	75.42	0.007	59.4
5/21/2009	94.9	84.88	76.27	0.006	59.4
8/4/2009	93.26	82.32	71.17	0.008	61.5
11/5/2009	91.88	80.22	69.71	0.008	60
2/8/2010	94.17	83.02	71.4	0.008	61.8
5/7/2010	94.37	85.65	74.77	0.007	64
8/18/2010	95	85.27	72.66	0.008	64.5
11/2/2010	94.22	82.89	71.66	0.008	61.2
12/28/2010	95.46	83.89	72.7	0.008	60.9
2/23/2011	94.89	85.32	74.4	0.007	62.9
5/5/2011	96.78	90.77	78.67	0.006	69.9
8/16/2011	95.99	88.64	75.69	0.007	68.3
11/8/2011	94.27	85.28	74.07	0.007	64
2/27/2012	93.38	85.11	75.99	0.006	62.5
5/21/2012	93.42	86.82	76.15	0.006	67.3
8/9/2012	92.38	84.74	72.63	0.007	67
11/19/2012	91.83	83.31	70.93	0.007	65.9
2/21/2013	94.12	86.39	74.81	0.007	66.3
5/15/2013	94.49	85.73	74.02	0.007	64.9
8/15/2013	93.38	83.87	70.04	0.008	66
11/7/2013	92.53	82.99	68.72	0.008	66.3
2/25/2014	91.84	83.14	69.83	0.007	66.6
5/22/2014	91	81.3	69.63	0.007	63.6
8/27/2014	89.57	76.16	65.22	0.009	58.8
11/12/2014	89.29	77.08	64.35	0.009	61.8
2/26/2015	91.34	82.03	66.86	0.008	67.4
5/13/2015	90.62	82.39	66.81	0.008	69.2
8/4/2015	90.19	82.62	65.29	0.008	71.3
11/5/2015	89.32	80.12	63.97	0.009	68.3
2/4/2016	90.89	81.66	64.31	0.009	69.1
6/30/2016	91.85	84.36	66.49	0.009	71.8
8/25/2016	91.63	83.19	65.5	0.009	70.3
11/17/2016	91.32	83.89	65.17	0.009	72.4
3/7/2017	100.04	93.34	72.25	0.009	74.7
6/27/2017	98.08	90.46	73.66	0.008	71.0
8/23/17	96.13	87.31	72.12	0.006	74.0
11/14/2017	95.15	85.73	70.73	0.006	75.0
2/21/2018	93.28	85.03	70.73	0.006	72.0
5/24/2018	93.19	87.39	71.02	0.006	79.0
9/27/2018	92.15	83.77	67.60	0.005	71.1
12/28/2018	94.88	84.72	67.29	0.007	69.0
2/28/2019	97.83	89.83	71.31	0.005	71.3
6/18/2019	98.31	93.73	76.31	0.006	90.3
9/3/2019	96.53	93.70	74.14	0.007	90.3
12/3/2019	95.24	86.68	72.66	0.006	67.4
3/6/2020	94.72	86.52	74.13	0.005	67.7
4/8/2020	94.54	87.27	74.09	0.005	67.7
9/16/2020	93.03	85.21	69.29	0.008	63.4
12/8/2020	92.41	84.34	67.77	0.008	71.2

[1] Groundwater elevations from 6/15/04 to 2/21/08 were provided by DelTech; groundwater elevations from 5/27/08 to 3/7/2017 were provided by GEI; groundwater elevations from 6/27/2017 to 6/30/18 by SSAL; groundwater elevations from 9/27/2018 through present provided by CRWA.

[2] Measured clockwise with North as 0.0 degrees, using graphical methods perpendicular to groundwater contours.

TOC = Top of Casing

msl = mean sea level

DTW = depth to water

btoc = below top of casing

Table 4
Groundwater Quality Monitoring Results
Wild Wings Water Recycling Facility, Yolo County, CA

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Total Nitrogen mg/L	Coliform Bacteria (total) (MPN/100 mL)	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	TTHM (1) (EPA 601) ug/L	Lab Notes
Recommended	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
Interim Limitation [2]	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-1	6/15/2004	STL	7.7	1410	112	391	2.1	<0.10	-	18.7	<0.05	<0.10	18.7	>23.0	<1.1	<1.1	<0.5	
MW-1	3/29/2005	BSK	7.9	1200	160	360	3.7	<0.05	<0.01	27	<0.15	<1	27	2.2	<1.1	-	<0.5	
MW-1	6/16/2005	BSK	7.7	1200	130	340	3.2	<0.05	<0.01	25	<0.20	<1	25	<1.1	<1.1	-	5.1	3
MW-1	9/29/2005	BSK	7.8	1200	130	310	3.2	<0.05	<0.01	27	<0.15	<1	27	<1.1	<1.1	-	<0.5	
MW-1	12/6/2005	BSK	8.1	1100	120	340	2.9	<0.05	<0.01	27	<0.15	<1	27	<1.1	<1.1	<1.1	6.12	3
MW-1	2/16/2006	BSK	8.0	1300	110	340	2.7	<0.05	<0.01	27	<0.10	<1	27	<1.1	<1.1	-	<0.5	
MW-1	5/16/2006	BSK	8.0	1100	130	300	3.4	<0.05	<0.01	27	<0.15	<1	27	<1.1	<1.1	-	<0.5	
MW-1	8/21/2006	BSK	8.0	1000	120	270	3.6	<0.05	<0.01	25	<0.05	<0.10		<1.1	<1.1	-	<0.5	
MW-1	11/20/2006	BSK	-	-	-	-	-	-	-	-	-	-	-	>23.0	<1.1	-	-	
MW-1	2/16/2007								No sample retrieved									
MW-1	5/7/2007	BSK	8.0	1100	140	250	4.2	<0.05	<0.01	27	<0.05	<1.0	27	2.2	<1.1	-	<0.5	
MW-1	8/29/2007	BSK	8.0	1100	110	240	3.6	<0.05	<0.01	24	*	<1.0	24	<1.1	<1.1	-	<0.5	
MW-1	11/28/2007	BSK	8.0	1100	130	220	4.0	<0.05	<0.01	24	*	<1.0	26	<1.1	<1.1	-	<0.5	
MW-1	2/21/2008	BSK	-	-	-	-	-		-			-		<1.1	<1.1	-		
MW-1	5/27/2008	CLS	7.3	1100	120	250	3.5	0.10	<0.02	23	<0.10	<0.10	23	13	-	-	<0.50	
MW-1	8/27/2008	CLS	7.4	1100	120	230	3.6	<0.10	<0.02	24	<0.10	<0.10	24	<1.8	-	-	<0.50	
MW-1	11/24/2008	CLS	7.4	1100	120	260	3.2	0.44	<0.02	25	<0.10	<0.10	25	<1.8	-	-	<0.50	
MW-1	2/18/2009	CLS		980 (5)	130	170	4	<010	<0.02	19	<0.10	<010	19	<1 8	-	-	<0 50	
MW-1	5/21/2009	CLS	7.3	1100	110	210	3.5	<0.10	<0.02	21	<0.10	<0.10	21	<1.8	-	-	<0.50	
MW-1	8/4/2009	CLS	7.3	1100	96	240	3.1	0.13	<0.02	23	<0.10	<0.10	23	2.0	-	-	<0.50	
MW-1	11/5/2009	CLS	7.16	1100 (5)	110	260	3.1	0.15	<0.02	24	<0.10	<0.10	24	<1.8	-	-	<0.50	
MW-1	2/8/2010	CLS	7.4	1200	120	290	3.5	<0.10	<0.02	25	<0.10	<0.10	25	<1.8	-	-	<0.50	
MW-1	5/7/2010	CLS	7.4	1100	120	280	3.0	<0.10	<0.02	25	<0.10	<0.10	25	<1.8	-	-	<0.50	
MW-1	8/18/2010	CLS	7.2	1100	140	250	3.6	<0.10	<0.02	24	<0.10	<0.10	24	2.0	-	-	<0.50	
MW-1	11/2/2010	CLS	7.4	1200	130	280	3.3	<0.10	<0.02	26	<0.10	<0.10	27	<1.8	-	-	<0.50	
MW-1	2/23/2011	CLS	7.4	1100	130	270	3.6	<0.10	<0.02	26	<0.10	<0.10	26	<1.8	-	-	<0.50	
MW-1	5/5/2011	CLS	7.4	1100	130	250	3.7	<0.10	<0.02	24	<0.10	<0.10	24	<1.8	-	-	<0.50	
MW-1	8/16/2011	CLS	7.4	1200	140	200	4.2	<0.10	<0.02	24	<0.10	<0.10	24	<1.8	-	-	<0.50	
MW-1	11/8/2011	CLS	7.3	1200	130	220	4.0	<0.10	<0.02	20	<0.10	<0.10	20	<1.8	-	-	<0.50	
MW-1	2/27/2012	CLS	7.3	1100	140	220	4.4	<0.10	<0.02	21	<0.10	<0.10	21	<1.8	-	-	<0.50	
MW-1	5/21/2012	CLS	7.5	1100	130	230	4.0	<0.10	<0.02	23	<0.10	0.13	23	<1.8	-	-	<0.50	
MW-1	8/9/2012	CLS	7.6	1100	130	210	3.9	<0.10	<0.02	20	<0.10	<0.10	20	<1.8	-	-	<0.50	
MW-1	11/19/2012	CLS	7.3	1200	120	220	3.5	<0.10	<0.02	20	<0.10	<0.10	20	<1.8	-	-	<0.50	
MW-1	2/21/2013	CLS	7.2	1100	140	200	4.1	<0.10	<0.02	19	<0.10	0.14	19	<1.8	-	-	<0.50	
MW-1	5/15/2013	CLS	7.2	1200	130	220	4.1	<0.10	<0.02	23	<0.10	<0.10	23	<1.8	-	-	<0.50	
MW-1	8/15/2013	CLS	7.3	1100	130	230	3.7	0.15	<0.02	22	<0.10	<0.10	22	<1.8	-	-	<0.50	
MW-1	11/7/2013	CLS	7.4	1100	150	240	3.4	<0.10	<0.02	22	<0.10	<0.10	22	<1.8	-	-	<0.50	
MW-1	2/25/2014	CLS	7.4	1100	100	260	3.5	<0.10	<0.02	22	<0.10	<0.10	22	<1.8	-	-	<0.50	
MW-1	5/22/2014	CLS	7.4	1100	110	220	3.3	<0.10	<0.02	20	<0.10	<0.10	20	<1.8	-	-	<0.50	
MW-1	8/27/2014	CLS	7.5	1200	110	230	3.5	<0.10	<0.02	20	<0.10	<0.10	20	<1.8	-	-	<0.50	
MW-1	11/12/2014	CLS	7.36	1000 (7)	93	240	2.8	<0.10	<0.02	20	<0.10	<0.10	20	<1	-	-	<0.50	
MW-1	2/26/2015	CLS	7.3	990	110	200	3.5	<0.10	<0.02	17	<0.10	<0.10	17	<1.8	-	-	<0.50	
MW-1	5/13/2015	CLS	7.4	1100	100	200	3.5	<0.10	<0.02	17	<0.10	<0.10	17	<1.8	-	-	<0.50	
MW-1	8/4/2015	CLS	7.3	1200	110	200	3.6	<0.10	<0.02	19	<0.10	<0.10	19	<1.8	-	-	<0.50	
MW-1	11/5/2015	CLS	7.3	1200	100	220	3.2	<0.10	<0.02	20	<0.10	<0.10	20	<1.8	-	-	<0.50	
MW-1	2/4/2016	CLS	7.3	1200	110	200	3.9	<0.10	<0.02	20	<0.40	<0.10	20	<1.8	-	-	<0.50	
MW-1	6/30/2016	CLS	7.2	1100	110	180	3.9	<0.10	<0.02	16	<0.40	<0.10	16	<1.8	-	-	<0.50	
MW-1	8/25/2016	CLS	7.3	990	100	170	3.3	<0.10	<0.02	16	<0.40	<0.10	16	2.0	-	-	8.5	
MW-1	11/17/2016	CLS	7.4	1100	110	180	3.7	<0.10	<0.02	17	<0.40	<0.10	17	<1.8	-	-	<0.50	
MW-1	3/7/2017	CLS	7.4	990	110	230	3.5	<0.10	<0.02	15	<0.40	0.18	15	<1.8	-	-	<0.50	
MW-1	6/27/2017	CLS	7.1	1100	150	140	4.6	<0.10	<0.02	16	<0.40	0.19	16	2.0	-	-	<0.50	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total) (MPN/100 mL)	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended Interim Limitation [2]	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-1	8/23/2017	CLS	6.6	960	150	130	5.1	<0.10	<0.02	14	<0.40	<0.10	14	2.0	-	-	<0.50	
MW-1	11/14/2017	CLS	7.2	960	150	120	5.1	<0.10	<0.02	11	<0.40	<0.10	11	<1.8	-	-	<0.50	
MW-1	2/21/2018	CLS	7.4	960	140	120	5.4	<0.10	<0.02	12	<0.40	<0.10	12	<1.8	-	-	<0.50	
MW-1	5/24/2018	CLS	7.4	970	120	120	6.1	<0.10	<0.02	18	<0.40	<0.10	18	<1.8	-	-	<0.50	
MW-1	9/27/2018	CLS	7.23	1,100	130	-	4.4	<0.10	<0.02	14	<0.40	<0.10	14	<1.8	-	-	<0.50	
MW-1	12/28/2018	CLS	7.32	900	120	230	3.4	<0.10	<0.02	18	<0.40	<0.10	18	<1.8	-	-	<0.50	
MW-1	2/28/2019	CLS	7.35	1,100	140	-	4.8	0.16	<0.02	10	<0.40	<0.10	10	<1.8	-	-	<0.50	
MW-1	6/26/2019	CLS	7.44	1,000	140	110	5.2	<.10	<.01	9.4	<.40	<.10	9.5	<1.8	-	-	<0.50	
MW-1	9/4/2019	CLS	7.26	1,100	3.7	130	<0.05	<0.10	<0.02	11*	*	<0.10	11	<1.8	-	-	23.3	
MW-1	12/4/2019	CLS	7.36	1,100	180	170	5	<0.10	<0.02	12	0.4	<0.10	14	<1.8	-	-	7.0	
MW-1	3/6/2020	CLS	7.32	1,200	170	160	5.3	<0.10	<0.02	9.9	<0.4	<0.10	10	<1.8	-	-	12.0	
MW-1	4/23/2020	CLS	7.44	1,100	100	110	5.2	<0.10	<0.02	10	<0.4	0.25	11	<1.8	-	-	<0.50	
MW-1	9/17/2020	CLS	6.99	1,000	120	130	5.6	<0.10	<0.02	19	<0.4	<0.10	19	2	-	-	<0.50	
MW-1	12/9/2020	CLS	7.4	1,000	110	120	5.1	<0.10	<0.02	9.8	<0.4	<0.10	10	<1.8	-	-	<0.50	
MW-2	6/15/2004	STL	7.6	884	147	78.4	5.9	<0.10	-	11.9	<0.05	<0.10	11.9	23	<1.1	<1.1	<0.5	
MW-2	3/29/2005	BSK	7.8	880	200	95	7.2	<0.05	<0.01	11	<0.15	<1	11	1.1	<1.1	-	<0.5	
MW-2	6/16/2005	BSK	7.6	920	150	100	5.5	<0.05	<0.01	11	<0.10	<1	11	>23.0	<1.1	-	4	3
MW-2	9/29/2005	BSK	7.8	960	170	110	5.8	<0.05	<0.01	12	<0.15	<1	12	5.1	<1.1	-	<0.5	
MW-2	12/6/2005	BSK	8	970	180	130	6.1	<0.05	<0.01	12	<0.10	<1	12	1.1	<1.1	<1.1	1.8	3
MW-2	2/16/2006	BSK	7.9	940	150	120	5.4	<0.05	<0.01	11	<0.10	<1	11	<1.1	<1.1	-	1.6	3
MW-2	5/16/2006	BSK	8	1,000	170	120	5.9	<0.05	<0.01	13	<0.15	4	13	<1.1	<1.1	-	1.6	3
MW-2	8/21/2006	BSK	7.9	1,000	150	140	5.2	<0.05	<0.01	14	<0.05	<0.10	-	<1.1	<1.1	-	<0.5	
MW-2	11/20/2006	BSK	-	-	-	-	-	-	-	-	-	-	-	>23.0	<1.1	-	-	
MW-2	2/16/2007								No sample retrieved									
MW-2	5/7/2007	BSK	7.9	920	170	120	6	<0.05	<0.01	11	<0.05	<1.0	11	<1.1	<1.1	-	<0.5	
MW-2	8/29/2007	BSK	7.9	850	130	110	4.8	<0.05	<0.01	10	*	<1.0	10	<1.1	<1.1	-	1.14	
MW-2	11/28/2007	BSK	7.8	890	150	100	5.3	<0.05	<0.01	11	*	<1.0	11	<1.1	<1.1	-	<0.5	
MW-2	2/21/2008		-	-	-	-	-	-	-	-	-	-	-	1.1	<1.1	-	-	
MW-2	5/27/2008	CLS	7	910	170	97	5.7	<0.10	<0.01	9.1	<0.10	<0.10	9.2	<1.8	-	-	<0.50	
MW-2	8/27/2008	CLS	7	910	150	100	5	<0.10	<0.02	9.5	<0.10	0.11	9.6	<1.8	-	-	<0.50	
MW-2	11/24/2008	CLS	7.2	950	150	100	5	<0.10	<0.02	9.1	<0.10	<0.10	9.1	79	-	-	<0.50	
MW-2	2/18/2009	CLS	-	880 (5)	140	100	4.9	<0.10	<0.02	8.2	<0.10	<0.10	8.5	6.8	-	-	<0.50	
MW-2	5/21/2009	CLS	7.1	870	140	89	4.7	<0.10	<0.02	8.1	<0.10	<0.10	8.3	<1.8	-	-	<0.50	
MW-2	8/4/2009	CLS	7	860	120	91	4.2	<0.10	<0.02	8	<0.10	<0.10	8	<1.8	-	-	<0.50	
MW-2	11/5/2009	CLS	-	790 (5)	150	100	4.8	<0.10	<0.02	7.9	<0.10	<0.10	8	<1.8	-	-	<0.50	
MW-2	2/8/2010	CLS	7.2	960	170	110	5.6	0.1	<0.02	7.9	<0.10	<0.10	7.9	7.8	-	-	<0.50	
MW-2	5/7/2010	CLS	7.1	950	160	120	5.1	<0.10	<0.02	7.5	<0.10	<0.10	7.5	<1.8	-	-	<0.50	
MW-2	8/18/2010	CLS	7.1	1,000	180	130	5.7	0.22	<0.02	8.3	<0.10	0.11	8.5	<1.8	-	-	<0.50	
MW-2	11/2/2010	CLS	7.1	1,100	210	140	6.1	<0.10	<0.02	8.4	<0.10	<0.10	8.7	<1.8	-	-	<0.50	
MW-2	2/23/2011	CLS	7.1	1,200	160	160	5.7	<0.10	<0.02	8.5	<0.10	0.17	11	13	-	-	<0.50	
MW-2	5/5/2011	CLS	7.1	970	160	150	5.6	<0.10	<0.02	7.3	<0.10	<0.10	7.6	<1.8	-	-	<0.50	
MW-2	8/16/2011	CLS	7.1	1,100	190	170	6.6	0.17	<0.02	9.4	<0.10	<0.10	9.6	<1.8	-	-	<0.50	
MW-2	11/8/2011	CLS	7	1,200	180	170	6.3	<0.10	<0.02	8.8	<0.10	<0.10	8.8	<1.8	-	-	<0.50	
MW-2	2/27/2012	CLS	7	1,100	190	140	7	<0.10	<0.02	8	<0.10	<0.10	8.2	<1.8	-	-	<0.50	
MW-2	5/21/2012	CLS	7.1	990	180	130	7.3	<0.10	<0.02	8.2	<0.10	0.2	8.4	2	-	-	<0.50	
MW-2	8/9/2012	CLS	7.4	1,000	140	120	4.7	<0.10	<0.02	8.8	<0.10	0.11	9	<1.8	-	-	<0.50	
MW-2	11/19/2012	CLS	7	1000	170	110	6	<0.10	<0.02	8.6	<0.10	<0.10	8.9	2	-	-	<0.50	
MW-2	2/21/2013	CLS	7	930	170	100	6.2	0.14	<0.02	8.7	<0.10	0.12	8.9	14	-	-	<0.50	
MW-2	5/15/2013	CLS	7.1	940	170	120	6.2	<0.10	<0.02	8.6	<0.10	<0.10	8.7	<1.8	-	-	<0.50	
MW-2	8/15/2013	CLS	7	990	160	120	5.2	<0.10	<0.02	8.3	<0.10	<0.10	8.6	<1.8	-	-	<0.50	
MW-2	11/7/2013	CLS	7	900	150	110	5.7	<0.10	<0.02	8.1	<0.10	0.17	8.4	<1.8	-	-	<0.50	
MW-2	2/25/2014	CLS	7.1	830	140	86	5.9	<0.10	<0.02	8.4	<0.10	<0.10	8.6	<1.8	-	-	<0.50	
MW-2	5/22/2014	CLS	7	830	140	73	5.6	<0.10	<0.02	8.1	<0.10	<0.10	8.1	<1.8	-	-	<0.50	
MW-2	8/27/2014								No sample retrieved									
MW-2	11/12/2014								No sample retrieved									
MW-2	2/26/2015	CLS	7	800	130	87	5.3	<0.10	<0.02	8.3	<0.10	<0.10	8.4	<1.8	-	-	<0.50	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total) (MPN/100 mL)	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended Interim Limitation [2]	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-2	5/13/2015	CLS	7.2	830	130	86	5.3	<0.10	<0.02	9.2	<0.10	<0.10	9.3	<1.8	-	-	<0.50	
MW-2	8/4/2015	CLS	7.2	830	150	88	5.4	<0.10	<0.02	8.3	<0.10	<0.10	8.5	<1.8	-	-	<0.50	
MW-2	11/5/2015	CLS	7.1	920	130	84	4.5	<0.10	<0.02	8.5	<0.10	<0.10	8.6	<1.8	-	-	<0.50	
MW-2	2/4/2016	CLS	7.1	840	140	83	5.4	<0.10	<0.02	9	<0.40	<0.10	9.2	<1.8	-	-	<0.50	
MW-2	6/30/2016	CLS	7	770	130	83	5.1	<0.10	<0.02	9.2	<0.40	<0.10	9.2	<1.8	-	-	0.68	
MW-2	8/25/2016	CLS	7.1	820	150	88	4.8	<0.10	<0.02	9.7	<0.40	0.17	9.7	<1.8	-	-	2.1	
MW-2	11/17/2016	CLS	7.3	820	140	94	4.9	<0.10	<0.02	10	<0.40	0.12	11	<1.8	-	-	<0.50	
MW-2	3/7/2017	CLS	7.2	840	140	120	5.4	<0.10	<0.02	8.8	<0.40	<0.10	9	<1.8	-	-	<0.50	
MW-2	6/27/2017	CLS	6.9	940	160	130	5.5	<0.10	<0.02	16	--	0.12	16	7.8	-	-	<0.50	
MW-2	8/23/2017	CLS	7.1	960	180	130	6.3	<0.10	<0.02	18	<0.40	<0.10	18	17	-	-	<0.50	
MW-2	11/14/2017	CLS	7.1	1000	170	140	6.2	<0.10	<0.02	21	<0.40	0.1	21	4.5	-	-	<0.50	
MW-2	2/21/2018	CLS	7.1	1000	160	130	6.3	<0.10	<0.02	19	<0.40	<0.10	19	7.8	-	-	<0.50	
MW-2	5/24/2018	CLS	7.1	970	150	130	6.1	<0.10	<0.02	18	<0.40	<0.10	18	<1.8	-	-	<0.50	
MW-2	9/27/2018	CLS	7.03	990	170	-	6.0	<0.10	<0.02	16	<0.40	<0.10	16	<1.8	-	-	<0.50	
MW-2	2/28/2019	CLS	7.17	990	160	-	5.7	<0.10	<0.02	14	<0.40	<0.10	14	240	-	-	<0.50	
MW-2	2/28/2019	CLS	7.17	990	160	-	5.7	<0.10	<0.02	14	<0.40	<0.10	14	240	-	-	<0.50	
MW-2	6/26/2019	CLS	7.47	1000	150	110	5.9	<0.10	<.01	13	<.40	<.10	13	<1.8	-	-	9.6	
MW-2	9/4/2019	CLS	7.17	1200	170	140	5.8	<0.10	<0.02	20*	*	<0.10	20	<1.8	-	-	23.6	
MW-2	12/4/2019	CLS	7.25	1000	200	150	5.9	<0.10	<0.02	19	0.72	<0.10	22	<1.8	-	-	5.4	
MW-2	3/6/2020	CLS	7.07	1000	160	60	5.7	<0.10	<0.02	8.7	<0.40	<0.10	9.1	<1.8	-	-	<0.50	
MW-2	4/10/2020	CLS	7.06	970	140	120	5.8	<0.10	<0.02	16	<0.40	<0.10	16	<1.8	-	-	1.4	
MW-2	9/17/2020	CLS	7.18	1100	100	100	5.4	<0.10	<0.02	8.9	<0.40	<0.10	8.9	<1.8	-	-	3.6	
MW-2	12/9/2020	CLS	7.19	1100	110	130	5.2	<0.10	<0.02	20	<0.40	<0.10	20	<1.8	-	-	<0.50	
MW-3	6/15/2004	STL	7.7	435	90.6	34.8	1.7	<0.10	-	1.7	<0.05	<0.10	1.7	23	<1.1	<1.1	<0.5	
MW-3	3/29/2005	BSK	7.8	390	96	38	1.5	<0.05	<0.01	2.9	<0.05	<1	2.9	>23.0	1.1	-	<0.5	
MW-3	6/16/2005	BSK	7.6	380	81	26	1.2	<0.05	<0.01	0.7	<0.10	<1	0.7	5.1	<1.1	-	1.6	3
MW-3	9/29/2005	BSK	7.8	620	120	57	2.0	<0.05	<0.01	1.8	<0.10	<1	1.8	>23.0	12	-	0.79	3
MW-3	12/6/2005	BSK	8.1	610	140	62	2.1	<0.05	<0.01	1.6	<0.10	<1	1.6	>23.0	3.6	3.6	5.4	3
MW-3	2/16/2006	BSK	7.9	380	74	31	1.1	0.1	<0.01	1.4	<0.05	<1	1.4	16.1	1.1	-	<0.5	
MW-3	5/16/2006	BSK	8.0	420	72	32	1.1	<0.05	<0.01	1.6	<0.05	<1	1.6	>23.0	5.1	-	2.6	3
MW-3	8/21/2006	BSK	8.0	480	110	49	1.7	0.15	<0.01	0.9	<0.05	<0.10	-	<1.1	<1.1	-	<0.5	
MW-3	11/20/2006	BSK	-	-	-	-	-	-	-	-	-	-	-	>23.0	<1.1	-	-	
MW-3	2/16/2007								No sample retrieved									
MW-3	5/7/2007	BSK	7.9	550	160	65	2.0	<0.05	<0.01	0.54	<0.05	<1.0		2.2	<1.1	-	<0.5	
MW-3	8/29/2007	BSK	7.9	690	160	92	2.4	<0.05	<0.01	1.4	*	<1.0	1.4	>23.0	<1.1	-	<0.5	
MW-3	11/28/2007	BSK	7.8	770	170	94	2.4	0.27	0.45	2.3	*	<1.0	5.3	23	2.2	-	<0.5	
MW-3	2/21/2008	BSK	-	-	-	-	-	-	-	-	-	-	-	12	<1.1	-	-	
MW-3	5/28/2008	CLS	7.0	530	120	56	1.7	7.1	0.17	2.1	<0.10	<0.10	9.4	280	-	-	<0.5	
MW-3	8/27/2008	CLS	7.0	640	160	69	2.0	<0.10	<0.02	2.0	<0.10	0.12	2.7	540	-	-	<0.5	
MW-3	11/25/2008	CLS	7.1	680	170	67	2.1	0.34	0.19	0.58	<0.10	0.17	1.6	240	-	-	<0.5	
MW-3	2/19/2009	CLS	-	580(5)	130	75	1.8	0.69	0.14	1.3	<0.10	0.14	2.6	>1600	-	-	<0.5	
MW-3	5/21/2009	CLS	7.1	500	130	53	1.6	20	0.68	<0.5	<0.10	<0.10	1.2	79	-	-	<0.5	
MW-3	8/5/2009	CLS	7.0	690	130	73	1.8	0.31	0.04	0.55	<0.10	0.14	1.8	430	-	-	<0.5	
MW-3	11/5/2009	CLS	-	600(5)	160	77	2.1	0.33	0.25	1.0	<0.10	0.64	2.8	>1600	-	-	<0.5	
MW-3	2/8/2010	CLS	7.0	530	130	52	1.7	0.55	0.04	0.69	<0.10	0.15	1.5	1600	-	-	<0.5	
MW-3	5/7/2010	CLS	6.9	580	140	78	1.6	<0.10	0.06	1.1	<0.10	0.26	2.6	23	-	-	<0.5	
MW-3	8/18/2010	CLS	7.1	670	200	87	2.4	2.7	0.50	1.2	<0.10	0.93	3.4	350	-	-	5.2	
MW-3	11/2/2010	CLS	7.0	870	200	120	2.8	0.28	0.46	5.3	<0.10	0.36	7.2	280	-	-	1.5	
MW-3	2/24/2011	CLS	6.7	590	140	73	1.8	<0.10	<0.02	1.6	<0.10	0.17	2.5	1600	-	-	<0.5	
MW-3	5/5/2011	CLS	6.9	650	130	95	1.9	0.11	0.03	4.0	<0.10	0.3	4.6	33	-	-	<0.5	
MW-3	8/16/2011	CLS	7.4	910	170	120	3.2	<0.10	<0.02	5.0	<0.10	<0.10	5.4	94	-	-	<0.5	
MW-3	11/8/2011	CLS	7.0	920	180	130	2.7	2.0	0.35	3.7	<0.10	0.56	4.9	63	-	-	<0.5	
MW-3	2/27/2012	CLS	6.9	740	180	110	2.4	5.5	0.33	2	<0.10	0.43	3.2	49	-	-	<0.5	
MW-3	5/21/2012	CLS	7.0	760	160	98	2.3	<0.10	0.03	2.1	<0.10	0.13	3	13	-	-	<0.5	
MW-3	8/9/2012	CLS	7.3	850	180	110	2.3	0.22	0.03	2.9	<0.10	0.37	3.5	<1.8	-	-	1.7	
MW-3	11/19/2012	CLS	7.0	900	180	120	2.3	0.59	0.18	4.1	<0.10	0.31	5.4	130	-	-	<0.5	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total) (MPN/100 mL)	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
Interim Limitation [2]	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-3	2/21/2013	CLS	6.9	670	170	110	2.0	0.18	0.04	2.4	<0.10	0.35	3.2	4	-	-	<0.5	
MW-3	5/15/2013	CLS	7.0	710	160	110	2.1	<0.10	0.07	1.8	<0.10	<0.10	2.1	<1.8	-	-	0.93	
MW-3	8/16/2013	CLS	7.4	630(5)	140	82	1.8	9.10	0.15	1.6	<0.10	0.16	3.7	<1.8	-	-	0.63	
MW-3	11/7/2013	CLS	6.9	620	150	81	1.4	<0.10	0.07	1.8	<0.10	0.12	2.5	<1.8	-	-	<0.5	
MW-3	2/25/2014	CLS	7.2	760	180	170	2.3	3.10	0.13	2.7	<0.10	0.32	3.3	>1600	-	-	<0.5	
MW-3	5/22/2014	CLS	7.0	860	170	170	2.3	0.96	0.03	1.9	<0.10	<0.10	2.3	<1.8	-	-	<0.5	
MW-3	8/27/2014	CLS	7.1	900	150	170	1.9	0.55	0.13	1.8	<0.10	0.2	2.4	<1.8	-	-	0.62	
MW-3	11/12/2014	CLS	No sample retrieved															
MW-3	2/25/2015	CLS	7.0	650	130	110	1.9	<0.10	<0.02	1.1	<0.10	<0.10	1.7	920	-	-	<0.5	
MW-3	5/13/2015	CLS	7.0	700	140	150	1.7	0.26	<0.02	2.4	<0.10	<0.10	2.6	<1.8	-	-	<0.5	
MW-3	8/4/2015	CLS	7.0	700	150	120	1.9	16.00	0.32	2.1	<0.10	0.3	2.7	<1.8	-	-	<0.5	
MW-3	11/5/2015	CLS	No sample retrieved															
MW-3	2/4/2016	CLS	7.1	980	210	230	2.1	<0.10	<0.02	1.7	<0.4	0.25	2.4	220	-	-	<0.5	
MW-3	6/30/2016	CLS	7.0	740	150	150	2.1	11.00	0.18	2.2	<0.4	0.16	3.1	9	-	-	3.1	
MW-3	8/25/2016	CLS	No sample retrieved															
MW-3	11/17/2016	CLS	No sample retrieved															
MW-3	3/7/2017	CLS	7.2	420	84	52	0.94	1.10	0.10	<0.4	<0.4	0.17	0.95	23	-	-	<0.5	
MW-3	6/27/2017	CLS	6.9	510	120	66	1.3	<0.10	<0.10	0.9	<0.4	0.44	4.6	540	-	-	<0.5	
MW-3	8/23/2017	CLS	7.3	610	170	55	2.1	0.12	<0.02	0.48	<0.4	0.33	1.7	>1600	-	-	<0.5	
MW-3	11/14/2017	CLS	7.1	580	130	78	1.7	<0.10	0.039	1.6	<0.4	0.13	4.2	13	-	-	<0.5	
MW-3	2/21/2018	CLS	7.1	690	180	110	2.3	<0.10	0.30	0.94	<0.4	0.26	2.2	220	-	-	<0.5	
MW-3	5/24/2018	CLS	7.3	620	140	81	2	<0.10	<0.20	1.7	<0.4	<0.1	2.0	13	-	-	<0.5	
MW-3	9/27/2018		No sample retrieved															
MW-3	12/28/2018	CLS	6.91	690	220	170	2.2	<0.10	<0.20	2.6	<0.4	<0.1	3.1	<1.8	-	-	33	
MW-3	2/28/2019	CLS	6.96	440	79	-	0.91	<0.10	<0.20	<0.4	<0.4	<0.1	0.53	>1600	-	-	<0.5	
MW-3	6/26/2019	CLS	7.28	630	120	85	1.9	0.97	0.15	1.7	<.40	<0.1	2.10	33	-	-	9.1	
MW-3	9/4/2019	CLS	7.15	1200	200	180	2.6	<0.10	<0.02	1.4*	*	<0.10	1.90	9.3	-	-	100	
MW-3	12/4/2019	CLS	7.02	570	170	110	1.8	<0.10	<0.02	2.5	0.49	<0.10	3.20	<1.8	-	-	17	
MW-3	3/6/2020	CLS	7.06	900	210	190	2.4	<0.10	<0.02	0.64	<.40	0.11	2.00	<1.8	-	-	6.4	
MW-3	4/23/2020	CLS	7.26	900	140	140	2.1	<0.10	<0.02	0.49	<.40	0.34	2.90	<1.8	-	-	21	
MW-3	9/22/2020		No sample retrieved															
MW-3	12/9/2020		No sample retrieved															
MW-4	6/15/2004	STL	8	647	53.3	138	1	0.87	--	8.4	<0.05	<0.10	8.4	9.2	<1.1	<1.0	<0.5	
MW-4	3/29/2005	BSK	8.1	570	69	170	1.2	<0.05	<0.01	9.7	<0.10	<1	9.7	23	<1.1	-	<0.5	
MW-4	6/16/2005	BSK	8	600	59	170	1	<0.05	<0.01	9.7	<0.10	<1	9.7	<1.1	<1.1	-	0.81	3
MW-4	9/29/2005	BSK	No sample retrieved															
MW-4	12/6/2005	BSK	8.2	570	55	180	1.1	<0.05	<0.01	9.9	<0.10	<1	9.9	<1.1	<1.1	<1.1	1.4	3
MW-4	2/16/2006	BSK	8.1	590	49	180	0.96	<0.05	<0.01	9.7	<0.10	<1	9.7	<1.1	<1.1	-	1.8	3
MW-4	5/16/2006	BSK	8.2	650	56	180	1.1	<0.05	<0.01	9.9	<0.10	<1	9.9	<1.1	<1.1	-	0.99	3
MW-4	8/21/2006	BSK	8.2	590	49	170	1	<0.05	<0.01	9.7	<0.05	<0.10	-	>23.0	9.2	-	<0.5	
MW-4	11/20/2006	BSK	-	-	-	-	-	-	-	-	-	-	-	<1.1	<1.1	-	-	
MW-4	2/16/2007		No sample retrieved															
MW-4	5/7/2007	BSK	8.2	560	54	170	1.1	<0.05	<0.01	44 (4)	<0.05	<1.0	44 (4)	<1.1	<1.1	-	<0.5	
MW-4	8/29/2007	BSK	8.2	570	47	180	1.1	<0.05	<0.01	9.5	*	<1.0	9.5	6.9	<1.1	-	<0.5	
MW-4	11/28/2007	BSK	8.1	570	52	190	1	<0.05	<0.01	11	*	<1.0	11	<1.1	<1.1	-	<0.5	
MW-4	2/21/2008	BSK	-	-	-	-	-	-	- - -	-	-	-	-	<1.1	<1.1	-	-	
MW-4	5/27/2008	CLS	7.7	550	51	180	1	<0.10	<0.02	9.4	<0.10	<0.10	9.5	<1.8	-	-	<0.50	
MW-4	8/28/2008	CLS	7.5	560	52	170	0.94	<0.10	<0.02	9.5	<0.10	<0.10	9.7	<1.8	-	-	<0.50	
MW-4	11/25/2008	CLS	7.8	620	51	190	0.98	<0.10	<0.02	10	<0.10	<0.10	10	<1.8	-	-	<0.50	
MW-4	2/19/2009	CLS	-	650(5)	53	190	1.2	<0.10	<0.02	10	<0.10	<0.10	10	<1.8	-	-	<0.50	
MW-4	5/21/2009	CLS	7.9	620	50	170	0.98	<0.10	<0.02	9.3	<0.10	<0.10	9.3	<1.8	-	-	<0.50	
MW-4	8/5/2009	CLS	7.6	600	41	190	0.88	<0.10	<0.02	10	<0.10	<0.10	10	<1.8	-	-	<0.50	
MW-4	11/5/2009	CLS	7.8 (6)	710(5)	53	190	1	<0.10	<0.02	10	<0.10	<0.10	10	<1.8	-	-	<0.50	
MW-4	2/8/2010	CLS	7.8	630	59	210	1.2	0.15	<0.02	11	<0.10	<0.10	11	<1.8	-	-	<0.50	
MW-4	5/7/2010	CLS	7.6	710	54	220	0.96	0.12	<0.02	12	<0.10	<0.10	12	<1.8	-	-	<0.50	
MW-4	8/18/2010	CLS	7.6	560	59	200	1.1	<0.10	<0.02	11	<0.10	<0.10	11	<1.8	-	-	<0.50	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total) (MPN/100 mL)	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended Interim Limitation [2]	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-4	11/2/2010	CLS	7.8	650	66	210	1.2	<0.10	<0.02	11	<0.10	<0.10	11	<1.8	-	-	<0.50	
MW-4	2/23/2011	CLS	7.7	680	57	220	1.1	<0.10	<0.02	12	<0.10	<0.10	12	<1.8	-	-	<0.50	
MW-4	5/5/2011	CLS	7.8	810	53	230	0.98	<0.10	<0.02	12	<0.10	<0.10	12	<1.8	-	-	<0.50	
MW-4	8/16/2011	CLS	8	690	58	210	1.1	<0.10	<0.02	12	<0.10	<0.10	12	<1.8	-	-	<0.50	
MW-4	11/8/2011	CLS	7.7	630	57	210	1	<0.10	<0.02	11	<0.10	<0.10	11	<1.8	-	-	<0.50	
MW-4	2/27/2012	CLS	7.7	610	62	210	1.2	<0.10	<0.02	11	<0.10	<0.10	11	<1.8	-	-	<0.50	
MW-4	5/21/2012	CLS	7.7	650	58	210	1.2	<0.10	<0.02	12	<0.10	0.26	12	<1.8	-	-	<0.50	
MW-4	8/9/2012	CLS	8	600	63	220	1.1	<0.10	<0.02	12	<0.10	0.19	12	<1.8	-	-	<0.50	
MW-4	11/19/2012	CLS	7.6	610	55	210	1	<0.10	<0.02	12	<0.10	<0.10	12	<1.8	-	-	<0.50	
MW-4	2/21/2013	CLS	7.6	670	66	230	1.1	<0.10	<0.02	15	<0.10	<0.10	15	<1.8	-	-	<0.50	
MW-4	5/15/2013	CLS	7.6	680	57	240	1.1	0.21	<0.02	15	<0.10	<0.10	15	<1.8	-	-	<0.50	
MW-4	8/16/2013	CLS	7.7	870(5)	58	250	1.1	<0.10	<0.02	14	<0.10	0.14	14	<1.8	-	-	<0.50	
MW-4	11/7/2013	CLS	7.6	670	56	250	1	<0.10	<0.02	14	<0.10	0.14	14	<1.8	-	-	<0.50	
MW-4	2/25/2014	CLS	7.7	830	70	250	1	<0.10	<0.02	14	<0.10	<0.10	14	<1.8	-	-	<0.50	
MW-4	5/22/2014	CLS	7.8	700	57	230	1.1	<0.10	<0.02	13	<0.10	<0.10	13	<1.8	-	-	<0.50	
MW-4	8/27/2014	CLS	7.8	840	58	250	1	<0.10	<0.02	14	<0.10	<0.10	14	<1.8	-	-	<0.50	
MW-4	11/12/2014	CLS	7.7 (6)	749(7)	54	260	1	<0.10	<0.02	15	<0.10	<0.10	15	<1	-	-	<0.50	
MW-4	2/26/2015	CLS	7.7	720	52	260	1	<0.10	<0.02	16	<0.10	<0.10	16	<1.8	-	-	<0.50	
MW-4	5/13/2015	CLS	7.8	770	53	250	1	<0.10	<0.02	15	<0.10	<0.10	15	<1.8	-	-	<0.50	
MW-4	8/4/2015	CLS	7.8	750	56	240	1	<0.10	<0.02	16	<0.10	<0.10	16	<1.8	-	-	<0.50	
MW-4	11/5/2015	CLS	7.8	970	60	240	1.1	<0.10	<0.02	17	<0.10	<0.10	17	<1.8	-	-	<0.50	
MW-4	2/4/2016	CLS	7.8	760	49	240	0.82	<0.10	<0.02	17		0.17	17	<1.8	-	-	<0.50	
MW-4	6/30/2016	CLS	7.6	690	50	240	0.95	<0.10	<0.02	16	<0.40	<0.10	16	<1.8	-	-	<0.50	
MW-4	8/25/2016	CLS	7.7	560	56	220	0.88	<0.10	<0.02	16	<0.40	0.14	16	<1.8	-	-	12	
MW-4	11/17/2016	CLS	7.7	660	50	220	0.85	<0.10	<0.02	17	<0.40	<0.10	17	<1.8	-	-	<0.50	
MW-4	3/7/2017	CLS	7.7	670	49	250	0.95	<0.10	<0.02	14	<0.40	<0.10	14	<1.8	-	-	<0.50	
MW-4	6/27/2017	CLS	7.5	680	55	230	0.87	<0.10	<0.02	15	<0.40	<0.10	15	<1.8	-	-	<0.50	
MW-4	8/23/2017	CLS	7.5	630	57	220	1	<0.10	<0.02	14	<0.40	<0.10	14	79	-	-	<0.50	
MW-4	11/14/2017	CLS	7.5	660	58	240	0.97	<0.10	<0.02	15	<0.40	0.13	15	540	-	-	<0.50	
MW-4	2/21/2018	CLS	7.8	610	53	220	0.96	<0.10	<0.02	14	<0.40	<0.10	15	49	-	-	<0.50	
MW-4	5/24/2018	CLS	7.7	620	47	210	0.93	<0.10	<0.02	14	<0.40	<0.10	14	2	-	-	<0.50	
MW-4	9/27/2018	CLS	7.76	610	54	-	0.97	<0.10	<0.02	15	<0.40	<0.10	3	<1.8	-	-	<0.50	
MW-4	12/28/2018	CLS	7.8	530	52	220	0.88	<0.10	<0.02	15	<0.40	<0.10	15	<1.8	-	-	2	
MW-4	2/28/2019	CLS	7.77	780	51	-	0.88	<0.10	<0.02	12	<0.40	<0.10	15	4.5	-	-	<0.50	
MW-4	6/26/2019	CLS	7.88	760	50	230	0.88	<0.10	<0.01	14	<0.40	<0.10	14	<1.8	-	-	4.1	
MW-4	9/18/2019	CLS	7.91	720	54	240	0.97	<0.10	<0.02	15	<0.40	<0.10	15	<1.8	-	-	54	
MW-4	12/4/2019	CLS	8.09	810	100	390	0.97	<0.10	<0.02	19	0.72	<0.10	24	<1.8	-	-	7.8	
MW-4	2/14/2020	CLS	7.74	700	58	230	0.95	<0.10	<0.02	14	<0.40	<0.10	14	<1.8	-	-	4.4	
MW-4	4/10/2020	CLS	7.68	640	65	230	0.92	<0.10	<0.02	14	<0.40	<0.10	14	<1.8	-	-	19	
MW-4	9/23/2020	CLS	7.67	650	54	230	0.9	<0.10	<0.02	14	<0.40	<0.10	14	<1.8	-	-	0.61	
MW-4	12/9/2020	CLS	7.79	750	44	120	0.88	<0.10	<0.02	16	<0.40	<0.10	16	<1.8	-	-	<0.50	
MW-5R	6/15/2004	STL	8.1	461	91.7	42.3	2.1	<0.10	-	1.6	<0.05	<0.10	1.6	>23.0	<1.1	<1.1	<0.5	
MW-5R	3/29/2005	BSK	8.2	490	120	48	2.6	<0.05	<0.01	2	<0.10	<1	2	5.1	<1.1	-	<0.5	
MW-5R	6/16/2005	BSK	8.2	450	95	49	2	<0.05	<0.01	1.4	<0.10	<1	1.4	1.1	<1.1	-	4	3
MW-5R	9/29/2005	BSK	8.2	430	92	48	2	<0.05	<0.01	1.1	<0.10	<1	1.1	1.1	<1.1	-	<0.5	
MW-5R	6/12/2005	BSK	8.4	430	92	51	2.1	<0.05	<0.01	1.6	<0.10	<1	1.6	<1.1	<1.1	<1.1	1.8	3
MW-5R	2/16/2006	BSK	8.3	450	91	48	2	<0.05	<0.01	1.7	<0.10	<1	1.7	<1.1	<1.1	-	1.6	3
MW-5R	5/16/2006	BSK	8.3	360	92	47	2.1	<0.05	<0.01	1.1	<0.10	<1	1.1	<1.1	<1.1	-	1.6	3
MW-5R	8/21/2006	BSK	8.3	420	78	47	1.8	<0.05	<0.01	1.1	<0.05	<0.10	-	<1.1	<1.1	-	<0.5	
MW-5R	11/20/2006	BSK	-	-	-	-	-	-	-	-	-	-	-	23	<1.1	-	-	
MW-5R	2/16/2007								No sample retrieved									
MW-5R	7/5/2007	BSK	8.3	420	89	49	2	<0.05	<0.01	1.1	<0.05	<1.0	1.1	<1.1	<1.1	-	<0.5	
MW-5R	8/29/2007	BSK	8.3	470	91	44	1.9	<0.05	<0.01	2	*	<1.0	2	<1.1	<1.1	-	1.14	
MW-5R	11/28/2007	BSK	8.2	460	95	45	2.1	<0.05	<0.01	2.1	*	<1.0	2.1	1.1	<1.1	-	<0.5	
MW-5R	2/21/2008	BSK	-	-	-	-	-	-	-	-	-	-	-	<1.1	<1.1	-	-	
MW-5R	5/28/2008	CLS	7.7	450	97	44	2.1	<0.05	<0.01	1.4	<0.10	<0.10	1.5	<1.8	-	-	<0.50	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen (total) mg/L	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
Interim Limitation [2]	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-5R	8/27/2008	CLS	7.9	450	91	44	2	<0.10	<0.02	1.5	<0.10	<0.10	1.7	<1.8	-	-	<0.50	
MW-5R	11/24/2008	CLS	7.9	470	93	46	2	<0.10	<0.02	1.8	<0.10	<0.10	1.9	<1.8	-	-	<0.50	
MW-5R	2/18/2009	CLS	-	470(5)	92	48	2.1	<0.10	<0.02	1.8	<0.10	<0.10	2	<1.8	-	-	<0.50	
MW-5R	5/21/2009	CLS	7.9	470	86	44	1.9	<0.10	<0.02	1.6	<0.10	<0.10	1.6	<1.8	-	-	<0.50	
MW-5R	4/8/2009	CLS	7.9	480	78	44	1.9	<0.10	<0.02	1.7	<0.10	<0.10	1.7	<1.8	-	-	<0.50	
MW-5R	5/11/2009	CLS	7.7(6)	450(5)	98	44	2.1	<0.10	<0.02	1.7	<0.10	<0.10	1.8	<1.8	-	-	<0.50	
MW-5R	8/2/2010	CLS	7.9	490	110	45	2.4	0.12	<0.02	2	<0.10	<0.10	2	<1.8	-	-	<0.50	
MW-5R	7/5/2010	CLS	7.9	490	100	43	2.1	<0.10	<0.02	2.2	<0.10	<0.10	2.2	<1.8	-	-	<0.50	
MW-5R	8/18/2010	CLS	7.8	520	120	43	2.2	<0.10	<0.02	2.6	<0.10	<0.10	2.9	110	-	-	<0.50	
MW-5R	2/11/2010	CLS	8	560	120	42	2.2	<0.10	<0.02	2.8	<0.10	<0.10	2.8	<1.8	-	-	<0.50	
MW-5R	2/23/2011	CLS	7.9	520	100	42	2.2	<0.10	<0.02	3	<0.10	<0.10	3.4	<1.8	-	-	<0.50	
MW-5R	5/5/2011	CLS	7.9	380	92	45	1.9	<0.10	<0.02	2.9	<0.10	<0.10	2.9	2	-	-	<0.50	
MW-5R	8/16/2011	CLS	7.9	470	100	50	2.2	<0.10	<0.02	1.8	<0.10	<0.10	1.8	<1.8	-	-	<0.50	
MW-5R	8/11/2011	CLS	7.9	460	97	46	2.1	<0.10	<0.02	2.1	<0.10	<0.10	2.1	<1.8	-	-	<0.50	
MW-5R	2/27/2012	CLS	7.9	460	110	45	2.3	<0.10	<0.02	2.3	<0.10	<0.10	2.3	<1.8	-	-	<0.50	
MW-5R	5/21/2012	CLS	8	440	100	44	2.3	<0.10	<0.02	2.4	<0.10	<0.10	2.6	<1.8	-	-	<0.50	
MW-5R	9/8/2012	CLS	8.1	510	120	42	2.5	<0.10	<0.02	2.5	<0.10	<0.10	2.7	<1.8	-	-	<0.50	
MW-5R	11/19/2012	CLS	7.9	480	100	39	2.1	<0.10	<0.02	2.5	<0.10	<0.10	2.6	<1.8	-	-	<0.50	
MW-5R	2/21/2013	CLS	7.8	490	100	39	2.1	<0.10	<0.02	2.2	<0.10	<0.10	2.2	4.5	-	-	<0.50	
MW-5R	5/15/2013	CLS	7.7	460	100	48	2.2	<0.10	<0.02	2.5	<0.10	<0.10	2.6	<1.8	-	-	<0.50	
MW-5R	8/15/2013	CLS	7.9	480	110	45	2	<0.10	<0.02	2.7	<0.10	<0.10	3.1	<1.8	-	-	<0.50	
MW-5R	7/11/2013	CLS	7.8	480	110	45	2.1	<0.10	<0.02	2.7	<0.10	<0.10	3	<1.8	-	-	<0.50	
MW-5R	2/25/2014	CLS	8	520	110	41	2.3	<0.10	<0.02	2.7	<0.10	<0.10	2.8	<1.8	-	-	<0.50	
MW-5R	5/22/2014	CLS	8	490	96	38	2	<0.10	<0.02	2.5	<0.10	<0.10	2.5	<1.8	-	-	<0.50	
MW-5R	8/27/2014	CLS	8	530	98	40	2	<0.10	<0.02	2.7	<0.10	<0.10	2.7	<1.8	-	-	<0.50	
MW-5R	11/12/2014	CLS	7 (6)	534 (7)	99	35	2.1	<0.10	<0.02	3.2	<0.10	<0.10	3.2	<1	-	-	<0.50	
MW-5R	2/26/2015	CLS	7.9	520	100	39	2.2	<0.10	<0.02	3.4	<0.10	<0.10	3.5	<1.8	-	-	<0.50	
MW-5R	5/13/2015	CLS	8	520	98	43	2.1	<0.10	<0.02	3.3	<0.10	<0.10	3.3	<1.8	-	-	<0.50	
MW-5R	8/4/2015	CLS	7.9	530	110	40	2.1	<0.10	<0.02	3.3	<0.10	<0.10	3.6	<1.8	-	-	<0.50	
MW-5R	11/5/2015	CLS	7.9	560	95	38	1.9	<0.10	<0.02	3.1	<0.10	<0.10	3.2	<1.8	-	-	<0.50	
MW-5R	2/4/2016	CLS	8	550	99	38	2.1	0.18	<0.02	3.1	<0.40	<0.10	3.2	<1.8	-	-	<0.50	
MW-5R	6/30/2016	CLS	7.8	500	96	38	2.1	<0.10	<0.02	2.9	<0.40	<0.10	3.2	<1.8	-	-	0.68	
MW-5R	8/25/2016	CLS	7.9	490	110	40	2	<0.10	<0.02	2.9	<0.40	<0.10	2.9	<1.8	-	-	2.1	
MW-5R	11/17/2016	CLS	8	500	100	39	2	<0.10	<0.02	3	<0.40	<0.10	3.2	<1.8	-	-	<0.50	
MW-5R	3/7/2017	CLS	7.7	470	77	34	1.7	<0.10	0.058	2	<0.40	0.24	2.4	920	-	-	<0.50	
MW-5R	6/27/2017	CLS	7.1	290	21	4	0.3	<0.10	<0.02	<0.40	<0.40	0.12	0.81	170	<0.50			
MW-5R	8/23/2017	CLS	7.7	400	64	41	1.5	<0.10	<0.02	1.5	<0.40	0.31	1.9	33	-	-	<0.50	
MW-5R	11/14/2017	CLS	7.7	410	77	51	1.8	<0.10	<0.02	<0.40	<0.40	<0.10	<0.20	<1.8	-	-	<0.50	
MW-5R	2/21/2018	CLS	7.8	400	83	48	1.9	<0.10	<0.02	2.3	<0.40	<0.10	2.6	4.5	-	-	0.61	
MW-5R	5/24/2018	CLS	7.8	470	81	44	2.0	<0.10	<0.02	2.2	<0.40	<0.10	2.5	<1.8	-	-	0.68	
MW-5R	9/27/2018	CLS	7.94	460	100	-	2.1	<0.10	<0.02	2.9	<0.40	<0.10	3	<1.8	-	-	<0.50	
MW-5R	12/28/2018	CLS	7.97	400	92	44	2	<0.10	<0.02	2.6	<0.40	<0.10	2.7	<1.8	-	-	<0.50	
MW-5R	2/28/2019	CLS	7.93	440	63	-	1.5	<0.10	<0.02	1.7	<0.40	<0.10	1.7	63	-	-	<0.50	
MW-5R	6/26/2019	CLS	7.66	390	59	52	0.31	0.43	<0.10	0.56	<0.40	<0.10	1.6	<1.8	-	-	280	
MW-5R	9/4/2019	CLS	7.49	460	91	47	2	<0.10	<0.02	2.9*	*	<0.10	3.2	2	-	-	1.6	
MW-5R	12/4/2019	CLS	8.05	460	110	70	2	<0.10	<0.02	2.5	0.49	<0.10	3.2	<1.8	-	-	43	
MW-5R	3/6/2020	CLS	7.91	480	93	52	2	<0.10	<0.02	3.0	<0.40	<0.10	3.3	<1.8	-	-	130	
MW-5R	4/10/2020	CLS	7.84	450	97	57	2.1	<0.10	<0.02	2.3	<0.40	<0.10	2.4	<1.8	-	-	19	
MW-5R	9/17/2020	CLS	7.84	440	76	53	2	<0.10	<0.02	2.5	<0.40	<0.10	2.5	<1.8	-	-	12	
MW-5R	12/9/2020	CLS	7.95	550	82	92	2	<0.10	<0.02	2.8	<0.40	<0.10	3	<1.8	-	-	25	
MW-6	6/15/2004	STL	7.6	865	143	87.7	5.6	<0.10	-	12.2	<0.05	<0.10	12.2	16.1	<1.1	<1.1	<0.5	
MW-6	3/29/2005	BSK	7.8	870	180	110	6.6	<0.05	<0.01	11	<0.15	<1	11	5.1	<1.1	-	<0.5	
MW-6	6/16/2005	BSK	7.7	910	150	130	5.4	<0.05	<0.01	12	<0.15	<1	12	<1.1	<1.1	-	<0.5	
MW-6	9/29/2005	BSK	7.8	870	150	100	5.2	<0.05	<0.01	11	<0.15	<1	11	<1.1	<1.1	-	<0.5	
MW-6	12/6/2005	BSK	8.1	900	160	110	5.6	<0.05	<0.01	12	<0.05	<1	12	<1.1	<1.1	<1.1	<0.5	
MW-6	2/16/2006	BSK	7.9	900	140	130	4.9	<0.05	<0.01	12	<0.10	<1	12	<1.1	<1.1	-	<0.5	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total) (MPN/100 mL)	*(fecal)* (MPN/100 mL)	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
Interim Limitation [2]	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-6	5/16/2006	BSK	8.0	1.000	160	150	5.5	<0.05	<0.01	13	<0.10	<1	13	<1.1	<1.1	-	<0.5	
MW-6	8/21/2006	BSK	7.9	860	140	160	4.7	<0.05	<0.01	13	<0.05	<0.10	-	<1.1	<1.1	-	<0.5	
MW-6	11/20/2006	BSK	-	-	-	-	-	-	-	-	-	-	-	>23.0	<1.1	-	-	
MW-6	2/16/2007								No sample retrieved									
MW-6	5/7/2007	BSK	7.9	900	160	120	5.5	<0.05	<0.01	11	<0.05	<1.0	11	16.1	<1.1	-	<0.5	
MW-6	8/29/2007	BSK	7.8	880	130	100	4.5	<0.05	<0.01	9.7	*	<1.0	9.7	<1.1	<1.1	-	<0.5	
MW-6	11/28/2007	BSK	7.8	850	150	96	5.1	<0.05	<0.01	8.7	*	<1.0	8.7	<1.1	<1.1	-	<0.5	
MW-6	2/21/2008	BSK	-	-	-	-	-	-	-	-	-	-	-	<1.1	<1.1	-	-	
MW-6	5/27/2008	CLS	7.1	900	150	130	4.8	<0.10	<0.02	9	<0.10	<0.10	9.1	<1.8	-	-	<0.50	
MW-6	8/27/2008	CLS	7.2	820	150	97	4.6	<0.10	<0.02	8.5	<0.10	0.12	8.6	<1.8	-	-	<0.50	
MW-6	11/24/2008	CLS	7.2	810	140	92	4.3	<0.10	<0.02	8	<0.10	<0.10	8.1	<1.8	-	-	<0.50	
MW-6	2/18/2009	CLS	-	820(5)	140	100	4.3	<0.10	<0.02	7.7	<0.10	<0.10	8.0	<1.8	-	-	<0.50	
MW-6	5/21/2009	CLS	7.2	880	140	97	4.3	<0.10	<0.02	7.9	<0.10	<0.10	7.9	<1.8	-	-	<0.50	
MW-6	8/4/2009	CLS	7.1	860	120	95	3.9	<0.10	<0.02	7.8	<0.10	<0.10	7.8	<1.8	-	-	<0.50	
MW-6	11/5/2009	CLS	-	750(5)	150	89	4.4	<0.10	<0.02	7	<0.10	<0.10	7.2	4.5	-	-	<0.50	
MW-6	2/8/2010	CLS	7.2	850	170	96	5.0	<0.10	<0.02	7.1	<0.10	<0.10	7.4	<1.8	-	-	<0.50	
MW-6	5/7/2010	CLS	7.1	910	160	120	4.6	<0.10	<0.02	7.5	<0.10	<0.10	7.7	<1.8	-	-	<0.50	
MW-6	8/18/2010	CLS	7.0	930	180	120	4.9	<0.10	<0.02	8	<0.10	<0.10	8.3	<1.8	-	-	<0.50	
MW-6	11/2/2010	CLS	7.2	930	180	110	4.8	<0.10	<0.02	7.7	<0.10	<0.10	7.9	1.8	-	-	<0.50	
MW-6	2/23/2011	CLS	7.2	920	160	120	4.8	<0.10	<0.02	7.5	<0.10	<0.10	8.0	2.0	-	-	<0.50	
MW-6	5/5/2011	CLS	7.1	990	150	200	4.1	<0.10	<0.02	4.3	<0.10	<0.10	4.5	<1.8	-	-	<0.50	
MW-6	8/16/2011	CLS	7.2	1100	160	200	4.5	<0.10	<0.02	9.9	<0.10	<0.10	9.9	<1.8	-	-	<0.50	
MW-6	11/8/2011	CLS	7.0	990	160	140	4.6	<0.10	<0.02	8	<0.10	<0.10	8.2	<1.8	-	-	<0.50	
MW-6	2/27/2012	CLS	7.1	880	180	120	5.4	<0.10	<0.02	8.5	<0.10	0.13	8.5	<1.8	-	-	<0.50	
MW-6	5/21/2012	CLS	7.2	870	160	120	5.8	0.11	<0.02	8.6	<0.10	0.18	8.8	<1.8	-	-	<0.50	
MW-6	8/9/2012	CLS	7.5	970	130	110	3.9	<0.10	<0.02	8.5	<0.10	0.11	8.8	<1.8	-	-	<0.50	
MW-6	11/19/2012	CLS	7.1	950	170	100	5.1	<0.10	<0.02	8.1	<0.10	<0.10	8.3	<1.8	-	-	<0.50	
MW-6	2/21/2013	CLS	6.9	900	160	110	5.3	<0.10	<0.02	7.9	<0.10	0.11	7.9	<1.8	-	-	<0.50	
MW-6	5/15/2013	CLS	7.0	890	160	120	5.1	<0.10	<0.02	8.9	<0.10	0.18	9.0	<1.8	-	-	<0.50	
MW-6	8/15/2013	CLS	7.1	890	150	110	5.0	<0.10	<0.02	8.9	<0.10	<0.10	9.3	<1.8	-	-	<0.50	
MW-6	11/7/2013	CLS	7.0	850	180	110	3.6	<0.10	<0.02	8.8	<0.10	0.18	9.0	<1.8	-	-	<0.50	
MW-6	2/25/2014	CLS	7.2	910	140	100	5.4	<0.10	<0.02	8.4	<0.10	<0.10	8.6	<1.8	-	-	<0.50	
MW-6	5/22/2014	CLS	7.1	880	150	93	5.3	<0.10	<0.02	8.5	<0.10	<0.10	8.8	<1.8	-	-	<0.50	
MW-6	8/27/2014	CLS							No sample retrieved									
MW-6	11/12/2014	CLS							No sample retrieved									
MW-6	2/26/2015	CLS	7.1	850	140	94	5.2	1.0	0.04	8.3	<0.10	<0.10	8.4	<1.8	-	-	<0.50	
MW-6	5/13/2015	CLS	7.2	860	130	87	4.8	<0.10	<0.02	8.5	<0.10	<0.10	8.6	<1.8	-	-	<0.50	
MW-6	8/4/2015	CLS	7.3	810	140	90	4.6	<0.10	<0.02	7.7	<0.10	<0.10	7.9	<1.8	-	-	<0.50	
MW-6	11/5/2015	CLS	7.2	830	160	81	5.0	<0.10	<0.02	8.5	<0.10	<0.10	8.6	<1.8	-	-	<0.50	
MW-6	2/4/2016	CLS	7.2	810	140	82	4.7	<0.10	<0.02	8.9	<0.40	<0.10	9.0	<1.8	-	-	<0.50	
MW-6	6/30/2016	CLS	7.1	780	120	87	4.3	<0.10	<0.02	8.5	<0.40	<0.10	8.5	<1.8	-	-	0.80	
MW-6	8/25/2016	CLS	7.1	730	150	86	4.3	<0.10	<0.02	8.5	<0.40	<0.10	8.5	<1.8	-	-	3.3	
MW-6	11/17/2016	CLS	7.3	760	140	86	4.2	<0.10	<0.02	9	<0.40	0.11	9.2	<1.8	-	-	<0.50	
MW-6	3/7/2017	CLS	7.1	1000	150	260	3.8	<0.10	<0.02	11	<0.40	0.11	11.0	<1.8	-	-	<0.50	
MW-6	6/27/2017	CLS	6.9	910	150	190	3.8	<0.10	<0.02	9.9	<0.40	0.18	10.0	14	-	-	<0.50	
MW-6	8/23/2017	CLS	7.2	920	150	160	4.2	<0.10	<0.02	11	<0.40	0.16	11.0	<1.8	-	-	<0.50	
MW-6	11/14/2017	CLS	7.0	880	150	130	4.3	<0.10	<0.02	12	<0.40	<0.10	12	<1.8	-	-	<0.50	
MW-6	2/21/2018	CLS	7.1	920	150	120	4.6	<0.10	<0.02	14	<0.40	<0.10	14	4.5	-	-	<0.50	
MW-6	5/24/2018	CLS	7.1	950	140	120	4.8	<0.10	<0.02	14	<0.40	<0.10	14	<1.8	-	-	0.8	
MW-6	9/27/2018	CLS	7.09	930	160	-	5.0	<0.10	<0.02	14	<0.40	<0.10	14	2.0	-	-	1.4	
MW-6	9/27/2018	CLS	7.11	860	150	120	4.7	<0.10	<0.02	12	<0.40	<0.10	12	<1.8	-	-	3	
MW-6	2/28/2019	CLS	7.1	920	150	-	4.8	<0.10	<0.02	12	<0.40	<0.10	12	12	-	-	1.8	
MW-6	6/26/2019	CLS	7.27	1000	130	180	4.4	<0.10	<0.10	10	<0.40	<0.10	10	<1.8	-	-	9.8	
MW-6	9/18/2019	CLS	7.11	960	140	140	4.5	<0.10	<0.02	12	<0.40	<0.10	12	<1.8	-	-	23	
MW-6	12/4/2019	CLS	7.23	1000	190	170	4.7	<0.10	<0.02	13	0.9	<0.10	16	<1.8	-	-	8.7	
MW-6	2/14/2020	CLS	7.00	920	150	110	5.5	<0.10	<0.02	13	<0.40	<0.10	13	<1.8	-	-	37	
MW-6	4/23/2020	CLS	7.20	950	110	120	4.8	<0.10	<0.02	14	<0.40	0.24	14	<1.8	-	-	1.2	
MW-6	9/23/2020	CLS	7.01	1000	140	120	4.9	<0.10	<0.02	15	<0.40	<0.10	15	<1.8	-	-	<0.50	

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total)	*(fecal)*	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
Interim Limitation [2]	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-6	12/9/2020	CLS	7.11	1000	100	130	5.0	<0.10	<0.02	16	<0.40	<0.10	16	<1.8	-	-	1.2	
MW-7	6/15/2004	STL	7.6	615	61.7	113	1.8	0.12	-	11.7	<0.05	<0.10	12.4				<0.5	
MW-7	3/29/2005	BSK	7.9	540	79	88	2.2	<0.05	<0.01	7.2	<0.10	<1	7.2				<0.5	
MW-7	6/16/2005	BSK	8.1	540	69	85	1.8	<0.05	<0.01	7.2	<0.10	<1	7.9				0.74	3
MW-7	9/29/2005								No sample retrieved									
MW-7	12/6/2005								No sample retrieved									
MW-7	2/16/2006	BSK	8.0	590	69	100	1.9	<0.05	<0.01	8.8	0.27	<1	9.1				1.7	3
MW-7	5/16/2006	BSK	8.0	610	74	92	2.0	<0.05	<0.01	8.6	<0.10	<1	8.6				<0.5	
MW-7	8/21/2006	BSK	8.0	530	60	81	1.6	<0.05	<0.01	6.8	<0.05	<0.10					<0.5	
MW-7	11/20/2006								No sample retrieved									
MW-7	2/16/2007								No sample retrieved									
MW-7	5/7/2007								No sample retrieved									
MW-7	8/29/2007								No sample retrieved									
MW-7	11/28/2007								No sample retrieved									
MW-7	2/21/2008		-	-	-	-	-	-	-	-	-	-	-				-	
MW-7	5/27/2008								No sample retrieved									
MW-7	8/27/2008								No sample retrieved									
MW-7	11/24/2008								No sample retrieved									
MW-7	2/18/2009								No sample retrieved									
MW-7	5/21/2009								No sample retrieved									
MW-7	8/4/2009								No sample retrieved									
MW-7	11/5/2009								No sample retrieved									
MW-7	2/8/2010								No sample retrieved									
MW-7	5/7/2010								No sample retrieved									
MW-7	8/18/2010								No sample retrieved									
MW-7	11/2/2010								No sample retrieved									
MW-7	2/23/2011								No sample retrieved									
MW-7	5/5/2011	CLS	7.1	660	87	100	1.8	<0.10	<0.02	7.2	<0.10	<0.10	7.4				<0.50	
MW-7	8/16/2011	CLS	7.4	680	95	100	1.9	<0.10	<0.02	6.6	<0.10	<0.10	6.9				<0.50	
MW-7	11/8/2011	CLS							No sample retrieved									
MW-7	2/27/2012								No sample retrieved									
MW-7	5/21/2012								No sample retrieved									
MW-7	8/9/2012								No sample retrieved									
MW-7	11/19/2012								No sample retrieved									
MW-7	2/21/2013								No sample retrieved									
MW-7	5/15/2013								No sample retrieved									
MW-7	8/15/2013								No sample retrieved									
MW-7	11/7/2013								No sample retrieved									
MW-7	2/25/2014								No sample retrieved									
MW-7	5/22/2014								No sample retrieved									
MW-7	8/27/2014								No sample retrieved									
MW-7	11/12/2014								No sample retrieved									
MW-7	2/26/2015								No sample retrieved									
MW-7	5/13/2015								No sample retrieved									
MW-7	8/4/2015								No sample retrieved									
MW-7	11/5/2015								No sample retrieved									
MW-7	2/4/2016								No sample retrieved									
MW-7	6/30/2016								No sample retrieved									
MW-7	8/25/2016								No sample retrieved									
MW-7	11/17/2016								No sample retrieved									
MW-7	3/7/2017	CLS	7.3	670	100	120	2	<0.10		7.5		0.16	7.8				1.2	
MW-7	6/27/2017	CLS	7.0	590	93	89	1.7	<0.10		4.6		0.19	4.9				<0.50	
MW-7	8/23/2017	CLS	7.3	620	99	56	2	<0.10		4.3		<0.10	4.4				<0.50	
MW-7	11/14/2017								No sample retrieved									
MW-7	2/21/2018								No sample retrieved									
MW-7	5/24/2018								No sample retrieved									

Sampling Point	Sample Date	Lab	pH Std Unit	TDS mg/L	Na (d) mg/L	Cl mg/L	B (d) mg/L	Fe (d) mg/L	Mn (d) mg/L	NO3-N mg/L	NO2-N mg/L	NH3-N mg/L	Nitrogen mg/L	(total)	*(fecal)*	*(E. coli)* (MPN/100 mL)	(EPA 601) ug/L	Notes
Recommended Interim Limitation [2]	WO Objective		6.5-8.5	450	69	106	0.6	0.3	0.05	10	1	0.5	10	ND	ND	ND	100	
	Background		7.6	1100	155	138	-	<0.1	0.64	18	-	0.5	-	<2.0	<2.0	-	-	-
MW-7	9/27/2018									No sample retrieved								
MW-7	12/28/2018									No sample retrieved								
MW-7	12/28/2018	CLS	7.22	660	63	-	1.5	<0.10	<0.02	4.8	<0.40	<0.10	4.8	2			<0.50	
MW-7	6/26/2019	CLS	7.36	560	86	70	1.5	0.91	0.16	3.2	<0.40	<0.10	3.3	<1.8	-	-	1.3	
MW-7	9/3/2019									No sample retrieved								
MW-7	12/4/2019									No sample retrieved								
MW-7	2/14/2020	CLS	7.11	570	93	93	2.0	<0.10	<0.02	5.0	<0.40	<0.10	5.6	<1.8	-	-	13	
MW-7	4/23/2020									No sample retrieved								
MW-7	4/23/2020									No sample retrieved								
MW-7	12/9/2020									No sample retrieved								

Laboratory Notes:

STL = Severn Trent Laboratory of West Sacramento, CA; BSK = BSK Laboratories of Fresno, CA; TDS = total dissolved solids; NO3-N = nitrate as nitrogen; NO2-N = nitrite as nitrogen; NH3-N = ammonia as nitrogen; (d) = dissolved fraction; TTHM = total trihalomethanes; nd = nondetect

italic font style = Analysis for magnesium, total Kjeldahl nitrogen, fecal coliform and E. coli organisms is not required by RWQCB Order R5-2002-0077.

1 = Total trihalomethanes consist of the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane.

2 = See WDRs Item E. 1. Ground Water Limitations; WQ Objective = a variety of applicable regional water quality goals compiled by RWQCB staff; Background = Tolerance Limit (calculated from August 2001 borings and monitoring wells MW-1 and MW-5R)

3 (in Lab Notes column) = Chloroform detection; this compound was also detected in the laboratory method blank; this compound is a common laboratory contaminant.

4 = Nitrate (as nitrogen) laboratory result for 5/7/2007 at MW-4 is reported as shown on the laboratory report although the concentration is about four times higher than historic results. It is probable that the concentration was reported for nitrate (as nitrate). Due to the age of the sample, laboratory validation of the result could not be performed.

5 = Sample was extracted/analyzed outside the EPA recommended holding time

6 = Measured in the field

7 = Calculated using field Electrical Conductivity measurement

* = Nitrate as nitrogen and Nitrite as Nitrogen results were combined as one

- = Sample not collected or not measured for this constituent

Notes on Laboratory Data depicted on Figures.

1. MW-7 – Data for NO3, and TN for 5/7/2007 is not graphed due to concerns with data.
2. MW-5R – Data for Chloride for 6/27/2017 is suspect (dilution factor?) but is shown on graph.
3. Data reported as less than the laboratory reporting limit is shown on figures as “zero”

Table 5
Quality Assurance/Quality Control Samples
Wild Wings Water Recycling Facility, Yolo County, CA

Sampling Point	Sample Date	Lab	TTHM[1] (ug/L)	Lab Notes
EB-1	11/17/2017	CLS	1.1	-
	3/7/2017	CLS	2.0	-
Trip Blanks	11/17/2017	CLS	<0.50	-
	3/7/2017	CLS	<0.50	-
	6/28/2017	CLS	<0.50	-
	8/23/2017	CLS	<0.50	-
	2/21/2018	CLS	<0.50	-
	5/24/2018	CLS	<0.50	Mislabled 3
	9/27/2018	CLS	<0.50	-
	2/28/2019	CLS	<0.50	-
	6/19/2019	CLS	<0.50	-
	9/4/2019	CLS	0.94	-
	9/18/2019	CLS	1.1	-
	12/4/2019	CLS	<0.50	-
	2/14/2020	CLS	<0.50	-
	3/6/2020	CLS	<0.50	-
	4/23/2020	CLS	<0.50	-
	9/17/2020	CLS	<0.50	-
	9/23/2020	CLS	<0.50	-
	12/9/2020	CLS	<0.50	-

TTHM = total trihalomethanes; nd = nondetect

1 = Total trihalomethanes consists of the sum of bromodichloromethane, bromoform, chloroform, and dibromocholoromethane

CHARTS

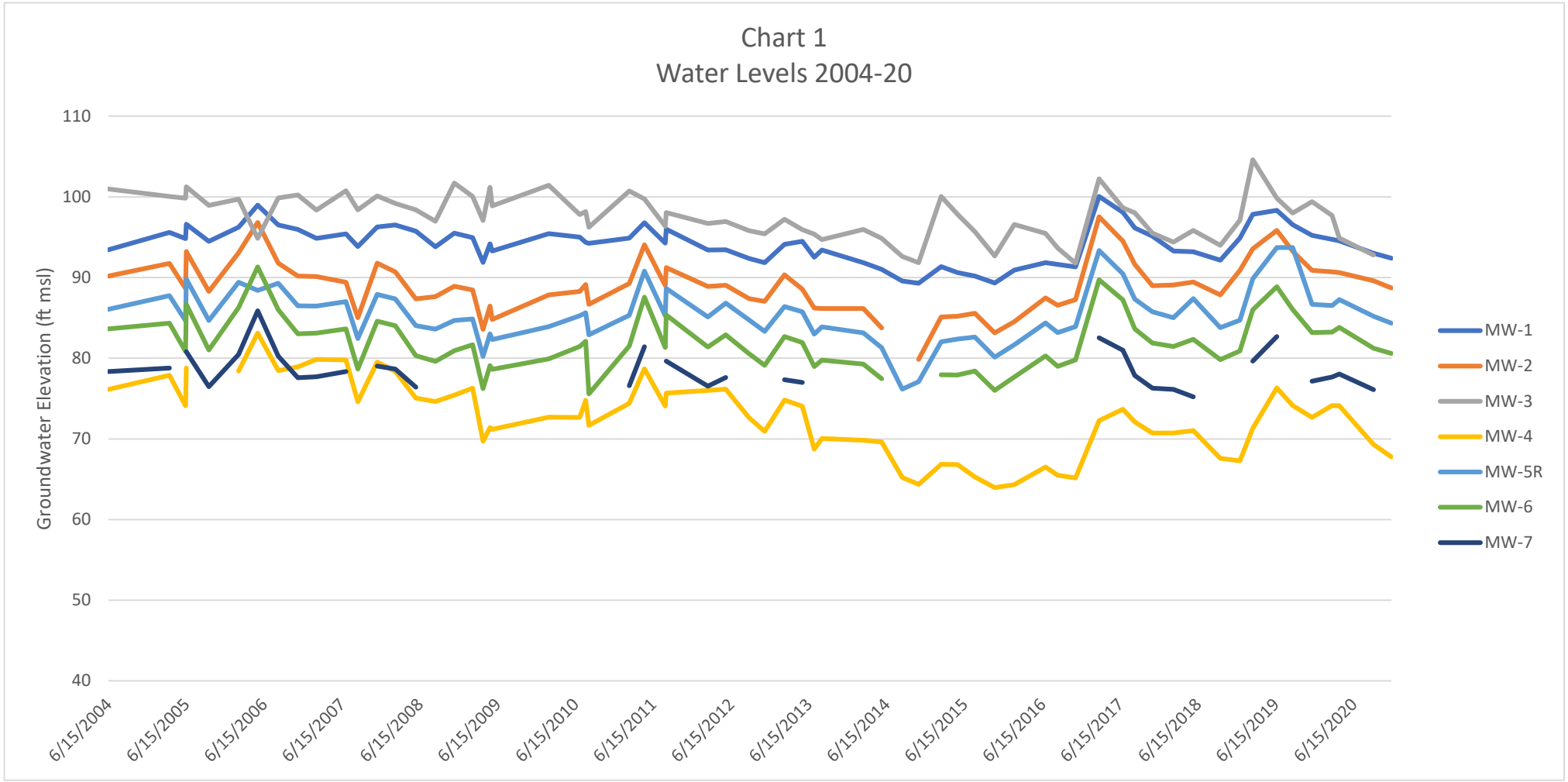


Chart 1
Water Levels 2004-20
Groundwater Elevation (ft msl)
110
100
90
80
70
60
50
40
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
6/15/2020
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

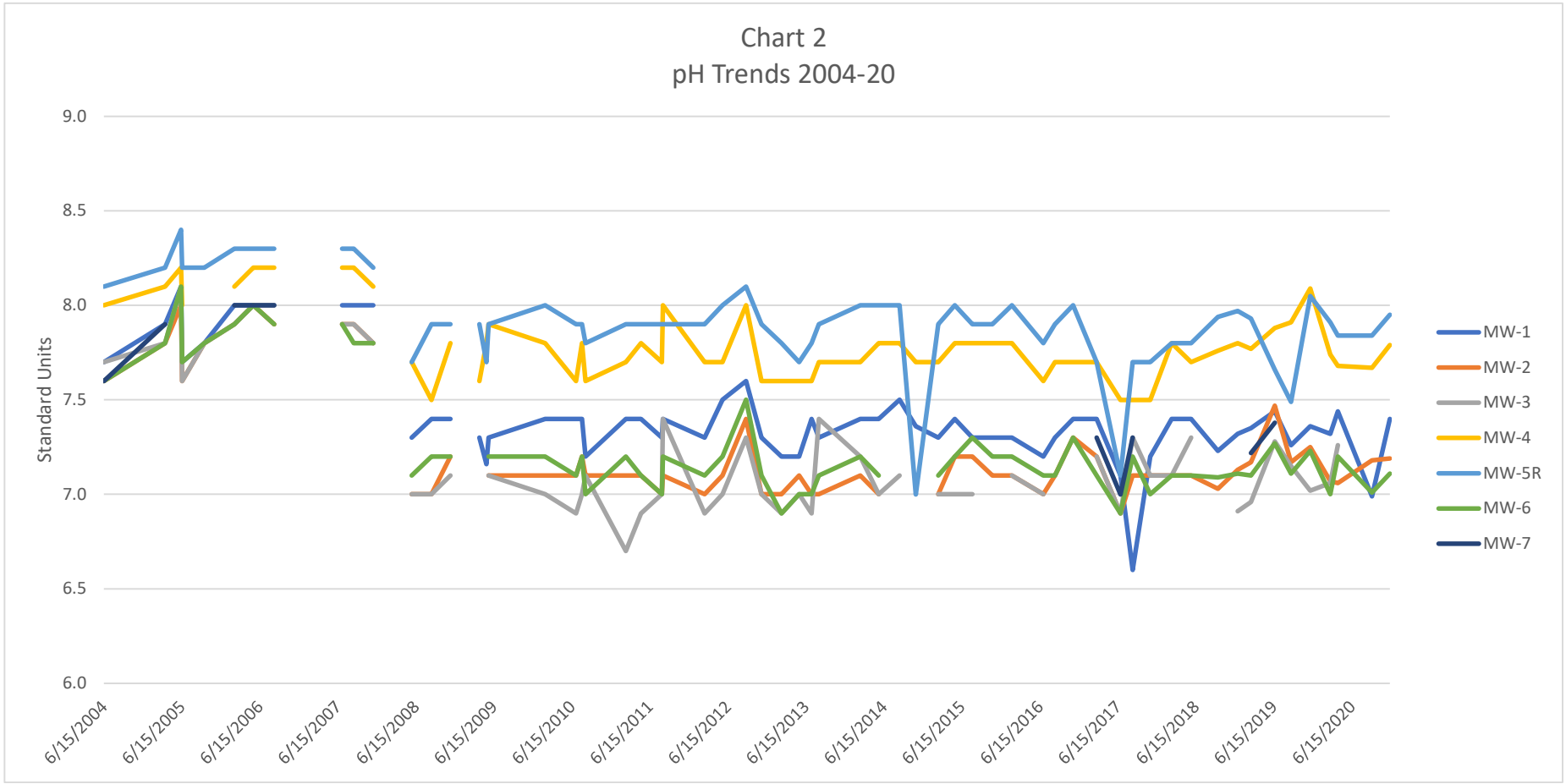


Chart 2
pH Trends 2004-20
Standard Units
9.0
8.5
8.0
7.5
7.0
6.5
6.0
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
6/15/2020
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

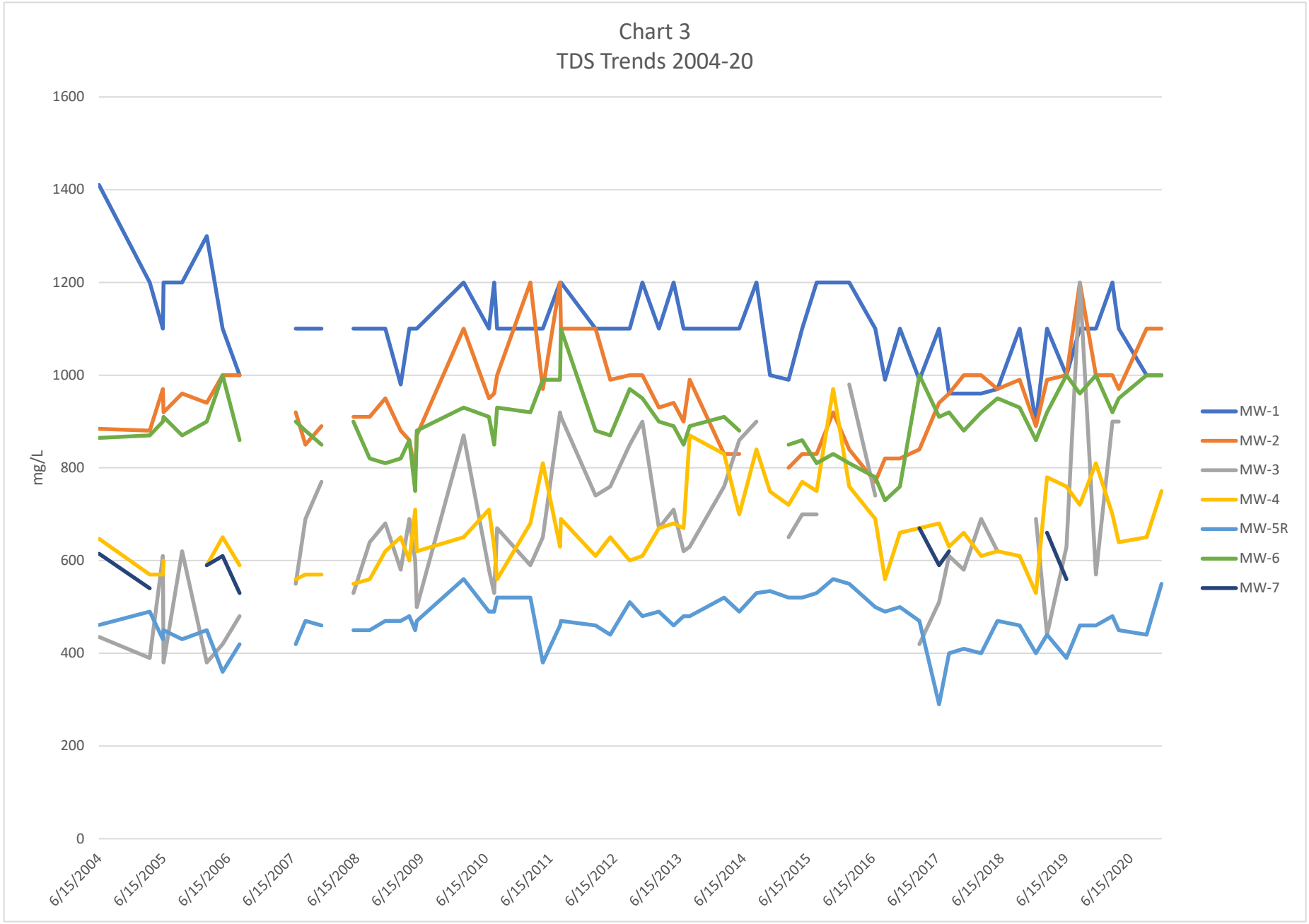


Chart 3
TDS Trends 2004-20
mg/L
1600
1400
1200
1000
800
600
400
200
0
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
6/15/2020
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

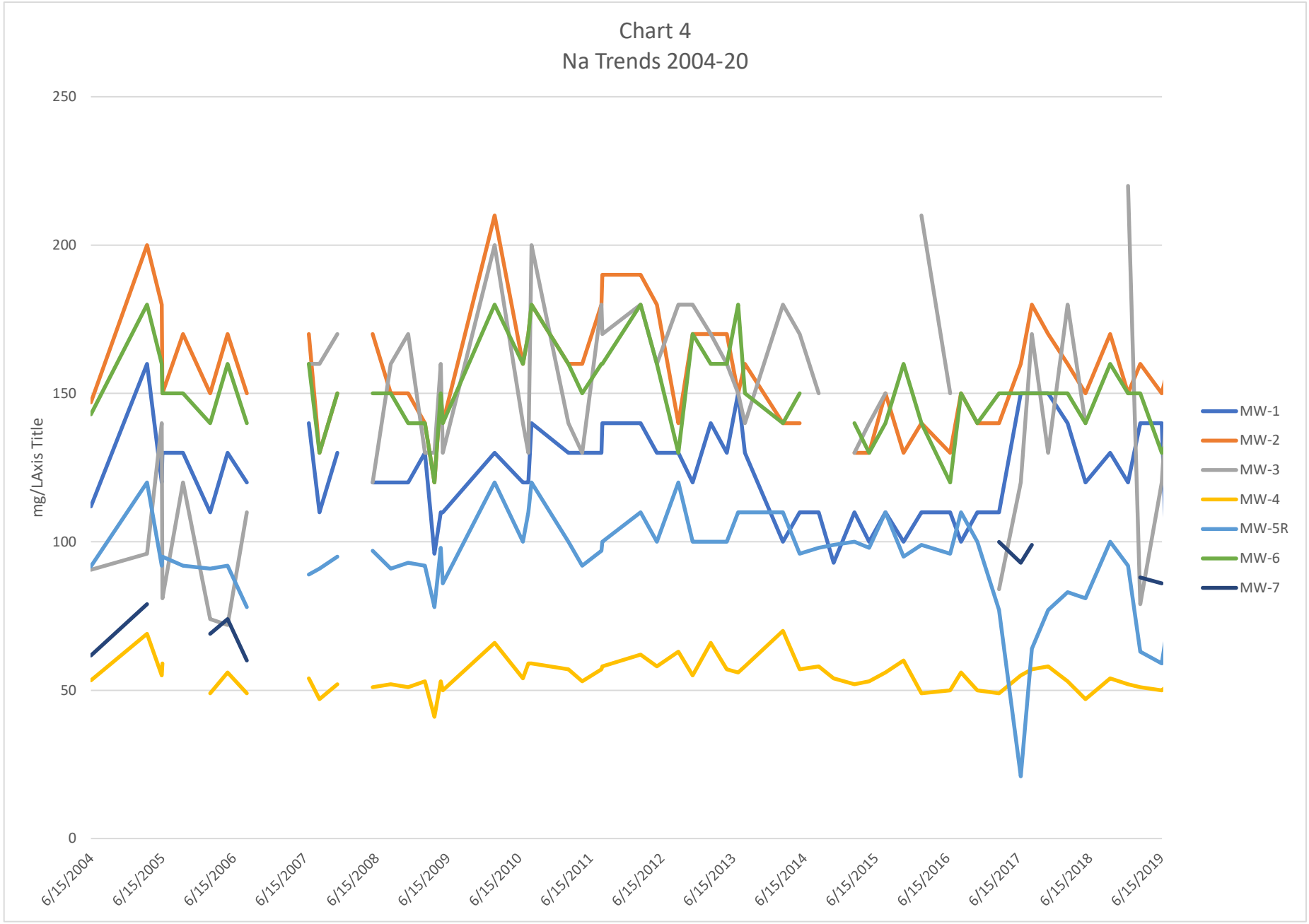


Chart 4
Na Trends 2004-20
250
200
150
100
50
0
mg/LAxis Title
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

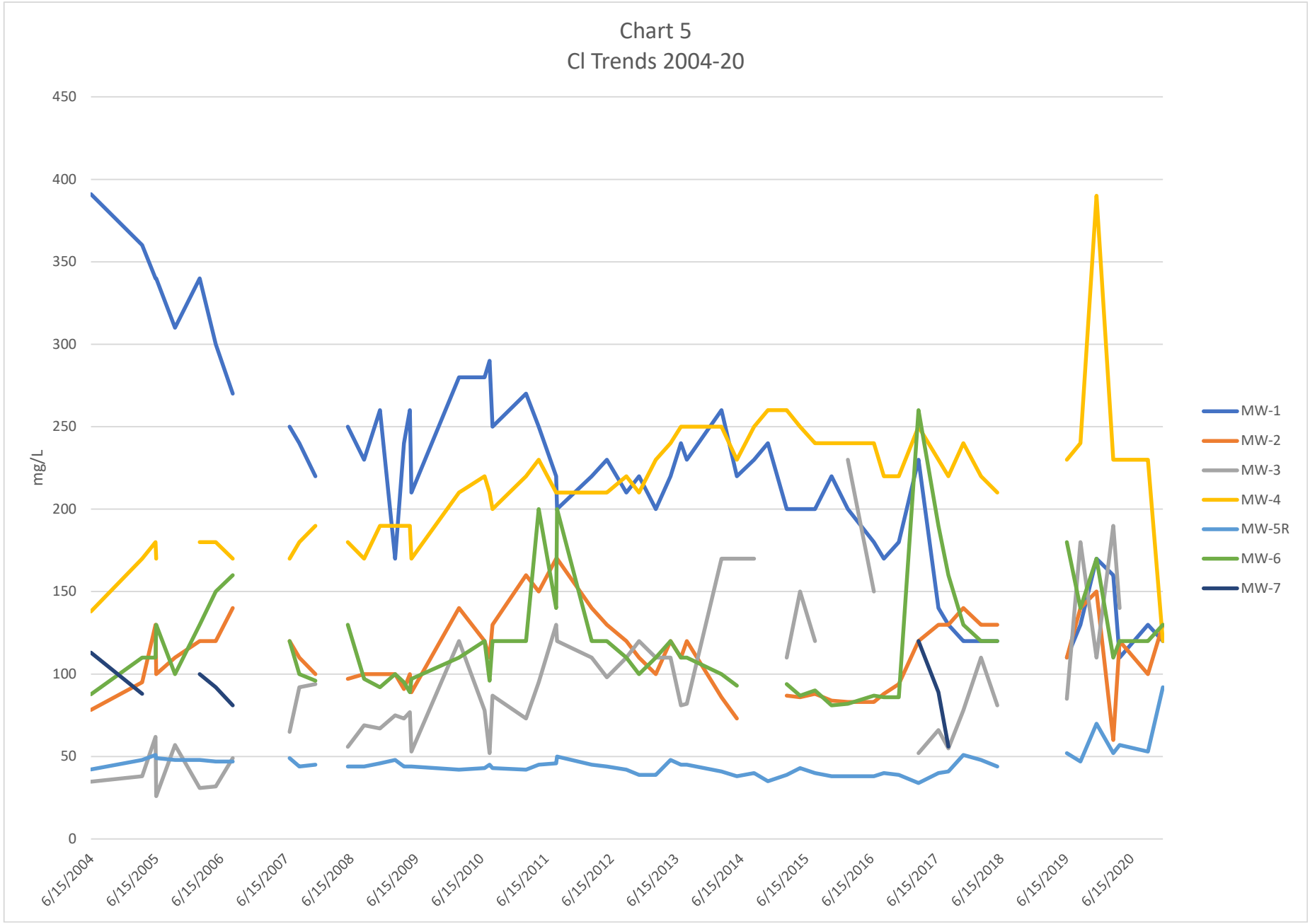


Chart 5
Cl Trends 2004-20
mg/L
450
400
350
300
250
200
150
100
50
0
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
6/15/2020
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

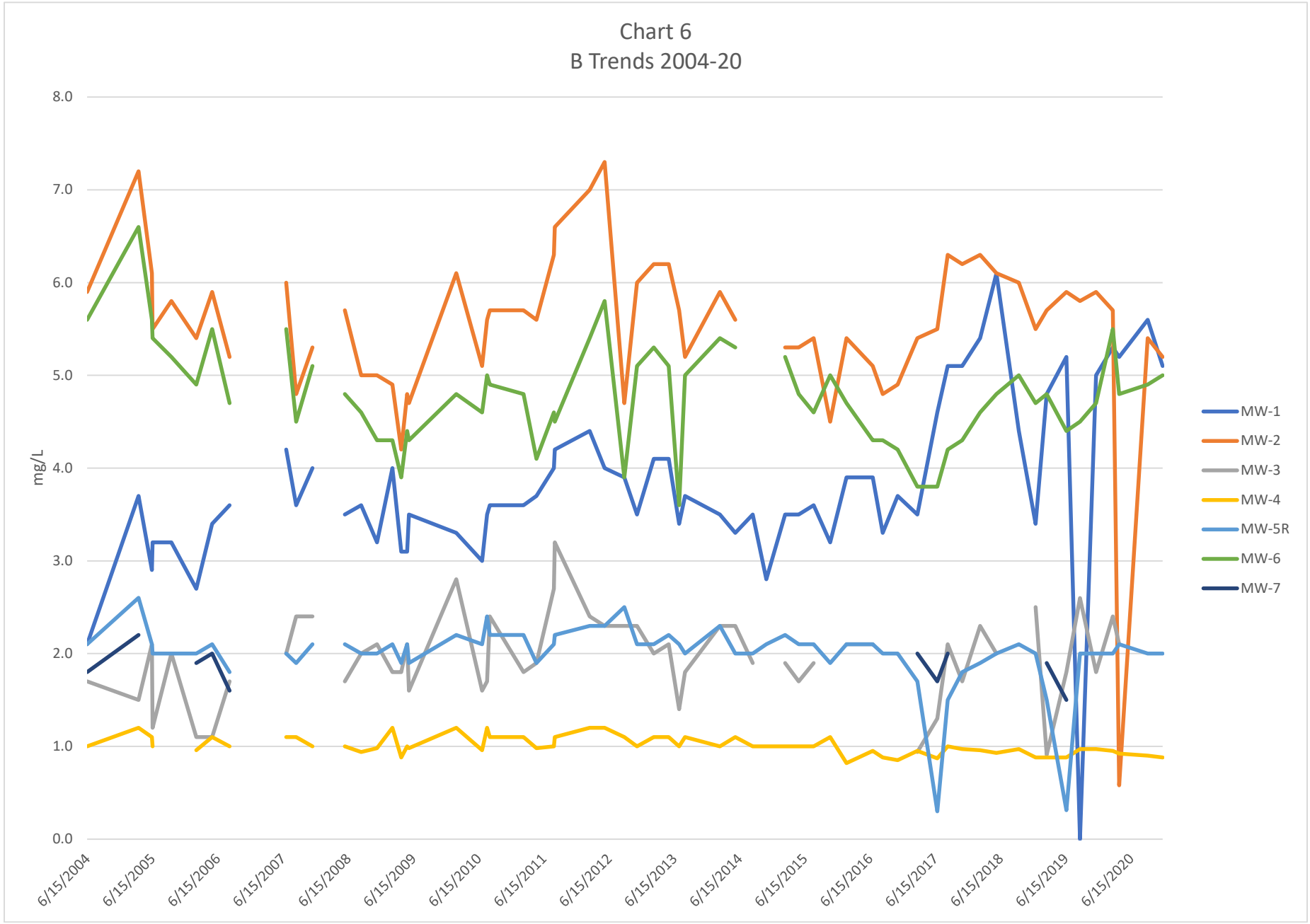


Chart 6
B Trends 2004-20
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
mg/L
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
6/15/2020
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

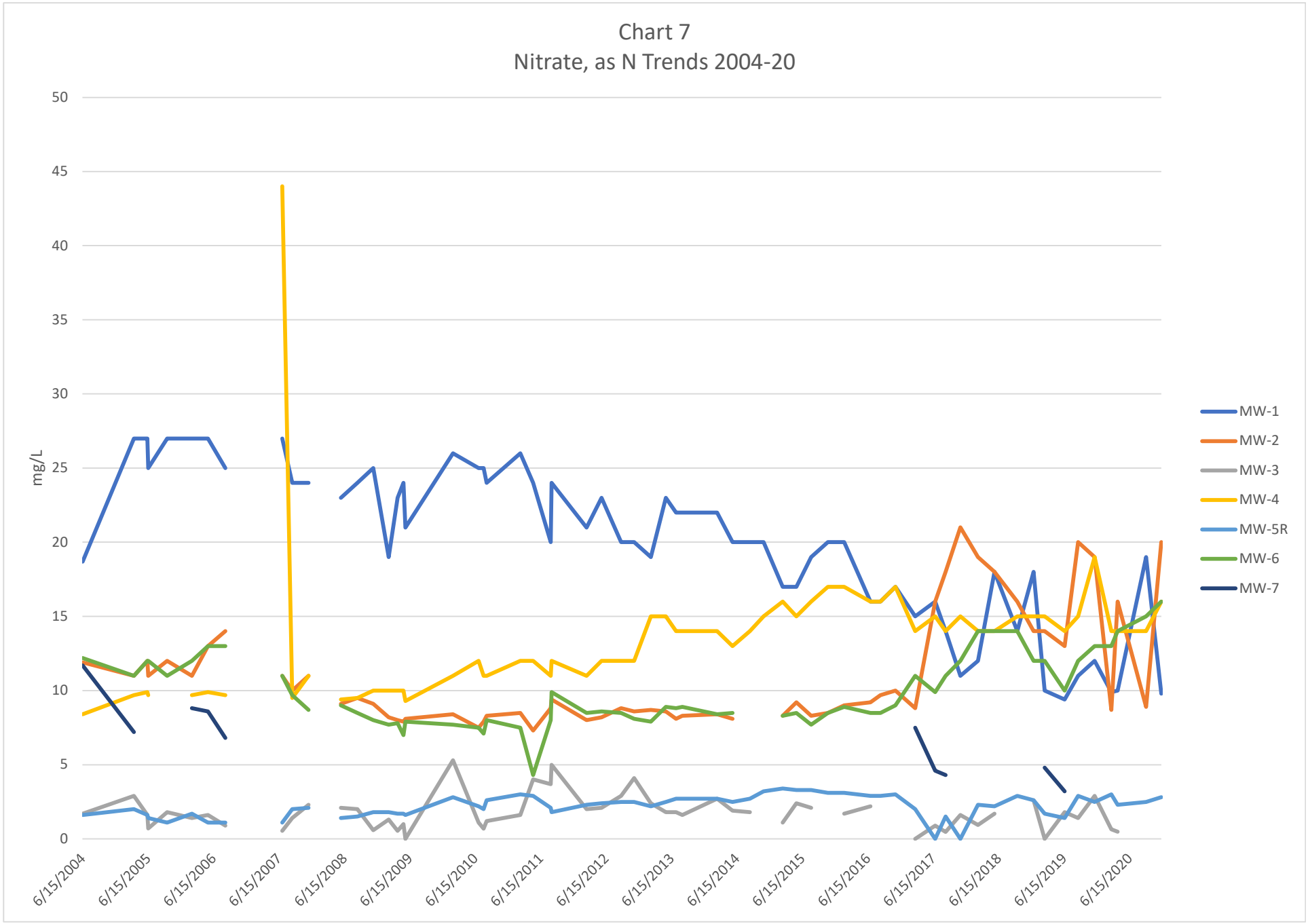
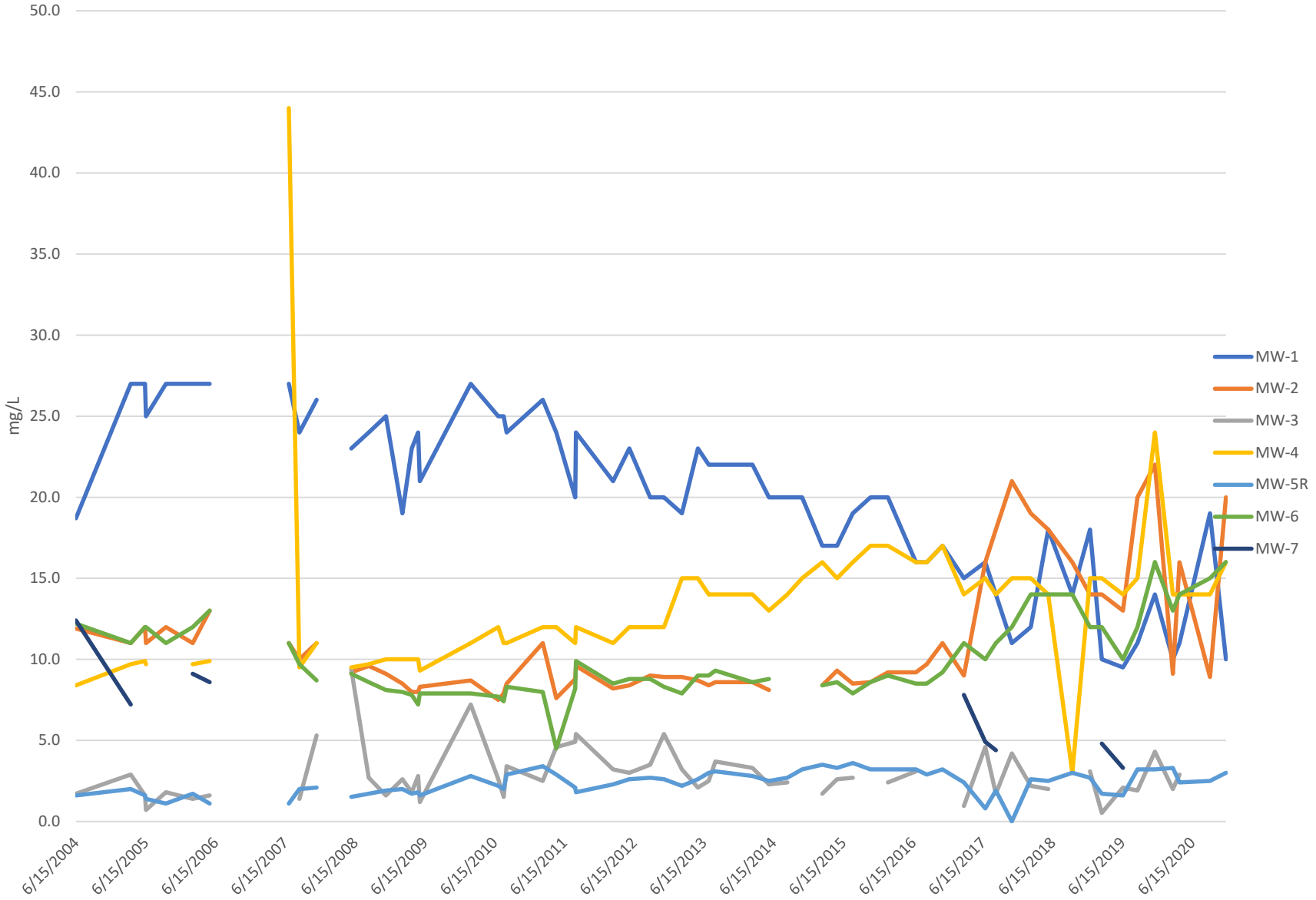


Chart 7
Nitrate, as N Trends 2004-20
mg/L
50
45
40
35
30
25
20
15
10
5
0
6/15/2004
6/15/2005
6/15/2006
6/15/2007
6/15/2008
6/15/2009
6/15/2010
6/15/2011
6/15/2012
6/15/2013
6/15/2014
6/15/2015
6/15/2016
6/15/2017
6/15/2018
6/15/2019
6/15/2020
MW-1
MW-2
MW-3
MW-4
MW-5R
MW-6
MW-7

Chart 8

Total Nitrogen Trends 2004-20



APPENDIX A
FIELD DATA FORMS

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

P. 1 of 2

CHAIN OF CUSTODY

CLS ID No.: _____

LOG № 211197

REPORT TO:

NAME AND ADDRESS: CRWA
1234 N. MARKET BLVD
SACRAMENTO, CA
PROJECT MANAGER: DAN DEMOSS PHONE: 916-616-7761
PROJECT NAME: WILDWINGS
SAMPLED BY: DAYTON BUSCH
JOB DESCRIPTION: 4TH QTR G.W. SHALLOW WELLS
SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA.
95742
☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED
See Attached 1,2 List of Analytes per Method 1.0 & 2 Attached
TDS

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID: _____
CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☐ NO
STATE SYSTEM NUMBER _____
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).
COMPOSITE:
WinD+, ColD, ChlorH

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE
12/9/20	0730	TRIP BLANK	W	2	VOA
	1115	MW-1	W	6	Poly/VOA
	1100	MW-2	W	6	
	1045	MW-4	W	6	
	1030	MW-5A	W	6	
12/9/20	1015	MW-6	W	6	Poly/VOA

TURN AROUND TIME: 1 DAY | 2 DAY | 3 DAY | 5 DAY (X)

SPECIAL INSTRUCTIONS
OR
ALT. ID:
LAB TO FILTER METALS FOR DISSOLVED ANALYSIS
TRIPS: HCl BUBBLES

INVOICE TO:
P.O. #
QUOTE #

Email Address

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
Dayton Busch	DAYTON BUSCH	12/9/20		
Mason Faulhaber	Mason Faulhaber	12/9/20 1508		

RECD AT LAB BY: [signature] DATE / TIME: 12/9/20 1501 CONDITIONS / COMMENTS: 1.1

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

White-Lab/Terms and conditions Yellow- Lab file copy/Terms and Conditions Pink- Origin/Terms and Conditions Gold-Project Mgr./Field Sampler/Terms and conditions

List of Analytes and Methods

Analyte	Method	MRL
Ammonia, as N	SM4500-NH3F-1997	0.10 mg/L
Nitrate, as N	EPA Method 300.0	0.40 mg/L
Nitrite, as N	EPA Method 300.0	0.40 mg/L
Total Kjeldahl Nitrogen	SM4500-NH3F-1997	0.20 mg/L
Total Nitrogen	EPA Methods 351.3/300.0	0.40 mg/L
Chloride	EPA Method 300.0	2.5 mg/L
pH	SM4500-H B	0.01 pH Units
Total Dissolved Solids	SM2540C	10 mg/L
Boron	EPA Method 200.7	50 µg/L
Total Iron	EPA Method 200.7	100 µg/L
Total Manganese	EPA Method 200.7	20 µg/L
Sodium	EPA Method 200.7	1000 µg/L
Total Coliform	SM 9221	1.8 MPN/100 mL
Trihalomethanes*	EPA Method 524.2	0.5 µg/L

(3)

*Trihalomethanes to include Bromodichloromethane, Bromoform, Chloroform, Dibromochloromethane and Total Trihalomethanes (THM).

Attachments:

1. Wild Wings site map showing groundwater monitoring wells
2. Example laboratory chain of custody
3. Dissolved
4. Lab to filter metals

GROUNDWATER SAMPLING LOG

Well Number: MW-1
Date: 12/8/20

Samplers Name: D. Busch
Site: Wind Wings
Project Number: 4TH QTR 2020

Total well depth (ft): 41.40
Well Diameter (in): 2
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: Disposable
Sample Date: 12/9/20

Static water level (ft): 33.81
Previous static water level (ft): 33.15
Standing water column (ft): 7.59

Development method: —
Purging method: pump
Sampling method: Bailer

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µS/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
1300	1	1830	7.38	20.1	Clear, no odor	
1302	2	1837	7.37	19.9	Clear, no odor	
1304	3	1840	7.30	20.2		
1306	4	1833	7.29	20.1	Slightly turbid, no odor	
1115	Sampled	1817	7.32	20.1	Sl. turbid, no odor	34.98
					7.59' x .1632 = 1.24 Gal/Vol	
					x3 = 3.72 Gal Total Purge	
					* Missing bolt on lid -	
					Thread stripped	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

GROUNDWATER SAMPLING LOG

Well Number: MW-2
Date: 12/8/20
Samplers Name: D. Busch
Site: W.L.D Wings
Project Number:
Total well depth (ft): 46.71
Well Diameter (in): 2"
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: Disposible
Sample Date: 12/9/20
Static water level (ft): 36.24
Previous static water level (ft): 35.34
Standing water column (ft): 10.47
Development method: —
Purging method: Pump
Sampling method: Bailer

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µS/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
1230	1	1777	7.24	18.6	LT. BROWN, TURBID	
1234	3	1791792	7.21	19.5	SLIGHTLY TURBID, NO ODOR	
1236	4	1791	7.21	19.7	SLIGHTLY TURBID, NO ODOR	
1238	5	1790	7.20	19.6	CLEAR, NO ODOR	
1241	6	1783	7.20	19.6	CLEAR, NO ODOR	
						36.94
1100	Sample	1792	7.21	19.2	CLEAR, NO ODOR	
					10.47 X .1632 = 1.70 GAL / VOL	
					X3 = 5.13 GAL. TOTAL PURGE	
					* LID MISSING A BOLT, THREADS STRIPPED	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

GROUNDWATER SAMPLING LOG

Well Number: MW-3
Date: 12/8/20

Samplers Name: D. Busch
Site: Wild Wings
Project Number: 4TH QTR 2020

Total well depth (ft): 30.80
Well Diameter (in): 2'
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: —
Sample Date: N/A

Static water level (ft): Below Sensor
Previous static water level (ft): 28.58
Standing water column (ft): —

Development method: —
Purging method: N/A
Sampling method: N/A

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µS/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
1145	0	—	—	—	No measurable water in Colum (DRY)	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

GROUNDWATER SAMPLING LOG

Well Number: MW-4
Date: 12/8/20
Samplers Name: D. BOSCH
Site: WILD WINGS
Project Number: 4TH QTR 2020
Total well depth (ft): 70.30
Well Diameter (in): 2"
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: DISPOSIBLE
Sample Date: 12/9/20
Static water level (ft): 52.94
Previous static water level (ft): 51.42
Standing water column (ft): 17.36
Development method: —
Purging method: PUMP
Sampling method: BAILER

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µ S/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
1115	2	1304	7.90	19.1	LT. BROWN, SLIGHTLY TURBID, NO ODOR	
1120	4	1263	7.85	18.9	SLIGHTY TURBID, NO ODOR	
1125	6.5	1263	7.86	19.0	PUMPED DRY	
						58.22
1045	SAMPLE	1297	7.80	19.0	SLIGHTY TURBID, NO ODOR	
					17.36 X .1632 = 2.83 GAL/VOL	
					X 3 = 8.50 GAL TOTAL PURGE	
					* MISSING ONE BOLT ON LID	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

GROUNDWATER SAMPLING LOG

Well Number: MW-5R
Date: 12/8/20

Samplers Name: D. BUSCH
Site: WILD WINGS
Project Number: 4TH QTR 2020

Total well depth (ft): 73.20
Well Diameter (in): 2
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: DISPOSIBLE
Sample Date: 12/9/20

Static water level (ft): 41.04
Previous static water level (ft): 40.21
Standing water column (ft): 32.16

Development method: —
Purging method: PUMP
Sampling method: BAILER

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µS/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
1030	2	818.3	8.11	18.7	CLEAR, NO ODOR	
1034	5	819.7	8.10	18.8	CLEAR, NO ODOR	
1045	10	815.7	8.11	18.7	CLEAR. NO ODOR	
1055	15	815.6	8.10	18.8	CLEAR, NO ODOR	
1030	SAMPLED	820.7	8.11	18.9	CLEAR, NO ODOR	42.53
					32.16' X .1632 = 5.25 GAL/VOL	
					X3 = 15.74 GAL TOTAL PURGE	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

GROUNDWATER SAMPLING LOG

Well Number: MW-6
Date: 12/8/20

Samplers Name: D. Busch
Site: Wild Wings
Project Number: 4TH QTR 2020

Total well depth (ft): 48.80
Well Diameter (in): 2
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: Disposible
Sample Date: 12/9/20

Static water level (ft): 40.98
Previous static water level (ft): 40.38
Standing water column (ft): 7.82

Development method: —
Purging method: pump
Sampling method: Bailer

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µS/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
0940	1	1673	7.23	18.2	SL. TURBID, NO ODOR	
0942	2	1686	7.21	18.6	SL. TURBID, NO ODOR	
0944	3	1621	7.17	19.0	CLEARING, NO ODOR	
0947	4	1610	7.21	19.0	CLEAR, NO ODOR	
1015	Sampled	1624	7.25	19.1	CLEAR, NO ODOR	41.50
					7.82 X .1632 = 1.28 Gal/vol	
					X 3 = 3.83 GAL TOTAL PURGE	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

GROUNDWATER SAMPLING LOG

Well Number: MW-7
Date: 12/8/20

Samplers Name: D. Busch
Site: Wild Wings
Project Number: 4TH QTR 2020

Total well depth (ft): 38.68
Well Diameter (in): 2
Borehole Diameter (in): —

Gauging Date: 12/8/20
Bailer ID: —
Sample Date: N/A

Static water level (ft): BELOW SENSOR
Previous static water level (ft): AT 38.45
Standing water column (ft): N/A

Development method: —
Purging method: N/A
Sampling method: N/A

* All measurements taken from: X Top of casing, ___ Protective casing, ___ Ground level

TIME	AMOUNT PURGED (gal)	EC (µS/cm)	pH	TEMP (C)	COMMENTS	WATER LEVEL (ft bgs)
0921	0	—	—	—	NO REASONABLE WATER IN COLUMN. (DRY)	

Volume per Foot for 2" Well = 0.1632 gal/foot
Casing Volume = Standing Water Column * 0.1632 gal/foot (multiply by 3 to get purge volume)

APPENDIX B
LABORATORY ANALYTICAL RESULTS
&
CHAIN OF CUSTODY

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

December 16, 2020

CLS Work Order #: 20L0506
COC #: 211197

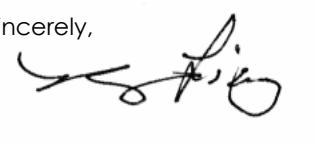
Dan Demoss
California Rural Water Association
1234 N. Market Blvd.
Sacramento, CA 95834

Project Name: Wild Wings

Enclosed are the results of analyses for samples received by the laboratory on 12/09/20 15:01. Samples were analyzed pursuant to client request utilizing EPA or other ELAP approved methodologies. I certify that the results are in compliance both technically and for completeness.

Analytical results are attached to this letter. Please call if we can provide additional assistance.

Sincerely,



James Liang, Ph.D.
Laboratory Director

CA SWRCB ELAP Accreditation/Registration number 1233

CALIFORNIA LABORATORY SERVICES
Committed. Responsive. Flexible.

20L0506

P. 1 of 2

CHAIN OF CUSTODY

CLS ID No.: _____

LOG № 211197

HIGHLIGHTED AREAS MUST BE FILLED OUT PRIOR TO ACCEPTANCE

REPORT TO:

NAME AND ADDRESS: CRWA
1234 N. MARKET BLVD
SACRAMENTO, CA
PROJECT MANAGER: DAN DEMOSS PHONE#: 916-616-7761
PROJECT NAME: WILD WINDS
SAMPLED BY: DAYTON BUSCH
JOB DESCRIPTION: 4TH QTR G.W. SHALLOW WELLS
SITE LOCATION

CLIENT JOB NUMBER

DESTINATION LABORATORY
☒ CLS (916) 638-7301
3249 FITZGERALD RD.
RANCHO CORDOVA, CA. 95742
☐ OTHER

PRESERVATIVES

ANALYSIS REQUESTED

SEE ATTACHED "LIST OF ANALYTES AND METHODS" P. 2 ATTACHED

TOTHS

GEOTRACKER:
EDF REPORT ☐ YES ☐ NO
GLOBAL ID: _____

CDPH WRITE ON EDT TRANSMISSION? ☐ YES ☐ NO
STATE SYSTEM NUMBER _____
IF "YES" PLEASE ENTER THE SOURCE NUMBER(S).

~~COMPOSITE~~

WINDY, COLD, CLOUDY

DATE	TIME	SAMPLE IDENTIFICATION	MATRIX	CONTAINER NO.	CONTAINER TYPE	TOTHS	TURN AROUND TIME 1 DAY	2 DAY	3 DAY	5 DAY	SPECIAL INSTRUCTIONS OR ALT. ID:
12/9/20	0730	TRIP BLANK	W	2	4V VOA	X				X	LAB TO FILTER
	1115	MW-1	W	6	Poly/VOA	X				X	METALS FOR
	1100	MW-2	W	6/5		X				X	DISSOLVED
	1045	MW-4	W	6		X				X	ANALYSIS
	1030	MW-5R	W	6		X				X	
12/9/20	1015	MW-6	W	6	Poly/VOA	X				X	*TRIPS HAVE BUBBLES

INVOICE TO:

P.O. #

QUOTE #

PRESERVATIVES: (1) HCL (2) HNO_3 (3) = COLD (4) = NaOH (5) = H_2SO_4 (6) = $Na_2S_2O_3$ (7) =

Email Address

RELINQUISHED BY (SIGN)	PRINT NAME / COMPANY	DATE / TIME	RECEIVED BY (SIGN)	PRINT NAME / COMPANY
Dayton Busch	DAYTON BUSCH	12/9/20		
Mason Faulhaber	Mason Faulhaber	12/9/20 1500		

RECD AT LAB BY: [signature] DATE / TIME: 12/9/20 1501 CONDITIONS / COMMENTS: 1.1

SHIPPED BY: ☐ FED X ☐ UPS ☐ OTHER _____ AIR BILL #

Gold-Project Mgr./Field Sampler/Terms and conditions
Pink- Origin/Terms and Conditions
Yellow- Lab file copy/Terms and Conditions
White-Lab/Terms and conditions

List of Analytes and Methods

Analyte	Method	MRL
Ammonia, as N	SM4500-NH3F-1997	0.10 mg/L
Nitrate, as N	EPA Method 300.0	0.40 mg/L
Nitrite, as N	EPA Method 300.0	0.40 mg/L
Total Kjeldahl Nitrogen	SM4500-NH3F-1997	0.20 mg/L
Total Nitrogen	EPA Methods 351.3/300.0	0.40 mg/L
Chloride	EPA Method 300.0	2.5 mg/L
pH	SM4500-H B	0.01 pH Units
Total Dissolved Solids	SM2540C	10 mg/L
Boron	EPA Method 200.7	50 µg/L
Total Iron	EPA Method 200.7	100 µg/L
Total Manganese	EPA Method 200.7	20 µg/L
Sodium	EPA Method 200.7	1000 µg/L
Total Coliform	SM 9221	1.8 MPN/100 mL
Trihalomethanes*	EPA Method 524.2	0.5 µg/L

(3)

*Trihalomethanes to include Bromodichloromethane, Bromoform, Chloroform, Dibromochloromethane and Total Trihalomethanes (THM).

Attachments:

1. Wild Wings site map showing groundwater monitoring wells
2. Example laboratory chain of custody
3. DISSOLVED
4. LAB TO FILTER METALS

California Rural Water Association	Project:	Wild Wings	
1234 N. Market Blvd.	Project Number:	[none]	**CLS Work Order #: 20L0506**
Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (20L0506-02) Water Sampled: 12/09/20 11:15 Received: 12/09/20 15:01									
Ammonia as N	ND	0.10	mg/L	1	2010118	12/11/20	12/11/20	SM4500-NH3F-1997	
Chloride	**120**	5.0	"	10	2010024	12/10/20	12/10/20	EPA 300.0	
Nitrate as N	**9.8**	4.0	"	"	"	"	12/10/20	"	
Nitrite as N	ND	0.40	"	1	"	"	"	"	QC-2H
pH	**7.40**	0.01	pH Units	"	2010043	12/10/20	12/10/20	SM4500-H B	HT-F
Total Dissolved Solids	**1000**	10	mg/L	"	2010163	12/14/20	12/16/20	SM2540C	
Total Kjeldahl Nitrogen	ND	0.20	"	"	2010145	12/14/20	12/14/20	SM4500-NH3F-1997	
Total Nitrogen	**10**	0.40	"	"	2010239	12/16/20	12/16/20	SM4500-NH3F/300.0	
MW-2 (20L0506-03) Water Sampled: 12/09/20 11:00 Received: 12/09/20 15:01									
Ammonia as N	ND	0.10	mg/L	1	2010118	12/11/20	12/11/20	SM4500-NH3F-1997	
Chloride	**130**	5.0	"	10	2010024	12/10/20	12/10/20	EPA 300.0	
Nitrate as N	**20**	4.0	"	"	"	"	12/10/20	"	
Nitrite as N	ND	0.40	"	1	"	"	"	"	QC-2H
pH	**7.19**	0.01	pH Units	"	2010043	12/10/20	12/10/20	SM4500-H B	HT-F
Total Dissolved Solids	**1100**	10	mg/L	"	2010163	12/14/20	12/16/20	SM2540C	
Total Kjeldahl Nitrogen	**0.29**	0.20	"	"	2010145	12/14/20	12/14/20	SM4500-NH3F-1997	
Total Nitrogen	**20**	0.40	"	"	2010239	12/16/20	12/16/20	SM4500-NH3F/300.0	
MW-4 (20L0506-04) Water Sampled: 12/09/20 10:45 Received: 12/09/20 15:01									
Ammonia as N	ND	0.10	mg/L	1	2010118	12/11/20	12/11/20	SM4500-NH3F-1997	
Chloride	**120**	2.5	"	5	2010024	12/10/20	12/10/20	EPA 300.0	
Nitrate as N	**16**	2.0	"	"	"	"	"	"	
Nitrite as N	ND	0.40	"	1	"	"	"	"	QC-2H
pH	**7.79**	0.01	pH Units	"	2010043	12/10/20	12/10/20	SM4500-H B	HT-F
Total Dissolved Solids	**750**	10	mg/L	"	2010163	12/14/20	12/16/20	SM2540C	
Total Kjeldahl Nitrogen	ND	0.20	"	"	2010145	12/14/20	12/14/20	SM4500-NH3F-1997	
Total Nitrogen	**16**	0.40	"	"	2010239	12/16/20	12/16/20	SM4500-NH3F/300.0	

California Rural Water Association	Project:	Wild Wings	
1234 N. Market Blvd.	Project Number:	[none]	**CLS Work Order #: 20L0506**
Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Conventional Chemistry Parameters by APHA/EPA Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-5R (20L0506-05) Water Sampled: 12/09/20 10:30 Received: 12/09/20 15:01									
Ammonia as N	ND	0.10	mg/L	1	2010118	12/11/20	12/11/20	SM4500-NH3F-1997	
Chloride	**92**	2.5	"	5	2010024	12/10/20	12/10/20	EPA 300.0	
Nitrate as N	**2.8**	0.40	"	1	"	"	12/10/20	"	
Nitrite as N	ND	0.40	"	"	"	"	"	"	QC-2H
pH	**7.95**	0.01	pH Units	"	2010043	12/10/20	12/10/20	SM4500-H B	HT-F
Total Dissolved Solids	**550**	10	mg/L	"	2010163	12/14/20	12/16/20	SM2540C	
Total Kjeldahl Nitrogen	**0.24**	0.20	"	"	2010145	12/14/20	12/14/20	SM4500-NH3F-1997	
Total Nitrogen	**3.0**	0.40	"	"	2010239	12/16/20	12/16/20	SM4500-NH3F/300.0	
MW-6 (20L0506-06) Water Sampled: 12/09/20 10:15 Received: 12/09/20 15:01									
Ammonia as N	ND	0.10	mg/L	1	2010118	12/11/20	12/11/20	SM4500-NH3F-1997	
Chloride	**130**	5.0	"	10	2010024	12/10/20	12/10/20	EPA 300.0	
Nitrate as N	**16**	4.0	"	"	"	"	12/10/20	"	
Nitrite as N	ND	0.40	"	1	"	"	"	"	QC-2H
pH	**7.11**	0.01	pH Units	"	2010043	12/10/20	12/10/20	SM4500-H B	HT-F
Total Dissolved Solids	**1000**	10	mg/L	"	2010163	12/14/20	12/16/20	SM2540C	
Total Kjeldahl Nitrogen	ND	0.20	"	"	2010145	12/14/20	12/14/20	SM4500-NH3F-1997	
Total Nitrogen	**16**	0.40	"	"	2010239	12/16/20	12/16/20	SM4500-NH3F/300.0	

California Rural Water Association	Project:	Wild Wings
1234 N. Market Blvd.	Project Number:	[none]
Sacramento, CA 95834	Project Manager:	Dan Demoss

CLS Work Order #: 20L0506
COC #: 211197

Metals (Dissolved) by EPA 200 Series Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (20L0506-02) Water Sampled: 12/09/20 11:15 Received: 12/09/20 15:01									
Boron	**5100**	50	µg/L	1	2010196	12/15/20	12/15/20	EPA 200.7	
Iron	ND	100	"	"	"	"	"	"	
Manganese	ND	20	"	"	"	"	"	"	
Sodium	**110000**	1000	"	"	"	"	"	"	
MW-2 (20L0506-03) Water Sampled: 12/09/20 11:00 Received: 12/09/20 15:01									
Boron	**5200**	50	µg/L	1	2010196	12/15/20	12/15/20	EPA 200.7	
Iron	ND	100	"	"	"	"	"	"	
Manganese	ND	20	"	"	"	"	"	"	
Sodium	**110000**	1000	"	"	"	"	"	"	
MW-4 (20L0506-04) Water Sampled: 12/09/20 10:45 Received: 12/09/20 15:01									
Boron	**880**	50	µg/L	1	2010196	12/15/20	12/15/20	EPA 200.7	
Iron	ND	100	"	"	"	"	"	"	
Manganese	ND	20	"	"	"	"	"	"	
Sodium	**44000**	1000	"	"	"	"	"	"	
MW-5R (20L0506-05) Water Sampled: 12/09/20 10:30 Received: 12/09/20 15:01									
Boron	**2000**	50	µg/L	1	2010196	12/15/20	12/15/20	EPA 200.7	
Iron	ND	100	"	"	"	"	"	"	
Manganese	ND	20	"	"	"	"	"	"	
Sodium	**82000**	1000	"	"	"	"	"	"	
MW-6 (20L0506-06) Water Sampled: 12/09/20 10:15 Received: 12/09/20 15:01									
Boron	**5000**	50	µg/L	1	2010196	12/15/20	12/15/20	EPA 200.7	
Iron	ND	100	"	"	"	"	"	"	
Manganese	ND	20	"	"	"	"	"	"	
Sodium	**100000**	1000	"	"	"	"	"	"	

California Rural Water Association	Project:	Wild Wings	
1234 N. Market Blvd.	Project Number:	[none]	**CLS Work Order #: 20L0506**
Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Microbiological Parameters by APHA Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-1 (20L0506-02) Water Sampled: 12/09/20 11:15 Received: 12/09/20 15:01									
Total Coliforms	<1.8	1.8	MPN/100 mL	1	2010035	12/09/20	12/11/20	SM 9221	
MW-2 (20L0506-03) Water Sampled: 12/09/20 11:00 Received: 12/09/20 15:01									
Total Coliforms	<1.8	1.8	MPN/100 mL	1	2010035	12/09/20	12/11/20	SM 9221	
MW-4 (20L0506-04) Water Sampled: 12/09/20 10:45 Received: 12/09/20 15:01									
Total Coliforms	<1.8	1.8	MPN/100 mL	1	2010035	12/09/20	12/11/20	SM 9221	
MW-5R (20L0506-05) Water Sampled: 12/09/20 10:30 Received: 12/09/20 15:01									
Total Coliforms	<1.8	1.8	MPN/100 mL	1	2010035	12/09/20	12/11/20	SM 9221	
MW-6 (20L0506-06) Water Sampled: 12/09/20 10:15 Received: 12/09/20 15:01									
Total Coliforms	<1.8	1.8	MPN/100 mL	1	2010035	12/09/20	12/11/20	SM 9221	

California Rural Water Association	Project:	Wild Wings	
1234 N. Market Blvd.	Project Number:	[none]	**CLS Work Order #: 20L0506**
Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Trihalomethanes by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Trip Blank (20L0506-01) Water Sampled: 12/09/20 07:30 Received: 12/09/20 15:01									
Bromodichloromethane	ND	0.50	µg/L	1	2010032	12/09/20	12/09/20	EPA 524.2	
Bromoform	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*108 %*		*70-130*		"	"	"	
Surrogate: Toluene-d8		*105 %*		*70-130*		"	"	"	
MW-1 (20L0506-02) Water Sampled: 12/09/20 11:15 Received: 12/09/20 15:01									
Bromodichloromethane	ND	0.50	µg/L	1	2010032	12/09/20	12/09/20	EPA 524.2	
Bromoform	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*110 %*		*70-130*		"	"	"	
Surrogate: Toluene-d8		*106 %*		*70-130*		"	"	"	
MW-2 (20L0506-03) Water Sampled: 12/09/20 11:00 Received: 12/09/20 15:01									
Bromodichloromethane	ND	0.50	µg/L	1	2010032	12/09/20	12/09/20	EPA 524.2	
Bromoform	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*113 %*		*70-130*		"	"	"	
Surrogate: Toluene-d8		*105 %*		*70-130*		"	"	"	

California Rural Water Association	Project:	Wild Wings	
1234 N. Market Blvd.	Project Number:	[none]	**CLS Work Order #: 20L0506**
Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Trihalomethanes by EPA Method 524.2

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-4 (20L0506-04) Water Sampled: 12/09/20 10:45 Received: 12/09/20 15:01									
Bromodichloromethane	ND	0.50	µg/L	1	2010032	12/09/20	12/09/20	EPA 524.2	
Bromoform	ND	0.50	"	"	"	"	"	"	
Chloroform	ND	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Total Trihalomethanes (THM)	ND	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*94 %*		*70-130*		"	"	"	
Surrogate: Toluene-d8		*104 %*		*70-130*		"	"	"	
MW-5R (20L0506-05) Water Sampled: 12/09/20 10:30 Received: 12/09/20 15:01									
Bromodichloromethane	**5.8**	0.50	µg/L	1	2010032	12/09/20	12/09/20	EPA 524.2	
Bromoform	**6.0**	0.50	"	"	"	"	"	"	
Chloroform	**6.3**	0.50	"	"	"	"	"	"	
Dibromochloromethane	**7.4**	0.50	"	"	"	"	"	"	
Total Trihalomethanes (THM)	**25**	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*108 %*		*70-130*		"	"	"	
Surrogate: Toluene-d8		*104 %*		*70-130*		"	"	"	
MW-6 (20L0506-06) Water Sampled: 12/09/20 10:15 Received: 12/09/20 15:01									
Bromodichloromethane	ND	0.50	µg/L	1	2010032	12/09/20	12/09/20	EPA 524.2	
Bromoform	ND	0.50	"	"	"	"	"	"	
Chloroform	**1.2**	0.50	"	"	"	"	"	"	
Dibromochloromethane	ND	0.50	"	"	"	"	"	"	
Total Trihalomethanes (THM)	**1.2**	0.50	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*109 %*		*70-130*		"	"	"	
Surrogate: Toluene-d8		*106 %*		*70-130*		"	"	"	

California Rural Water Association	Project:	Wild Wings	
1234 N. Market Blvd.	Project Number:	[none]	**CLS Work Order #: 20L0506**
Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010024 - General Prep										
Blank (2010024-BLK1)				Prepared & Analyzed: 12/10/20						
Chloride	ND	0.50	mg/L							
Nitrite as N	ND	0.40	"							
Nitrate as N	ND	0.40	"							
LCS (2010024-BS1)				Prepared & Analyzed: 12/10/20						
Chloride	4.91	0.50	mg/L	5.00		98	80-120			
Nitrite as N	2.23	0.40	"	2.00		112	80-120			
Nitrate as N	2.05	0.40	"	2.00		102	80-120			
LCS Dup (2010024-BSD1)				Prepared & Analyzed: 12/10/20						
Chloride	4.98	0.50	mg/L	5.00		100	80-120	1	20	
Nitrate as N	2.08	0.40	"	2.00		104	80-120	1	20	
Nitrite as N	2.26	0.40	"	2.00		113	80-120	1	20	
Matrix Spike (2010024-MS1)		**Source: 20L0552-01**		Prepared & Analyzed: 12/10/20						
Chloride	13.9	0.50	mg/L	5.00	7.78	123	80-120			QM-7
Nitrite as N	1.87	0.40	"	2.00	ND	93	80-120			
Nitrate as N	4.01	0.40	"	2.00	1.48	126	80-120			QM-7
Matrix Spike Dup (2010024-MSD1)		**Source: 20L0552-01**		Prepared & Analyzed: 12/10/20						
Chloride	14.0	0.50	mg/L	5.00	7.78	125	80-120	0.8	20	QM-7
Nitrite as N	1.91	0.40	"	2.00	ND	95	80-120	2	20	
Nitrate as N	4.05	0.40	"	2.00	1.48	128	80-120	0.9	20	QM-7
Batch 2010043 - General Prep										
Duplicate (2010043-DUP1)		**Source: 20L0499-01**		Prepared & Analyzed: 12/10/20						
pH	6.65	0.01	pH Units		6.62			0.452	20	

California Rural Water Association	Project:	Wild Wings	
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Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010118 - General Preparation										
Blank (2010118-BLK1)				Prepared & Analyzed: 12/11/20						
Ammonia as N	ND	0.10	mg/L							
LCS (2010118-BS1)				Prepared & Analyzed: 12/11/20						
Ammonia as N	0.482	0.10	mg/L	0.500		96	80-120			
LCS Dup (2010118-BSD1)				Prepared & Analyzed: 12/11/20						
Ammonia as N	0.487	0.10	mg/L	0.500		97	80-120	0.9	25	
Matrix Spike (2010118-MS1)		**Source: 20L0503-04**		Prepared & Analyzed: 12/11/20						
Ammonia as N	0.611	0.10	mg/L	0.500	0.0863	105	75-125			
Matrix Spike Dup (2010118-MSD1)		**Source: 20L0503-04**		Prepared & Analyzed: 12/11/20						
Ammonia as N	0.617	0.10	mg/L	0.500	0.0863	106	75-125	1	25	
Batch 2010145 - General Preparation										
Blank (2010145-BLK1)				Prepared & Analyzed: 12/14/20						
Total Kjeldahl Nitrogen	ND	0.20	mg/L							
LCS (2010145-BS1)				Prepared & Analyzed: 12/14/20						
Total Kjeldahl Nitrogen	0.509	0.20	mg/L	0.500		102	80-120			
LCS Dup (2010145-BSD1)				Prepared & Analyzed: 12/14/20						
Total Kjeldahl Nitrogen	0.539	0.20	mg/L	0.500		108	80-120	6	20	
Matrix Spike (2010145-MS1)		**Source: 20L0478-01**		Prepared & Analyzed: 12/14/20						
Total Kjeldahl Nitrogen	0.621	0.20	mg/L	0.500	0.178	89	75-125			

California Rural Water Association	Project:	Wild Wings	
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Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010145 - General Preparation										
Matrix Spike Dup (2010145-MSD1)		**Source: 20L0478-01**		Prepared & Analyzed: 12/14/20						
Total Kjeldahl Nitrogen	0.614	0.20	mg/L	0.500	0.178	87	75-125	1	25	
Batch 2010163 - General Preparation										
Blank (2010163-BLK1)				Prepared: 12/14/20 Analyzed: 12/16/20						
Total Dissolved Solids	ND	10	mg/L							
Duplicate (2010163-DUP1)		**Source: 20L0499-06**		Prepared: 12/14/20 Analyzed: 12/16/20						
Total Dissolved Solids	361	10	mg/L		360			0.3	20	

California Rural Water Association	Project:	Wild Wings	
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Metals (Dissolved) by EPA 200 Series Methods - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010196 - EPA 200 Series										
Blank (2010196-BLK1)				Prepared & Analyzed: 12/15/20						
Boron	ND	50	µg/L							
Iron	ND	100	"							
Manganese	ND	20	"							
Sodium	ND	1000	"							
LCS (2010196-BS1)				Prepared & Analyzed: 12/15/20						
Boron	1040	50	µg/L	1000		104	85-115			
Iron	1030	100	"	1000		103	85-115			
Manganese	1050	20	"	1000		105	85-115			
Sodium	5160	1000	"	5000		103	85-115			
Matrix Spike (2010196-MS1)	**Source: 20L0499-01**			Prepared & Analyzed: 12/15/20						
Boron	1030	50	µg/L	1000	9.59	102	70-130			
Iron	2450	100	"	1000	1530	92	70-130			
Manganese	1890	20	"	1000	815	107	70-130			
Sodium	7410	1000	"	5000	2520	98	70-130			
Matrix Spike (2010196-MS2)	**Source: 20L0506-03**			Prepared & Analyzed: 12/15/20						
Boron	6500	50	µg/L	1000	5180	132	70-130			QM-7
Iron	970	100	"	1000	ND	97	70-130			
Manganese	1050	20	"	1000	ND	105	70-130			
Sodium	107000	1000	"	5000	109000	NR	70-130			QM-7

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Trihalomethanes by EPA Method 524.2 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010032 - EPA 5030 Water MS										
Blank (2010032-BLK1)				Prepared & Analyzed: 12/09/20						
Bromodichloromethane	ND	0.50	µg/L							
Bromoform	ND	0.50	"							
Chloroform	ND	0.50	"							
Dibromochloromethane	ND	0.50	"							
Total Trihalomethanes (THM)	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	*10.7*		*"*	*10.0*		*107*	*70-130*			
Surrogate: Toluene-d8	*10.4*		*"*	*10.0*		*104*	*70-130*			
LCS (2010032-BS1)				Prepared & Analyzed: 12/09/20						
Bromodichloromethane	18.5	0.50	µg/L	20.0		93	70-130			
Bromoform	21.9	0.50	"	20.0		110	70-130			
Chloroform	22.0	0.50	"	20.0		110	70-130			
Dibromochloromethane	22.7	0.50	"	20.0		113	70-130			
Surrogate: 1,2-Dichloroethane-d4	*11.3*		*"*	*10.0*		*113*	*70-130*			
Surrogate: Toluene-d8	*11.0*		*"*	*10.0*		*110*	*70-130*			
LCS Dup (2010032-BSD1)				Prepared & Analyzed: 12/09/20						
Bromodichloromethane	22.1	0.50	µg/L	20.0		111	70-130	18	30	
Bromoform	23.8	0.50	"	20.0		119	70-130	8	30	
Chloroform	22.1	0.50	"	20.0		111	70-130	0.7	30	
Dibromochloromethane	23.8	0.50	"	20.0		119	70-130	5	30	
Surrogate: 1,2-Dichloroethane-d4	*11.7*		*"*	*10.0*		*117*	*70-130*			
Surrogate: Toluene-d8	*11.0*		*"*	*10.0*		*110*	*70-130*			
Matrix Spike (2010032-MS1)	**Source: 20L0393-01**			Prepared & Analyzed: 12/09/20						
Bromodichloromethane	37.9	0.50	µg/L	20.0	1.07	184	60-140			QM-7
Bromoform	28.7	0.50	"	20.0	ND	143	60-140			QM-7
Chloroform	38.6	0.50	"	20.0	9.81	144	60-140			QM-7
Dibromochloromethane	30.3	0.50	"	20.0	ND	151	60-140			QM-7
Surrogate: 1,2-Dichloroethane-d4	*8.47*		*"*	*10.0*		*85*	*70-130*			
Surrogate: Toluene-d8	*11.3*		*"*	*10.0*		*113*	*70-130*			

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Trihalomethanes by EPA Method 524.2 - Quality Control

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 2010032 - EPA 5030 Water MS										
Matrix Spike Dup (2010032-MSD1)	**Source: 20L0393-01**			Prepared & Analyzed: 12/09/20						
Bromodichloromethane	36.8	0.50	µg/L	20.0	1.07	179	60-140	3	30	QM-7
Bromoform	27.4	0.50	"	20.0	ND	137	60-140	4	30	
Chloroform	38.2	0.50	"	20.0	9.81	142	60-140	1	30	QM-7
Dibromochloromethane	29.5	0.50	"	20.0	ND	147	60-140	3	30	QM-7
Surrogate: 1,2-Dichloroethane-d4	*9.37*		*"*	*10.0*		*94*	*70-130*			
Surrogate: Toluene-d8	*11.1*		*"*	*10.0*		*111*	*70-130*			

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Sacramento, CA 95834	Project Manager:	Dan Demoss	COC #: 211197

Notes and Definitions

QM-7	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS and/or LCSD recovery.
QC-2H	The recovery of one CCV was greater than the acceptance limit. However, all analytes in the associated samples were ND; therefore a reanalysis was not performed.
HT-F	This is a field test method and it is performed in the lab outside holding time.
BT-4	<1.8
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit (or method detection limit when specified)
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference