MARIN WATER

October 2021

KJ 2168001

2020 Watershed Sanitary Survey Update

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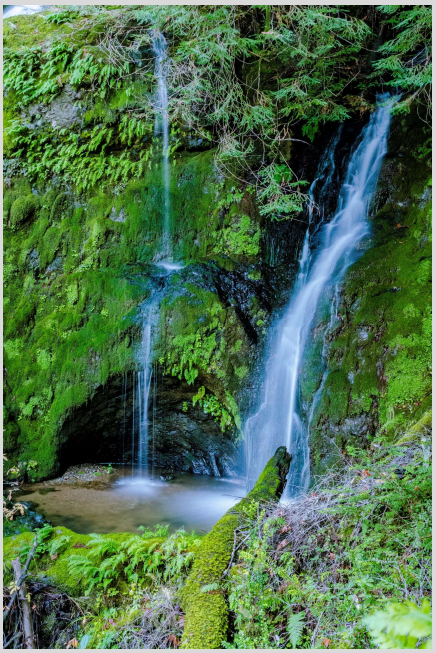

Photo Credit: Matt Cerkel, Senior Park Ranger
Upper : Alpine Lake From Liberty Gulch Trail
Lower Left: : Spotted Coral Root
Lower Right: Cataract Creek

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2020 Watershed Sanitary Survey Update

20 October 2021

Prepared for

MARIN WATER

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KJ Project No. 2168001*00

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Table of Contents

Table of Contents (cont'd)

Table of Contents (cont'd)

Table of Contents (cont'd)

List of Tables

Table of Contents (cont'd)

List of Figures

List of Appendices

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Section 1 Status of 2015 Watershed Sanitary Survey Recommendations

1.1 Background

The Marin Municipal Water District (MMWD, District or Marin Water) is a purveyor of drinking water obtained from seven reservoirs in Marin County. As a drinking water supply agency that draws from a surface water supply, MMWD was required under the California Surface Water Treatment Rule to conduct a watershed sanitary survey (WSS) in 1995 and to conduct updates to the WSS every 5 years thereafter. This document is the fifth update to the 1995 WSS and fulfills MMWD's requirement to complete an updated WSS every five years. The focus of the 1995 WSS was to recommend measures that a water purveyor can implement to preserve and improve the quality of their surface water supplies. The focus of the WSS update is to identify the changes to the information provided in the original WSS and the most recent 2015 update.

This WSS update addresses MMWD's seven local surface water reservoirs that are located in two major watersheds, the Mount Tamalpais Watershed and the Soulajule/Nicasio Watershed. MMWD also treats water that is supplied by the Sonoma County Water Agency (SCWA) from the Russian River; SCWA is addressing the WSS update requirements for the Russian River supply in a separate study.

Pursuant to the recommendation of the State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW) (formerly Department of Public Health (DPH)) staff[1], this WSS update is intended to be a short update report to the 2015 WSS update and is intended to provide information on the changes that have occurred since 2015 to the various aspects of the original WSS.

1.2 Status of Recommendations from Prior WSS

The 2010 WSS Update recommended follow-up to two programs for watershed management from the original 1995 WSS, 1. the Sanitary Survey Action Plan (SSAP) for activities in the five years from 1995 – 2000 and 2. the Watershed Management Practice Investigation (WMPI) for long-term watershed management beyond the five-year horizon. The following is a summary of the recommendations from 1995 and the activities that MMWD has conducted in response to the recommendations.

1.2.1 Sanitary Survey Action Plan (SSAP)

1.2.1.1 Overall Watershed Recommendations (beneficial to both watersheds)

Summary of SSAP Recommendation 1: As described in the original 1995 WSS and continued in the 2000, 2005, 2010, and 2015 WSS Updates, MMWD should maintain its existing watershed

[1] DPH is the acronym used if it is appropriate for the time the activity occurred or the regulation was in place.

management public outreach efforts. Watershed management and public information staff should continue to work together to develop and conduct watershed management public outreach efforts.

Status of Recommendation 1: Since 2015, MMWD has continued to coordinate its watershed management and public outreach efforts. MMWD continues to participate in the Tamalpais Lands Collaborative (One Tam). The Mount Tamalpais watershed, in particular, is heavily used for public recreational use, which has increased during the COVID-19 pandemic. MMWD has increased their efforts to accommodate extra visitation by increasing the frequency of port-a-potty servicing, coordinating with the local conservation corps and individual volunteers for additional trash management.

Active community input has continued since 2015 and is reported on the District's website. MMWD volunteers assist the District in trail maintenance, habitat restoration, and endangered species protection. Current volunteer programs include watershed cleanups to remove trash from high-use areas and promote responsible use of the watershed. Typically, MMWD coordinates other volunteer programs that include activities such as non-native plant removal, trail maintenance, invasive plant surveying, habitat restoration, monitoring foothill yellow-legged frog and western pond turtle populations, and public outreach. These programs are currently on hold due to COVID-19, however, MMWD is in the process of modifying these activities to comply with physical distancing guidelines. Volunteer activities are well documented on the District's web site (www.marinwater.org). The Watershed Greeter Program is currently active. Volunteers are stationed throughout the watershed to share updates about park programs and events and encourage community engagement. In light of COVID-19 and the increase in visitation, Watershed Greeters also assist the District in enforcing social distancing regulations and mitigating visitor behavior.

MMWD anticipates continuing its watershed management public outreach efforts in collaboration with other agencies and entities and will report on the activities in future WSS updates.

Summary of SSAP Recommendation 2: MMWD should continue to communicate with Marin County (County) Planning Department staff regarding watershed and watershed management issues during County General Plan Updates.

Status of Recommendation 2: Since 1995, MMWD staff has communicated with County staff regarding erosion control and concerns on several occasions. In November 2007, the County adopted the Countywide Plan Update and Environmental Impact Report. MMWD staff input and documents such as the Vegetation Management Plan and Urban Water Management Plan were used in the preparation of the Countywide Plan Update. One of the major themes of the Countywide Plan Update is sustainability which has resulted in several guiding principles that are relevant to watershed protection as follows:

- Use finite and renewable resources efficiently and effectively.
- Reduce the release of hazardous materials.
- Steward natural and agricultural assets.

The County updated the Housing Element of the Countywide Plan in 2014 but it did not result in changes that were relevant to the WSS. Future updates should be reviewed for future WSS updates.

As discussed in Section 2, in addition to the Countywide Plan, since 2010, Marin County and other regulatory agencies have continued activities that result in increased awareness of watershed management and water quality issues that includes Marin County Stormwater Pollution Prevention Program (MCSTOPPP) and the Marin County Resource Conservation District (MCRCD) efforts to reduce pollution from horse stables by conducting inspections, offering educational resources, and preparing guidelines. These resources are available at the MCSTOPPP website (www.mcstoppp.org). Furthermore, the Regional Water Quality Control Board (Regional Board) continues to implement a total mass daily loading (TMDL) for pathogens and mercury in Tomales Bay and mercury in Walker Creek.

MMWD anticipates continuing to monitor the activities of the County and communicating with County and other agency staff on an as-needed basis and will report on its activities in future WSS updates.

1.2.1.2 Mount Tamalpais Watershed Recommendations:

There were no recommendations specifically for the Mount Tamalpais Watershed for the SSAP therefore no status is provided. It should be noted that in 2005, the MMWD Board of Directors adopted a Road and Trails Management Plan (RTMP) for the Mount Tamalpais Watershed which is focused on minimizing erosion and other water quality impacts from roads and trails. MMWD staff continues to implement the RTMP. Additionally, MMWD has replaced the Vegetation Management Plan and the 2012 Draft Wildfire Protection and Habitat Improvement Plan (WPHIP) with the 2019 Biodiversity, Fire, and Fuels Integrated Plan (BFFIP).

1.2.1.3 Soulajule/Nicasio Watershed Recommendations:

Summary of SSAP Recommendation 5: MMWD should continue to interact with County staff in the Flood Control, Land Development, and Planning divisions regarding coordination of water quality issues and enforcement of the grading and erosion control ordinances

Status of Recommendation 5: MMWD staff has continued to observe enforcement of policies to address water quality in the County in general including continued County support for the County Public Works Department county-wide program MCSTOPPP program in compliance with the Phase II Stormwater National Pollutant Discharge Elimination System (NPDES) permit). MCSTOPPP serves to coordinate federal- and state- mandated municipal stormwater programs with local efforts to preserve and enhance creek and wetland habitat. The Phase II Stormwater permit that governs Marin County was updated in 2018. As discussed in Section 3.2.4.3.1, MCSTOPPP has replaced the Stormwater Management Plan and annual reports documenting NPDES compliance activities with individual programs centered around topics such as Education and Outreach, Erosion and Sediment Control and Construction runoff control.

MMWD staff will continue to monitor the activities of MCSTOPPP and interact with MCSTOPPP, the County Flood Control, Land Development Division, as well as the Planning Department as

necessary in an effort to coordinate water quality issues and will report on activities in future WSS updates.

Summary of SSAP Recommendation 7: MMWD should continue the practice of interacting with County Planning Department staff and implementing the Watershed Protection Agreement (WPA) program.

Status of Recommendation 7: MMWD staff continues to interact with County Planning Department staff on an as-needed basis. MMWD staff continues to work well with County staff to identify those projects that require County permits. The County permit is then used as a mechanism to implement WPA for the property. The WPA delineates limitations on the type of development on the property and procedures for review and approval for development on the property. WPAs require new development to have setbacks of at least 200 feet from a reservoir and 100 feet from a tributary. MMWD has currently has 79 WPAs in place in the Nicasio and Lagunitas watersheds (no change since the 2015 WSS). MMWD will continue to report on the number of WPAs and other activities related to this recommendation in future WSS updates.

Summary of SSAP Recommendation 8: To improve property owners' education within the Nicasio Reservoir subwatershed, it was recommended that MMWD prepare an informational brochure in 2001 and continue annual spring Trash pick-up days of the Reservoir shoreline and adjacent public roads.

Status of Recommendation 8: Trash pick-up day at the reservoir and adjacent public roads occur occasionally and are led either by North Bay Conservation Corps crews and/or by local citizen volunteers. In addition, hazardous waste disposal services in Marin County are provided either by drop-off at the hazardous waste recycling center provided by Marin Sanitary Service (www.marinsanitary.com) in San Rafael.

Although an informational brochure was not prepared, MMWD staff directs homeowners in the watershed to the resources provided by the Marin Hazardous and Solid Waste Joint Power Authority and other agency resources when needed. In addition, both MMWD staff and board members continue to meet with the public on water supply, water quality and watershed management issues; records of these meetings are maintained by MMWD staff.

Summary of SSAP Recommendation 9: MMWD will send a letter to property owners documenting the current state of repair of the fence around Nicasio Reservoir by March 2001, will continue to inspect the fence annually, and make repairs to the fence as needed.

Status of Recommendation 9: The fence around Nicasio Reservoir continues to be inspected and repaired by MMWD as necessary to restrict cattle from entering the reservoir. MMWD will continue to inspect the fence annually, make or coordinate repairs to the fence with property owners as needed. Water from Soulajule Reservoir is rarely used but is being considered for regular use in the future and fencing will be inspected if the reservoir is brought into regular service. MMWD coordinates with the Marin Resource Conservation District (Marin RCD) to promote fencing practices by private landowners in the Soulajule/Nicasio watersheds to manage drainage into the reservoir.

Summary of SSAP Recommendation 10: MMWD should meet with Marin RCD to discuss the possibility of conducting projects that provide watershed protection benefits for implementation within the Soulajule/Nicasio Watershed. A goal was set that one project in Soulajule/Nicasio watershed should be planned with MCRCD by 2005.

Status of Recommendation 10: MMWD previously had a contract with Marin RCD, first signed in 1995 for maintenance on erosion control projects in the Lagunitas Creek watershed and for annual streambed monitoring which lapsed in 2007 due to funding restrictions. However, contact between MMWD and local resource conservation programs occurs through the Board's Conservation Action Committee which can coordinate conservation activities of mutual benefit. MMWD has completed the GIS mapping of all unpaved roads within the Lagunitas Creek Watershed. GIS has also been used to document MMWD's culvert assessment.

Summary of SSAP Recommendation 11: MMWD should continue tributary monitoring four times a year during the winter months on Upper and Lower Halleck Creek and Upper and Lower Nicasio Creek and added tributary monitoring of Dolcini Creek and La Franchi Creeks in 2000 upon DPH recommendations

Status of Recommendation 11: MMWD has continued tributary monitoring four times a year during the winter months on Upper and Lower Halleck Creek; Upper and Lower Nicasio Creek and Dolcini and La Franchi Creeks since 2000 as reported in Section 5. The activities and results of the monitoring will be reported in future WSS updates.

1.2.1.4 Inactive SSAP Recommendations

SSAP Recommendation 3: The recommendation to create "Sanitary Survey" files to record changes in the watersheds, unusual events which occur in the watersheds, water quality monitoring results, and changes to the WTPs was removed in 2000 as there are insufficient staff resources.

SSAP Recommendation 4: This recommendation to remove manure from the two manure ponds observed during the 1995 survey adjacent to the Soulajule reservoir, and abandon the ponds was removed from the 2000 WSS update and all future WSS updates because it was determined that the ponds are a very unlikely source of *cryptosporidium* and *giardia.* Furthermore, it was established that emptying the ponds was economically impractical because of the large volume of water.

SSAP Recommendation 6: The recommendation for MMWD to continue to monitor activities of the County Environmental Health Services (EHS) staff on implementing the recommendations of the 2000 County Civil Grand Jury to regulate on-site wastewater disposal (septic systems) and provide public education to promote proper septic system function and maintenance has been removed from WSS updates because there are now updated septic regulations in place that are protective of source water quality.

1.2.2 Watershed Management Practice Investigation (WMPI)

In the 1995 WSS, a Watershed Management Practice Investigation (WMPI) was prepared to

identify potential long-term watershed management practices that could require further MMWD investigation before they can be fully developed. The 1995 WSS anticipated that the recommendations for the Watershed Management Practice Investigation will likely not be acted upon by 2000 but need to be brought to the attention of MMWD staff, management, and Board of Directors.

Summary of WMPI Recommendation 2: In the 1995 WSS, it was thought that increased recreational use of the Mount Tamalpais Watershed could result in more erosion and microbiological contamination. However, water quality data collected from 2010-2015 did not indicate noticeable differences in turbidity or other water quality parameters from the reservoirs as measured as raw water from Bon Tempe WTP. MMWD staff continues to monitor trail use, close illegal trails, inspect culverts and identify roads for repair or retirement. In an effort to effectively manage the information related to trails, a geographic information system (GIS) has been implemented for culvert inspections.

Status of Recommendation 2: Currently, MMWD continues to implement the Mount Tamalpais RTMP which included an inventory and condition assessment of roads and trails which were documented in a GIS. Participation in the One Tam cooperative program further leverages MMWD resources to improve source water quality.

As discussed in Section 3.2.14, recreational use surveys estimate about 1.8 million visitors to the Mount Tamalpais watershed. It does not appear that this level of recreational use has resulted in water quality impacts. During periods of high recreational usage (such as the COVID-19 pandemic), MMWD mitigates potential water quality impacts by adding port-a-potties as necessary and increasing the frequency of servicing, increasing trash pickups, upgrading trash cans, and incorporating visitor behavior mitigation into the Watershed Greeter Program. MMWD will continue to monitor water quality and implement the RTMP in cooperation with One Tam. These and other activities will be reported in future WSS updates.

Summary of WMPI Recommendation 3: As described in Section 1.2 above, MMWD has been monitoring the creeks draining to Nicasio Reservoir to evaluate the potential impacts of cattle and horse grazing, especially on the private lands in Nicasio, Dolcini and La Franchi Creeks. In 2000, 2005, and 2010, MMWD monitoring of the tributaries four times a year had not indicated conclusive trends because of the scatter in the data. In addition, it did not appear that significant water quality contamination was occurring and no plan was developed at that time.

Status of Recommendation No. 3: Monitoring of Dolcini and La Franchi Creeks continues as does monitoring on Upper and Lower Halleck Creek, Upper Nicasio Creek, and Lower Nicasio Creek. Sampling occurs monthly on the third Wednesday of the month. As expected, seasonal variations in water quality parameters occur but no long-term trends are observed. More detailed discussion of the tributary monitoring activities of all the creeks is reported in Section 5 of this report and will be continued in subsequent WSS updates.

Summary of WMPI Recommendation 4: Concerns regarding controlling grazing animal access to Soulajule Reservoir are complicated by agreements that MMWD established with property owners that their cattle could obtain water directly from the reservoir during reservoir construction in 1979. However, the risk of microbial contamination is minimized because water from Soulajule Reservoir is infrequently pumped to the San Geronimo WTP and it is not certain that controlling access to

Soulajule Reservoir is a cost-effective means of preventing contamination by Cryptosporidium or Giardia.

Status of Recommendation No. 4: As part of compliance with the Long-term 2 Enhanced Surface Water Treatment Rule, MMWD conducted Cryptosporidium and Giardia testing on a semimonthly schedule for two years between October 2006 and September 2008 as discussed in Section 5.5.5. The were no detectable levels of cryptosporidium and Giardia in the source waters for both Bon Tempe and San Geronimo WTPs during this sampling which is consistent with prior monitoring conducted by MMWD between October 1994 and July 2000. MMWD has recently been contacted by the San Francisco Regional Water Quality Control Board's Grazing Waiver Program staff who were concerned that grazing cattle access to Soulajule Reservoir could be contributing pathogens. MMWD. Since water from the Soulajule Reservoir continues to be infrequently used, access control such as fencing is not being considered at the time. Reservoir fencing is a long-term capital project, and its timeline can be escalated if the Soulajule Reservoir becomes more frequently used and contamination due to grazing becomes a concern.

1.2.2.1 Inactive WMPI Recommendations

WMPI Recommendation 1: The identification of the Fairfax-Bolinas Road as a vulnerability in MMWD's Mount Tamalpais Watershed protection program in the 1995 WSS was removed as a recommendation in 2000 because water quality data do not support the potential risk of the road.

Water quality monitoring will continue, however, no further action on this recommendation will be taken.

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Section 2 Watershed and Supply System

Changes to MMWD's local watersheds, raw water supply system, and water treatment plants since 2005 are described in this chapter.

2.1 MMWD Project Watershed

There have been modest increases in population within the MMWD watershed over the last 20 years. The 1995 WSS indicated that MMWD served a population of 170,000, while the 2000 WSS update reported a service population of 185,000, the 2005 WSS update reported a population of 190,000, the 2010 WSS update reported a population of 195,000, and the 2015 WSS update reported a population of 187,500. The current population served by MMWD is approximately 191,000.

MMWD's Adopted Operating and Capital Budget (FY 2020 and 2021) reports that SCWA provides about 7,000 acre-feet (AF) annually which is about 25% of the 28,000 AF per year of water delivered to MMWD customers.

There have been no significant land use changes in either the Mt. Tamalpais or the Nicasio/Soulajule watersheds as shown on Figure 1 and Figure 2. However, several on-going planning and regulatory efforts have been completed since 2015 that provides additional source water quality benefit as summarized below.

2014: MMWD joins the Tamalpais Lands Collaborative (One Tam)

2020-2021: Pine Mountain Tunnel Water Quality Improvement Project

In addition, MMWD continues to implement the Road and Trail Management Plan for the Mount Tamalpais Watershed that was adopted in May 2005.]. The District has also implemented a new Vegetation Management Plan and a Biodiversity, Fire and Fuels Integrated Plan (BFFIP) in 2019. The Regional Board continues regulation of dairies. Furthermore, MCSTOPPP and the Marin County RCD continue to provide public education through studies and guidelines to minimize water quality impacts from horse stables. These regulatory, education, and planning efforts are discussed in greater detail in Section 3.

In 2014, the Tamalpais Lands Collaborative was formed with the intention to unite resources and expertise to care for the Mt. Tamalpais area by having the four major public agencies responsible for Mt. Tamalpais – California State Parks, Marin County Parks, Marin Municipal Water District, and the National Park Service (Golden Gate National Parks) – team up with the nonprofit Golden Gate National Parks Conservancy. The initiative, called One Tam, aims to undertake projects that benefit the health of the area, including trail re-alignment to restore fragile wetlands and reduce sediment load in tributaries, and forest management. These various projects will positively impact the Mt. Tamalpais watershed.

Since 2005, and as of 2020, the last year with beef/dairy cattle reporting, the US Department of Agriculture Cattle Counts Report indicates that the proportion of dairy to beef cattle in Marin County

has reduced by about 11% from 2019, whereby the dairy cattle slightly outnumber the beef cattle in both cases. As of 2020, an estimated 36,000 head of cattle (dairy and beef combined) were in Marin County which is a significant increase from the 13,757 head in 2014. According to the 2019 Livestock and Agricultural Crop Report, poultry farming has reduced by 13% from 2018 to 2019, whereas aquaculture and sheep farming increased significantly. Much of the large land parcels within the watershed are used for grazing beef cattle and, to a lesser extent, sheep.

Besides the Meadow Club Golf Course, no other discrete facilities that have significant potential to impact water quality are located in the watersheds.

2.2 Water Supply System

2.2.1 Bon Tempe WTP

The Bon Tempe WTP has received several significant improvements that improve operations and finished water quality since construction of a new plant intake in 1999. Other improvements include filter improvements in 2002, chemical changes in 2004, sluice gate replacement in 2005, intake inspection and repairs in 2006, clarifier and security improvements in 2008, and controller improvements in 2009 to improve process control reliability. In addition, it also underwent a Treatment Plant Filter Seismic Upgrade in 2018, bringing the filters at the facility up to code to withstand major earthquakes.

In accordance with the 2015 Water Treatment Plant Master Plan (WTP Master Plan), the Bon Tempe WTP is proposed for improvements to rehabilitate the plant to assure its continued service over the next 50 years. This will not only ensure that the plant will operate under normal conditions, but also that it will be able to meet demand under non-routine conditions such as during a power outage, or after a major earthquake. The WTP Master Plan proposed installing new clarifier mechanisms starting in 2016 to improve seismic resiliency as well as other improvements discussed in Section 2.2.3. According to MMWD staff, these projects have been delayed. These and other projects that are proposed to begin after 2020 will be discussed in the next WSS.

2.2.2 San Geronimo WTP

Improvements at San Geronimo WTP have been minimal since 2005. Over the next 20 years there are various upgrades that are proposed in the WTP Master Plan and implemented as described as follows.

San Geronimo Treatment Plant – Clarifier Seismic Upgrade. Clarifiers perform an essential process in water treatment and treatment plant water production would be severely limited if the clarifiers were inoperable. The two clarifiers at San Geronimo Treatment Plant were constructed in 1961 and 1972 and consequently do not meet current seismic standards. This project includes the replacement of the clarifier mechanisms to ensure that the clarifiers can withstand a major seismic event.

San Geronimo Treatment Plant Emergency Generator. San Geronimo Treatment Plant is the District's largest water treatment plant, providing drinking water to nearly 50% of the District's

service area. The District's other two sources of drinking water, Ignacio Treatment Plant and Bon Tempe Treatment Plant, each have emergency power that will allow for continuous delivery of water during a power outage. In light of recent wildfire disasters in Northern California, PG&E has put customers on notice that in the event of a major storm event, PG&E may preemptively shutoff power to sections of their power grid in an effort to prevent wildfire. SGTP does not have an emergency power source, and a prolonged outage of power to the plant could result in the District being unable to meet drinking water demand. This project will install an emergency generator at SGTP that will allow the plant continued operation in the event of a power outage.

2.2.3 Common to both Bon Tempe and San Geronimo WTPs

The District joined with the American Water Works Association and U.S. Environmental Protection Agency in the Partnership for Safe Water in November of 1995. The District completed Phase II of the Partnership Program in August 1997 and Phase III in June 1999. The Partnership set operational goals for turbidity which were added to the Operations Manual. After review and approval of MMWD's Phase III report, Partnership issued the Director's Certificate of Recognition to the District in March 2000 for both the Bon Tempe and San Geronimo WTPs. Based on the results of the 2020 DPH inspection, MMWD continues to meet the goals of the Partnership for Safe Water program.

Capital work at the treatment plants is guided by the Water Treatment Plant Master Plan, completed in September 2015, and includes seismic and process upgrades to both facilities as described earlier. The Treatment Plant Filter Seismic Upgrade at both San Geronimo and Bon Tempe Treatment Plants was completed in 2018, bringing the filters at these facilities up to code to withstand a major earthquake. Additional capital improvements at both plants, are underway including installing a permanent generator at San Geronimo Treatment Plant, and planned for future years, such as seismic upgrades to the clarifiers at San Geronimo Treatment Plant.

The range of influent turbidity from 2015-2020 has ranged from less than 1 NTU up to 8 NTU at Bon Tempe WTP, and less than 1 NTU up to 53 NTU at San Geronimo WTP. Implementation of appropriate water treatment techniques in line with the Partnership goals has allowed MMWD to consistently meet the turbidity limits.

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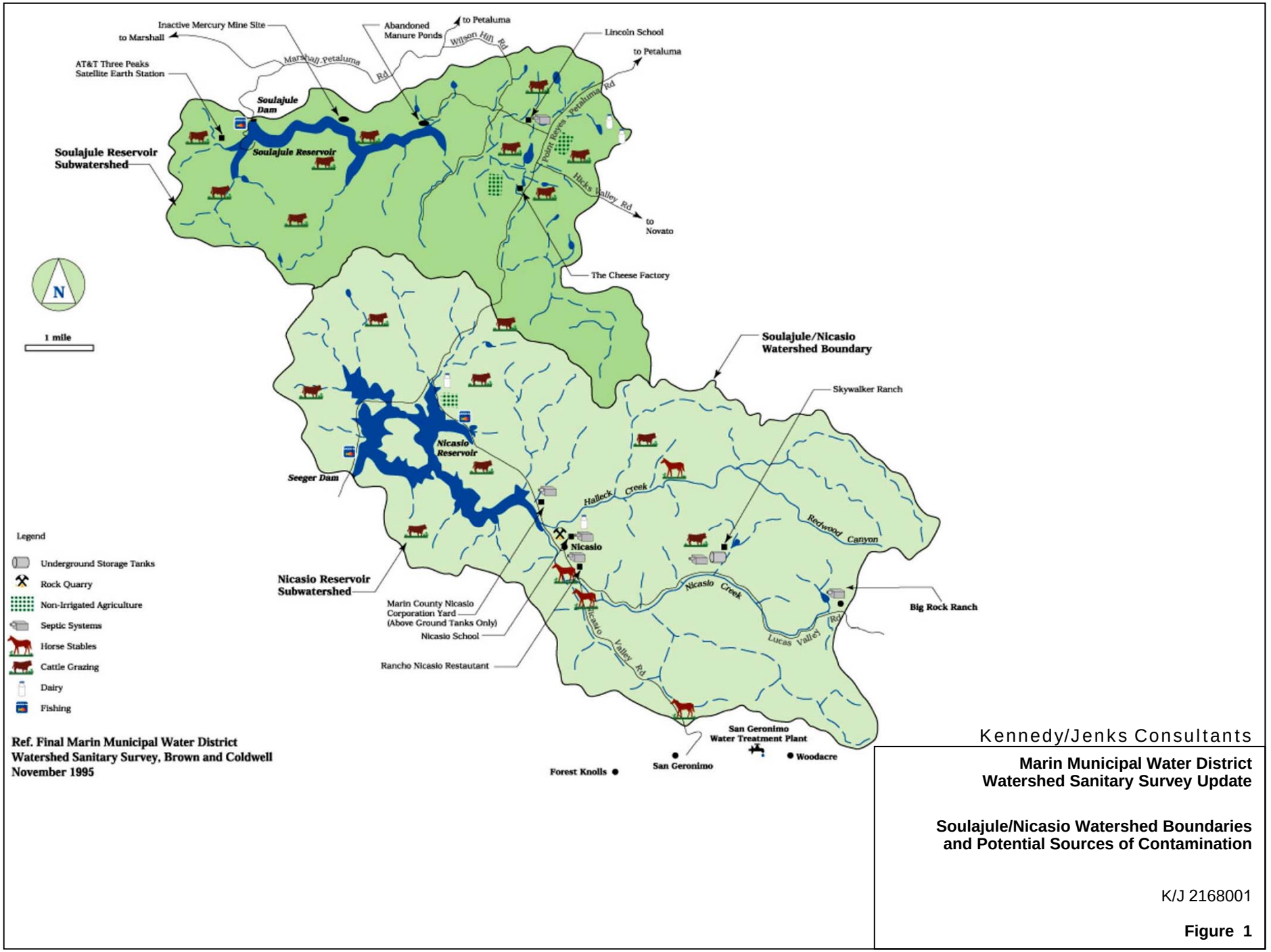
Figure 1: Soulajule/Nicasio Watershed Boundaries and Potential Sources of Contamination



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Watershed Sanitary Survey Update

Soulajule/Nicasio Watershed Boundaries and Potential Sources of Contamination

K/J 2168001

Figure 1

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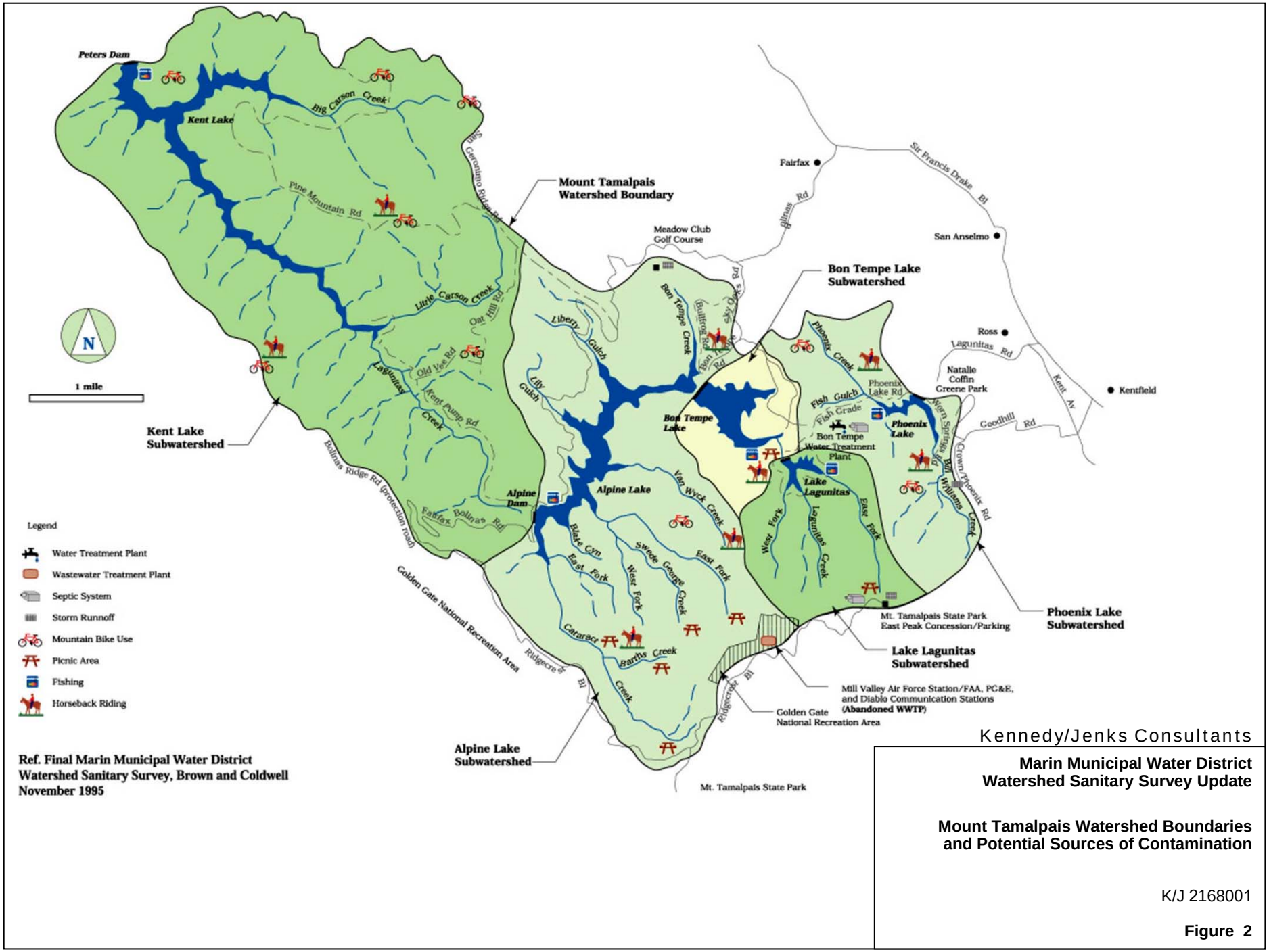
Figure 2: Mount Tamalpais Watershed Boundaries and Potential Sources of Contamination



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Watershed Sanitary Survey Update

Mount Tamalpais Watershed Boundaries and Potential Sources of Contamination

K/J 2168001

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Section 3 Changes to Potential Contaminant Sources

3.1 Update Methods

The changes to the potential contaminant sources were developed after discussion with MMWD staff, telephone interviews with County and agency staff, and research on the Internet.

3.2 Potential Contaminant Sources

3.2.1 Septic Tanks

As a result of updated regulations and no reported septic tank failures since 2010, the potential for contamination from failing septic systems continues to be *negligible to low* within the Soulajule/Nicasio watershed. Although the cumulative effect of failing septic systems is unknown, there have been no complaints of failing septic systems in the last ten years in the Nicasio or Soulajule watersheds. There is an ongoing Ocean and Bay Water Quality project with the Marin County Environmental Health Services (EHS) department, and the only project related to septic is Marshall Onsite Wastewater Disposal System[2] which is not in the watershed. Because of the relatively large lot sizes in the Soulajule/Nicasio watershed and the 200-foot setback from waterways, the potential for significant water quality impacts can be reduced to negligible to low.

The reduction in the potential for significant water quality impacts is supported by the continued efforts of the Marin County EHS to educate and regulate septic tanks in Marin County. The Marin County EHS maintains a Septic Systems Program webpage[3] on its website that provides community members with regulations, permitting, construction and maintenance information regarding septic systems.

In addition, the New Standard and Alternative Septic Systems Regulations was adopted by Marin County in May 2008, which updated the previous septic systems regulations in place since 1984 and incorporated new septic systems technology. The 2008 regulations resulted in systems that produce better quality effluent and also cover specific permitting, design, and construction procedures, general provisions on locations, setbacks, groundwater/soil depth and repair of individual sewage disposal systems. Furthermore, in 2012, the SWRCB approved Resolution No 2012-0032 adopting the Water Quality Control Policy for Siting, Design, Operation and Maintenance of Onsite Wastewater Treatment Systems (OWTS) to establish a statewide, risk-based, tiered approach for regulation and management of OWTS systems, and sets the expected level of performance for OWTS. The SWRCB policy is targeting those properties that are within 600 feet of an impaired water body; otherwise, Marin County regulations and policies apply. The current Residential Operating Permit program requires all alternative systems to be monitored at a specific frequency by a qualified professional or County

[2] https://www.marincounty.org/depts/cd/divisions/environmental-health-services/marshall-wastewater-zone

[3] https://www.marincounty.org/depts/cd/divisions/environmental-health-services/septic-systems

Staff. EHS staff is required by the Bay Area Regional Water Quality Control Board (RWQCB) to submit an annual report based on information reported as a part of the monitoring program.

Marin County EHS adopted new regulations for graywater reuse in 2010 due to the increasing interest of interior reuse from homeowners and from the California Department of Housing and Community Development. The 2013 California Plumbing Code also has an entire Chapter dedicated to non-potable water reuse systems which Marin County EHS references. Graywater is untreated household wastewater which has not come into contact with toilet waste and includes used water from bathtubs, showers, bathroom wash basins, and water from clothes washing machines and laundry tubs. The Marin County EHS maintains a Graywater Systems webpage[4] on its website that provides information on how to implement various types of Graywater Systems in the unincorporated County areas that are relevant to this WSS.

MMWD also offers rebates through its Laundry-to-Landscape (L2L) program to encourage graywater reuse for gardening. L2L graywater reuse does not require any permitting or notification. For simple systems such as residences, the Marin County EHS does not require permits for graywater reuse but does require notification; but for complex systems (industrial or residential uses that have a graywater demand greater than 250 GPD) and on-site treated non-potable graywater systems (uses such as water closets, urinals, trap primers for floor drains and sinks, ground irrigation etc.), a permit from the County will be required. Plumbing permits from the Building and Safety Division may also be required where plumbing will be altered. MMWD hosts periodic L2L Graywater Workshops to expand public information on graywater reuse. Graywater does not include wastewater from kitchen sinks, dishwashers or laundry water from soiled diapers, so the potential for water quality impacts is low as long as the regulations are followed. It is recommended that MMWD continue to monitor graywater reuse in the upcoming five years to evaluate whether the regulations and enforcement are continuing to protect water quality in the MMWD watersheds.

In the Mount Tamalpais watershed, the former Mill Valley Air Force Station was historically a source of potential contaminants. However, there are no longer residents at the facility and the well and power facilities have been disconnected therefore, there is no longer flow to the wastewater treatment plant. The site is currently used for Federal Aviation Authority (FAA) facilities. MMWD has a lease agreement with FAA which gives the District some control over the site, but there is no identified contamination at the site. The FAA has 1 person on-site for 2-3 hours per day and a portable toilet is on site for staff use. Demolition and removal of all pre-2015 structures at the former air force station which was planned per the 2015 report, has been completed. Recently, the contaminated soils at West Peak (former military site) have also been cleaned up (remediated and removed). Given that the WWTP no longer receives flow, the threat of contamination from this source has been reduced from negligible to none.

3.2.2 Bon Tempe and San Geronimo WTP Sludge Drying

MMWD continues to operate and maintain the 2 part sludge drying ponds at Bon Tempe WTP for solids dewatering from the flocculation-sedimentation tank. The sludge drying pond is located 200 yards from the arm of Bon Tempe Lake where the Bon Tempe WTP draws its

[4] https://www.marincounty.org/depts/cd/divisions/environmental-health-services/graywater-systems

water. One pond is allowed to dry while wet sludge is placed in the other. The 2-section pond provides the storage and flexibility necessary to be able to store the sludge even during an extended period of rain.

There is another sludge pond at San Geronimo Treatment Plant, which was re-graded in 2020. The sludge pond floor was regraded for proper water drainage to assist in the drying process of the sludge to be hauled off to a landfill. Thus, the threats to drinking water quality from this method of sludge management continue to remain low.

3.2.3 Reclaimed Water

As discussed in Section 3.2.1, with the disconnection of the water supply, the Mill Valley Air Force Station WWTP no longer has flows to treat. Therefore, there is no longer reclaimed water use in the MMWD watersheds and there is no longer any threat to drinking water quality from this wastewater treatment facility.

3.2.4 Urban/Industrial Runoff

The level of urbanization in the Mount Tamalpais, Soulajule and Nicasio watersheds continues to be limited. All new development in the regions mostly comprises of homes. Mt. Tamalpais is limited in terms of development since it is largely a public land (state parks). As a protected watershed, there is no industrial development in the Mount Tamalpais and limited industrial development occurs in the Soulajule and Nicasio watersheds. The largest potential sources of stormwater runoff in the watersheds continue to be – erosion from trails and runoff from impervious surfaces such as roads in all of the watersheds, Meadow Club Golf Course in the Alpine Lake sub-watershed of the Mount Tamalpais watershed and compacted soils at stables and dairies, in the Soulajule and Nicasio watersheds.

3.2.4.1 Meadow Club Golf Course

Of these sources, the Meadow Club Golf Course (MCGC) continues to be the most significant recreational water quality threat. MCGC applies pesticides and fertilizers on the golf course and is a potential source of chemicals particularly because the pond that collects the runoff from most of the golf course overflows into Alpine Lake during the rainy season. MMWD conducted regular monitoring of the golf course pond for herbicides, pesticides, and other synthetic organic chemicals between 1976 and 2008. The samples were analyzed using EPA Methods 515.3 and 547 which are for herbicides including Dicamba and glyphosate, commonly used at Meadow Club. Both Dicamba and glyphosate have not been detected in the annual sampling runs conducted in 2016 and 2017. Pesticide levels in samples from 2016 and 2017 were also non-detect.

In addition, sampling for the same constituents in the lakes has always returned values below the detection limits which is likely because the lakes are a significantly larger volume than the pond. The 500,000-gallon MCGC pond is greatly diluted by the much larger volume of the MMWD reservoirs. Alpine Lake contains 2,900,000,000 gallons and provides a 5,800 to 1 dilution. Because Alpine Lake is not used directly as water supply, there is further dilution from

the volume of Bon Tempe or Kent Lakes. Bon Tempe is 1,400,000,000 gallons and Kent Lake is 10,720,000,000 gallons. Total dilution is estimated to be 30,000 to 1.

Therefore, it appears that the Meadow Club Golf Course should continue to be characterized as a low to negligible threat to water quality because recent monitoring results show no levels of pesticides and because of the large dilution factor provided by the downstream reservoirs. MMWD continues to monitor the golf course activities to assure that it does not become a threat. Meadow Club Golf Course is also making continued efforts to reduce pesticide use and find products that have lower use rates. All of the pesticides and fertilizers used are only applied to the golf course surface, none are applied to the golf course pond or into the Alpine Lake. Most of the products used only have a caution label and there is close monitoring on the golf course with the Integrated Pest Management Program to maintain as healthy a turf grass as possible.

3.2.4.2 Road/Trail Runoff in Mount Tamalpais Watershed

A comprehensive sediment study was prepared by MMWD in 2002 – 2003, focusing on runoff and erosion potential from roads/trails within the Mount Tamalpais watershed. One of the results of the study was the preparation of the Road and Trail Management Plan (RTMP) adopted by the MMWD board in 2005, which is still in place. An amendment to the Mt. Tamalpais RTMP for the Restoration of Azalea Hill Project was adopted in 2019. The RTMP identifies areas with the most significant potential for erosion and identified actions (e.g. limiting horses' access to only roads and select trails, excluding mountain bikes from all trails) to restore more natural hydrological conditions to the watershed, thereby reducing runoff potential on roads/trails. MMWD currently allocates 13 full time staff to the Watershed Maintenance Section to maintain the trails and roads with the highest priority given to erosion and sedimentation control and water quality protection. The District is also currently in the process of hiring 2 new rangers over the next 2 fiscal years to help with visitor regulation and regulator enforcement. MMWD has consistently maintained a high level of staffing for many years.

Since 2015, MMWD has developed a partnership with state, national and county parks called One Tam Collaborative. One of the primary goals of this initiative is to ensure active efforts towards maintaining water quality in the watershed. The annual work plan outlines priorities and projects for the collaborative. Their current projects include a county-wide fine-scale vegetation map (to guide forest restoration), Peak Health Report (which aims to use biological monitoring and most current datasets to evaluate Mt. Tam's overall health. One Tam initiative also spearheaded a Watershed Greeter Program to regulate visitor behaviors.

In 2019, the District replaced 35 culverts on their roads, with plans and permits to replace 78 more over the span of next five years. They also have a Watershed Recreation Planning Process that addresses issues with the intent to influence recreational culture on the mountain. There are 150 miles of approved trails and 60 miles of social trails, which have seen an increase in the use of e-bikes, as well as a continued response to the illegal use of mountain bikes.

Although MMWD does not have a similar level of direct stewardship over the Nicasio and Soulajule watersheds since much of the lands are privately owned, MMWD makes efforts to work cooperatively with other groups such as Marin County, MCRCD, University of California

Cooperative Extension and the Marin Agricultural Land Trust to reduce erosion in the two watersheds. The entire group of cooperating agencies is listed in Section 4.1.

3.2.4.3 Marin County Stormwater Pollution Prevention Program

Formed in 1993, Marin County Stormwater Pollution Prevention Program (MCSTOPPP) is a joint effort of Marin's cities, towns and unincorporated areas to:

- prevent stormwater pollution
- protect and enhance water quality in creeks and wetlands
- preserve beneficial uses of local waterways
- comply with State and Federal regulations

Though the County and each of the eleven cities and towns carry out their own individual stormwater pollution prevention programs, MCSTOPPP provides for the coordination and consistency of approaches between the individual participants and documents their efforts in annual reports. It is funded by the cities, towns and unincorporated areas in the Country whose watersheds drain to San Francisco Bay and San Pablo Bay.

MCSTOPPP is administered by the Marin County Department of Public Works/Flood Control and Water Conservation Districts. A Citizen's Advisory Committee provides review and advice.

In response to the 2013 Phase II Permit (See 3.2.4.3.1 below), MCSTOPPP also coordinates permit compliance efforts, covering a broad range of permit areas. The 2019-2020 Phase II Small MS4 Annual Report notes coordination of stormwater program management, education and outreach, public involvement and participation, illicit discharge detection and elimination, construction site stormwater runoff control, pollution prevention/good housekeeping, post construction stormwater management, water quality monitoring, program effectiveness assessment and improvement and TMDL compliance.

3.2.4.3.1 National Pollutant Discharge Elimination System Phase II Stormwater Permit

The SWRCB has primacy from the U.S. Environmental Protection Agency for NPDES permits including those for stormwater. Since the population of the cities in Marin County was less than 100,000 people, the cities did not fall under USEPA’s Phase I Stormwater program. However, the cities are subject to the Phase II Stormwater program for small municipal separate storm sewer system (Phase II Small MS4).

In 2013, the SWRCB adopted a revised Phase II Small MS4 General Permit, Order 2013-0001-DWQ, that proposed changes to increase stormwater pollution controls. In particular, the need for the Stormwater Management Plan was replaced by a number of compliance programs and plans, including the Education and Outreach Program, Construction Site Stormwater Runoff Control Program, Erosion and Sediment Control Plan, Illicit Discharge and Spill Response Plan and TMDL Implementation Status Reports. On March 13, 2018, the SWRCB adopted the most recent amendment to the Phase II Small MS4 permit, WQ Order 2018-0007-EXEC, to revise the

list of Non-Traditional Small MS4 permittees. MMWD was not affected by this amendment, but continues to keep track of upcoming changes in regulation.

Although MMWD is not subject to the MS4 regulations, the District's lands and waters benefit from overall awareness of stormwater pollution issues at a watershed level.

3.2.4.4 SWRCB Construction and Industrial Permit Notifications

In addition to the general stormwater permit for small MS4s, individual construction and industrial activities can be subject to general permits specific to construction and/or industrial activities. The SWRCB adopted a revised Construction General Permit (CGP), Order 2009-0009-DWQ on 2 September 2009 which presented significant procedural changes to the prior permit including the necessity for the Legally Responsible Person (LRP) to assume responsibility for construction stormwater management. The SWRCB manages these general permits and dischargers are required to submit a Notice of Intent (NOI) and prepare a stormwater pollution prevention plan (SWPPP) to be covered under the general permit. The CGP also requires that SWPPP be prepared by Qualified SWPPP Developers and be implemented by Qualified SWPPP Practitioners.

In 2010, the CGP was amended by 2010-0014-DWQ that included additional run-off reduction requirements. However, dischargers located within a municipality permitted by a Phase II MS4 with an approved SWMP containing post construction standards are not subject to this provision. In 2012, the CGP was further amended by 2012-006-DWQ, primarily to remove numeric effluent limitations (NELs). The 2012 amendment remains the most recent amendment to the CGP.

The SWRCB maintains a database accessible on their internet web site that identifies those dischargers and their addresses that have submitted NOIs. Search of the SWRCB's California Integrated Quality System Project (CIWQS) database in March 2021 for construction and industrial projects in Marin County indicates five constructions projects and 2 industrial projects in 2019 and 2020 within the Mount Tamalpais and/or Soulajule/Nicasio watersheds.

One of the construction projects is at a nursery site owned by the County of Marin, at 3000 Sir Francis Drake Blvd in the Mt. Tam watershed. The project is approximately 6 miles from Alpine Lake and is likely to pose little or no threat to the reservoir. There are four other construction projects in Mt. Tam watershed, all in the City of Mill Valley. The projects are 8.5 to 10 miles away from Alpine Lake and are likely to pose little or no threat to the reservoir. There are two facilities regulated under the industrial stormwater permit in the Nicasio watershed one is for the Nicasio/LaFranchi Rock Quarry and the other is the West Marin Compost facility. Both facilities have stormwater retention and detention for treatment and submit annual reports in accordance with industrial stormwater permit requirements. The limited number of NOIs for construction and/or industrial activities in the watersheds indicate that they are of minimum threat to drinking water quality.

3.2.4.5 Walker Creek TMDL for Mercury

On January 23, 2007, the San Francisco Bay Regional Water Quality Control Board (Regional Board) adopted Resolution No. R2-2007-0010 adopting the Basin Plan amendment to establish

water quality objectives and a TMDL for mercury in Walker Creek and Soulajule Reservoir. The State Office of Administrative Law subsequently approved the Basin Plan amendment in September 2008. Although the mercury levels in Soulajule Reservoir are far below the mandatory and advisory drinking water levels, the TMDL was issued by the Regional Board to address concerns about mercury in fish such as smallmouth bass that are consumed by humans and wildlife such as kingfisher and osprey.

The Regional Board's staff report for the mercury TMDL indicates that the Gambonini site located on Salmon Creek, a tributary of Walker Creek, was active from 1964 to 1970 for both cinnabar ore mining and processing. Other mine locations, discussed in detail below were also identified. The mercury is mined as cinnabar ore, then mercury is extracted by heating cinnabar to release mercury vapor which is cooled, condensed and collected. The mining waste pile from the abandoned Gambonini mercury mine site drains to the mine channel, which discharges to Salmon Creek.

The TMDL Implementation Measures requires the Gambonini mine site owners to apply for the State of California Industrial Stormwater General Permit and submit a SWPPP. Downstream creekside property owners need to comply with the waste discharge requirements and Marin County's Creek Permit Guidance for unincorporated areas of Marin to minimize mercury discharges and methylmercury production. In July 2008, the Regional Board adopted Resolution No. R2-2008-0054, a Conditional Waiver of Waste Discharge Requirements for Grazing Lands in the Tomales Bay and Walker Creek Watersheds (waiver) as a means of regulating mercury-laden sediments and pathogens from property owners by implementing erosion and other controls, which was renewed in December 2013. On October 10, 2018 the San Francisco Bay Water Board renewed the Conditional Waiver (2018 Conditional Waiver) for a third, five-year term. Section 3.2.6.1 provides additional information on the waiver.

The TMDL Implementation Measures requires MMWD to submit a monitoring and implementation plan and schedule to characterize fish tissue, water, and suspended sediment mercury in Soulajule Reservoir and Arroyo Sausal and develop and implement methylmercury production controls to attain both Soulajule Reservoir and downstream TMDL targets. The latest update to the TMDL Implementation Status was prepared in 2019. As per this update, staff of the San Francisco Bay Water Board conducted regular storm sampling at Walker Creek to evaluate progress towards meeting the TMDL target for mercury concentrations in suspended sediment and released the outcomes in the Water Quality Report Card. The major outcomes identified include:

a) Reduction in mercury and sediment loads to Walker Creek due to mine cleanup

b) Reduced mercury concentrations in Walker Creek downstream of the mine, as a result of mine site remediation. However, the water quality graphs in the report show some samples above the TMDL load allocation (0.5 ug Hg per g of sediment), which is expected to be achieved over additional time

c) Grazing management practices (e.g., streambank stabilization, fencing, etc.) required under a Waiver of Waste Discharge Requirements should further limit remobilization of mercury-laden sediments along Walker Creek.

The drought constrained this storm sampling effort, with plans to resume sampling in winter 2019-2020. MMWD recently completed pilot testing of various control measures and developed a draft Reservoir Management Plan. A study is currently underway in San Pablo, where the District is assisting the Regional Board in evaluating the background water chemistry and fish tissue mercury. This study is intended to serve as a baseline for future studies on the efficacy of speece cone hypolimnetic oxygenation system, as control system for methyl mercury.

MMWD developed and implemented the Soulajule Reservoir Mercury Occurrence and Bioaccumulation Study in 2013, which was also submitted to the Regional Board. Subsequently, responding to comments from the Regional Board, MMWD submitted "Next Action A" in 2014, providing clarifications and additional data analysis with respect to sampling locations, monthly reservoir storage patterns and methylmercury mass accumulation estimates, and "Next Action B" in 2015, a Study Plan to identify and pilot test management methods for controlling methylmercury production in Soulajule Reservoir. In 2018, the District produced the Synthesis of Phase 2 Pilot Studies and Prioritization of Reservoir Management Measures. This report describes and prioritizes a set of potential management methods for controlling methylmercury in Soulajule Reservoir. The District's next steps are to evaluate these methods for effectiveness and develop a long-term reservoir management plan. MMWD continues to work with the Regional Board in addressing mercury in Soulajule Reservoir.

The TMDL for mercury in the watershed includes a broad-based implementation strategy for reducing both mercury discharges and methylmercury production. Before developing the TMDL, the Water Board and U.S. EPA collaborated in highly successful cleanup efforts at the Gambonini Mine site (the greatest source of mercury in the watershed).

3.2.5 Agricultural Crop Land Use

The California Department of Conservation (CDOC) 2014-2016 Farmland Conversion Report indicated that in all of Marin County, approximately 11 acres of land have converted from agricultural uses to urban uses between 2014 and 2016. Since most of the land in the Mount Tamalpais watershed is part of the Golden Gate National Recreation Area, the agricultural to urban land conversions did not occur there. It is expected that the majority of the land conversions documented in the work by CDOC is outside of the MMWD watersheds. The agricultural and livestock land uses within the Soulajule/Nicasio Watershed as provided in Table 1 from the original 1995 WSS have remained largely unchanged as documented in the review of annual crop reports that follows. In addition, the small quantity of agricultural crops in the watersheds makes the potential for watershed contamination from this source low.

Table 1: Summary of Agricultural Land Uses in the Soulajule/Nicasio Watershed

Land use	Acres in 2014	Acres in 2019
Cattle grazing	154,000	154,000
Hay production (includes rye hay, oat hay, oat seed and vetch seed)	1,712	999
Silage production	1,441	1643
Organic fruit & vegetable farming	424	407
Wine grape farming	175	195

Land use	Acres in 2014	Acres in 2019
Nursery products	7.23	7.43

Source: County of Marin Department of Agriculture Weights and Measures, 2019 Agricultural Crop and Livestock Report.

The Marin County Agricultural Commissioner website contains Annual Crop Reports from 1935 to 2019. As shown in Table 2, comparison of the 2014 and 2019 Crop Report reveals that the number of head of both cattle and sheep increased slightly from 2014 to 2019, when head count was last reported. While it is not known specifically whether poultry production is occurring within the Soulajule/Nicasio watersheds, most poultry production occurs indoors with access to pasture for free-range poultry and are a means for farmers and ranchers to diversify their income. It is likely that the poultry increases are from farmers adding poultry to their existing farming activities.

The annual Crop Report also tracks the number of organic farmers in Marin County. In 2014, there were 66 registered organic producers farming approximately 40,632 acres of land, producing total gross value of $45,960,415. In 2019, there were 70 registered organic producers farming 36,439 acres of land, producing a total gross value of $42,212,000. The relatively unchanged number of head of large livestock, and the increased number of organic farmers in the watersheds indicates interest in sustainable agriculture and management of waste. Therefore, even with the addition of poultry to Marin County, the potential for watershed contamination from livestock is likely to remain low as long as access to waterways is controlled as discussed in Section 3.2.6 that follows.

Table 2: Livestock Summary in Marin County

Item	No. of Head in 2014	No. of Head in 2019
Cattle	13,757	14,561
Sheep	10,111	9,059
Aquaculture	3,893	(Not available in 2019)
Poultry	258,006 (2013 data; data not reported in 2014)	(Data not available in 2019)
Total	274,945	23,620 of reported livestock

Source: County of Marin Department of Agriculture Weights and Measures, Marin County Crop Reports

3.2.6 Grazing Animals

Since there continues to be no grazing allowed in the Mount Tamalpais Watershed, its significance for potential contamination is none.

In the Soulajule/Nicasio Watershed, cattle continue to have direct access to Soulajule Reservoir and to tributaries to Soulajule Reservoir and some tributaries to Nicasio Reservoir. MMWD monitors those tributaries that have cattle access and works with property owners to control access through fencing. More discussion of grazing occurs in Section 4.1.5.

3.2.6.1 Tomales Bay Pathogen Total Mass Daily Loading

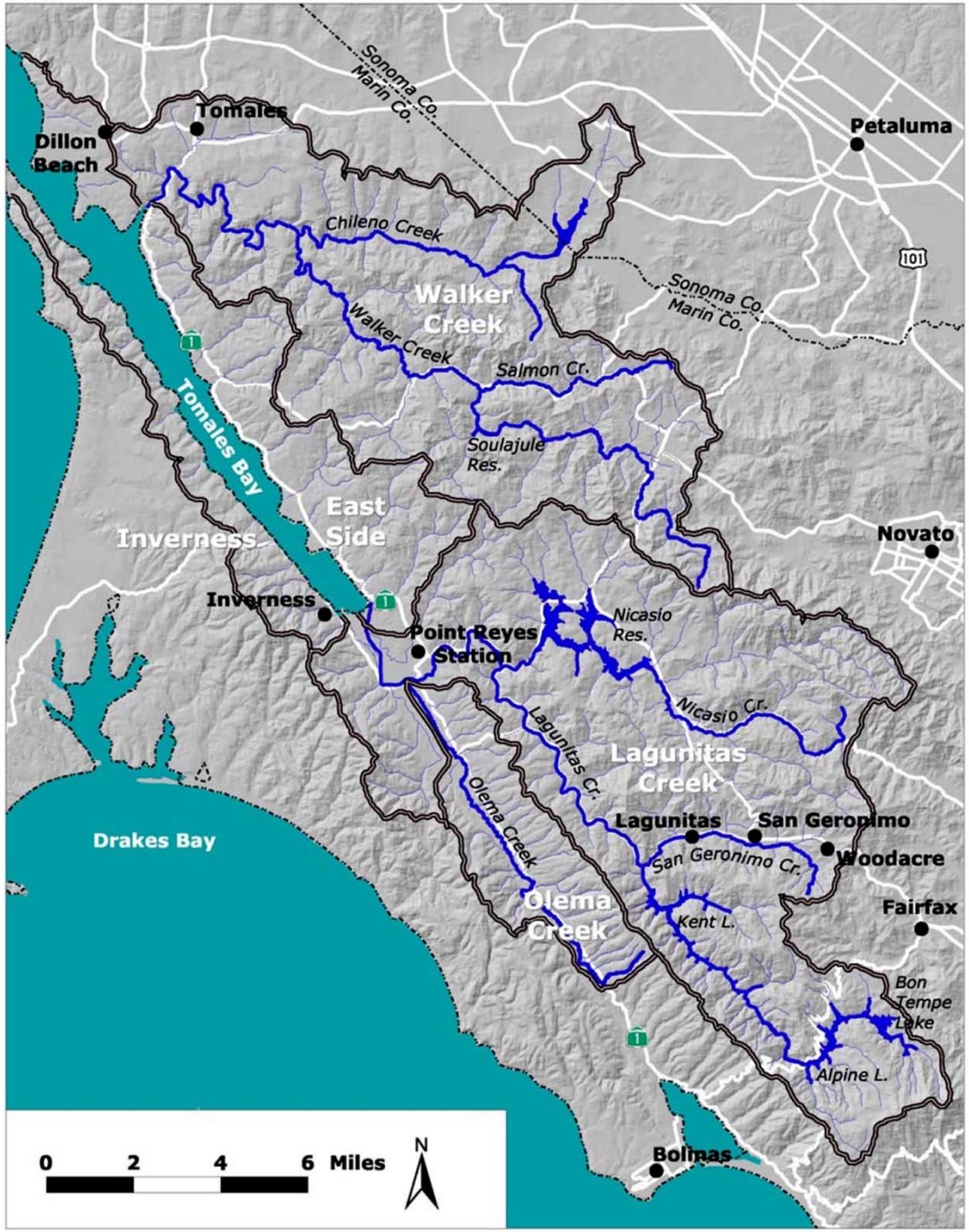
The adoption, by the Regional Board, of TMDL for pathogens to Tomales Bay in February 2007 applies to all of the watersheds that store local water for drinking water. The Mount Tamalpais (including Lake Lagunitas, Bon Tempe, Alpine, and Kent Lakes) and Soulajule watersheds are tributary to Tomales Bay because they drain to Lagunitas Creek which flows to Tomales Bay as shown on Figure 3. Nicasio Reservoir watershed is tributary to Walker Creek that drains to Tomales Bay.

As discussed earlier in Section 3.2.4.5, on July 08, 2008 the San Francisco Bay Water Board implemented the Tomales Bay TMDL by adoption of Resolution No. R2-2008-0054 Conditional Waiver, which was renewed on December 11, 2013 under Order No. R2-2013-0039 which provides a mechanism for property owners to implement and report grazing management practices such as exclusion fencing, vegetated buffer strips, hardened livestock crossings, off-stream water sources for cattle, and rotational grazing to control pathogen discharges. On October 10, 2018, the San Francisco Bay Water Board renewed the Conditional Waiver of Waste Discharge Requirements for Grazing Operations in the Tomales Bay Watershed for a third, five-year term under Resolution No. R2-2018-0046. These management practices also have water quality benefit to MMWD.

This Waiver implements the Tomales Bay Pathogens TMDL, the Walker Creek Mercury TMDL, the Tomales Bay Mercury TMDL and the Lagunitas Creek Sediment TMDL. It requires those Landowners or operators of Grazing Lands encompassing 50 acres or more to submit a Notice of Intent to comply with the requirements of the Waiver.

In the Walker Creek watershed, there is a combination of open space and agricultural and grazing lands upstream of and adjacent to Soulajule Reservoir as shown on Figure 4. Due to this direct water access adjacent to the Soulajule and Nicasio Reservoirs, contamination to the Soulajule/Nicasio Watershed brought by grazing cattle are potentially medium to high. However, with the adoption of the Tomales Bay Pathogen TMDL by the Regional Board, and the implementation of the Waiver by the San Francisco Bay Water Board, watershed contaminations from grazing cattle are considered medium. By contrast, the lack of cattle grazing and agriculture in the Mount Tamalpais Watershed results in a contamination potential that is nonexistent.

Figure 3: Tomales Bay Watershed from the Pathogen TMDL



Reference: :Pathogens in Tomales Bay Watershed Total Maximum Daily Load (TMDL) Staff Report, Regional Water Quality Control Board – San Francisco Bay, 2005

Kennedy/Jenks Consultants

Marin Municipal Water District
Watershed Sanitary Survey Update

Tomales Bay Watershed for Pathogen TMDL

K/J 2168001

Figure 3

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3.2.7 Concentrated Animal Facilities

The original 1995 WSS identified no concentrated animal facilities within the Mount Tamalpais Watershed and four dairies and five horse stables within the Nicasio Reservoir sub-watershed. At present, there is only one small stable with 30 horses on MMWD property in Mt. Tam, but it falls outside of the drainage area that goes to MMWD's reservoirs. In 2002, the Regional Water Quality Control Board initiated concerted efforts to identify and address problems associated with wastes from concentrated animal facilities, particularly dairies. In addition, MCSTOPPP has made significant efforts towards establishing management practices for horse stables that they have continued to implement since 2005. Both of these efforts are discussed in greater detail below.

3.2.7.1 Dairies

Based on information from Laurie Taul of the Regional Board, in 2015, the following dairies were in operation in the Nicasio watershed: the Calvin Dolcini Ranch, the Lelmorini Ranch, and the La Franchi Dairy.

The general NPDES for Confined Animal Feeding Operation regulations were finalized in October 2008 by US EPA. The revised provision at 40 CFR 122.23(d) requires all concentrated animal feeding operations (CAFOs) that discharge or propose to discharge to seek NPDES permit coverage. This permit will be designed to cover the largest dairies in the region. The new CAFO rules are complex in terms of classifying specific dairies as CAFOs. Currently, all of the active dairies within the Nicasio Watershed are relatively small in size, around 200 to 400 cows and all of them are not allowed to discharge to State and Federal waters. These smaller dairies are not considered as CAFOs so they are not required to apply for coverage under the CAFO permit.

At the State level, the Regional Board's practice for regulating dairies has been to issue waivers of waste discharge requirements (WDRs) for those facilities that have implemented and maintain best management practices (BMPs) for minimizing water quality impacts from dairies. The Regional Board also can issue more stringent WDRs under general WDRS for those facilities that are experiencing difficulty with implementing and maintaining BMPs. All of the dairy facilities in the Nicasio watershed identified above are regulated under waiver of WDRs. To qualify for waivers, the Regional Board also requires dairies to meet the waiver conditions under the California Title 27 regulations. In 2015, the conditional waiver requirements were updated with R2-2015-0031 and impose additional requirements such as the preparation of plans for waste management (by 2018), grazing (by 2018) and nutrient management (by 2019). All 3 dairies have currently applied for waivers and are in the process of preparation the new management plans. On June 8, 2016, the San Francisco Bay Water Board adopted General Waste Discharge Requirements (Order No. R2-2016-0031) for all types of confined animal facilities, which rescinds and replaces Order No. R2-2003-0093. The updated Order clarifies the regulatory requirements for confined animal facilities (CAFs) that are not currently covered under the Conditional Waiver of WDRs for dairies (2015 Dairy Waiver) adopted by the Board in June 2015, including non-dairy CAFOs, e.g., horse-boarding facilities.

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Figure 4: Tomales Bay Watershed Land Uses

Reference: :Pathogens in Tomales Bay Watershed Total Maximum Daily Load (TMDL) Staff Report, Regional Water Quality Control Board – San Francisco Bay, 2005

Kennedy/Jenks Consultants

Marin Municipal Water District
Watershed Sanitary Survey Update

Tomales Bay Watershed Land Uses

K/J 2168001

Figure 4

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3.2.7.2 Horse Stables

In addition to the dairies, the four commercial horse stables identified in the Nicasio Reservoir sub-watershed in the 2000 WSS Update continue to be in operation as follows: the Dougherty Ranch (formerly Dougherty Arabians), Meadowbrook Farms and Services (formerly Bonty Ranch at Meadowbrook), Kilham Farm at Windfield Station (formerly Kilham Farm/Windfield Stables (at same address)), and Halleck Creek Ranch. Three other facilities also appear to be in operation as follows: 2 Mutch Show Jumping, Blue Dot Barn, and Nicasio Riding Club.

As discussed in Section 3.2.4.3 MCSTOPPP is active in water quality management for stables. As of 2015, MCSTOPPP has 21 different documents hosted on its website to educate horse owners about horse management. These documents include information related to facilities management, land management, manure composting, and manure management.

In 2012-2013, Marin County local stormwater program staff investigated two horse facilities in unincorporated Marin County; however, the program received no complaints for facilities within the Tomales Bay Watershed. Both complaints were regarding manure management issues. At each facility, local stormwater program staff discussed potential BMPs with the property owners and directed them to the MCSTOPPP website to review the education and outreach materials listed above.

3.2.7.3 Conclusions

Since there are no concentrated animal facilities present in the Mount Tamalpais Watershed that drain to the reservoir there is no threat to water quality from this source. In the Soulajule/Nicasio Watershed, the threat from confined animal facilities continues to be rated as a medium to high level of significance for potential contamination. This rating is due to the active dairies near Nicasio Reservoir and the number of horses stabled in close proximity to Nicasio Creek and Halleck Creek. As indicated above, both the Regional Board and MCSTOPPP with partner agencies have continued to implement a number of programs that has further reduced the threat to water quality from confined animal facilities. In addition, the risk is somewhat moderated by the infrequent use of these two water sources.

The watershed surrounding Nicasio Reservoir is grassy and classified as agricultural and rural residential. This water source is most vulnerable to concentrated animal feeding operations (i.e., local dairy operations). However, no contaminants associated with this activity were detected in the drinking water, as confirmed in the 2019 Annual Water Quality Report. MMWD is also in collaboration with Marin RCD to promote fencing around the Soulajule and Nicasio reservoirs to monitor active grazing close to the reservoirs. A long term capital project has been planned to look into fencing around Soulajule.

3.2.8 Pesticide/Herbicide Use

As of 2005, MMWD has suspended the use of herbicides within the portion of Mount Tamalpais Watershed lands under MMWD control. Marin County's new Vegetation Management Plan which came into effect in 2019 disallows use of pesticides or herbicides within the watersheds, including Soulajule/Nicasio. Most of the agricultural lands are grazing lands which ensures limited use of pesticides or herbicides.

The MCGC in the Mount Tamalpais watershed uses a limited quantity of fertilizers, and pesticides as described in Section 3.2.4.1 and in greater detail below. Sampling in 2016 and 2017 at MCGC did not detect pesticides or herbicides. County-wide, the hairy weevil, an insect continues to be released in an effort to control yellow star thistle without the use of chemicals. MMWD occasionally uses copper sulfate in all of its reservoir, as needed, to control algae as described further below.

3.2.8.1 Mount Tamalpais Watershed

According to discussions with MMWD staff, the District has suspended the use of herbicides within the District's portion of the Mount Tamalpais Watershed lands since 2005. There were follow-up studies conducted by UC Davis on the glyphosate residual in the soil in 2009. Glyphosate is an active ingredient commonly used in herbicides. The study is to investigate the half-life of glyphosate in soil left behind by herbicides. The results indicate that glyphosate degrades quickly in soil, which poses limited threat to water quality.

MMWD prepared a Draft Wildlife Protection & Habitat Improvement Plan (WPHIP) in 2012 to update and replace the 1994 Vegetation Management Plan for the Mt. Tamalpais Watershed and other district lands. The WPHIP identified goals and objectives regarding vegetation in the Mt Tamalpais, Nicasio, and Soulajule watersheds. The WPHIP also directed fuel break construction and maintenance, weed control, habitat restoration, vegetation mapping and monitoring for a period of 15 years. However, the District did not finalize the Draft WPHIP due to public concerns and regulatory uncertainties, and instead developed the Biodiversity, Fires and Fuels Integrated Plan (BFFIP) in October 2019. This BBFIP is largely based on the manual and mechanical methods from the 2012 Draft WPHIP.

In July 2015, MMWD removed herbicides from the list of potential options under consideration for the management of vegetation on watershed lands. Although this change is aimed at expediting the completion of the WPHIP and the environmental review process, it has a beneficial impact on Marin's watersheds.

In addition, fertilizers and pesticides, are used at the MCGC on a limited basis, located in the Mount Tamalpais Watershed above Alpine Lake. A list of fertilizers and pesticides, used at the golf course as of 2020 is provided in Table 3. Larger application of these chemical agents is limited to periods of low rainfall, generally in the summer. During winter, fertilizer use is restricted to greens and does not occur on fairways. Two of the up to 26 golf course maintenance staff is licensed for pesticide application. However, the golf course does not currently use products that require a permit to apply. Their chemical use, both fertilizer and pesticide, has gone down almost annually in an effort towards minimizing chemical inputs.

All surface drainage from the greens and fairways runs into a small impoundment pond at the low point of the golf course property that serves as the water source for the golf course irrigation system. Sampling of the pond by MMWD staff last occurred in 2008 and sample results had non-detectable levels of pesticides as described in Section 3.2.4.1. MCGC grounds management recognizes the importance of protecting the public drinking water supply and uses chemical application practices that minimize or eliminate chemical transport to Alpine Lake. To date, no organic chemicals have been detected in any of MMWD's surface water reservoirs.

Table 3: Products Used for Maintenance of the Meadow Club Golf Course, Alpine Lake Sub-Watershed

Product name – Pesticides
Velista – Penthiopyrad
Medallion SC – Fludioxonil
Affirm WDG – Polyoxin D zinc salt
Daconil Weather Stik – Chlorothalonil
26GT – Iprodione
Secure - Fluazinam
Tartan Stressguard – Trifloxystrobin/ Triadmefon
Banner Maxx II – Propiconazole
Torque – Tebuconazole
Pedigree SC – Flutolanil
Eagle 20 EW – Myclobutanil
Heritage – Azoxystrobin
Lexicon – Fluxapyroxad/ Pyraclostrobin
Quicksilver – Carfentrazone-ethly
Mecomec – Potassium Salt of propionic acid
Dimension – Dithiopyr
Drive XLR8 – Dimethylamine Salt of quinclorac
Lontrel – Clopyralid
Turflon Ester Ultra-Triclopyr
Ranger Pro – Glyphosate
Scimitar – Lambda-cyhalothrin
Acelepryn – Chlorantraniliprole
Agrifos – Mono- and di-potassium salts of Phosphorous Acid
Pentra bark – Alkylphenol ethoxylate, polysiloxane polyether copolymer,propylene glycol
Revolver – Foramsulfuron
Ficam – Bendiocarb
Primo Maxx – Trinexapac-ethyl
Proxy – Ethephon
Fusilade II -Fluazifop-P-butyl Butyl(R)-2-[4-[[5-(trifluoromethyl)-2- pyridinyl]oxy]phenoxy]propanoate
Appear II – Potassium Phosphite
3336 F – Thiophanate-Methyl
Pylex – Topramezone

Source: Meadow Club Golf Course staff, February 22, 2021.

3.2.8.2 Soulajule and Nicasio Watersheds.

MMWD continues to apply copper treatments (as copper sulfate and liquid copper) as needed to Nicasio Reservoir for control of free floating algae that produce geosmin, a compound that produces taste and odors. Copper application within the watershed lakes occurred approximately 7 times/year over the last 5 years. During the warmer months, MMWD tests the produced water on weekly basis for taste and also uses gas chromatograph/mass spectroscope (GC/MS) for identifying geosmin. The Marin County Agricultural Commissioner and the Department of Fish and Game are notified each year of the application of copper sulfate. MMWD also conducts pre and post application monitoring in the water bodies during copper sulfate applications and is evaluating the use of powdered activated carbon in addition to copper sulfate at the San Geronimo WTP.

3.2.8.3 Conclusion

The threat to MMWD reservoirs from herbicides and pesticides remains low. This has been demonstrated by MMWD laboratory staff in conducting their water quality sampling of the pond at Meadow Club Golf Course as well as in the reservoirs themselves. Use of pesticides and herbicides that does occur is closely monitored by both the Marin County Department of Agriculture and MMWD. Pond sampling has been discontinued since 2008 because of non-detection of herbicides and pesticides.

3.2.9 Wild Animals

Although formal species counts for wild animal populations have not occurred, MMWD staff indicated that wild animals population remain rather stable throughout the years. Spread of the sudden oak death disease noted in the 2010 WSS has caused oaks and tanoaks trees to die off leading to decreasing supply of acorns. Acorn is an important food source for many animals which will impact the wild animal population. There are no data on the potential contribution of pathogenic organisms from the wild animal populations in the watersheds. It is known that the wild animals found in the watersheds can carry pathogens that are harmful to humans. The size of the undeveloped land area suggests that wild animal populations may still be of medium to low significance as a source of contaminants. However, as discussed in Section 5.5.5, monitoring for giardia and cryptosporidium, which are commonly associated with wild animals, in the source waters for both the Bon Tempe and San Geronimo WTP indicate non-detectable concentrations of these pathogens after many years of monitoring.

Marin Water is participating in a long-term Wildlife Picture Index project and collaborating with One Tam Partners on a Peak Health Report that brings together existing wildlife and natural resources monitoring data to inform our understanding of the health of biodiversity on Mt. Tam. A 2016 report found that the mountain was in good health and biological indicators were showing positive trends for most species monitored.

3.2.10 Mine Runoff

There are no active or inactive mines in the Mount Tamalpais Watershed. As discussed in Section 3.2.4.5, in the Soulajule/Nicasio Watershed, the mercury concentrations from inactive

mines are far below the mandatory and advisory drinking water levels and do not pose a drinking water public health threat. Furthermore, the MMWD annual water quality reports from 2017-2019 have identified no detectable quantities of mercury in the samples. However, the Regional Board issued a TMDL for the Walker Creek Watershed to address concerns about mercury in fish such as smallmouth bass that are consumed by humans and wildlife such as kingfisher and osprey.

The fish consumption advisories issued by California Office of Environmental Health Hazard Assessment website in 2009 are still under effect, because of elevated levels of mercury in the fish in Bon Tempe, Nicasio, and Soulajule Reservoirs, as well as San Francisco and Tomales Bays. The San Francisco Bay has an additional fish consumption advisory for PCBs, which was issued in 2011. Further studies and sampling are continuing by MMWD to monitor the concentrations as part of TMDL implementation to determine most effective control strategies. As discussed in Section 3.2.4.4., there are two facilities regulated under industrial stormwater permit issued by the SWRCB for an active gravel quarry operation and compost operation in the Nicasio watershed. The gravel quarry has retention and detention treatment facilities; as a result, mine runoff is of low significance for potential watershed contamination.

3.2.11 Solid Waste Management Disposal/Unauthorized Activity

MMWD staff has not noted any significant unauthorized solid waste storage or disposal, only minor personal garbage and yard waste dumping. However unauthorized cannabis cultivation has the potential to be a water quality challenge. From 2010 to 2015, 17,000 plants were destroyed and at least 20 pot grows have been located and cleaned, removing several tons of debris in Mt. Tamalpais watershed. These plantations often have some chemical usage for cultivation and rodent abatement. However, buffer zones between the plantations and water bodies as well as California Department of Fish and Wildlife sampling indicate that the water quality risk is likely minimal. No new grows have been identified in the watershed since 2015.

As identified earlier in Section 1, Marin County has facilities and services available for pick-up of hazardous wastes from small quantity generators like households and small businesses. In addition, the Conservation Corps North Bay often provides litter abatement and recycling services and/or local citizens volunteer to conduct trash pick-up, particularly around the Nicasio and Soulajule reservoirs.

Marin Water works in coordination with Marin County Public Works to clean up trash and dump sites. In FY 2021, Marin Water hired a California Conservation Corps Crew to do weekly trash patrols and cleanups around the watershed. Additionally, Marin Water established a self-led Volunteer Program for community members who want to assist with trash collection efforts in high use areas of the watershed.

Therefore, the potential for water contamination from solid waste storage or unauthorized dumping is still considered low to medium. Although, solid waste at homes and facilities is regularly transported off site by a garbage service, the frequency of illegal dumping and content of waste on private lands and roads is unknown.

3.2.12 Hazardous Materials/Underground Storage Tanks

The potential contaminant sources for hazardous materials and underground storage tanks (UST) identified in previous WSS updates are: Meadow Club Golf Course, the former Mill Valley Air Base at the top of Mount Tamalpais also discussed in 3.2.1, and Skywalker Ranch.

The Meadow Club Golf Course (located within the Alpine Lake subwatershed) stores fuels, herbicides, insecticides, fungicides, fertilizers, and fertilizers containing herbicides at their maintenance shop and at a fertilizer and chemical building on their property. Practices and facilities at the Meadow Club Golf Course remain unchanged since 2015. There are still two aboveground fuel tanks (a 500-gallon unleaded fuel tank, and a 500-gallon diesel fuel tank), and a heavy equipment steam cleaner at the maintenance shop area at Meadow Club. The golf course has an Emergency Response Plan for their facility and employees are trained in emergency response procedures. From 2015 to 2020, no spills have occurred and there has not been a need to activate the Emergency Response Plan.

In the period of 2005 to 2010, there were some cleanup activities of minor petroleum spills and some sediment left over in the abandoned sludge drying bed by the Army Corps. All buildings containing lead paint materials have been removed since the 2015 Update and contaminated soils at West Peak of Mount Tamalpais have also been remediated and removed..

As discussed in the 2005 WSS Update, Skywalker Ranch in the Nicasio Reservoir watershed, reduced the need for diesel fuel storage by use of propane rather than diesel for back-up power generators. There remains one 2,000 gallon double-contained underground storage tank for gasoline and above-ground diesel fuel tanks with double containment and leak detection systems at Skywalker Ranch.

There is no public boating on District reservoirs and MMWD staff continues to use fuel without MTBE for all motorboats used on MMWD reservoirs for sampling and patrolling.

In summary, the risk of potential watershed contamination from hazardous materials and underground tanks remains low as past improvements have been made with the Phoenix Lake subwatershed to contain water treatment chemicals at the Bon Tempe WTP and with the fuel storage at the MMWD Watershed headquarters in the Mount Tamalpais watershed. In the Alpine Lake subwatershed, a variety of hazardous materials continue to be stored and used at the Meadow Club Golf Course in which the relatively small quantity of hazardous materials stored and the close proximity of the golf course to Bon Tempe Creek (tributary to Alpine Lake) results in a significance rating of low to medium. In the Soulajule/Nicasio Watershed, one gasoline UST tank remains. Due to the lack of groundwater in the watershed, the potential for contamination is low.

3.2.13 Traffic Accidents/Spills

There are many public roads in both the Mount Tamalpais and Soulajule/Nicasio watersheds. However, the Mount Tamalpais watershed tends to have less traffic, in general, and the traffic is generally passenger vehicles. The Soulajule/Nicasio watershed has roads that connect several rural communities and has more truck traffic.

According to the Marin County Fire Department, in the period from 2015 to 2020 no hazardous material spills have been reported. The fire department staff indicated that truck accidents that result in spills are highly infrequent (2 in about 30 years) and that fuel truck spills into waterways have not occurred in the last 30 years.

There is approximately one vehicle (non-truck) every second or third year that enters the Soulajule or Nicasio reservoirs as a result of an accident. These vehicles are promptly removed and absorbent material is used to soak up any oils and fuels. Follow-up water quality sampling occurs as necessary to verify that water quality impacts do not occur.

As a result of the traffic within the Mount Tamalpais and Soulajule/Nicasio watersheds, there remains a concern for motor vehicle accidents and hazardous materials spills. The potential for watershed contamination from this source remains medium for both watersheds.

3.2.14 Recreational Use

There continues to be active recreational use in the Mount Tamalpais watershed. Based on the most recently available 2012-2013 Mt Tamalpais Visitor Use Census and Survey, the average estimated annual number of visitor is about 2 million. MMWD staff reported to the MMWD Board in July 2020 regarding visitation increases during COVID-19 restrictions as measured from parking pass sales and trash can and porta potty servicing have required additional resources to manage while maintaining safe access. The popularity of the watershed area and its location adjacent to the National Park Service Golden Gate National Recreational Area continues to result in extensive availability of trail maps and guidebooks to the watershed. Rangers continue to patrol the Mount Tamalpais watershed and issue citations for illegal activities. As discussed in Section 3.2.4, rangers and other MMWD staff continue to monitor trails and will close those trails that are causing excessive erosion. Recreational activities in the Mount Tamalpais Watershed are considered to have a low to medium impact on surface waters.

There is minimal public recreation activity on or near the Nicasio and Soulajule Reservoirs. Private recreation use is thought to have a low impact on the Soulajule/Nicasio Watershed. Based on the water quality data collected in the reservoirs, there appears to be no measurable effect on the water quality from the recreational use. Therefore, the overall impact of recreation to reservoir water quality in the Soulajule/ Nicasio Watershed is low. However, the District has initiated a Watershed Recreation Management Planning process and is planning to work with a consultant throughout Fiscal Year 2022 to develop the Plan.

3.2.15 Logging

No logging has occurred since 2005 in the Mount Tamalpais watershed. Based on discussions with MMWD staff, no active logging in the Soulajule/Nicasio watershed occurs to their knowledge. No commercial logging is allowed within the Mount Tamalpais and Soulajule/Nicasio watersheds. However, the sudden oak death syndrome has killed oak trees that could pose a hazard from both a tree fall and fire perspective. The Biodiversity, Fire and Fuels Integrated Plan (BFFIP) that was released in 2019 addresses the necessity of fuel break construction, improvements to forest stand structures, grasslands and oak woodlands and meadow restoration as strategies towards vegetation management and habitat restoration. The BFFIP is

applicable to lands under MMWD control including for the Mount Tamalpais watershed and the island within Nicasio Reservoir. Logging may be required to address fuel management in the watershed in the future and will be conducted such that water quality impacts are minimized. At present, the impact of logging to water quality in both watersheds is low.

3.2.16 Groundwater Which Influences Surface Water Quality

Although there may be springs that surface and flow to the reservoirs in the Mount Tamalpais watershed, it is not believed that these groundwater significantly influence the surface water quality because of the small quantities when compared to surface runoff. In the Soulajule/Nicasio watersheds, groundwater level is believed to be influenced by surface water, not the other way around.

3.2.17 Fires

The fire hazard present in the Wildland Urban Interface (WUI) adjacent to the Mount Tamalpais Watershed is MMWD's most pressing vegetation management issue. The fire hazard on District lands surrounding the Nicasio and Soulajule Reservoirs is not as significant of an issue because there are few residences and infrastructure near these reservoirs' boundaries. The District does not own much land beyond that bordering the reservoirs, so it has limited authority to manage fuels in a way that can lead to a meaningful reduction in fire hazard in these areas.

The risk of wildfire in the Mount Tamalpais and Soulajule/Nicasio watersheds is reduced through the construction of fuel breaks, particularly in areas near the urban/wild land interface. Most of the activities in Mount Tamalpais have been governed by the Mount Tamalpais Area VMP discussed above which has been implemented since 1995 and has been replaced by the BFFIP. Among the goals of the BFFIP are: to minimize risk from wildfire, to preserve and enhance existing significant biological resources and to maintain and enhance ecosystem functions.

In addition, the District recently issued a draft Wildfire Resilience Plan (WRP) 2020 which documents historic and recent fires and has a goal to "Increase district wildfire preparedness, to ensure water system resilience and protection of neighboring communities." The 3 main WRP objectives are:

1. Inform the organization, board, agency partners, and public of preparedness status and needs.
2. Develop and facilitate implementation of recommended actions that improve mitigation, planning, response, and recovery activities.
3. Inform Capital Improvement Program to evaluate and prioritize water infrastructure and wildfire resilience projects.

As noted earlier, the Sudden Oak Death disease has caused about 12,000 acres oak and other species of trees to die off in the Mount Tamalpais Watershed. The dead tree trunks, vegetation that has grown unchecked over many years and drought-related stresses to vegetation are increasing fuel for potential wildfires. This incident has driven focused efforts towards fuel management, with a lot of ongoing fuel reduction work in Mt. Tam watershed to reduce the risk

of canopy fires, ash pollution, debris slides, and so on. MMWD data show a total of 8 fires between 2010 and 2015, covering a total area of 3 acres. Implementation of the BFFIP includes building a network of fuel breaks by thinning heavy vegetation along fire-protection roads in strategic ridgetop areas. These fuel breaks subdivide the watershed into discrete parts which prevent the fire from moving from one section another.

The fuel breaks also provide access to fire fighters and create a zone where they have a better chance of containing fires. In addition, MMWD removes ground fuels and prunes the lower branches of larger trees, while retaining as much forest canopy as possible. Broadcast burns, where all vegetation is burned in a specific area, are relatively infrequent compared to pile burning and fuel break burning which usually limits the area of the burn. Both techniques of prescribed burning – broadcast burns as well as pile burns – require permits from Bay Area Air Quality Management District (BAAQMD), as burning is only allowed during designated days and times in a year.

In the Soulajule/Nicasio watersheds, burns occur on private lands and on agricultural lands under the direction of the Marin County Fire Department. Due to a burn permit fee reported in the 2015 WSS Update, the Marin Fire Department estimates that there has been a decrease in the number of burns in the past five years. Regular quarterly sampling of the reservoirs did not indicate any apparent water quality impacts from the fires.

Additional BFFIP approaches to vegetation management include removal of invasive species that threaten the health of the ecosystem, and restoring ecosystem resiliency through grazing, and removal of invasive broom in fuel breaks. The plan includes annual reviews and updates.

Ash Operational Study at MMWD Treatment Plants

MMWD conducted an ash operational study in 2020, to determine what would happen to the District's ability to process water in the event of a catastrophic wildfire in the watershed. The District is testing on the raw water from Bon Tempe because the plant has a sole source for raw water. The underlying premise is that the San Geronimo watershed has two water sources that can be changed and the idea of both being compromised is remote. Bon Tempe on the other hand has only one water source (since all reservoirs end up having to go through Bon Tempe reservoir). Ash from control burns will be used to create different ash concentration and this water will be jar tested to test ability to treat the water and estimate the effects on coagulation and the filterability.

The primary objective of the study is to attempt to produce water from ash laden samples that still meet the regulatory water quality requirements and District guidelines in the following categories: Turbidity, Total Organic Carbon Removal, UV Absorption as a TOC surrogate, Filtration, Disinfection by products creation, Taste and Odors.

The study found that Bon Tempe Treatment Plant would have no issues processing ash laden water with concentrations of 1% or lower. However, sustaining treatment of 5% concentration or more of ash laden water for an extended period at an elevated flow rate would not be feasible, but may be possible in an emergency.

In summary, considering both the likelihood and severity of impacts, the threat to water quality from fires within the Mount Tamalpais Watershed is considered low to medium. MMWD takes a proactive approach to fire hazard reduction in an effort to reduce the risk of larger fires with greater erosion potential.

3.2.18 Geologic Hazards

Geologic hazards such as landslides, earthquakes, and floods occur rarely in the watersheds. Erosion control issues are discussed in Section 1, item 5; Section 3.2.4; and Section 4.1.8. Landslides resulting from earthquakes or flooding have the highest potential for impact to water quality. Earthquakes are always a concern given the proximity of the watersheds to the San Andreas fault. The only flooding that occurs in or near the reservoirs is where Halleck Creek and Nicasio Creek enter Nicasio Reservoir. The flooding is not considered a water quality hazard, but continues to be a risk to MMWD facilities because of the improvements in the area. The two creeks deposit sediments at the upper end of the reservoir and reduce channel capacity which can cause flooding in the adjacent area. There are homes and improvements in the vicinity of the upper end of the reservoir that are at risk and MMWD continues to occasionally excavate the sediments and purchased flood easements. Any sediment excavation is conducted with appropriate permits. The potential for water quality contamination from geologic hazards remains low to medium.

3.3 Significance of Potential Contaminant Sources

Table 4 and Table 5 have been reviewed updated to present a summary of the significance of the various potential contaminant sources discussed in this chapter. The tables provide the contaminant source, an assessment of its significance to the water quality of the MMWD system, and comments relating to that assessment.

Table 4: Significance of Potential Contamination to the Alpine Lake, Bon Tempe Lake, Phoenix Lake, Lagunitas Lake, and Kent Lake Sub-Watershed, Mount Tamalpais Watershed

Source	Potential to affect water quality	Comments
Septic tank systems	Low to negligible	Very few; ranger stations and ranger residences, are served by septic systems. Distance from Bon Tempe water treatment plant intake is relatively far. No documented cases of failure since 2000.
Wastewater treatment plants	None	There are no discharges to surface water.
Bon Tempe water treatment plant--sludge drying beds	Low	Sludge drying method poses same low threat to water quality as the method practiced at the San Geronimo WTP.
Reclaimed water	None	There are no sources of reclaimed water.
Urban/industrial runoff	Low-medium	- Meadow Club Golf Course collects surface runoff flows including storm water and excess irrigation water. Runoff water is channeled or piped into a small pond at the southern end of the course. Pond overflows drain into the Alpine Lake

Source	Potential to affect water quality	Comments
		subwatershed via overland flows into Bon Tempe Creek. Typically occurs only during heavy storm events. The frequency and amount of overflows are unknown in addition to the quality of golf course pond water. Monitoring of the pond, as well as reduced uses of fertilizers and pesticides at the golf course have established that the contamination potential is limited but will continue as a precaution. - Minimal urban runoff. Small number of homes located along Crown/Phoenix Road; portion of roadway drainage may reach Bill Williams Creek. Distance to Phoenix Lake reduces significance of this source. There are no industrial land uses within this subwatershed. - Storm water runoff from roads and parking lots could potentially contribute vehicle-related pollutants. Most direct source is the picnic area/parking lot between Lagunitas Lake and Bon Tempe Lake where a portion of the runoff flows to the Bon Tempe water treatment plant intake channel. The runoff is from a small parking lot for day use only. No impact from this runoff has been visually observed or detected in lakes
Agricultural crop land use	None	There are no agricultural crops grown within the watershed.
Grazing animals	None	There is no cattle grazing within the watershed.
Concentrated animal facilities	None	There are no concentrated animal facilities within the watershed.
Pesticide/herbicide use	Low to negligible	Meadow Club Golf Course applies pesticides, and fertilizers according to strict guidelines and avoids applications during winter (rainy season) months. MMWD suspended the use of Herbicides in 2005.
Wild animals	Medium to Low	Large numbers of deer and other mammals; large size of undeveloped area suggests this is a potentially significant source of microbial pathogenic organisms.
Mine runoff	None	There are no active or inactive mine or quarry sites within the watershed.
Solid waste management and disposal/unauthorized activity	Low-medium	- No solid waste disposal sites (landfills) exist in the watershed. Solid waste generated by ranger residences and recreation use is collected and stored in a large dumpster near the Sky Oaks Ranger Station which is serviced regularly by a garbage service. - Illegal dumping of construction-related and carpet-cleaning material has historically occurred along the Fairfax-Bolinas Road. Reported to occur occasionally every year. Risk is greatest if dumping occurs along portion of road within direct drainage to Alpine Lake.
Hazardous materials/ underground storage tanks	Low	Hazardous materials are stored at the Meadow Club golf course located within the Alpine Lake subwatershed. The Bon Tempe WTP has hazardous materials on site which are stored in secondary containment system areas.

Source	Potential to affect water quality	Comments
Traffic accidents--chemical spills	Medium	Portions of the Fairfax-Bolinas are steep and winding which could result in a significant accident potential.
Recreational Use	Low-medium	No water body contact recreation is permitted in watershed; however incidents of illegal swimming are known to occur. Shoreline fishing, hiking, bicycling, horseback riding, and picnicking are permitted recreational uses within these sub-watersheds. Potential concern related to recreation-induced soil erosion which is being mitigated by implementation of the Roads and Trails Management Plan.
Logging	None	No commercial logging occurs in the watershed, nor is it allowed under the BFFIP.
Groundwater which influences surface water quality	Low	Underground springs within the watershed drain into lakes; influence on surface water is believed to be minimal.
Fires	Low-medium	Significant build-up of fuel/vegetation within watershed contributes to high fire hazard. The implementation of the MMWD BFFIP is addressing this fire threat. MMWD also has an ongoing ash treatment study at their treatment plants to test their ability to treat water impacted by wildfires.
Geologic hazards	Low-medium	Watershed located in an area of high seismic activity. Potential risk due to damage to facilities. Infrequent occurrences of significant landslides or mudslides.

Table 5: Significance of Potential Contamination to the Soulajule/Nicasio Watershed

Source	Potential to affect water quality	Comments
Septic systems	Negligible to Low	Majority of population in watershed is served by individual septic tanks; few reports of failing septic systems. The soil in the area is primarily composed of clay which has little percolation during the winter. Distance to water treatment plant intake is relatively far.
Wastewater treatment plants	None	There are no wastewater treatment plants in the watershed.
Reclaimed water	None	There are no known wastewater reclamation practices within this watershed.
Urban/industrial runoff	Low	Relatively little urban runoff; Nicasio-rural residential, small town center. 2 permitted industrial facilities have stormwater retention/detention. Potential for impact particularly low if industries and construction projects comply with state stormwater permit requirements. There are no industrial NOI and limited construction NOI filed in this watershed. TMDL established for Walker Creek Watershed that limit the level of mercury in the discharges from abandoned mercury mines waste piles.
Agricultural crop land use	Low	Oat hay and private gardens are present. No large, commercial production exists. Number of heads of livestock increased slightly.
Grazing animals	Medium-high	Potential for direct cattle access to Soulajule Reservoir and Soulajule and some Nicasio tributaries is of particular concern. Slope erosion due to cattle use may occur, especially in Soulajule Reservoir.
Concentrated animal facilities	Medium-high	Several active dairies, and several commercial horse boarding facilities exist in the watershed. Potential for some poultry facilities but not specifically quantified within the watershed.
Pesticide/herbicide use	Low	Chemical applications are known to occur within the watershed. Of particular concern are any applications on areas adjacent to the reservoirs or its tributaries. Applications on more remote lands are of lesser concern because of distance to reservoirs.
Wild animals	Medium	Large size of undeveloped area suggests that deer and other mammals may be a significant source of microbial pathogenic organisms.
Mine runoff	Low	Two abandoned mercury mines are known to exist within the Soulajule subwatershed. No discharges to surface water are permitted.
Solid waste management and disposal/unauthorized activity	Low-medium	No solid waste disposal sites (landfills) exist in the watershed. Evidence of illegal dumping of household garbage has been occasionally observed within primary drainages of Nicasio and Soulajule subwatersheds. Illegal dumping of construction wastes and automobile tires is also known to occur in the watershed.
Hazardous materials/ underground storage tanks	Low	There are no known hazardous materials disposal sites within the watershed. Private residences, commercial facilities, and

Source	Potential to affect water quality	Comments
		the Marin County Nicasio Corporation Yard likely have household-type hazardous materials. Risk is low due to relatively small volumes of material. One UST is located at Skywalker Ranch. Potential concern is leaks that reach groundwater; however, groundwater is not known to influence surface water in the region.
Traffic accidents--chemical spills	Medium	Public roads of concern in vicinity of Nicasio Reservoir. Access to Soulajule is restricted and of lesser concern. Vehicle accidents are an occasional occurrence on in the vicinity of the Nicasio and Soulajule reservoirs.
Recreational use	Low	No water contact recreation is permitted in watershed; however, incidents of illegal boating and swimming are known to occur. Shoreline fishing is allowed in the watershed, although most lands in the watershed are privately owned.
Logging	None	No commercial logging occurs in the watershed.
Groundwater which influences surface water quality	None	There is a lack of groundwater in the watershed due to low soil permeability and complex fracturing. Surface water raises groundwater levels in the watershed.
Fires	Low	Private property owners manage grasslands to prevent vegetation build-up and MMWD is active in vegetation management.
Geologic hazards	Low-medium	Watershed located in an area of high seismic activity. Potential risk due to damage to facilities. Infrequent occurrences of significant landslides or mudslides.

3.4 Anticipated Growth and Changes within the Study Area

As in the recent WSS updates, MMWD's nearly complete ownership and control of the Mount Tamalpais Watershed, results in land uses and activities within the watershed that are anticipated to remain essentially unchanged. There is no change anticipated in MMWD's watershed management philosophy which is focused on preserving the watershed lands and protecting reservoir water quality. Within the Mount Tamalpais Watershed, allowable uses of recreational areas are expected to remain the same. There are no anticipated land uses changes, the watershed will remain nearly all park land. The few wastewater disposal systems that support recreation and MMWD staff housing are likely to remain.

The potential for a major fire is still considered extremely high. The last major fire within the Mount Tamalpais Watershed was in 1945. Throughout the watershed, fuel has been accumulating within the understory since that time. Vegetation management as described in the BFFIP remains a high priority for MMWD thus, reducing the fire danger within the Mount Tamalpais Watershed.

The occurrence of future unauthorized activities, such as illegal dumping and marijuana cultivation, are difficult to predict but will continue to some extent within both the Mount Tamalpais and Soulajule/Nicasio watersheds.

In the Soulajule/Nicasio Watershed, land uses are expected to remain the same, as defined in the Marin County General Plan adopted in November 2014. Future residential development is limited by the lack of groundwater in the area and the General Plan policy to retain the rural nature of the land. In addition, the Marin Agricultural Land Trust is continuing to pursue conservation easements with landowners in the watershed. Their objectives are to establish permanent restrictions on land uses to prevent future urbanization and promote agricultural activities.

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Section 4 Update to Watershed Control and Watershed Management Sections

This section summarizes updates since 2015 to the watershed management practices that are used by the private entities and public agencies that exercise any watershed controls within the MMWD watersheds. Control measures discussed in this chapter are those that may impact the water quality of MMWD's reservoirs. The sixteen categories of watershed management programs and practices described in 2010 are described below. The changes are summarized and updates to those categories are discussed. The status of recommendations first made in 2010 are discussed in Section 1.

4.1 Watershed Management Practices

MMWD continues to own most of the Mount Tamalpais Watershed and is therefore responsible for nearly all watershed protection activities in that watershed. The remainder of the Mount Tamalpais Watershed is owned by three other public agencies who may implement watershed control measures in the watershed (National Park Service, California State Parks, and Marin County Parks and Open Space District). These public agencies, in addition to the nonprofit Golden Gate National Parks Conservancy make up the Tamalpais Lands Collaborative (One Tam).

In contrast, in the Soulajule/Nicasio Watershed, several agencies and private groups are responsible for watershed management since most of the land is privately owned and land use in the watershed is varied. In addition to MMWD, other public agencies and entities that may implement watershed control practices in the Soulajule/Nicasio Watershed include Marin County, Nicasio Landowners Association (NLOA), the California Regional Water Quality Control Board, San Francisco Bay Region, Marin County Resource Conservation District (Marin RCD), University of California Cooperative Extension (UCCE), and the Marin Agricultural Land Trust (MALT). Much of the watershed management practices implemented in the Soulajule/Nicasio Watershed are by private landowners either acting on their own or in coordination with one of the public agencies or entities identified above. For example, Marin RCD collaborates with MMWD and private landowners to encourage fencing efforts.

4.1.1 MMWD Watershed Policies and Program

MMWD continues to demonstrate strong commitment to watershed protection and retains two watershed-related goals within their Missions and Goals statements.

Since 1995, MMWD has revised a number of board policies that further support MWWD's watershed management commitment and ability to exercise watershed controls. The policies continue to support watershed management and those that are in place since 2005 include:

- Board Policy Number 1 – District's Mission and Goals Statement (Revised 2/26/09)
- Board Policy Number 7 –Mt. Tamalpais Watershed Management Policy (Adopted on 9/1/10)

- Board Policy Number 14 - Land Use in the Nicasio, Soulajule, and San Geronimo Watersheds (Last reviewed on 1/26/94)
- Board Policy Number 35 - Watershed Fees and Funding (Revised on 12/9/98)
- Board Policy Number 49 – Multi-Benefits/Integrated Water Management Projects Policy (Dated 5/3/2012)

Within MMWD, watershed management and water treatment programs fall under the domain of the Watershed Management Department. Furthermore, the implementation of the RTMP discussed in detail in Section 3.2.4.2 as adopted by the MMWD board on May 18, 2005, provides a focused look at erosion from roads and trails, one of the largest potential water quality impacts to the reservoirs in the Mount Tamalpais watershed. The RTMP was amended in 2019 and 2020 to include the Azalea Hill Restoration Project the Culvert Maintenance and Replacement Project. These projects will add to existing erosion control measures and improve sediment conveyance within the watershed.

In addition, MMWD board adopted an Integrated Pest Management (IPM) policy in 2003 and staff has developed an IPM handbook to better manage pests and to ultimately minimize the use of pesticides and herbicides. The BFFIP has a goal of adaptive management which includes updating the IPM policy in accordance with new information.

As discussed in Section 2.1, the One Tam organization has been working on various projects in the Mount Tamalpais watershed, including projects that have the potential to improve the water quality such as trail re-alignment to reduce potential sediment loading, and forest management initiatives. In 2019-2020, the One Tam organization partnered with Marin County Fire to improve forest health by removing dead vegetation and implementing controlled burns to improve conditions for native species, decrease fire risk, and improve hydrological conditions.

4.1.2 Land Use Planning and Control

Land use planning and the level of land development vary greatly between the two MMWD watersheds because of the significant difference in the amount of MMWD land ownership between the Mount Tamalpais and the Soulajule/Nicasio Watersheds. MMWD's nearly complete ownership of the Mount Tamalpais Watershed and the watershed's designation as a drinking water supply, restricts all development and activities within it. Board Policy 7-Protection Policy for the Mt. Tamalpais Watershed Management Policy which was adopted on 9/1/10 governs activities in the Mt. Tamalpais Watershed.

In the Soulajule/Nicasio Watershed, the County controls land use changes and the review of any development-related proposals. MMWD has input on land use controls within the watershed and does participate in the review of development proposals and permit applications. As described above, MMWD staff worked with County staff during the preparation of the County's General Plan (also called the Countywide Plan) 2014 update and accompanying Environmental Impact Report. One of the major themes of the Countywide Plan Update is sustainability which has resulted in several guiding principles that are relevant to watershed protection as follows:

1. Use finite and renewable resources effectively and efficiently

2. Reduce the release of hazardous materials
3. Steward our natural and agricultural assets.

4.1.2.1 Development Controls in Nicasio Reservoir Watershed

There have been no recorded changes since 2010 to the Nicasio Valley Community Plan which was last amended in 1997 and the development controls remain the same.

4.1.2.2 Private Landowner Watershed Protection Agreements

MMWD currently has 79 watershed protection agreements (WPAs) in place. This has not changed since the last WSS update in 2015.

4.1.2.3 Agricultural Land Trusts

The MALT land conservation activities remain active in Marin County. A MALT agricultural easement is a voluntary legal agreement between MALT and a landowner that permanently protects a property's conservation values and limits development and certain land use. As of 2020, MALT estimates that more than 54,000 acres of Marin farmland have been preserved using agricultural easements. These lands encompass 86 family farms and ranches. Though this program is not directly targeted at watershed protection, it provides that function and is of significant value to MMWD in protecting Soulajule and Nicasio reservoirs.

4.1.2.4 On-Site Wastewater Disposal Systems

See Section 1.2.1.3 and Section 3.2.1.

4.1.3 Land Ownership and Rights-of-Way

Since 2015, there have been no significant changes in land-ownership within the Mount Tamalpais Watershed where MMWD has ownership of most of the land or in the Soulajule/Nicasio Watershed, where MMWD owns only about 2 percent of the land. MMWD continues to monitor the situation with the closed and vacated 1 acre Loral/Skynet radar facility, which occupies 1 acre of a 10-acre parcel property, and may purchase it if the opportunity presents itself and funds are available. The remaining approximately 98 percent of the Soulajule/Nicasio Watershed is privately owned land and is zoned either for agricultural use or as large residential parcels.

4.1.4 Access Control

Since 2015, few changes to control access to the Mount Tamalpais Watershed land and reservoirs have occurred. All MMWD roads that are open for public use are gated and closed in the evenings. The watershed land itself is also closed in the evenings, and MMWD conducts random evening ranger patrols to enforce this rule. Unlike the paved roads and parking lots, where access is relatively easy to control, access to the watershed by trails remains much more difficult to control with approximately 100 road/trail access points from the borders of the watershed.

On March 19, 2020, a shelter-in-place order was issued by the California Department of Public Health to limit the spread of COVID-19. Since this order allowed for outdoor recreational activities, the Mount Tamalpais watershed saw an increase in visitation throughout the COVID-19 lockdown order. To accommodate increased visitation, MMWD increased the number of port-a-potties in the watershed and increased the frequency of servicing. Additionally, MMWD has coordinated with the local conservation corps as well as individual volunteers to assist with trash management while complying with social distancing requirements.

Access to the Soulajule/Nicasio Watershed remains mostly uncontrolled because it is nearly all private land. The number of people on the watershed, though, is low due to its lack of development and the relatively few roads. Significant development does not occur because of County Planning policies and the placement of lands in agricultural land trusts. Access to the Soulajule Reservoir is limited because it requires crossing private land. Additionally, access is limited by the location of public roads. In Nicasio Reservoir, about 1/6 of the shoreline is easily accessible by public road. However, as of 2020, the Nicasio Reservoir is fenced sufficient to prevent cattle access to the reservoir.

4.1.5 Grazing Practices and Wildlife Management

4.1.5.1 Cattle Grazing

As in 2005 and 2010, no livestock grazing is allowed by MMWD in the Mount Tamalpais Watershed. A significant amount of cattle grazing continues to occur in the Soulajule/Nicasio Watershed. As of May 2020, an estimated 18,100 head of cattle (dairy and beef combined) were in Marin County, which is a slight decrease from the 18,300 head in 2017. Much of the large land parcels within the watershed are used for grazing beef cattle and, to a lesser extent, sheep.

The University of California Cooperative Extension (UCCE) provides assistance to ranch owners in the development of Ranch Plans and Ranch Water Quality Plans in compliance with the Regional Board's waiver discussed in Section 3.2.6.1 for appropriate management of agricultural facilities. Ranch Plans are purely voluntary while Ranch Water Quality Plans are required. UCCE continues to host ranch planning and water quality planning workshops twice a year for dairies in the watershed. These workshops have been temporarily suspended due to COVID-19.

Cattle access to Nicasio Reservoir is controlled by perimeter fencing which in 2010 was sufficient to prevent animal access. A majority of the Soulajule Reservoir is unfenced, except for the portion owned by MMWD. Prevention of cattle and sheep access to reservoir water through fencing is one of the strongest measures that can be taken to protect reservoir water quality. The costs associated with fencing as related to the effectiveness of fencing are discussed in Section 3. As summarized earlier, fencing of Soulajule reservoir does not appear to be merited at this time.

The U.S. Department of Agriculture, Natural Resources Conservation Service has continued working with the MCRCD on watershed management practices in the Soulajule/Nicasio Watershed. Projects include erosion control along streams, educational workshops and

technical assistance to ranchers on water quality monitoring, water quality protection, conservation planning, and riparian habitat restoration. Additionally, the COW program also assists ranches in the Tomales Bay to update their Ranch Water Quality Plans and helps ranches and dairies in implementing conservation projects to reduce pathogen loading to the watershed.

MCRCD and MMWD have worked together on projects to construct fencing to prevent cattle entry into the creek and to plant willow along boundaries to decrease erosion in Walker Creek. MMWD staff seeks opportunities to work with MCRCD on projects to improve resource management within the Soulajule/Nicasio Watershed including monitoring and maintenance within the watershed.

In addition, as discussed in Section 3.2.6.1 earlier, significant attention has been focused on activities that can increase pathogens in Tomales Bay as part of the Tomales Bay Pathogen TMDL.

4.1.5.2 Wildlife

See Section 3.2.9 - Wild Animals.

4.1.6 Pesticide and Herbicide Applications

The Mount Tamalpais Watershed is within the Marin/Sonoma Mosquito and Vector Control District; however, no mosquito control pesticides have been applied in that area since 1915. As discussed earlier in Section 3.2.8, MMWD does not use herbicides in Mount Tamalpais, and uses other controls such as burns, on a limited basis on watershed lands in an effort to control non-native plant species. Limited pesticide and herbicide use occurs at the MCGC above Alpine Lake.

As discussed in detail in Section 5.6.2, MMWD applies copper sulfate algaecide to Nicasio Reservoir in the Soulajule/Nicasio Watershed and to Kent, Bon Tempe, and Alpine Lakes as required in the Mount Tamalpais Watershed. As discussed earlier, free-floating algae in Nicasio Reservoir produce geosmin while benthic algae in Kent, Bont Tempe and Alpine Lakes produce Methyl Isoborneo (MIB) and geosmin, both of which contribute to taste and odor production. Copper sulfate is typically applied on an as-needed basis in the warmer months. The Marin County Agricultural Commissioner and the Department of Fish and Wildlife are notified each year of the application of copper sulfate.

Livestock ranchers and farmers located within the Soulajule/Nicasio Watershed utilize pesticides or herbicides to control weeds and pests in pasture lands and on farms. Businesses in Marin County such as ranches, farms, and the MMWD are required to report pesticide and herbicide use for restricted hazardous materials to the Marin County Department of Agriculture through monthly use report forms. Detailed information on pesticide and herbicide use within MMWD watersheds is provided in Section 3 in the Pesticide/Herbicide Use, Section 3.2.8.

4.1.7 Domestic Animal Use/Control

Access of Domestic Animals to the Mount Tamalpais and Soulajule/Nicasio Watersheds remains wholly unchanged since 2005. Dairies and horse stables are discussed in Section 3.2.7.

As discussed in Section 3.2.7.2 earlier, since 2005 many documents including Horse Manure Management: A Guide for Bay Area Horse Keepers have been prepared and can be found on MCSTOPPP's web site. In addition, the MCRCD, as part of the Council of Bay Area Resource Conservation Districts, (CBARCD) continues to partner with equestrian organizations, the USDA Natural Resources Conservation Service (NRCS), Region 2 of the Regional Water Quality Control Board, and the three other Resource Conservation Districts (RCDs) in Alameda, San Mateo and Southern Sonoma counties, to address horse keeping and potential water quality problems that might be attributed to horses. Guidance documents and fact sheets are readily available on the various RCD web sites and can be presented and distributed to horse keepers to educate and improve best management practices that result in improvements to water quality.

4.1.8 Erosion Control/Natural Resource Protection

Erosion remains one of MMWDs biggest reservoir water quality concerns. As discussed earlier in Section 3.2.4.2, in the Mount Tamalpais Watershed, where erosion potential is lower than the Soulajule/Nicasio Watershed, creek crossings on the road system is the largest source of sediment although other sources of erosion especially wildfire fire can also contribute. As described in Section 3.2.14, estimates based on the 2012-2013 Mt Tamalpais Visitor Use Census and Survey show a high level of recreational activity in the watershed – 1.8 million visitors/year. MMWD staff manages erosion-inducing activities for all MMWD-owned lands in the Mount Tamalpais watershed under the RMTP adopted in 2005. Since 2015, two additions to the RMTP have been made:

1. Restoration of Azalea Hill – includes the improvement of approximately 4.4 miles of roads and trails to improve habitat and water quality and the improvement of the hiking and equestrian route over Azalea Hill by correcting erosion and drainage problems, and the improvement of erosion conditions at the Azalea Hill parking lot.
2. Culvert Maintenance and Replacement Project – includes upsizing culverts to improve conveyance and sediment transport and replacing culverts with rock crossings and riprap to provide scour protection.

MMWD staff continues to maintain, improve, and update a geographic information system (GIS) to track information regarding trail and road conditions and maintenance, culvert condition, and other data such as sediment volume estimates and maintenance activities with which to make decisions and prioritize restoration activities. Recently, the District conducted a culvert assessment and documented the results in their work order system. Through this assessment, the District was able to prioritize the culverts in the watershed for maintenance and replacement. As of February 2021, 35 culverts have been rehabilitated or replaced, with 78 more in progress.

In addition, MMWD staff keeps abreast of advances in construction and maintenance of roads and trails that could be used in the watersheds. Trail postings and signs remain an important part controlling trail use and public education. The Biodiversity, Fire, and Fuels Integrated Plan (BFFIP) was adopted in 2019, replacing the 1994 VMP, and continues to be used in conjunction with the RTMP to manage the vegetation resource of the Mount Tamalpais watershed.

The Soulajule/Nicasio watersheds have higher erosion potential of the land than the Mount Tamalpais watershed. In addition the morphology of the reservoirs makes them vulnerable to sediment loading. Both the Soulajule and Nicasio reservoirs are shallower than the Mount Tamalpais Watershed reservoirs and drain larger watershed areas. As discussed in Section 4.1.1 above, activities in the Soulajule/Nicasio watersheds are governed by Board Policy 14 and remained largely unchanged since 2005. MMWD staff works with County staff to raise concerns about erosion control and to have the opportunity to review projects in their planning stages. Through the contact with County staff, MMWD is able to implement WPAs (Section 1) to provide regulatory oversight for projects as appropriate.

MMWD staff provided input to County staff in the County General Plan update completed in 2014 to implement more watershed controls within the County boundaries. MMWD staff continues to partner with MCRCD in an effort to complete activities that benefit water resources. Though the completed projects to date are downstream of MMWD reservoirs, MMWD staff continues to seek opportunities for MCRCD-sponsored or MCRCD/MMWD joint projects to be conducted within MMWD reservoir watersheds.

4.1.9 Road and Trail Maintenance

As described above, road and trail maintenance activities in the Mount Tamalpais watershed is now governed by the RTMP adopted in 2005 while activities in the Soulajule/Nicasio watershed remain as they had in 2010. Maintenance of the public roads within the Mount Tamalpais and Soulajule/Nicasio watersheds is the responsibility of the County Department of Public Works, Roads Department. Maintenance of fire roads located on MMWD land is mainly the responsibility of MMWD's Watershed Maintenance Section. Maintenance of trails continues to be conducted solely by MMWD maintenance staff.

MMWD's RTMP continues to provide specific guidance on how roads and trails will be constructed and maintained through the implementation of Best Management Practices, Design Standards and Environmental Protection Measures. Based on the current density of roads and trails and the impact of those roads and trails, the RTMP has indicated that no new trails should be built on Watershed lands. Other topics addressed in the regulations include: cuts and fills, culvert design, ditch construction, and trail design standards.

MMWD has also received grant funding from California Conservation Corps (North Bay) and for Phase 2 of the Azalea Hill Project, and funding from the State to expand the Roads and Trails program.

4.1.10 Recreation Use

Recreation in the Soulajule/Nicasio and Mount Tamalpais watersheds consists of non-water contact activities. As described in 3.2.14, there is substantial recreational use in the watershed that has increased during the COVID-19 shelter-in-place order. Hiking, biking, and equestrian travel are potential sources of erosion in the Mount Tamalpais Watershed since there are a large number of trails for these activities. Although mountain biking is only allowed on protection roads in the Mount Tamalpais Watershed, bicyclists sometimes ride on existing hiking trails or create new trails for "challenge" riding or shortcuts as in the Pine Mountain area. MMWD rangers patrol trails and issue warnings or citations when illegal biking is encountered. Refer to the Inspection and Surveillance of the Watersheds, Section 4.1.17, found later in this chapter for more information on recreation controls.

4.1.11 Reservoir Use Restrictions

MMWD continues not to allow body-contact activities in or on the water, such as swimming and boating, on any of the waterbodies in the Soulajule/Nicasio and Mount Tamalpais Watersheds. MMWD rangers issue citations when restricted recreational activities are encountered.

4.1.12 Emergency Response Programs

MMWD has updated their Risk and Resiliency Assessment and Emergency Response Plan as required by America's Water Infrastructure Act (2018). A more extensive ERP update that is more customized to MMWD is currently in progress,

4.1.13 Water Quality Monitoring

All water quality monitoring in the watersheds is performed by MMWD. Refer to the Reservoir and Lake Water Quality Monitoring, Section 5.6, for a description of MMWD's monitoring.

4.1.14 Vegetation Management

MMWD's Vegetation Management Plan has been superseded by the Biodiversity, Fire, and Fuels Integrated Plan (BFFIP), which was adopted in 2019. The BFFIP defines and guides the methods to minimize the risk from wildfires in the watershed while preserving and enhancing existing significant biological resources in the Mount Tamalpais watershed. The BFFIP outlines 14 approaches and identifies actions and projects that aid the District in accomplishing the following goals:

- Minimize the risk from wildfire
- Preserve and enhance existing significant biological resources
- Provide an adaptive framework for the periodic review and revision of BFFIP implementation decisions in response to changing conditions and improved knowledge.

Management actions include biological and hydrological inventorying, planning and monitoring activities, and vegetation management (such as invasive species treatment and control and ecosystem restoration)

There are no changes since 2005 in vegetation management in the Soulajule/Nicasio Watershed.

4.1.15 Wetland Management

There continue to be no significant wetland management activities performed within MMWD watersheds. MMWD does occasionally remove sediments from the inlet to the Nicasio Reservoir in an effort to maintain channel capacity to prevent flooding (See Section 3.2.18).

Proposed modifications to wetlands are regulated through State and federal agencies depending on the type, location, and functions and values of the existing wetlands.

4.1.16 Public Education and Relations

Since 2005, MMWD has continued to implement a number of public outreach and education programs for watershed management and expanded volunteer opportunities. MMWD has enlisted the assistance of two AmeriCorps volunteers who have been active in District conservation activities. In addition to the activities identified in the 2015 WSS, MMWD has maintained a volunteer coordinator on its staff that works with the One Tam collaboration.

MMWD volunteers assist the District in trail maintenance, habitat restoration, and endangered species protection. Current volunteer programs include watershed cleanups to remove trash from high-use areas and promote responsible use of the watershed. Typically, MMWD coordinates other volunteer programs that include activities such as non-native plant removal, trail maintenance, invasive plant surveying, habitat restoration, monitoring foothill yellow-legged frog and western pond turtle populations, and public outreach. These programs are currently on hold due to COVID-19, however, MMWD is in the process of modifying these activities to comply with physical distancing guidelines. Volunteer activities are well documented on the District's web site. The Watershed Greeter Program is currently active. Volunteers are stationed throughout the watershed to share updates about park programs and events and encourage community engagement. In light of COVID-19 and the increase in visitation, Watershed Greeters also assist the District in enforcing social distancing regulations and mitigating visitor behavior.

MMWD watershed education efforts are aided by those of environmental and other interest groups who are admirers of the Mount Tamalpais Watershed and also provide funding through the Mt. Tamalpais Watershed Fund. The Fund is administered by the Marin Community Foundation, a non-profit, philanthropic organization working since 1986 to improve the human condition and enhance the quality of life. In March 2014, MMWD, together with three other agencies responsible for the management of Mt Tamalpais (National Park Service, California State Parks, Marin County Parks) signed a Memorandum of Understanding to establish the Tamalpais Lands Collaborative (TLC). TLC is aimed at developing and implementing projects and public programs to promote resource management and preservation, increase community

support, volunteer engagement and education opportunities, and enhance visitor experiences. In the past year through the One Tam program, TLC has adapted their Linking Individuals to their Natural Community (LINC) program to COVID-19 shelter-in-place guidelines, resulting in 22 students from across 5 counties participating in a combination of virtual learning sessions and outdoor explorations, including species identification and park cleanups. TLC and One Tam also collaborated with community members and the California Academy of Sciences to power bioblitz events that bring staff and community members together to identify species and add to One Tam's data collection efforts.

In addition, MMWD has continued to maintain staff to manage all MMWD public outreach activities which include speaker's bureau for community groups, a school program, and seminars. MMWD sees public outreach as an important component of its watershed management program and has clearly demonstrated this through its outreach efforts and ranger-public interface within the Mount Tamalpais Watershed. As a result of the large number of private landowners, public outreach is more challenging within the Soulajule/Nicasio Watershed.

Within both watersheds, MMWD should continue its public outreach programs and should look for new opportunities for public outreach.

4.1.17 Inspection and Surveillance of the Watersheds

MMWD has continued to maintain its inspection and surveillance programs in the watersheds since 2010. The majority of the effort in inspection remains in the Mount Tamalpais watershed. The water quality sampling program results are discussed in Section 5.4.

Six full-time rangers and two watershed aides are currently on staff to enforce MMWD watershed/recreation regulations and act as an interpretive interface with the public. The MMWD rangers are augmented by two Marin County Sheriff's deputies with the authority to enforce the California Penal Code. Rangers maintain residences at Phoenix, Lagunitas, and Alpine Lakes in order to maintain close contact with the watersheds. As discussed in Section 3.2.14 and 4.1.10 above, there is substantial recreational use in the watershed (1.8 million visitors per year were reported in 2012-13, and COVID-19 has spiked recreational usage). The District has plans to hire 2 additional rangers for the watershed as usage continues to increase. Since ranger duties primarily include proactive controls, increased staffing will increase surveillance and inspection actions. The District has also developed a maintenance plan to increase the frequency of culvert inspections to once per year.

Inspection of the Soulajule/Nicasio watershed continues to be carried out by rangers who reside near the dam on Soulajule Reservoir. MMWD owns roughly two percent of the lands immediately surrounding the Soulajule and Nicasio reservoirs. Watershed patrols are conducted routinely, on foot, on All Terrain Vehicles (ATVs) and by boat, by the rangers and other MMWD staff (i.e., during water sampling or other maintenance and operations activities). The rangers also respond to complaint calls from area property owners. The rangers' presence continues to provide valuable eyes and ears and public contact in responding to activities that could impact water quality.

4.2 Additional Recommended Watershed Control Measures

Section 1.2 provides a status on the watershed control measures recommended in 2015. The information will not be repeated here.

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Section 5 Water Quality

5.1 Overview of Federal and State Drinking Water Requirements

Table 6 summarizes the major regulatory requirements included in current surface water treatment regulations as well as other distribution system drinking water regulations, some of which have had recent revisions. The subsequent paragraphs provide a more detailed discussion of the main surface water treatment regulations. The current regulatory requirements relevant to the Bon Tempe and San Geronimo WTPs are discussed in more detail in the following section.

Table 6: Overview of Federal and State Drinking Water Regulations Pertinent to Surface Water Sources

Regulation	Promulgation Date, Federal (State)	Compliance Date, Federal (State)	Requirements/Comments	
Surface Water Treatment Rule (SWTR)	June 1989	Dec. 1990	3-log (99.9%) removal/inactivation of *Giardia*;	
			4-log (99.99%) removal/inactivation of virus.	
			0.5 NTU CFE 95% of the time.	
			CA DPH 0.2 NTU CFE 95% of the time (1994) for new/modified WTP	
			At no time exceed 5 NTU.	
Interim Enhanced Surface Water Treatment Rule (IESWTR)	Dec. 1998 (Dec. 2007)	Jan. 2002 (Jan. 2008)	2-log (99%) removal goal for *Cryptosporidium* oocysts.	
			TTHM and HAA5 monitoring, or Disinfection Profile.	
			Treated water delivered to the distribution system shall not contain less than 0.2 mg/L disinfectant residual for more than 4 hours in a 24 hour period.	
			Treated water in the distribution system shall have a detectable disinfectant residual in at least 95 percent of samples collected each month. Heterotrophic plate counts below 500 colony forming units shall be considered equivalent to a detectable disinfectant residual.	
			Average daily CFE shall be less than 0.2 NTU for new/modified WTP.	
			Provide filter-to-waste or add coagulant to backwash water.	
			Both Conventional & Direct Filtration	0.3 NTU CFE 95% of the time.
				Operating Criteria include: The CFE shall not exceed 1 NTU for more than 1 continuous hour based on continuous monitoring recorded at 15 minute or shorter intervals, shall not exceed 1 NTU at 4-hour intervals, and shall not exceed 1.0 NTU for more than 8 consecutive hours. Additional supplemental reporting requirements.

Regulation	Promulgation Date, Federal (State)	Compliance Date, Federal (State)	Requirements/Comments	
				The Individual Filter's turbidity shall not exceed 2.0 NTU during the first 4 hours of operation after an interruption event, 1.0 NTU in at least 90 percent of 4 hour period after interruption events in each 12 month period, or 0.5 NTU after 4 hours of operation.
			Contact Clarification Filtration	CA DPH requires 0.2 NTU individual filter effluent and CFE 95% of the time for WTP receiving 2.5-log *Giardia* and 2.0-log virus removal credit.
			Membrane Filtration	CA DPH requires 0.1 NTU individual filter effluent and CFE 95% of the time.
Long-Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR)	Jan. 2006	April 2012	Source Water *Cryptosporidium* Sampling Program	
			Source Water Specific Risk Bins	
			Microbial Tool Box Requirements	
			CA DPH requires 0.3 NTU 15-minute CFE 95% of the time.	
			Unfiltered Systems must provide 2-log Crypto inactivation.	
Stage 1 Disinfectants and Disinfection Byproducts Rule (D/DBPR1)	Dec. 1998	Jan. 2004 (June 2006)	Initial Distribution System Evaluation (IDSE) to identify locations with highest TTHM and HAA5 concentrations.	
			MCLs	TTHM = 0.080 mg/l (RAA)
				HAA5 = 0.060 mg/l (RAA)
				Bromate = 0.010 mg/l
			MRDLs	Chlorine & Chloramines = 4.0 mg/l
			For conventional systems only, Enhanced Coagulation for TOC percent removal (DBP precursor) based on source water TOC and alkalinity.	
Stage 2 Disinfectants and Disinfection Byproducts Rule (D/DBPR2)	Dec. 2005	1 April 2012	MCLs apply at each monitoring location	TTHM = 0.080 mg/l (LRAA)
				HAA5 = 0.060 mg/l (LRAA)
			MRDLs	Chlorine & Chloramines = 4.0 mg/l
			THM and HAA5 values are for specific locations in measured in the distribution system.	
Total Coliform Rule (TCR)	June 1989	Dec. 1990	Distribution system monitoring; sanitary survey requirements	
			0.2 mg/l distribution system disinfectant residual	
Lead and Copper Rule (LCR)	June 1991	July 1991	ALs for Copper = 1.3 mg/l; Lead = 0.015 mg/l as measured in the distribution system.	
			MCLGs for Copper = 1.3 mg/l; Lead = 0 mg/l as measured in the distribution system.	
Filter Backwash Recycling Rule (FBRR)	Jun. 2001	June 2004	Spent washwater that is recycled must be returned to the head of the plant (prior to the point of first treatment step) or the water agency must submit report to primacy agency regarding impact of current recycle location on treatment processes.	
Revised Total Coliform Rule (RTCR)	Feb. 2013	April 2016	MCLG for E. coli = 0	
			MCL for E. coli based on results of routine sample and its associated repeat samples in distribution system	

5.1.1 Surface Water Treatment Rule

The SWTR, as adopted by the State of California, set a filtered water turbidity goal of 0.5 NTU. The SWTR turbidity standard was superseded by a more stringent filtered water turbidity standard of 0.3 NTU that is included in the IESWTR.

The DPH published a guidance document, "Surface Water Treatment Staff Guidance Manual" (SWTSGM) in May 1991 that summarizes the treatment requirements in the SWTR as adopted by the State in the California Code of Regulations (CCR). The SWTSGM, Appendix K indicates that new WTPs and WTPs modified after October 1994 should meet a turbidity standard of 0.2 NTU.

5.1.2 Interim Enhanced Surface Water Treatment Rule

The IESWTR applies to WTPs that produce water delivered to a distribution system that serves more than 10,000 people. The State of California adopted the IESWTR in January 2008. The California IESWTR includes several additional monitoring requirements that create a more stringent filtered water performance standard. The IESWTR requires that WTPs treating a surface water supply achieve at least 99 percent (2-log) removal of *Cryptosporidium*. The compliance performance standard for WTPs with either a conventional filtration or a direct filtration process includes at least 95 percent of the combined filtered effluent (CFE) samples must have turbidity that is less than 0.3 NTU in each month for CFE samples collected at 15 minute intervals.

The DDW also requires that surface water treatment plants prepare monthly reports on the CFE turbidity for the 50th percentile, 90th percentile, 95th percentile, 98th percentile, and 99th percentile values to be submitted to the DDW.

The IESWTR requires that the CFE turbidity not exceed 1.0 NTU at any time. If the CFE exceeds 1.0 NTU in two consecutive recordings at 15 minute intervals, MMWD must conduct a self-assessment of the filters within 14 days. In addition, if the CFE exceeds 2.0 NTU in two consecutive recordings at 15 minute intervals during two consecutive months, MMWD must arrange to have a comprehensive performance evaluation (CPE) of the water treatment process conducted by the State or a qualified third party within 60 days of the second high CFE event to identify and take corrective actions to prevent future reoccurrence.

The IESWTR also requires the supplemental reporting of the following exceedances in the individual filtered effluent (IFE) turbidity and documenting the reason for the exceedance or producing a filter profile if the reason cannot be identified:

- IFE exceeds 1.0 NTU in two consecutive measurements taken no more than 15 minutes apart
- IFE exceeds 0.3 NTU in two consecutive measurements taken no more than 15 minutes apart after 60 minutes or more of continuous operation following a backwash or period offline

Additionally, if the IFE exceeds 1.0 NTU in two consecutive recordings at 15 minute intervals in each of three consecutive months, MMWD must conduct a self-assessment of the filters within 14 days. If the IFE exceeds 2.0 NTU in two consecutive recordings at 15 minute intervals during two consecutive months, MMWD must arrange to have a CPE of the water treatment process within 30 days following the exceedance and submit the evaluation to DDW within 90 days following the exceedance.

5.1.3 Long Term 2 Enhanced Surface Water Treatment Rule

The LT2ESWTR was published in the Federal Register (FR) on 5 January 2006. The LT2ESWTR required that all water supplies collect source water data on *Cryptosporidium*, and it sets new treatment requirements that include performance standards for each water supply based on the relative risk due to presence of *Cryptosporidium* in the source water. This new rule required that filtered systems serving more than 10,000 people collect 24 samples from each of its surface water supplies to determine the average concentration of *Cryptosporidium* in the source water supply. The 2014 MMWD LT2ESWTR Round 2 monitoring plan was included as an appendix to the 2015 WSS update. The *Cryptosporidium* concentration in each source water was used to determine to which *Cryptosporidium* treatment "Bin" the source would be assigned, and if additional treatment was required to remove and/or inactivate *Cryptosporidium*.

Water suppliers serving more than 100,000 people also must comply with the LT2ESWTR by 1 April 2012, unless compliance requires a capital investment. If a water agency must make a capital investment to comply with the LT2ESWTR, the primacy agency may grant up to an additional 24 months for compliance. The State of California adopted the federal LT1ESWTR and LT2ESWTR in 2013, with the new regulation having an effective date of 1 July 2013.

5.1.4 Stage 1 Disinfectants and Disinfection Byproducts Rule

The D/DBPR1 focuses on controlling production of DBPs, while also meeting disinfection requirements. The State of California adopted the DBP1 in June 2006. This rule set a lower maximum contaminant level (MCL) for TTHM at 80 µg/L, and established MCLs for newly regulated DBPs, including HAA5 at 60 micrograms per liter (µg/L), bromate (BrO_3^-), a byproduct of ozone oxidation, at 10 µg/L, and chlorite (ClO_2^-), a by-product of chlorine dioxide reduction, at 1.0 mg/L. This rule also includes maximum residual disinfectant levels (MRDLs) for chlorine at 4.0 mg/L (as Cl_2), chloramine at 4.0 mg/L (as Cl_2), and chlorine dioxide at 0.80 mg/L (as ClO_2).

The D/DBPR1 introduces and defines the parameter, specific ultraviolet (UV) (light) absorbance (SUVA), which is the UV light absorption at 254 nanometer wavelength (measured in 1/meter (m^{-1})) divided by the DOC concentration in the water and is expressed in L/mg-m or L/mg-cm. The D/DBPR1 requires that water systems with a population higher than 10,000 collect four quarterly samples for each water treatment plant or source that include at least one location that represents the maximum water age in the distribution system and three locations that represent at least the average water age in the distribution system for TTHM and HAA5 monitoring.

The D/DBPR1 also includes requirements for reducing the Total Organic Carbon (TOC) in the water as one strategy for reducing DBP production for water treatment plants with a conventional filtration treatment process (see Table 7).

Table 7: Required Percent Removal of TOC

Source Water TOC, (mg/L)	Source-water Alkalinity, (mg/L as $CaCO_3$)		
	0 - 60	60 – 120	>120
>2.0 – 4.0	35%	25%	15%
>4.0 – 8.0	45%	35%	25%
>8.0	50%	40%	30%

The TOC removal goals are intended to improve a water supplier's ability to comply with the TTHM and HAA5 MCLs. The Stage 1 Rule requires that the system-wide running annual average (RAA) concentration based on the quarterly samples collected at MMWD's D/DBPR1 sample locations for TTHM be less than 80 µg/L and for HAA5 be less than 60 µg/L. The new Stage 2 D/DBP Rule differs from the Stage 1 Rule by requiring that each of the locations monitored meet the TTHM and HAA5 concentration limits based on its individual locational RAA (LRAA), as discussed below.

5.1.5 Stage 2 Disinfectants and Disinfection Byproducts (DBP) Rule

The D/DBPR2 was published in the FR on 4 January 2006. This regulation added new, more stringent compliance standards that augmented the existing D/DBPR1 requirements and included an "Initial Distribution System Evaluation" (IDSE). MMWD performed IDSE DBP monitoring activities between October 2007 and September 2008. The D/DBPR2 required that water suppliers serving a population size between 50,000 and 249,999 people, such as MMWD, collect six sets (for both Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) of water samples from 16 IDSE-defined locations in its distribution system at 60 day intervals. Five of the 16 sample locations should be in areas that are likely to have high TTHMs, four of the 16 sample locations should be in areas that are likely to have high HAA5, four of the 16 sample locations should be representative of the average water age in the distribution system, and three sample locations should be near where the water enters the distribution system.

After the IDSE period, the D/DBPR2 requires that water suppliers serving a population size between 50,000 and 249,999 people conduct routine quarterly monitoring of the treated water at eight locations in its distribution system for both TTHM and HAA5. The eight locations used for routine DBP monitoring must be selected based on a combination of the 16 locations that were monitored under the IDSE criteria and its current D/DBPR1 monitoring locations. Three of the eight routine sample locations shall be locations identified by the IDSE sampling program as likely to have the highest average TTHMs, and three of the eight sample locations shall be locations identified by the IDSE sampling program as likely to have the highest average HAA5. The two other D/DBPR2 sampling locations shall be selected from the current D/DBPR1 monitoring locations to provide additional information on the TTHMs and HAA5 in the distribution system that may not be provided by the IDSE-based locations as well, to permit comparing current operating practices with prior operating practices on TTHM and HAA5 formation. The MMWD IDSE approved sampling plan and monitoring results was included in Appendix B of the 2015 WSS Update.

Water suppliers serving more than 100,000 people must comply with the D/DBPR2 by 1 April 2012, unless compliance requires a capital investment. If a utility must make a capital

investment to comply with the D/DBPR2, the primacy agency may grant up to an additional 24 months for compliance. The State of California adopted the D/DBPR1 four and one-half years after the rule's compliance date (1 January 2002), and 9 years after the rule was published in the Federal Register. During this four and one-half year period, the DPH was responsible for monitoring water suppliers for compliance with this rule, and the EPA was responsible for enforcement of the rule. If the State requires as much time to adopt the D/DBPR2 as it needed to adopt the D/DBPR1, water suppliers in California will be subject to rule enforcement, including granting of additional compliance time, by the EPA.

5.1.6 Filter Backwash Recycling Rule

It should be noted that MMWD applied for and received an exception to the FBRR for both the San Geronimo and Bon Tempe Water Treatment Plants as reported in the 2015 WSS Update. Both plants return filter backwash water to the rapid mix chambers as opposed to the flash mix chamber which would technically be the head of the treatment plant which remains the current practice.

5.1.7 Revised Total Coliform Rule

The Revised Total Coliform Rule (RTCR) was published on 13 February 2013 as a revision to the 1989 Total Coliform Rule (TCR). Minor corrections were published on 26 February 2014. All public water systems were required to comply with the RTCR starting 1 April 2016.

One of the main provisions of the RTCR was the setting of a treatment technique based on total coliforms and E. coli, and an MCLG and MCL for E. coli. The RTCR also included requirements for monitoring total coliforms and E. coli, provisions for allowing transition from the existing TCR to RTCR, requirements for seasonal systems, requirements for assessments and corrective actions, public notification requirements for violations and specific language to be included in Consumer Confidence Reports should a E. coli MCL violation occurs.

As per the update provided by MMWD staff, the District met all of the RTCR requirements by 1 April 2016.

5.2 Water Quality Constituents of Concern

Only those constituents that will be affected by the new and proposed regulations are discussed in detail. The current regulatory information and MCLs for primary drinking water standards are presented in Appendix A.

5.2.1 Constituents with No Significant Regulatory Change Since 2015

There has been no significant regulatory change associated with the constituents below since 2015.

- Total Coliform

- Viruses
- Nutrients
- Total Dissolved Solids
- Alkalinity
- Hardness
- Total Organic Carbon
- Volatile Organic Compounds (VOC)

Constituents that have had changes and applicability to source water quality are discussed in greater detail below.

It should be noted that local water districts and municipalities, such as MMWD, that purchase groundwater from wholesalers, like SCWA, are required to report all TCR positive reports back to the wholesalers. The exception to this reporting requirement is if the TCR positive sample is proven to be taken from a site that is not supplied by the wholesaler's groundwater source.

5.2.2 Lead and Copper

In November 2019, EPA proposed long term revisions to the National Primary Drinking Water Regulation (NPDWR) for lead and copper under the authority of the Safe Drinking Water Act (SDWA). The proposed regulation is known as the Lead and Copper Rule Revisions (LCRR). The rule includes a suit of actions to reduce lead exposure in drinking water for at-risk communities. It aims to improve the current rule via a holistic approach, which focuses on identifying the areas most impacted, strengthening drinking water treatment requirements, replacing lead service lines, increasing sampling reliability, improving risk communication, and protecting children in schools and childcare facilities. Major revisions include, but are not limited to:

- More actions required for 90th percentile (P90) levels above lead Action Level (AL) of 15 ug/L or copper AL of 1.3 mg/L
- Trigger Level (TL) defined as P90 > 10 and <= 15 ug/L that requires additional planning, monitoring and treatment requirements
- Higher priority towards collection of samples from lead service lines (LSLs)
- Higher frequency of monitoring for lead

EPA is currently in the process of obtaining public input to the proposed rule.

5.2.3 Synthetic Organic Compounds

The only regulatory change associated with this class of compound is the addition of an MCL for 1,2,3-Trichloropropane in 2017 (Order No SBDDW-17-001). The State Water Board adopted an MCL of 0.000005 mg/L, or 5 ng/L for 1,2,3-Trichloropropane, citing increased risk of cancer as the associated health risk from drinking water exposure.

5.2.4 *Cryptosporidium* and *Giardia*

There has been no significant regulatory change associated with *Giardia* since 2005. However, *Cryptosporidium* is specifically addressed in the IESWTR adopted by California in 2008 and in the LT2ESWTR published by EPA in 2006. The IESWTR includes a Maximum Contaminant Level Goal (MCLG) for *Cryptosporidium* set at zero, and the treatment technique standard requires systems that use conventional filtration treatment to achieve at least a 2-log removal of *Cryptosporidium* oocysts. Additionally, the LT2 ESWTR requires facilities to undergo a two-year *Cryptosporidium* monitoring plan to determine if source water quality requires additional treatment for removal/inactivation.

5.2.5 Turbidity

The main regulatory update to turbidity standards is related to the SWTR. The California-adopted IESWTR includes more stringent standards for some facilities using contact clarification or membrane filtration. Similarly, the state-adopted LT2ESTWR includes turbidity standards currently not in the federal rule.

5.2.6 Disinfection Byproducts

The Stage 2 D/DBPR includes more stringent regulatory requirements for TTHM and HAA5 than the Stage 1 D/DBPR. Effective three years following rule promulgation, the RAA MCLs will remain in effect and an additional limit of 120 μg/l of TTHMs and 100 μg/l of HAA5, based on a localized running annual average (LRAA) at the Stage 1 D/DBPR monitoring sites, will be instituted.

Six years following rule promulgation, the MCL for TTHMs and HAA5 will become more stringent, as the respective 80 μg/l and 60 μg/l compliance levels become based on LRAAs at the sites identified through the IDSE.

The Stage 1 D/DBPR set MCLs for bromate (10 μg/l), and chlorite (1.0 mg/l). The Stage 2 D/DBPR does not change the existing MCLs for these DBPs. Since MMWD does not use ozone or chlorine dioxide at either of its two WTPs, there two MCLs should not impact MMWD operations. DBPs are of concern primarily in the distribution system but DBP precursors, discussed below, are related to source water quality.

5.2.7 Perchlorate

Previously regulated through the establishment of a public health goal (PHG) and a notification level of 6 μg/l, perchlorate is now a contaminant of concern with a respective, enforceable, MCL in the state of California. As of October 2007, water systems in the state are required to produce water at or below this concentration.

To meet the new initial monitoring requirements for perchlorate, MMWD submitted to DPH a record of historical data. Through this submission, the District demonstrated that all their water systems are in compliance with the new MCL and were thus were not required to complete any additional monitoring in advance of compliance with the final MCL.

5.2.8 Contaminant Candidate List 4

In February 2020, EPA released preliminary regulatory determinations for eight contaminants listed under the fourth Contaminant Candidate List (CCL 4), as a part of its rulemaking process for developing National Primary Drinking Water Regulations (NPDWR).

In February 2021, EPA issued final regulatory determinations for these CCL 4 contaminants. The final determinations include provisions for regulating two contaminants (perfluorooctanesulfonic acid [PFOS] and perfluorooctanoic acid [PFOA] in drinking water) and not regulating the remaining six contaminants (1,1-dichloroethane, acetochlor, bromomethane, metolachlor, nitrobenzene, and RDX). With the final Regulatory Determinations for PFOA and PFOS, EPA will move forward to implement the national primary drinking water regulation development process for these two PFAS.

5.3 Other Regulations

Although these regulations do not apply to the surface water sources directly within the District's control, they may be applicable to the Sonoma County Water Agency source water and are included here for completeness.

5.3.1 Arsenic Rule

The final Federal Arsenic Rule, published by EPA on 22 January 2001, established the MCL for this constituent at 0.01 mg/l (10 ug/l). The Rule was to become effective on 23 March 2001, 60 days after publication. The rule established that the revised MCL for arsenic is 0.010 mg/l (10 ug/l) and became enforceable on January 23, 2006.

The State of California completed drafting the Revised Drinking Water Standard for Arsenic, which became effective on November 28, 2008 and officially adopted an MCL equivalent to the EPA standard of 0.010 mg/l.

5.3.2 Groundwater Rule

USEPA published the Federal Groundwater Rule in the National Register on 8 November 2006, which was then revised on 21 November 2006, and the final rule has an effective date of 8 January 2007. Compliance for the Federal Groundwater Rule (GWR) began on 1 December 2009. On 1 June 2009 DPH issued a statement to All Public Water Systems Receiving or Providing Groundwater, which discusses plans to adopt the Federal GWR in its entirety by reference by the DPH. California established a state-level GWR in 2011. On 1 April 2011, a Notice of Proposed Rulemaking was published containing changes to the California Code of Regulations Title 22, Division 4, Chapter 15, for the adoption of the Federal GWR as a State GWR, was proposed as Article 3.5. The regulation was approved on 19 July 2011 and became effective on 18 August 2011.

The Groundwater Rule applies to all public water systems that serve groundwater or that mix untreated groundwater and surface water. The Adoption of the Groundwater Rule identifies deficiencies in water systems which are susceptible to contamination and reduce risk from

identified susceptibilities. The GWR provides increased protection for drinking water against viral and bacterial pathogens in public water sources which also use groundwater as source water.

5.3.3 Hexavalent Chromium

Chromium is a metallic element found in rocks, soils, plants, and animals. It is used in steel making, metal plating, leather tanning, corrosion inhibitors, paints, dyes, and wood preservatives. The most common forms of chromium in the environment are trivalent, hexavalent and the metal form. While trivalent and the metal form of chromium are important micronutrients, hexavalent chromium (also referred to as Chromium-6) is a recognized human carcinogen. The major source of hexavalent chromium in drinking water is oxidation of naturally occurring chromium present in igneous geologic formations and is therefore found to a much higher degree in groundwater than in surface water.

The USEPA regulates total chromium in drinking water and has set a MCL of 0.1 mg/L. The World Health Organization (WHO) guideline is 0.05 mg/L for total chromium. On 23 August 2013, a maximum contaminant level for hexavalent chromium, was published by DDW of 0.010 mg/L (10 ug/L). However, the California State Water Resources Control Board removed the hexavalent chromium MCL from the California Code of Regulations in 2017, based on an order issued by the Superior Court of Sacramento County. As of 2020, the State Water Board is in the process of evaluating the economic feasibility for reissuing an MCL for hexavalent chromium. MMWD has monitored surface water supplies for chromium as discussed in Section 5.4.4.

5.4 Monitoring

MMWD conducts monitoring of Nicasio Reservoir tributaries as recommended in earlier WSS and DDW inspection reports. The District also monitors WTP raw water. The results of both monitoring activities are summarized in the sections below.

5.4.1 Nicasio Reservoir Tributary Monitoring

As recommended in earlier WSS and discussed in Section 1, monitoring of tributaries has occurred in order to better understand sources of coliform, turbidity, and nutrients. Since 2000, at DPH’s recommendation, monitoring of the tributaries with CAFOs has been included.

5.4.2 WTP Raw Water Monitoring

No significant change has been made since the 2015 WSS. WTP raw water monitoring occurs quarterly for Title 22 regulated constituents as well as some additional monitoring for personal care products, endocrine disruptors and other UCMR 3 organic chemicals.

5.4.3 Reservoir Monitoring

No significant change has been made since the 2015 WSS; currently monitoring is still done on a quarterly basis in conjunction with WTP raw water monitoring.

5.4.4 Unregulated Contaminant Monitoring Rule

The SDWA Amendments of 1996 launched the initial Unregulated Contaminant Monitoring Rule (UCMR) with four amendments. UMCR 1, which monitored for 10 compounds was conducted from 2001 – 2005. UMCR 2 required monitoring for 15 additional compounds for a total of 25 different compounds. UMCR 3, published on 2 May 2012, required monitoring for a total of 30 different compounds between 2013 and 2015 while UCMR 4 in 2017 also required 30 contaminants including cyanotoxins, additional HAA, metals, pesticides and semi volatile organic compounds.

The fifth amendment (UCMR 5) was added by Section 2021 of America's Water Infrastructure Act of 2018 (AWIA). The rule is designed to help EPA determine which new contaminants should be considered for future regulation under the Safe Drinking Water Act. Community water systems serving more than 10,000 persons and a select group of smaller community water systems are required to take water samples and have them analyzed to see if specific chemical contaminants are present. UCMR 5 was published on March 11, 2021. UCMR 5 requires sample collection for 30 chemical contaminants including PFAS between 2023 and 2025 using analytical methods developed by EPA and consensus organizations.

In 2013 and 2014, MMWD collected samples in the treatment plants and the distribution system and reported four positive samples for Chromium-6, Chlorate, Chromium, Strontium and Vanadium under UCMR 3. The Chromium 6 concentrations, which was recently regulated, ranged from 0.054 to 0.36 ug/l which is well below the MCL of 10 ug/L. Chlorate concentrations ranged from 21 to 420 ug/L. Strontium, a naturally occurring alkaline element with radioactive isotopes of concern, is one of the contaminants likely to be regulated in drinking water. The current Health Reference Level (not part of drinking water regulations) of 1.5 mg/L is an order of magnitude higher than the highest Strontium level of 210 ug/L detected by MMWD. Vanadium was detected at a maximum concentration of 1 ug/L.

In 2018 and 2019, MMWD collected samples under UCMR 4 from their treatment plants as well as distribution system. About 25 analytes were sampled, including HAA, pesticides, cyanotoxins, semi volatile organics and metals. All pesticides and cyanotoxins were reported to be non-detect. Of the positive samples, manganese concentrations ranged from 0.56 ug/L to 12.2 ug/L, well below the secondary MCL of 50 ug/L. O-toluidine only had one positive sample at a concentration of 0.00841 ug/L. Bromide was detected in samples collected from both the treatment plants, with the average concentration at SGTP higher (37.5 ug/L) than that found at BTTP (25.5 ug/L).

In December 2020, MMWD collected samples for PFAS analysis under UCMR5 at six locations including three potable water tanks and three finished water locations. The samples were analyzed and found to be non-detect for the PFAS compounds.

Monitoring for halo acetic acids is discussed in Section 5.5.6.2.

5.5 Evaluation of Water Quality

5.5.1 Nicasio Reservoir Tributary Water Quality Monitoring

The results of the 2015 WSS included a recommendation to continue monitoring of tributaries to the Nicasio Reservoir. This water body supplies the majority of the raw water to SGTP. Two major tributaries to Nicasio Reservoir, Nicasio and Halleck creeks, were monitored at upstream and downstream locations. Additionally, two smaller creeks, La Franchi and Dolcini, were selected for monitoring because they provide drainage for dairy farms classified as CAFOs in the watershed. Both of these farms include an onsite lagoon with aerators to provide preliminary waste treatment. Wastes from the stall area are stored and treated in the lagoon. There may be some pasture area in the vicinity of the reservoir that is a potential source of animal waste.

5.5.1.1 Total Coliform

Total Coliform (TC) data are shown on Figure 5. The highest TC concentrations in the tributary creeks were measured in La Franchi Creek, one of the two dairy farm drainages. The two main tributaries, Nicasio and Halleck Creeks, show overall lower TC levels, especially in the upper reaches that are less influenced by runoff. Although more apparent in the dairy farm drainages, all of the creeks monitored demonstrate the same recurring annual trend. High TC values are seen in wet weather months, particularly between December and February. This is likely a result of increased runoff, although runoff flow data are not available to confirm this. Additional variability in the 2015 data may be the result of the drought that started in 2011 and extended through 2015. The variability of the TC data from 2015-2020 are consistent with those of the 2010-2015 data with the values in La Franchi Creek having the TC values much higher than the other monitoring locations.

5.5.1.2 Turbidity

As with TC, the highest tributary turbidity levels were observed in the dairy farm drainages. The peak turbidity levels in the six creeks monitored were observed each year during the winter months. These data are presented on Figure 6. The annual pattern displayed on Figure 6 is expected since increased runoff during the rainy season commonly introduces suspended solids into streams and water bodies. Thus, MMWD monitors turbidity in its source waters tributaries with significantly more frequency during winter months.

Turbidity levels in the SGTP Raw Water (RW) are plotted on . As in the tributaries, RW turbidity levels at SGTP often spike during winter months. Unlike the tributaries, SGTP turbidity levels show more variability throughout the year, possibly due to resuspension of bottom sediment in Nicasio reservoir by the aerator. Additionally, MMWD switches the source water of SGTP from Kent Lake to Nicasio Reservoir during the summer, which may contribute to turbidity spikes. Summertime turbidity spikes may also be due to turbidity originated from algae blooms that occur during increased daylight hours.

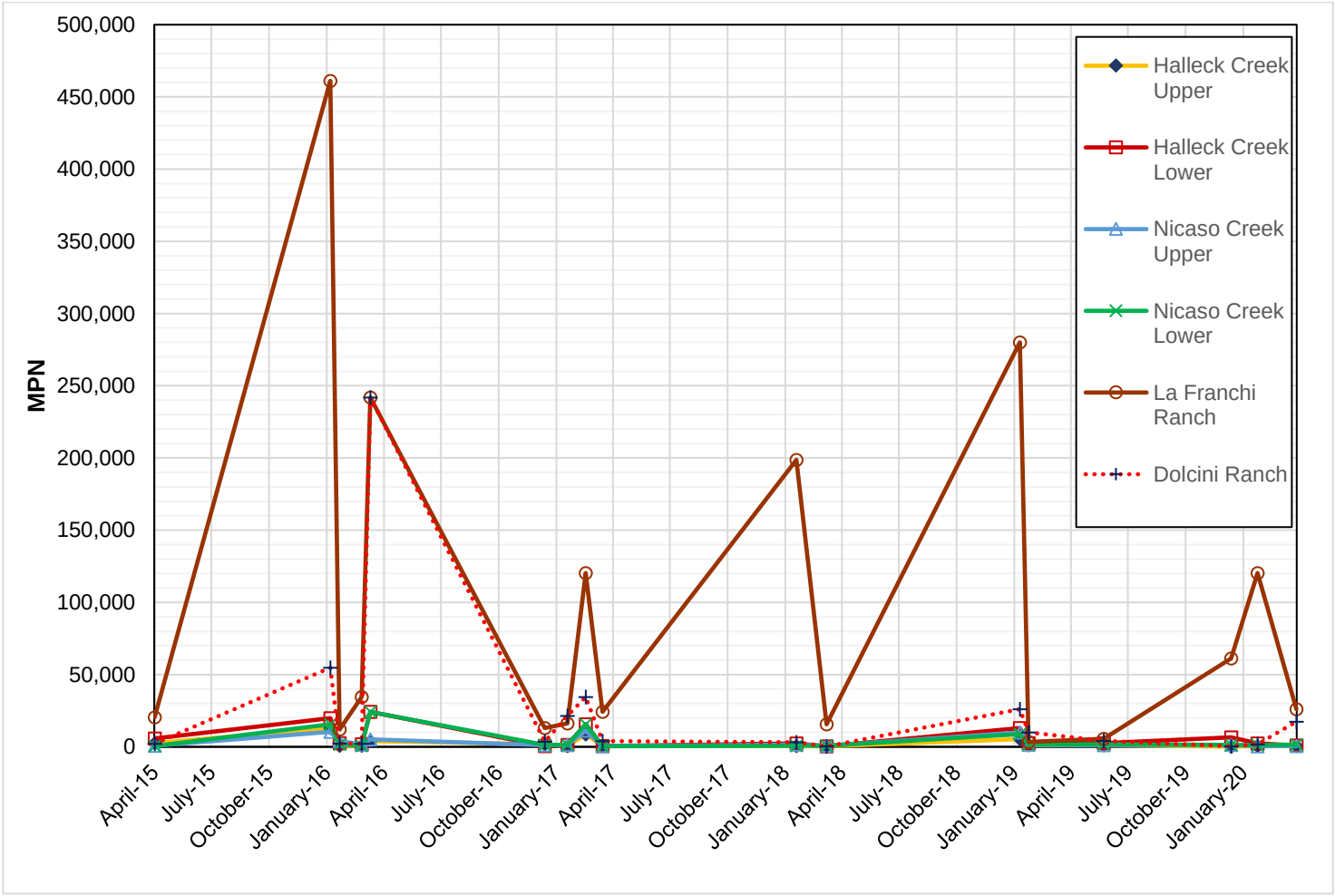

Figure 5: Nicasio Reservoir Tributary Total Coliform Monitoring

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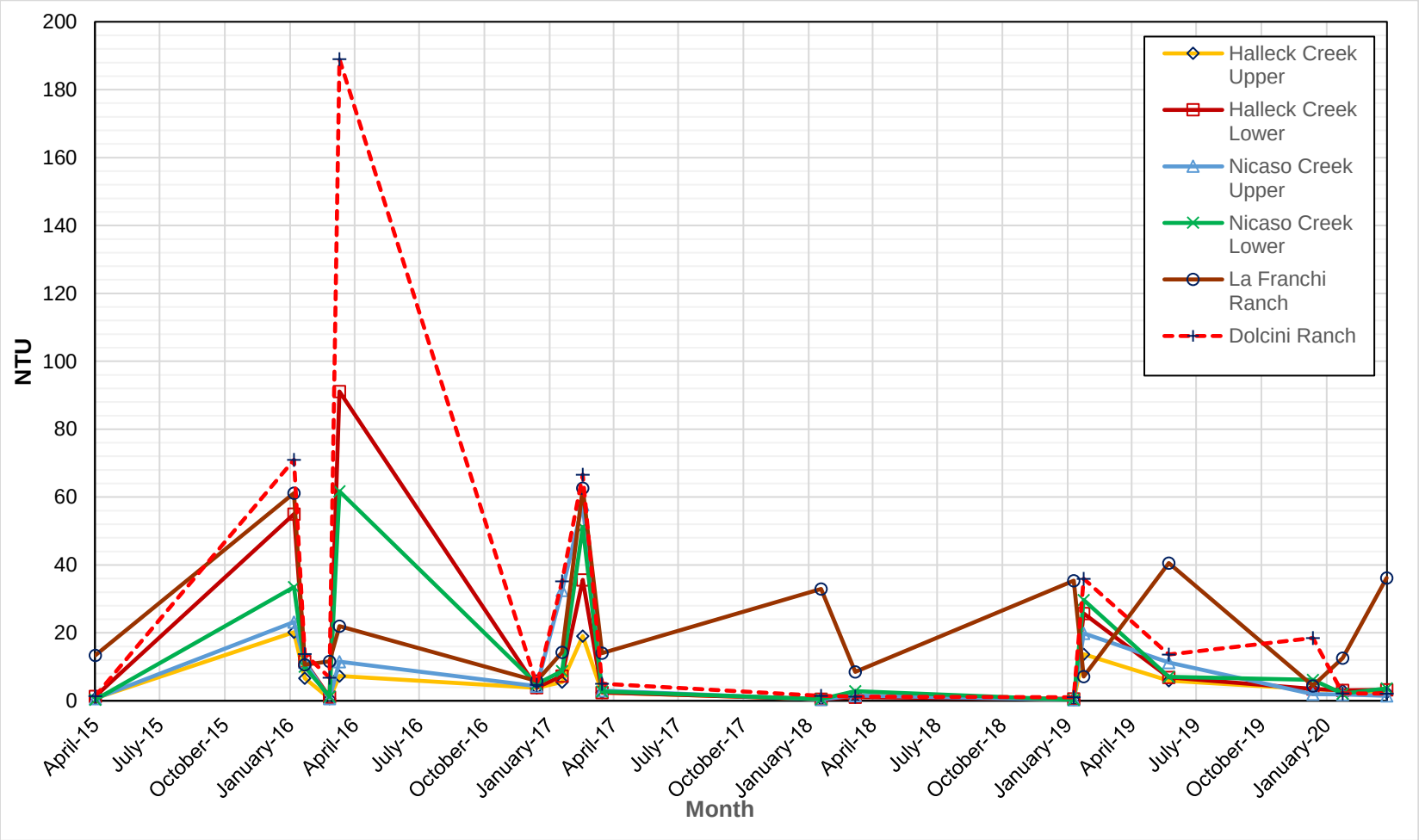

Figure 6: Nicasio Reservoir Tributary Turbidity Monitoring

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5.5.1.3 Total Organic Carbon

The highest TOC concentrations in the tributaries were observed in the drainages from the CAFOs. Within the other tributaries, most notably Halleck Creek, the lower reaches were more influenced by contamination than the upper reaches. These data are presented graphically on Figure 7. As with turbidity and TC, the highest TOC levels in the tributaries generally occurred during the winter months (except in the low water years (2015-2016) during the drought). This is generally expected because of winter runoff into the streams.

No direct correlation can be observed between TOC levels in the SGTP RW as shown on Figure 16 and tributaries to Nicasio Reservoir. High TOC levels at the treatment plant were generally observed during the late spring and early summer months because of the switchover from Kent to Nicasio Reservoir, however the variability in TOC observations at SGTP was high. Longer days and warmer temperatures in summer foster algae growth and have more impact on the TOC concentrations in the lake than does winter runoff, whose effect may be offset by the equalizing properties of a large impoundment. This effect may be exacerbated by shallower reservoir depths that are more likely to occur during drought as has occurred in 2015 which was the end of several years of drought.

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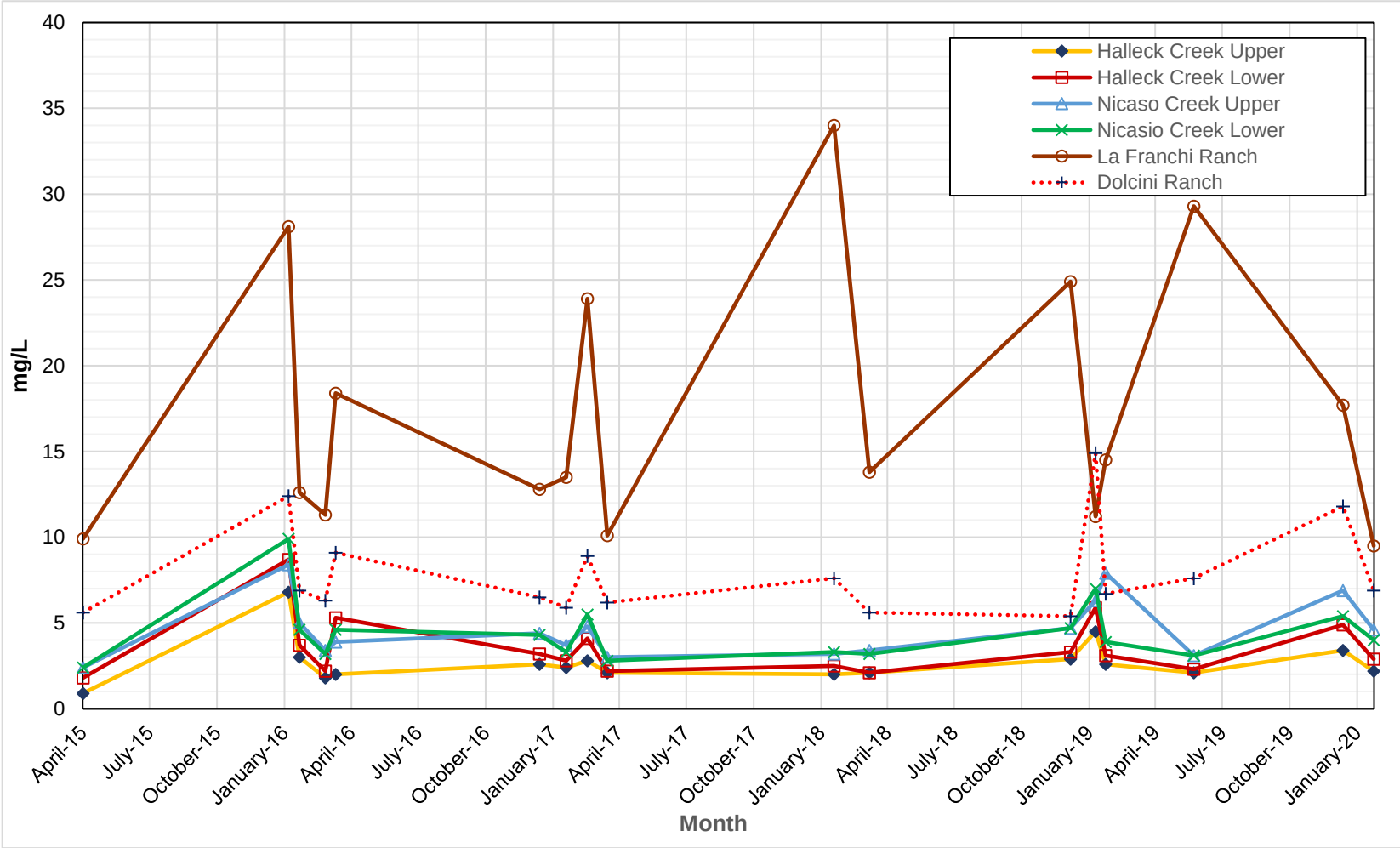

Figure 7: Nicasio Reservoir Tributary Total Organic Carbon Monitoring

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5.5.1.4 Nutrients

The trend in total phosphorus (TP) concentrations in the Nicasio Reservoir tributaries are presented on Figure 8. The nitrogen and TP data at Nicasio Lake Dam are presented on Figure 9. As with the other water quality parameters discussed above, the highest peaks were generally associated with CAFO drainage and with lower reaches of the other tributary creeks. The highest concentrations were specifically observed in the winter months (which are also the months more regularly monitored). This is also the case at Nicasio Lake Dam when total phosphorus peaks in the winter.

Total phosphorus levels in the tributaries were also generally higher than at the reservoir dam. While the phosphorus concentration in the lake was typically below 0.1 mg/l, with two exceptions between 0.1 mg/L and 0.2 mg/L in February 2017 and 2019, this concentration was generally below the values for CAFOs' TP concentration, especially the La Franchi drainage where TP peaked at 1.5 mg/L in February 2017.

Nitrogen at Nicasio Dam was dominated by nitrate species with variability that does not have a seasonal or hydrologic association. Overall, Nicasio Reservoir appears to have an attenuating effect on phosphorus as peak concentrations occur at lower levels than observed in the tributaries monitored.

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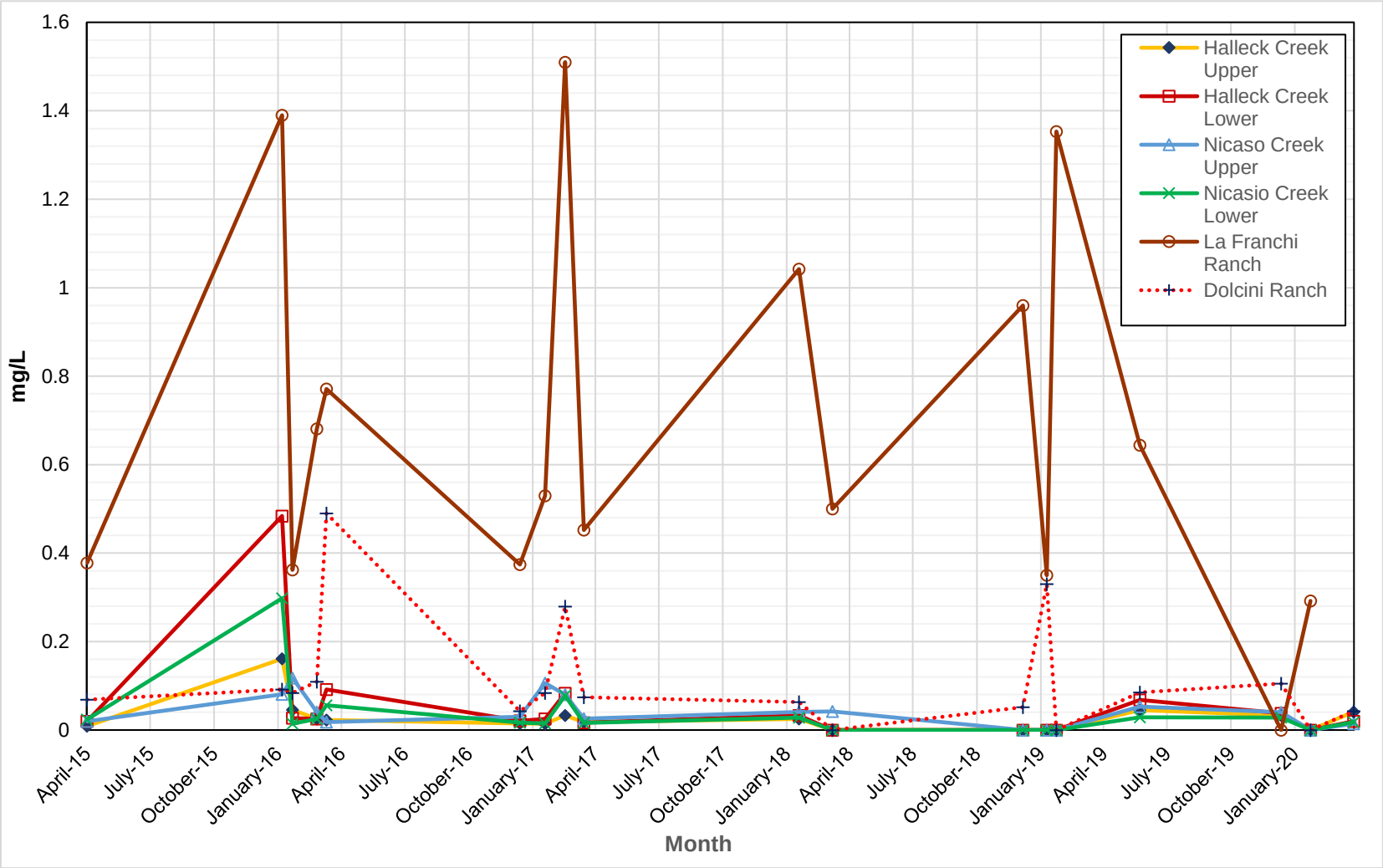

Figure 8: Nicasio Reservoir Tributary Total Phosphorus Monitoring

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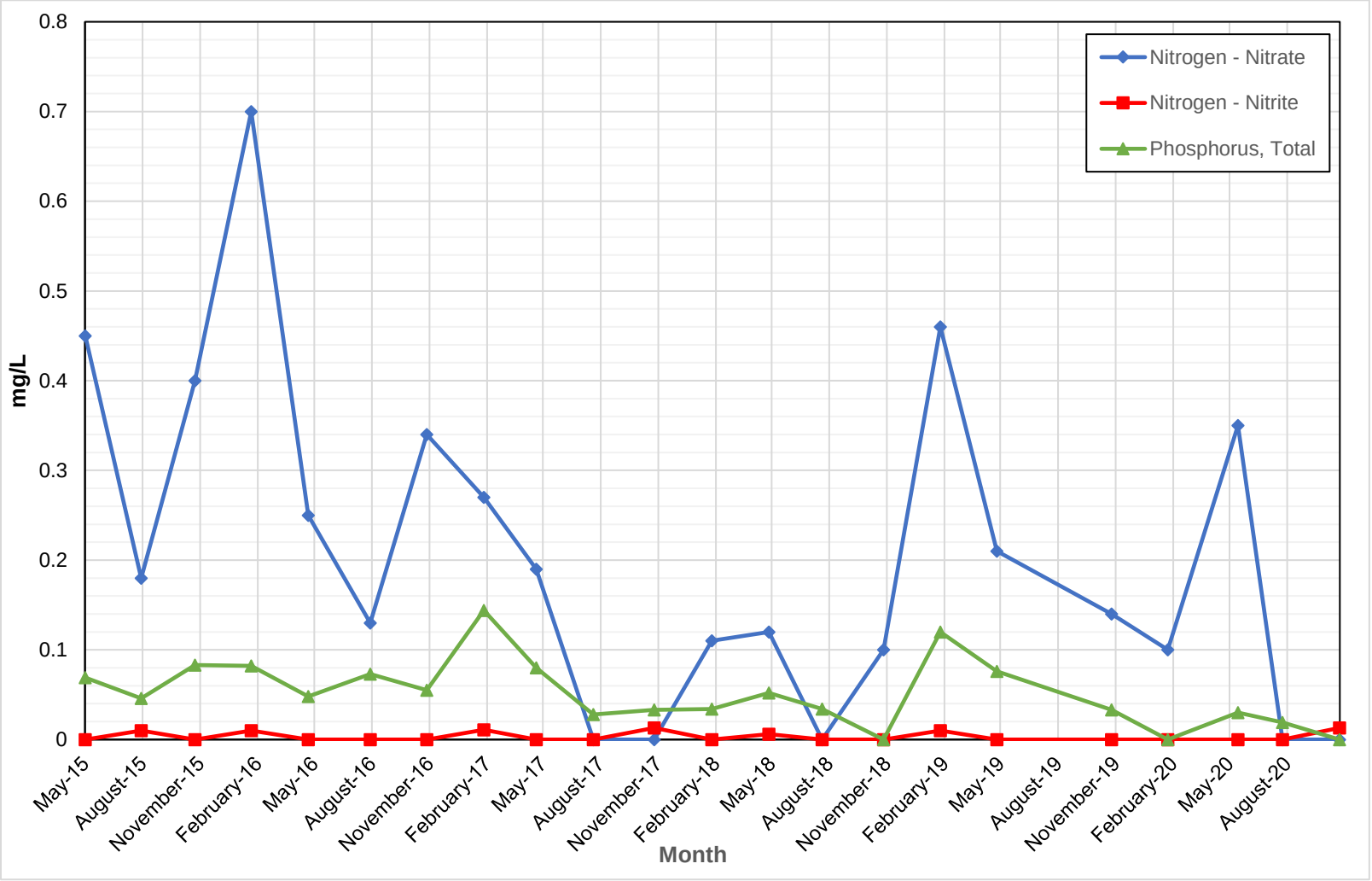

Figure 9: Nicasio Reservoir Dam Nutrient

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5.5.2 Mt. Tamalpais Watershed Tributary Water Quality Monitoring

In order to ensure that source water quality for BTTP is of the highest quality, MMWD monitors the quality of contributing water bodies in the Mt. Tamalpais watershed. One such water body is the ornamental pond that receives all drainage from the Meadow Club Golf Course. The pond is located at the low point of the golf course at the edge of the property line and receives both summer surface and sub-surface drainage from irrigation and winter rainfall runoff. Until 2008, testing in late fall (during the first spill into Alpine Lake) provided the opportunity to detect chemicals that might leach through the soil and concentrate due to evaporation. Testing in the rainy season checked for chemicals that might wash off from the surface. Testing has also been conducted on the sediment at the bottom of the pond.

Since the Meadow Club pond monitoring effort began, only two instances of contamination have been detected. Both of these occurred prior to development of the 2000 WSS (October 1996 and November 1997). No instances of contamination have been detected since and monitoring was discontinued in 2008. The list of constituents historically monitored at the Meadow Club, all below the detection level from 2005 - 2008, is included in Appendix D of the 2015 WSS Update.

5.5.3 Total Coliform

In this section, raw water monthly median TC values for BTTP and SGTP covering the period from January 2010 to July 2015 are presented in graphical form and evaluated. The raw water TC data are attached in Appendix B and plotted on Figure 10 and Figure 11.

The MMWD laboratory continues to use the Colilert method for its TC analysis that was first used in March 1992. The Colilert method is much more sensitive – thereby, showing significantly higher bacteriological counts – than other TC analysis methods, including the multiple tube fermentation (MTF) technique. Prior to converting to the Colilert method, a parallel study conducted by the MMWD laboratory showed that TC counts by the Colilert method exceeded the MTF method results 15 out of 19 times. Furthermore, a 29 April 1996 letter to DHS containing coliform data for January 1994 through February 1996 showed that, for BTTP, Colilert values were higher in 20 out of 24 samples, with values averaging 8.6 times higher. SGTP Colilert values were higher in 17 of 25 samples with average values 3.3 times higher. The total coliform requirements of both the federal and state SWTR were developed based on the data produced by the MTF method. Therefore, the ranges of total coliform counts acceptable under the California SWTR Treatment Requirements are not directly applicable to Colilert method results.

5.5.3.1 Bon Tempe WTP – Total Coliform Analysis

Evaluation. Figure 10 is a graph of monthly total coliform data (median and mean) for the Bon Tempe WTP between April 2015 and January 2021. The evaluation of the median monthly total coliform values showed that no significant change has occurred since 2015. The figure shows that higher total coliform values are detected during later summer and early fall, which may be associated with reservoir turnover or aeration that resuspends bottom sediments. Higher total coliform values are also observed in the rainy winter months, where rainfall runoff may contribute to increased total coliform.

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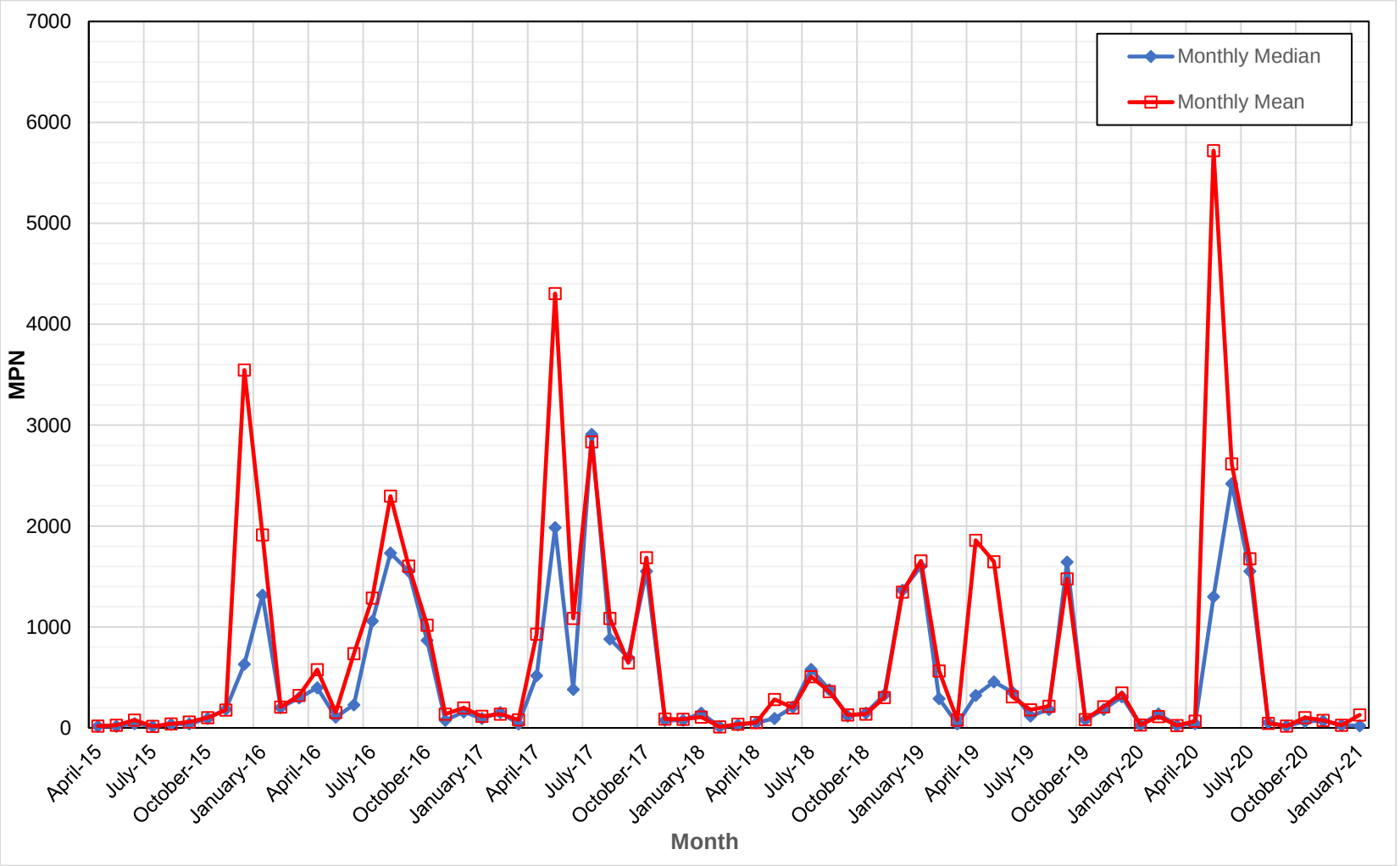

Figure 10: Bon Tempe WTP Raw Water Total Coliform Monitoring

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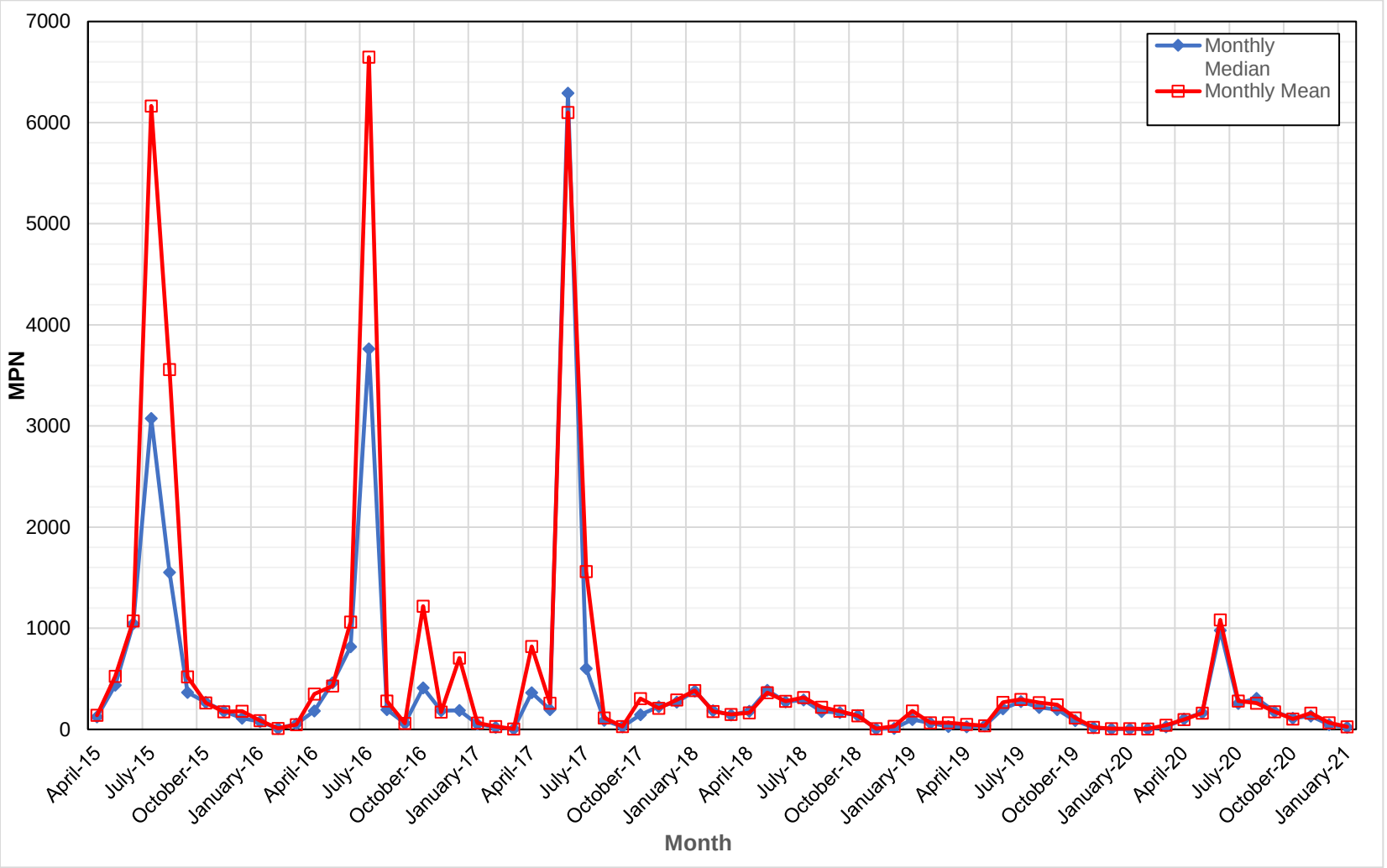

Figure 11: San Geronimo WTP Raw Water Total Coliform Monitoring

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The average of the monthly median total coliform values for the Bon Temp WTP RW is 475 MPN/100 mL. In 2015, it was 800 MPN/100 mL, and in 2010, it was 544 MPN/100 mL.

The total coliform values during the past five years are similar to those reported and evaluated in 2010. Both the 2010 and 2020 WSS results were lower than those reported in 2015.

Conclusions. The source water to the Bon Tempe WTP can be still classified as "pristine" which means that the 3-log *Giardia* and 4-log virus combined removal and inactivation required by the SWTR continues to be appropriate - the same conclusion made in the 2010 and 2015 WSSs. This conclusion is based upon the following items:

1. The recent raw water coliform data presented above and the effect of the Colilert method sensitivity on the data
2. The results of the semimonthly LT2ESWTR *Cryptosporidium Giardia* —monitoring from October 2006 to September 2008, all of which showed results below the method detection limit
3. The results of the Drinking Water Source Assessments (DWSA) developed by DHS for each reservoir in April and June 2003 continue to be confirmed with the raw water coliform monitoring.
4. The comprehensive watershed management program in the Mount Tamalpais Watershed.

5.5.3.2 San Geronimo WTP – Total Coliform Analysis

Evaluation. Presented on Figure 11 is a graph of monthly total coliform data (median and mean) for the raw water to the San Geronimo WTP between April 2015 and December 2020. Overall, coliform levels during the last five-year period appear to be similar to the previous five years. The trend, however, is that coliform levels have seasonal variations as in the 2010 and 2015 WSS. It is shown again that high total coliform values usually occurred while source water was supplied from Nicasio reservoir or while supplied by Kent reservoir pre- and post-stratification in the late fall, and rainy season. MMWD staff believes that density stratification results in the accumulation of bacteria at the density interface.

Conclusions. Although the 2003 DWSA by DHS identifies this watershed as "grassy hills surrounded by agricultural and rural residential, the source water to the San Geronimo WTP can continue to be classified as "pristine" which means that the required level of 3-log Giardia and 4-log virus reduction continues to be appropriate which is the same conclusion as in the 2010 and 2015 WSSs. This conclusion is made based upon:

1. The recent raw water coliform data presented above and the effect of using the Colilert method sensitivity on the current coliform data;
2. The results of the semimonthly LT2ESWTR *Cryptosporidium*— and additional *Giardia* — monitoring from October 2006 to September 2008, show results below the method detection limit;
3. The on-going monitoring continues to confirm the results of the DWSA developed by DHS for each reservoir in April and June 2003 as discussed in Section 5.6.3.1.; and

4. The focus made to water quality management since 2000 in the watershed especially as it relates to management of coliform. The water quality management programs are described in Section 4.

5.5.4 Turbidity

In this section, raw water monthly turbidity values for the Bon Tempe and San Geronimo WTPs covering the period from April 2015 to February 2021 are presented in graphs and evaluated. The RW mean and maximum monthly turbidity data are attached in Appendix C and plotted on Figure 12, Figure 13, and Figure 14.

5.5.4.1 Bon Tempe WTP – Turbidity Analysis.

Figure 12 is a graph of the raw water monthly mean and monthly maximum turbidity values for the Bon Tempe WTP between April 2015 and February 2021. No significant change has occurred in the overall raw water turbidity trend since 2015. As in the 2015 WSS, peak maximum and mean turbidity values nearly always occurred during the rainy season (mid-October through March), indicating that higher turbidity events at the Bon Tempe WTP are generally associated with storm runoff events. Monthly maximum turbidities for the 2015-2021 reporting period were below 8 NTU for the Bon Tempe WTP raw water, which indicates high quality source water.

5.5.4.2 San Geronimo WTP - Turbidity Analysis.

Figure 13 is a graph of the raw water monthly mean and monthly maximum turbidity values for the San Geronimo WTP between April 2015 to February 2021. Unlike the Bon Tempe WTP, the San Geronimo WTP sees high turbidity events during the summer months, when the percentage of high turbidity water from Nicasio Reservoir increases considerably (approximately 80% versus 20% Kent Lake water). As discussed earlier, summertime Nicasio Reservoir turbidities are associated with algae blooms. The San Geronimo WTP also sees elevated turbidity levels in the rainy winter months, which suggest some responsiveness to storm runoff events. Finally, the San Geronimo WTP raw water shows higher variability in turbidity readings, likely due to the aerator in the Nicasio Reservoir which may resuspend settled sediments and increase turbidity. Monthly maximum turbidities for the 2015-2021 period were mostly below 20 NTU for the San Geronimo WTP raw water, with some exceptions in 2015, 2017, and 2020. This indicates fairly high-quality source water.

5.5.4.3 Comparison of Turbidity Between WTPs.

Figure 14 includes a graph comparing the raw water monthly mean turbidity values for the Bon Tempe and San Geronimo WTPs. As in the 2015 WSS, the turbidity values at the San Geronimo WTP are significantly higher than at the Bon Tempe WTP and occur at different times. This is attributable to the high summer turbidity of Nicasio Reservoir water, the main raw water source for the San Geronimo WTP.

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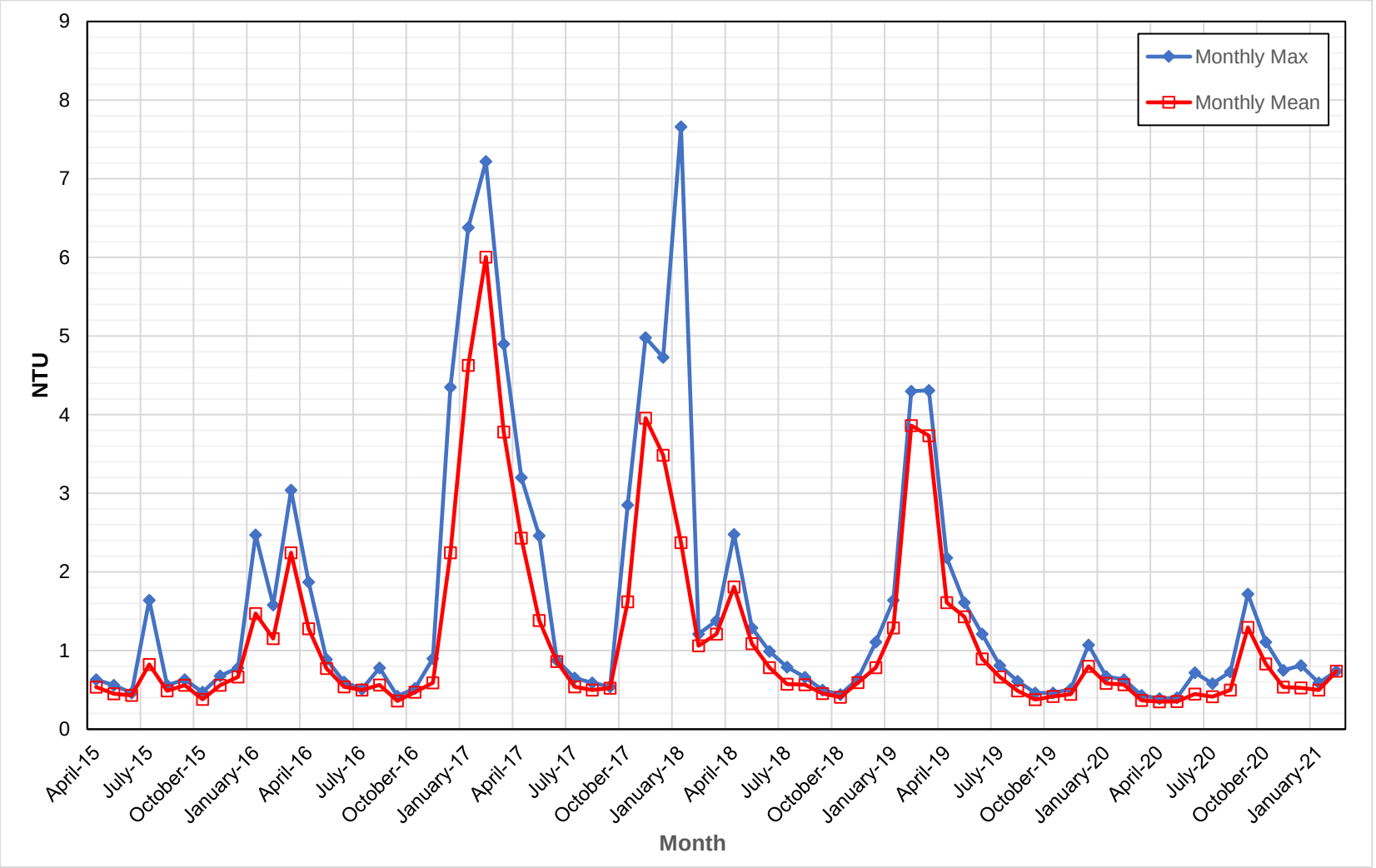

Figure 12: Bon Tempe WTP Raw Water Turbidity Monitoring

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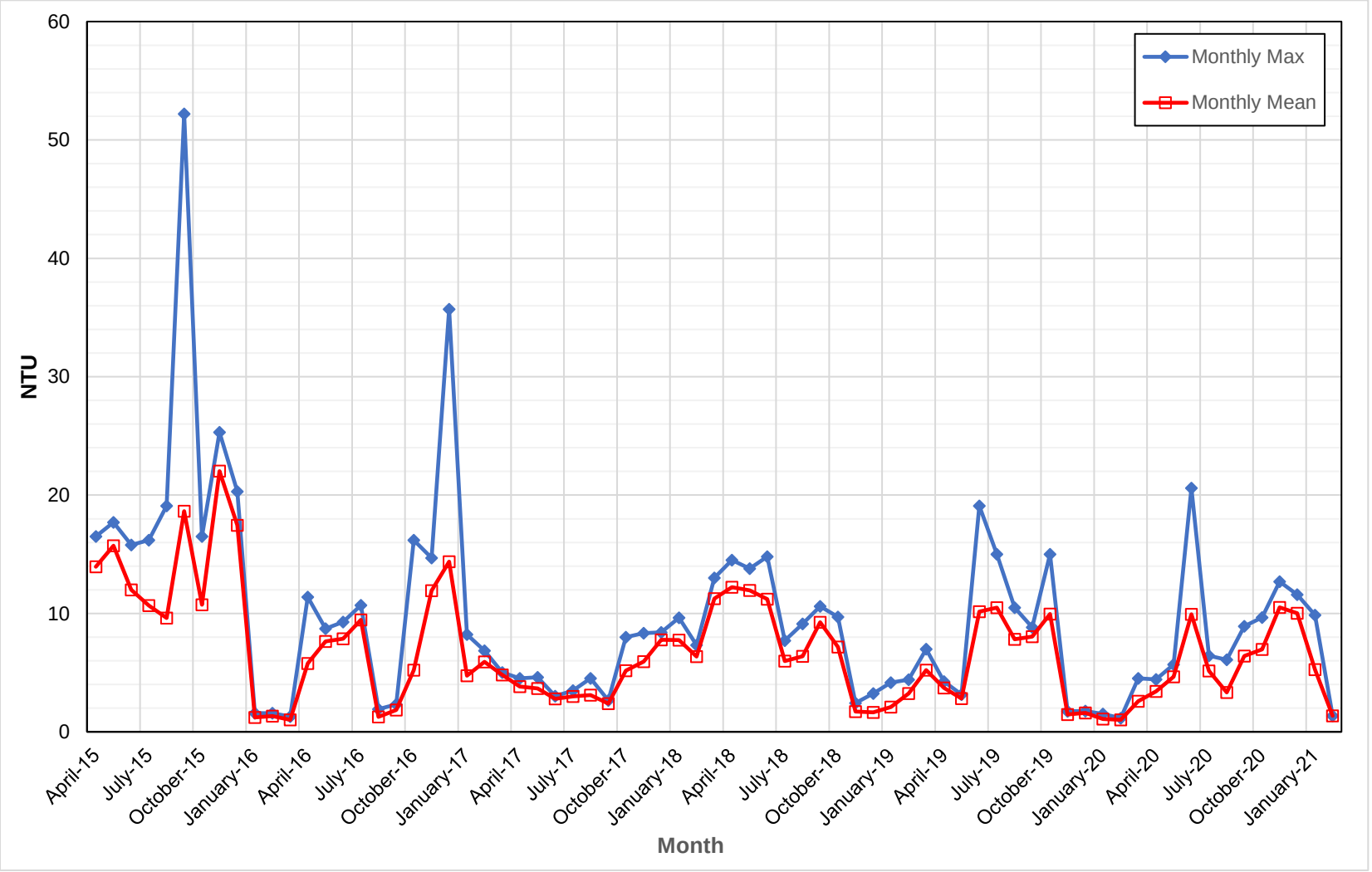

Figure 13: San Geronimo WTP Raw Water Turbidity Monitoring

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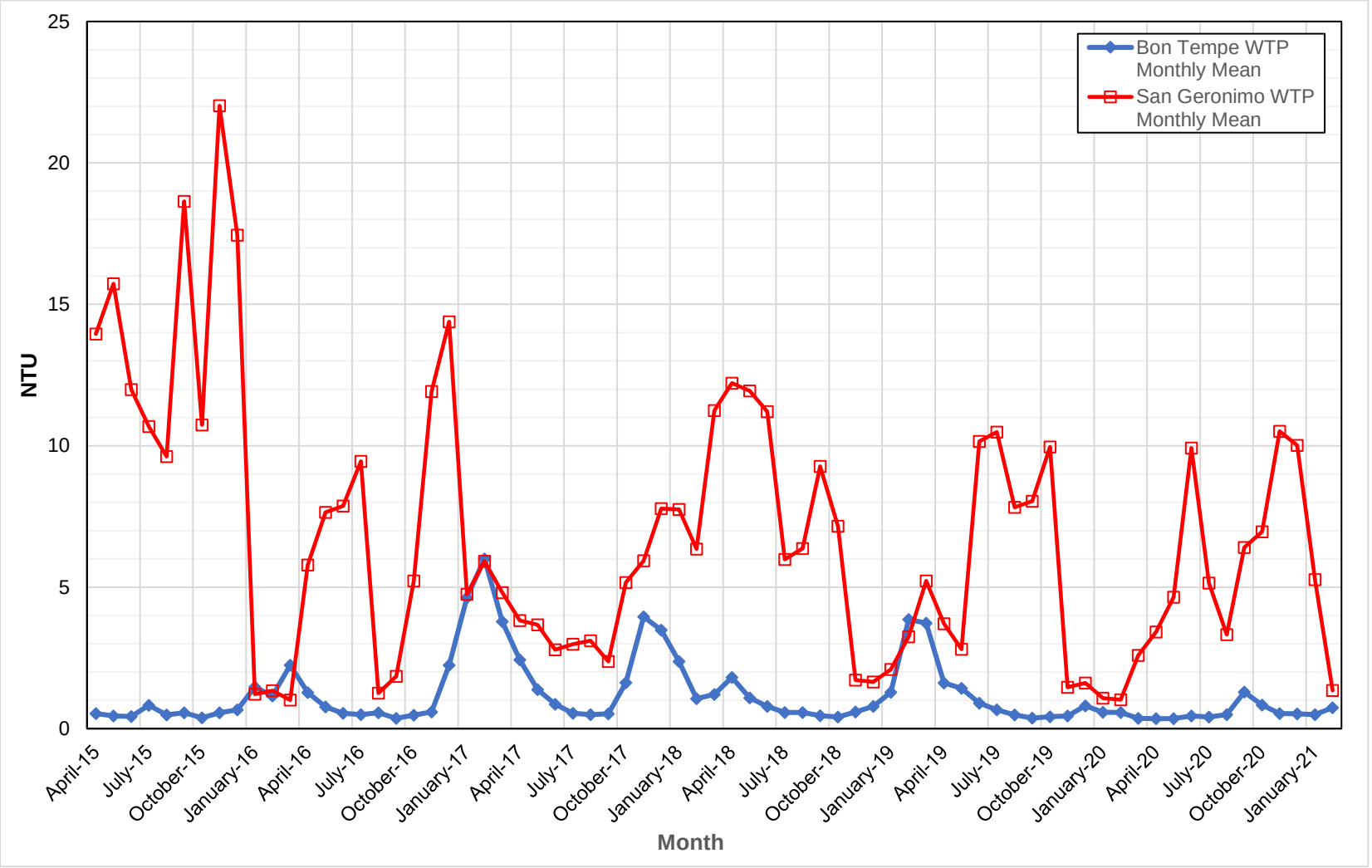

Figure 14: Comparison of Turbidity between Bon Tempe and San Geronimo WTPs

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5.5.5 Giardia and Cryptosporidium

MMWD began *Giardia* and *Cryptosporidium* monitoring in October 1994, prior to the Information Collection Rule (ICR), and continued the program until July 2000. The monitoring data indicated that raw water analytical results were predominantly below the method detection limit and the treated water analytical results were all below the method detection limit.

The need for future monitoring and additional treatment was re-evaluated when the Long-term 2 Enhanced Surface Water Treatment Rule required a new *Cryptosporidium* monitoring program based on improved available analytical methodologies. MMWD elected to comply with the regulation by monitoring for *Cryptosporidium* on a semimonthly schedule for two years between October 2006 and September 2008. Although not required by the Rule, MMWD also monitored the source water for *Giardia*. All *Cryptosporidium* and *Giardia* results were below the detection limit for both Bon Tempe and San Geronimo WTP source waters. This outcome classified the MMWD WTPs as "Bin 1" facilities, meaning that they were not required to provide any additional treatment than what is currently used to comply with IESWTR requirements.

5.5.6 Disinfection-By-Products

5.5.6.1 Total Trihalomethanes

Summaries of quarterly treated water TTHM data for the Bon Tempe and San Geronimo WTP, covering a 5-year period from May 2015 to November 2020 are presented in Table 8. Figure 15 is a graph of the annual mean TTHM values for the Bon Tempe and San Geronimo WTP.

From 2015-2020, Bon Tempe WTP annual mean TTHM values ranged from 19 μg/L to 42 μg/L, and San Geronimo WTP annual mean TTHM values ranged from 18 μg/L to 47 μg/L. The results show that the overall levels of TTHM have decreased slightly when compared to data presented in the 2015 WSS.

The TTHM data of the last five years show that, at the point of entry to the distribution system, both treatment plants can consistently meet a locational TTHM MCL of 80 μg/l by a comfortable margin, with both plants having an average mean monthly concentration of 28 μg/L.

Table 8: Bon Tempe and San Geronimo WTP – TTHM (µg/L) Data

	Bon Tempe WTP			San Geronimo WTP		
Year	**Max**	**Min**	**Mean**	**Max**	**Min**	**Mean**
2015	54	35	42	79	18	47
2016	36	24	31	49	16	34
2017	22	17	19	29	12	18
2018	31	23	28	35	15	26
2019	30	16	22	35	13	22
2020	31	19	25	29	14	21
Average	**34**	**22**	**28**	**43**	**15**	**28**

5.5.6.2 Haloacetic Acids 5

MMWD conducted treatment plant effluent HAA5 monitoring on a quarterly basis between March 2010 and May 2015 as presented in the 2015 WSS Update. The average HAA5 over the monitoring period is 22 μg/l at BTTP and 23 μg/l at SGTP. Both values are well below the locational HAA5 MCL of 60 μg/l required by the Stage 1 D/DBPR.

The IDSE plan and results, and the resulting D/DBPR2 monitoring plan, are included in Appendix B of the 2015 WSS Update.

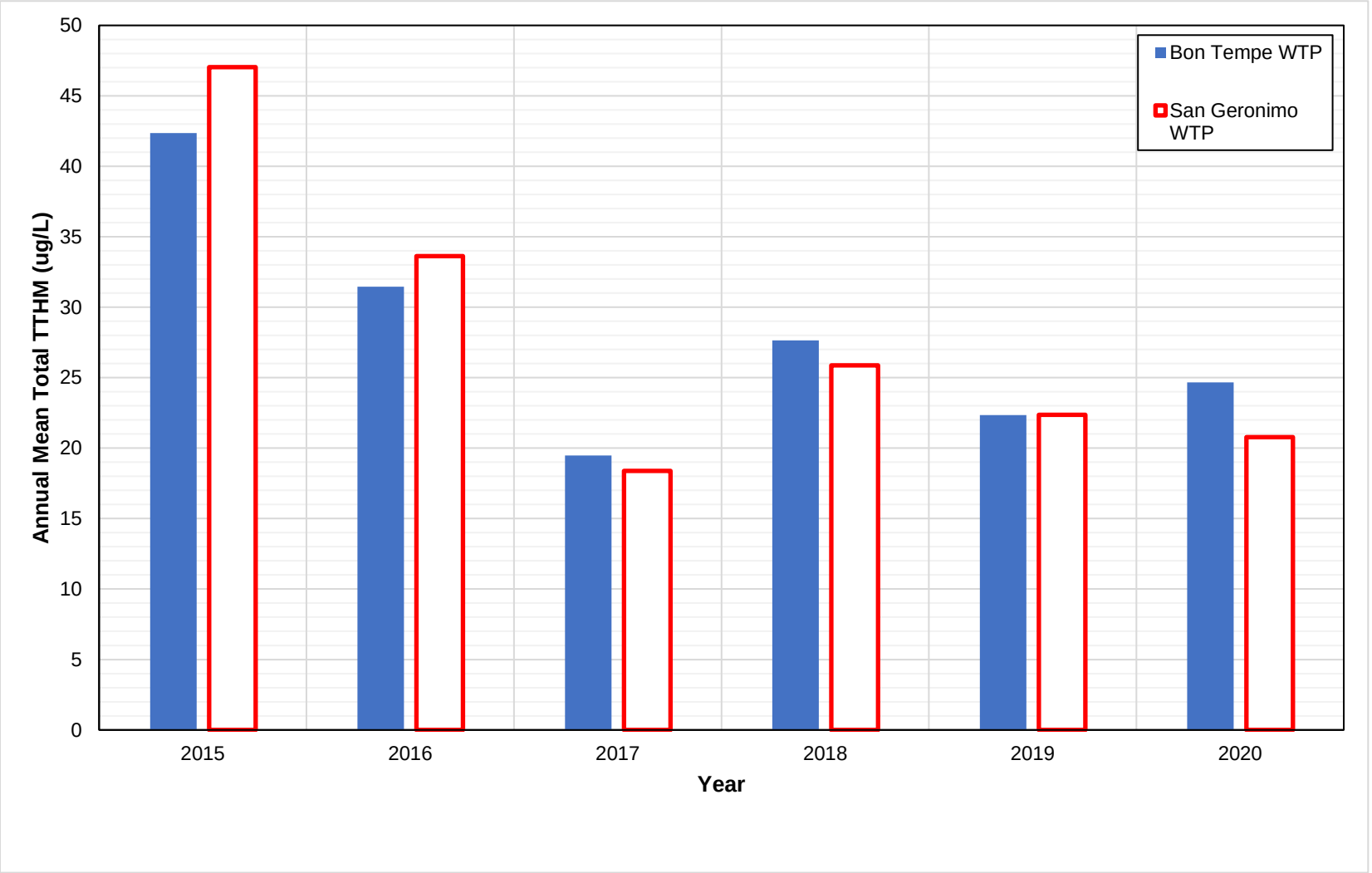

Figure 15: Annual Mean TTHM Values for the Bon Tempe and San Geronimo WTPs

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5.5.7 Total Organic Carbon

Figure 16 shows a graph comparing raw water TOC values for the Bon Tempe and San Geronimo WTPs. The raw TOC data for the WTPs are in Appendix D for the period from April 2015 to January 2021. As in the results of the 2015 WSS, the TOC data show that the San Geronimo WTP experience higher peaks in the measured levels of TOC (up to 7 mg/L) than the Bon Tempe WTP (up to 4.5 mg/L), especially during the summer months. This is expected because the Nicasio Reservoir is the main source of summer raw water to the San Geronimo WTP, and in general has a higher TOC content than other source waters. In the rainy season, the difference between TOC measurements at the two WTPs is smaller, likely due to surface runoff washing organic matter into both reservoirs. Additionally, in the winter season, San Geronimo WTP receives raw water from Kent Reservoir, which typically has low TOC levels. Some winter TOC readings show that Bon Tempe WTP raw water sometimes has higher TOC concentration than San Geronimo WTP, likely due to the use of Kent Reservoir.

The higher TOC values experienced by the San Geronimo WTP raw water are expected to produce a higher level of DBPs in its treated water than the Bon Tempe WTP water. However, as in the 2015 WSS, the monitoring results showed that treated water produced by both BTTP and SGTP has similar levels of TTHM concentrations, with both WTPs having an average annual mean TTHM concentration of 28 μg/L. The average HAA5 concentration, based on 2018 sampling data from 8 different locations (Mariner Highlands, H-Line, Mine Ridge, Smith Saddle, San Anselmo Fire Department, Oak Manor, Skyview Terrace and Bon Tempe Treatment Plant) was 14.3 ug/L. The maximum HAA5 concentration observed was 23.96 ug/L, which is well below the MCL of 60 ug/L. Similar trends were observed from the sampling efforts for HAA6Br and HAA9. Average concentrations for both these groups of DBPs were reported to be 7.9 ug/L and 21 ug/L respectively. The same trend occurs with HAA5, where the average concentrations in both treatment plants were essentially the same (18.7 μg/l BTTP and 19.3 μg/l in SGTP) and lower than the 2015 average concentrations. With the use of ferric chloride and enhanced coagulation for Bon Tempe and San Geronimo WTPs, DBP levels were about the same as the values presented in the 2010 and 2015 WSS. It should also be noted that MMWD has also provided higher TOC removal with Nicasio water treated at San Geronimo WTP. The San Geronimo treatment process includes dosing of free chlorine after coagulation and filtration which attenuates the differences between the source water from the two watersheds.

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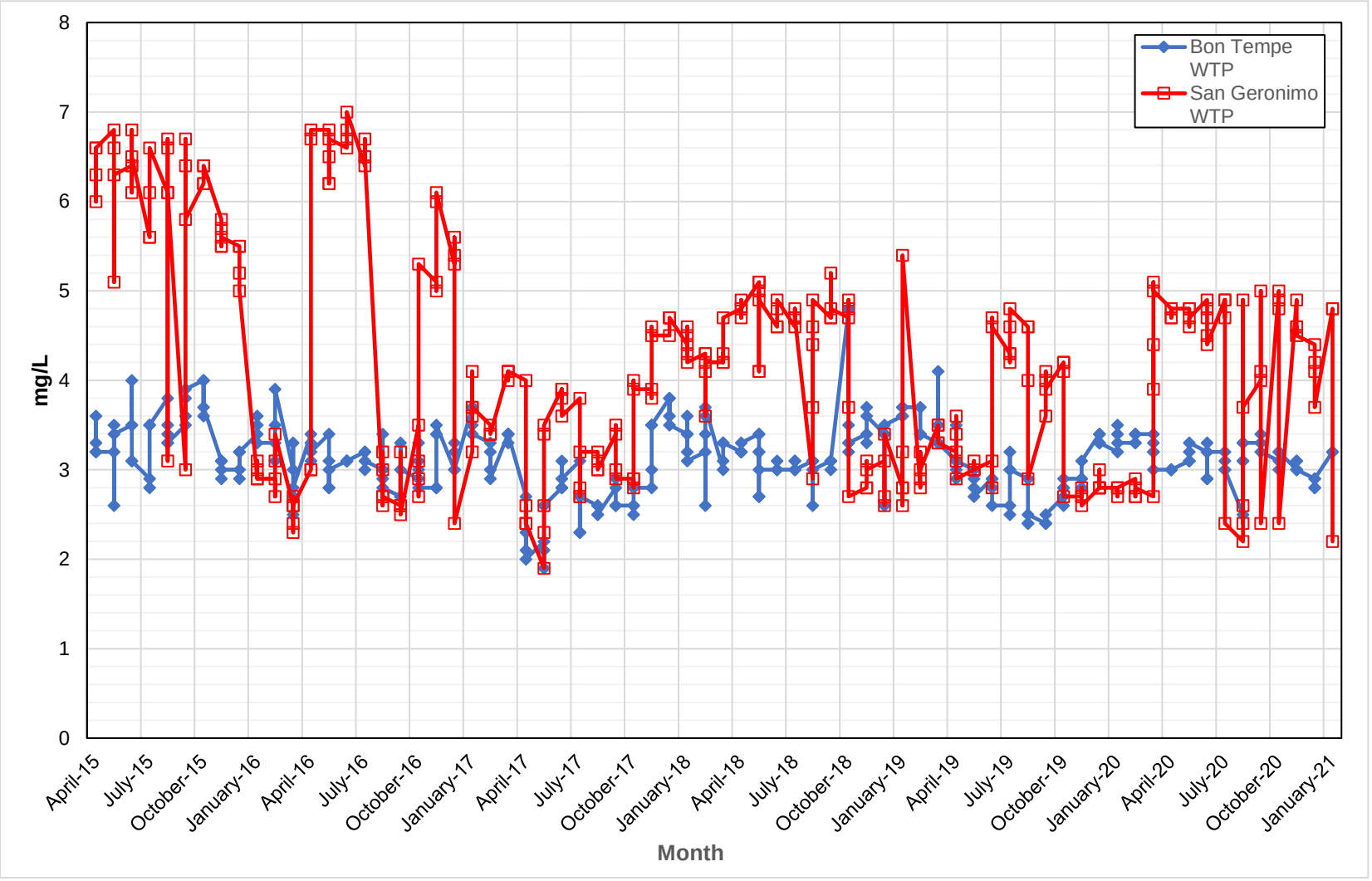

Figure 16: Comparison of Raw Water TOC Values for the Bon Tempe and San Geronimo WTPs

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5.5.8 Taste and Odor

In the past at Bon Tempe Reservoir, Milfoil, a non-native, invasive aquatic plant, has flourished in the reservoir's shallow zones and appears to have out competed the odor causing algae for nutrients. Subsequently, taste and odor events are significantly reduced in the past several years as a result of reduced algae blooms. A new intake system was constructed at Bon Tempe Lake during fall and winter of 1999. As the new intake is located in deeper water, it is somewhat less likely to be influenced by algae growth in the summer. This helps diminish taste and odor problems associated with algae and preclude problems in the early summer months prior to the start of lake aeration. When the lake aeration system is functioning, little to no stratification is expected in this reservoir. No other significant change has occurred since the 2000, 2005, 2010, or 2015 WSSs.

MMWD is now also using a gas chromatograph/mass spectroscope (GC/MS) method of identifying compounds in their source water such as Geosmin and Methyl Isoborneo (MIB), which are produced by algae, that contribute to taste and odor production. MIB and Geosmin monitoring results are presented below, under "Reservoir Treatment".

5.5.9 Nutrients

Refer to the Section 5.6 - Reservoir and Lake Water Quality section for discussion of nutrients.

5.5.10 General Water Quality and Metals

No significant change has occurred since the 2015 WSS.

5.5.11 Radionuclides

The 2000 Radionuclides Rule required all Community Water Systems (CWS) to conduct four consecutive quarters of monitoring for specific radionuclides by the end of 2007. The results of the MMWD monitoring program demonstrated that the District's source waters are not known to be vulnerable to this type of contamination. Measurements for Radium-228 were consistently below the analysis detection limit. All but one samples taken from different locations in May 2016 showed no detectable presence of Radium-228. Given the low level of occurrence in the one positive sample, which was 0.122 pCi/L in Bon Tempe Lake, (the combined MCL for Radium-226/228 is 5 pCi/L), the entire system qualified for reduced monitoring and the MMWD watersheds are not considered to be at risk of radionuclide contamination.

All detections of Alpha, Minimum Detectable Activity were in the range of 2-3 pCi/L, and those of Alpha, Two Sigma Error were in the range of 0.66 to 0.96 pCi/L, both well within the MCLs of 15 pCi/L.

5.5.12 Other Chemical Compounds

In addition to the water quality components for which MMWD is legally required to monitor its source waters, the District has elected to test for a variety of other compounds. These additional compounds include pesticides, herbicides, industrial chemicals, hormones, and endocrine disruptors. Some herbicide and industrial chemicals were tested during the UCMR 4 program in

2018. As noted earlier, PFAS tests were done for about 25 PFAS chemicals on finished water samples and in 3 reservoirs at the end of 2020, and all samples were ND.

5.6 Reservoir and Lake Water Quality

5.6.1 Parameters Monitored

Presented in Table 9 are the average nutrient concentrations (inorganic nitrogen, Total Nitrogen, and Total Phosphorous) for the four reservoirs from 2015-2020. Most parameters were measured on a quarterly basis. Similar to the conclusion made in the 2010 and 2016 WSS, the data show Soulajule and Nicasio have lower water quality as indicated by significantly higher nutrient concentrations for these two reservoir waters than for the Mount Tamalpais Watershed lakes.

Table 9: Average Nutrient Concentrations in MMWD Reservoirs (2015-2020)

	Inorganic Nitrogen		Total Phosphorus (µg/l)
	NO_2 (µg/L)	NO_3 (µg/l)	
Bon Tempe Lake	ND	6.7	11.9
Kent Lake	ND	2.2	9.2
Nicasio Reservoir	3.2	201.8	51.8
Soulajule Reservoir	1.0	78.4	64.9

5.6.2 Reservoir Treatment

Since 2005, copper sulfate has been applied during the warmer months on an as-needed basis to Nicasio reservoir for algae control. Kent, Bon Tempe and Alpine Reservoirs have had copper sulfate applications historically. Presented in Table 10 is the updated information of the MMWD reservoir aeration systems. As noted in Section 3.2.8.2, copper sulfate applications occur on average 7 times/year in the reservoirs for the last 5 years which is consistent with the 2010-2015 time period. No other significant change has been made since the 2015 WSS.

Table 10: Reservoir Aeration Systems

Reservoir	Type of Aeration System	Purpose of Aeration System	Status of Aeration System/ Frequency Used
Phoenix Lake	None		
Lagunitas Lake	None		
Bon Tempe Lake	Diffused Air De-stratification	Increase DO, keep reservoir levels mixed, and control iron and manganese.	Aeration system replaced in 1996. System used 3 to 6 months per year.
Kent Lake	Hypolimnetic	Increase DO in hypo-limnion, maintain temperature gradient, control iron and manganese	Hypolimnetic aeration system installed 1994, compressor replaced 1996. System used 6 to 8 months per year.
Nicasio Reservoir	Diffused Air De-stratification	Increase DO, keep reservoir levels mixed, and control iron, manganese, and phosphorus.	Aeration system replaced in 1995. System used 4 to 5 months per year.
Alpine Lake	None		
Soulajule Lake	None		

5.6.3 General Reservoir Water Quality Trends

No significant change has been observed since the 2010 and 2015 WSS. The graphs of water quality data from the 2015 WSS have been updated with the data from 2015-2020 and are provided in Appendix E for comparison. A Summary of DHS Drinking Water Source Assessments conducted in 2003 follows.

5.6.3.1 Surface Water Sources

As noted earlier, the MMWD water system serves 20 communities in Marin County, including the city of San Rafael. There are approximately 60,600 service connections serving a population of 190,000 customers. Seven surface water reservoirs supply the Marin MWD system.

The source water assessments, last conducted by DHS, the predecessor of DPH and DDW, in 2003 as summarized in Table 11 have not been updated since 2003 and were discussed and appended in the 2010 WSS. The results indicate that there have been no contaminants detected in the MMWD source water supply. However, the reservoirs are still considered vulnerable to possible contaminating activities (PCA) located near the drinking water source. The physical barrier effectiveness (PBE) analysis at all locations yielded low effectiveness marks.

Table 11: Summary of Source Water Assessments for Surface Water Reservoirs Serving the MMWD Drinking Water System

Lake/Reservoir Name	Assessment location (at dam)	Assessment date	Watershed primary cover	Delineation Method
Lagunitas	10 ft depth	Apr-03	Pristine and forested.	DHS fixed distance zones
Phoenix	10 ft depth (inactive)	Jun-03	Pristine and forested.	DHS fixed distance zones
Alpine	10 ft depth	Apr-03	Pristine and forested.	DHS fixed distance zones
Bon Tempe	10 ft depth	Apr-03	Pristine: 2/3 forested, 1/3 grass-covered.	Watershed without zones
Kent	10 ft depth	Apr-03	Pristine and forested.	Watershed without zones
Nicasio	10 ft depth	Apr-03	Grassy hills surrounded by agricultural and rural residential.	DHS fixed distance zones
Soulajoule	10 ft depth (inactive)	Apr-03	Grassy hills surrounded by agricultural and rural residential.	DHS fixed distance zones

5.6.3.2 Other Potential Water Supply Sources

MMWD has evaluated other sources of water supply. Among them is seawater desalination using San Francisco Bay as a source water. The District conducted pilot-testing of desalination technologies in 2005 to assess the potential of this treatment method as an approach to source water augmentation. Should the District proceed with full-scale implementation of desalination, a separate WSS will be prepared for that system.

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Appendix A Federal and State Primary Drinking Water Standard

National Primary Drinking Water Regulations

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Acrylamide	TT[4]	Nervous system or blood problems; increased risk of cancer	Added to water during sewage/ wastewater treatment	zero
Alachlor	0.002	Eye, liver, kidney, or spleen problems; anemia; increased risk of cancer	Runoff from herbicide used on row crops	zero
Alpha/photon emitters	15 picocuries per Liter (pCi/L)	Increased risk of cancer	Erosion of natural deposits of certain minerals that are radioactive and may emit a form of radiation known as alpha radiation	zero
Antimony	0.006	Increase in blood cholesterol; decrease in blood sugar	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder	0.006
Arsenic	0.010	Skin damage or problems with circulatory systems, and may have increased risk of getting cancer	Erosion of natural deposits; runoff from orchards; runoff from glass & electronics production wastes	0
Asbestos (fibers >10 micrometers)	7 million fibers per Liter (MFL)	Increased risk of developing benign intestinal polyps	Decay of asbestos cement in water mains; erosion of natural deposits	7 MFL
Atrazine	0.003	Cardiovascular system or reproductive problems	Runoff from herbicide used on row crops	0.003
Barium	2	Increase in blood pressure	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits	2
Benzene	0.005	Anemia; decrease in blood platelets; increased risk of cancer	Discharge from factories; leaching from gas storage tanks and landfills	zero
Benzo(a)pyrene (PAHs)	0.0002	Reproductive difficulties; increased risk of cancer	Leaching from linings of water storage tanks and distribution lines	zero
Beryllium	0.004	Intestinal lesions	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries	0.004
Beta photon emitters	4 millirems per year	Increased risk of cancer	Decay of natural and man-made deposits of certain minerals that are radioactive and may emit forms of radiation known as photons and beta radiation	zero
Bromate	0.010	Increased risk of cancer	Byproduct of drinking water disinfection	zero
Cadmium	0.005	Kidney damage	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints	0.005
Carbofuran	0.04	Problems with blood, nervous system, or reproductive system	Leaching of soil fumigant used on rice and alfalfa	0.04

LEGEND

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Carbon tetrachloride	0.005	Liver problems; increased risk of cancer	Discharge from chemical plants and other industrial activities	**zero**
Chloramines (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort; anemia	Water additive used to control microbes	**MRDLG=4[1]**
Chlordane	0.002	Liver or nervous system problems; increased risk of cancer	Residue of banned termiticide	**zero**
Chlorine (as Cl_2)	MRDL=4.0[1]	Eye/nose irritation; stomach discomfort	Water additive used to control microbes	**MRDLG=4[1]**
Chlorine dioxide (as ClO_2)	MRDL=0.8[1]	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Water additive used to control microbes	**MRDLG=0.8[1]**
Chlorite	1.0	Anemia; infants, young children, and fetuses of pregnant women: nervous system effects	Byproduct of drinking water disinfection	**0.8**
Chlorobenzene	0.1	Liver or kidney problems	Discharge from chemical and agricultural chemical factories	**0.1**
Chromium (total)	0.1	Allergic dermatitis	Discharge from steel and pulp mills; erosion of natural deposits	**0.1**
Copper	TT[5]; Action Level=1.3	Short-term exposure: Gastrointestinal distress. Long-term exposure: Liver or kidney damage. People with Wilson's Disease should consult their personal doctor if the amount of copper in their water exceeds the action level	Corrosion of household plumbing systems; erosion of natural deposits	**1.3**
Cryptosporidium	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	**zero**
Cyanide (as free cyanide)	0.2	Nerve damage or thyroid problems	Discharge from steel/metal factories; discharge from plastic and fertilizer factories	**0.2**
2,4-D	0.07	Kidney, liver, or adrenal gland problems	Runoff from herbicide used on row crops	**0.07**
Dalapon	0.2	Minor kidney changes	Runoff from herbicide used on rights of way	**0.2**
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	Reproductive difficulties; increased risk of cancer	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards	**zero**
o-Dichlorobenzene	0.6	Liver, kidney, or circulatory system problems	Discharge from industrial chemical factories	**0.6**
p-Dichlorobenzene	0.075	Anemia; liver, kidney, or spleen damage; changes in blood	Discharge from industrial chemical factories	**0.075**
1,2-Dichloroethane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	**zero**

LEGEND DISINFECTANT | DISINFECTION BYPRODUCT | INORGANIC CHEMICAL | MICROORGANISM | ORGANIC CHEMICAL | RADIONUCLIDES

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
1,1-Dichloroethylene	0.007	Liver problems	Discharge from industrial chemical factories	**0.007**
cis-1,2-Dichloroethylene	0.07	Liver problems	Discharge from industrial chemical factories	**0.07**
trans-1,2, Dichloroethylene	0.1	Liver problems	Discharge from industrial chemical factories	**0.1**
Dichloromethane	0.005	Liver problems; increased risk of cancer	Discharge from industrial chemical factories	**zero**
1,2-Dichloropropane	0.005	Increased risk of cancer	Discharge from industrial chemical factories	**zero**
Di(2-ethylhexyl) adipate	0.4	Weight loss, liver problems, or possible reproductive difficulties	Discharge from chemical factories	**0.4**
Di(2-ethylhexyl) phthalate	0.006	Reproductive difficulties; liver problems; increased risk of cancer	Discharge from rubber and chemical factories	**zero**
Dinoseb	0.007	Reproductive difficulties	Runoff from herbicide used on soybeans and vegetables	**0.007**
Dioxin (2,3,7,8-TCDD)	0.00000003	Reproductive difficulties; increased risk of cancer	Emissions from waste incineration and other combustion; discharge from chemical factories	**zero**
Diquat	0.02	Cataracts	Runoff from herbicide use	**0.02**
Endothall	0.1	Stomach and intestinal problems	Runoff from herbicide use	**0.1**
Endrin	0.002	Liver problems	Residue of banned insecticide	**0.002**
Epichlorohydrin	TT[4]	Increased cancer risk; stomach problems	Discharge from industrial chemical factories; an impurity of some water treatment chemicals	**zero**
Ethylbenzene	0.7	Liver or kidney problems	Discharge from petroleum refineries	**0.7**
Ethylene dibromide	0.00005	Problems with liver, stomach, reproductive system, or kidneys; increased risk of cancer	Discharge from petroleum refineries	**zero**
Fecal coliform and *E. coli*	MCL[6]	Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes may cause short term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.	Human and animal fecal waste	**zero[6]**

LEGEND

DISINFECTANT | DISINFECTION BYPRODUCT | INORGANIC CHEMICAL | MICROORGANISM | ORGANIC CHEMICAL | RADIONUCLIDES

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Fluoride	4.0	Bone disease (pain and tenderness of the bones); children may get mottled teeth	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories	**4.0**
Giardia lamblia	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	**zero**
Glyphosate	0.7	Kidney problems; reproductive difficulties	Runoff from herbicide use	**0.7**
Haloacetic acids (HAA5)	0.060	Increased risk of cancer	Byproduct of drinking water disinfection	**n/a[9]**
Heptachlor	0.0004	Liver damage; increased risk of cancer	Residue of banned termiticide	**zero**
Heptachlor epoxide	0.0002	Liver damage; increased risk of cancer	Breakdown of heptachlor	**zero**
Heterotrophic plate count (HPC)	TT[7]	HPC has no health effects; it is an analytic method used to measure the variety of bacteria that are common in water. The lower the concentration of bacteria in drinking water, the better maintained the water system is.	HPC measures a range of bacteria that are naturally present in the environment	**n/a**
Hexachlorobenzene	0.001	Liver or kidney problems; reproductive difficulties; increased risk of cancer	Discharge from metal refineries and agricultural chemical factories	**zero**
Hexachloro-cyclopentadiene	0.05	Kidney or stomach problems	Discharge from chemical factories	**0.05**
Lead	TT[5]; Action Level=0.015	Infants and children: Delays in physical or mental development; children could show slight deficits in attention span and learning abilities; Adults: Kidney problems; high blood pressure	Corrosion of household plumbing systems; erosion of natural deposits	**zero**
Legionella	TT[7]	Legionnaire's Disease, a type of pneumonia	Found naturally in water; multiplies in heating systems	**zero**
Lindane	0.0002	Liver or kidney problems	Runoff/leaching from insecticide used on cattle, lumber, and gardens	**0.0002**
Mercury (inorganic)	0.002	Kidney damage	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands	**0.002**
Methoxychlor	0.04	Reproductive difficulties	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, and livestock	**0.04**
Nitrate (measured as Nitrogen)	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	**10**

LEGEND

DISINFECTANT | DISINFECTION BYPRODUCT | INORGANIC CHEMICAL | MICROORGANISM | ORGANIC CHEMICAL | RADIONUCLIDES

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
Nitrite (measured as Nitrogen)	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits	1
Oxamyl (Vydate)	0.2	Slight nervous system effects	Runoff/leaching from insecticide used on apples, potatoes, and tomatoes	0.2
Pentachlorophenol	0.001	Liver or kidney problems; increased cancer risk	Discharge from wood-preserving factories	zero
Picloram	0.5	Liver problems	Herbicide runoff	0.5
Polychlorinated biphenyls (PCBs)	0.0005	Skin changes; thymus gland problems; immune deficiencies; reproductive or nervous system difficulties; increased risk of cancer	Runoff from landfills; discharge of waste chemicals	zero
Radium 226 and Radium 228 (combined)	5 pCi/L	Increased risk of cancer	Erosion of natural deposits	zero
Selenium	0.05	Hair or fingernail loss; numbness in fingers or toes; circulatory problems	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines	0.05
Simazine	0.004	Problems with blood	Herbicide runoff	0.004
Styrene	0.1	Liver, kidney, or circulatory system problems	Discharge from rubber and plastic factories; leaching from landfills	0.1
Tetrachloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from factories and dry cleaners	zero
Thallium	0.002	Hair loss; changes in blood; kidney, intestine, or liver problems	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories	0.0005
Toluene	1	Nervous system, kidney, or liver problems	Discharge from petroleum factories	1
Total Coliforms	5.0 percent[8]	Coliforms are bacteria that indicate that other, potentially harmful bacteria may be present. See fecal coliforms and *E. coli*	Naturally present in the environment	zero
Total Trihalomethanes (TTHMs)	0.080	Liver, kidney, or central nervous system problems; increased risk of cancer	Byproduct of drinking water disinfection	n/a[9]
Toxaphene	0.003	Kidney, liver, or thyroid problems; increased risk of cancer	Runoff/leaching from insecticide used on cotton and cattle	zero
2,4,5-TP (Silvex)	0.05	Liver problems	Residue of banned herbicide	0.05
1,2,4-Trichlorobenzene	0.07	Changes in adrenal glands	Discharge from textile finishing factories	0.07

LEGEND

DISINFECTANT | DISINFECTION BYPRODUCT | INORGANIC CHEMICAL | MICROORGANISM | ORGANIC CHEMICAL | RADIONUCLIDES

Contaminant	MCL or TT[1] (mg/L)[2]	Potential health effects from long-term[3] exposure above the MCL	Common sources of contaminant in drinking water	Public Health Goal (mg/L)[2]
1,1,1-Trichloroethane	0.2	Liver, nervous system, or circulatory problems	Discharge from metal degreasing sites and other factories	**0.2**
1,1,2-Trichloroethane	0.005	Liver, kidney, or immune system problems	Discharge from industrial chemical factories	**0.003**
Trichloroethylene	0.005	Liver problems; increased risk of cancer	Discharge from metal degreasing sites and other factories	**zero**
Turbidity	TT[7]	Turbidity is a measure of the cloudiness of water. It is used to indicate water quality and filtration effectiveness (e.g., whether disease-causing organisms are present). Higher turbidity levels are often associated with higher levels of disease-causing microorganisms such as viruses, parasites, and some bacteria. These organisms can cause short term symptoms such as nausea, cramps, diarrhea, and associated headaches.	Soil runoff	**n/a**
Uranium	30µg/L	Increased risk of cancer, kidney toxicity	Erosion of natural deposits	**zero**
Vinyl chloride	0.002	Increased risk of cancer	Leaching from PVC pipes; discharge from plastic factories	**zero**
Viruses (enteric)	TT[7]	Short-term exposure: Gastrointestinal illness (e.g., diarrhea, vomiting, cramps)	Human and animal fecal waste	**zero**
Xylenes (total)	10	Nervous system damage	Discharge from petroleum factories; discharge from chemical factories	**10**

LEGEND DISINFECTANT | DISINFECTION BYPRODUCT | INORGANIC CHEMICAL | MICROORGANISM | ORGANIC CHEMICAL | RADIONUCLIDES

NOTES

1 Definitions
- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety and are non-enforceable public health goals.
- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs as feasible using the best available treatment technology and taking cost into consideration. MCLs are enforceable standards.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- **Maximum Residual Disinfectant Level (MRDL):** The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- **Treatment Technique (TT):** A required process intended to reduce the level of a contaminant in drinking water.

2 Units are in milligrams per liter (mg/L) unless otherwise noted. Milligrams per liter are equivalent to parts per million (ppm).

3 Health effects are from long-term exposure unless specified as short-term exposure.

4 Each water system must certify annually, in writing, to the state (using third-party or manufacturers certification) that when it uses acrylamide and/or epichlorohydrin to treat water, the combination (or product) of dose and monomer level does not exceed the levels specified, as follows: Acrylamide = 0.05 percent dosed at 1 mg/L (or equivalent); Epichlorohydrin = 0.01 percent dosed at 20 mg/L (or equivalent).

5 Lead and copper are regulated by a Treatment Technique that requires systems to control the corrosiveness of their water. If more than 10 percent of tap water samples exceed the action level, water systems must take additional steps. For copper, the action level is 1.3 mg/L, and for lead is 0.015 mg/L.

6 A routine sample that is fecal coliform-positive or E. coli-positive triggers repeat samples--if any repeat sample is total coliform-positive, the system has an acute MCL violation. A routine sample that is total coliform-positive and fecal coliform-negative or E. coli-negative triggers repeat samples--if any repeat sample is fecal coliform-positive or E. coli-positive, the system has an acute MCL violation. See also Total Coliforms.

7 EPA's surface water treatment rules require systems using surface water or ground water under the direct influence of surface water to (1) disinfect their water, and (2) filter their water or meet criteria for avoiding filtration so that the following contaminants are controlled at the following levels:
- ***Cryptosporidium*:** 99 percent removal for systems that filter. Unfiltered systems are required to include Cryptosporidium in their existing watershed control provisions.
- **Giardia lamblia:** 99.9 percent removal/inactivation
- **Viruses:** 99.9 percent removal/inactivation
- ***Legionella*:** No limit, but EPA believes that if *Giardia* and viruses are removed/inactivated, according to the treatment techniques in the surface water treatment rule, *Legionella* will also be controlled.
- **Turbidity:** For systems that use conventional or direct filtration, at no time can turbidity (cloudiness of water) go higher than 1 nephelometric turbidity unit (NTU), and samples for turbidity must be less than or equal to 0.3 NTU in at least 95 percent of the samples in any month. Systems that use filtration other than the conventional or direct filtration must follow state limits, which must include turbidity at no time exceeding 5 NTU.
- **HPC:** No more than 500 bacterial colonies per milliliter
- **Long Term 1 Enhanced Surface Water Treatment:** Surface water systems or ground water systems under the direct influence of surface water serving fewer than 10,000 people must comply with the applicable Long Term 1 Enhanced Surface Water Treatment Rule provisions (e.g. turbidity standards, individual filter monitoring, *Cryptosporidium* removal requirements, updated watershed control requirements for unfiltered systems).
- **Long Term 2 Enhanced Surface Water Treatment:** This rule applies to all surface water systems or ground water systems under the direct influence of surface water. The rule targets additional *Cryptosporidium* treatment requirements for higher risk systems and includes provisions to reduce risks from uncovered finished water storages facilities and to ensure that the systems maintain microbial protection as they take steps to reduce the formation of disinfection byproducts. (Monitoring start dates are staggered by system size. The largest systems (serving at least 100,000 people) will begin monitoring in October 2006 and the smallest systems (serving fewer than 10,000 people) will not begin monitoring until October 2008. After completing monitoring and determining their treatment bin, systems generally have three years to comply with any additional treatment requirements.)
- **Filter Backwash Recycling:** The Filter Backwash Recycling Rule requires systems that recycle to return specific recycle flows through all processes of the system's existing conventional or direct filtration system or at an alternate location approved by the state.

8 No more than 5.0 percent samples total coliform-positive in a month. (For water systems that collect fewer than 40 routine samples per month, no more than one sample can be total coliform-positive per month.) Every sample that has total coliform must be analyzed for either fecal coliforms or E. coli. If two consecutive TC-positive samples, and one is also positive for E. coli or fecal coliforms, system has an acute MCL violation.

9 Although there is no collective MCLG for this contaminant group, there are individual MCLGs for some of the individual contaminants:
- **Haloacetic acids:** dichloroacetic acid (zero); trichloroacetic acid (0.3 mg/L)
- **Trihalomethanes:** bromodichloromethane (zero); bromoform (zero); dibromochloromethane (0.06 mg/L)

NATIONAL SECONDARY DRINKING WATER REGULATION

National Secondary Drinking Water Regulations are non-enforceable guidelines regarding contaminants that may cause cosmetic effects (such as skin or tooth discoloration) or aesthetic effects (such as taste, odor, or color) in drinking water. EPA recommends secondary standards to water systems but does not require systems to comply. However, some states may choose to adopt them as enforceable standards.

Contaminant	Secondary Maximum Contaminant Level
Aluminum	0.05 to 0.2 mg/L
Chloride	250 mg/L
Color	15 (color units)
Copper	1.0 mg/L
Corrosivity	Noncorrosive
Fluoride	2.0 mg/L
Foaming Agents	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Odor	3 threshold odor number
pH	6.5-8.5
Silver	0.10 mg/L
Sulfate	250 mg/L
Total Dissolved Solids	500 mg/L
Zinc	5 mg/L

FOR MORE INFORMATION ON EPA'S SAFE DRINKING WATER:

visit: **epa.gov/safewater**

call: **(800) 426-4791**

ADDITIONAL INFORMATION:

To order additional posters or other ground water and drinking water publications, please contact the National Service Center for Environmental Publications at: **(800) 490-9198**, or email: **nscep@bps-lmit.com**.

MCLs, DLRs, PHGs, for Regulated Drinking Water Contaminants

(Units are in milligrams per liter (mg/L), unless otherwise noted.)

Last Update: July 16, 2021

The following tables includes California's maximum contaminant levels (MCLs), detection limits for purposes of reporting (DLRs), public health goals (PHGs) from the Office of Environmental Health Hazard Assessment (OEHHA). For comparison, Federal MCLs and Maximum Contaminant Level Goals (MCLGs) (USEPA) are also displayed.

Inorganic Chemicals Table, Chemicals with MCLs in 22 CCR §64431

State Regulated Inorganic Chemical Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Aluminum	1	0.05	0.6	2001	--	--
Antimony	0.006	0.006	0.001	2016	0.006	"0,006"
Arsenic	0.010	0.002	0.000004	2004	0.010	zero
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	7 MFL	0.2 MFL	7 MFL	2003	7 MFL	7 MFL
Barium	1	0.1	2	2003	2	2
Beryllium	0.004	0.001	0.001	2003	0.004	0.004
Cadmium	0.005	0.001	0.00004	2006	0.005	0.005
Chromium, Total - OEHHA withdrew the 0.0025-mg/L PHG	0.05	0.01	withdrawn Nov. 2001	1999	0.1	0.1
Chromium, Hexavalent - 0.01-mg/L MCL & 0.001-mg/L DLR repealed	--	--	0.00002	2011	--	--

September 2017						
Cyanide	0.15	0.1	0.15	1997	0.2	0.2
Fluoride	2	0.1	1	1997	4.0	4.0
Mercury (inorganic)	0.002	0.001	0.0012	1999 (rev2005)*	0.002	0.002
Nickel	0.1	0.01	0.012	2001	--	--
Nitrate (as nitrogen, N)	10 as N	0.4	45 as NO3 (=10 as N)	2018	10	10
Nitrite (as N)	1 as N	0.4	1 as N	2018	1	1
Nitrate + Nitrite (as N)	10 as N	--	10 as N	2018	--	--
Perchlorate	0.006	0.004	0.001	2015	--	--
Selenium	0.05	0.005	0.03	2010	0.05	0.05
Thallium	0.002	0.001	0.0001	1999 (rev2004)	0.002	0.0005

Copper and Lead Table, 22 CCR §64672.3

Values referred to as MCLs for lead and copper are not actually MCLs; instead, they are called “Action Levels” under the lead and copper rule.

State Regulated Copper and Lead Contaminant	**State MCL**	**State DLR**	**State PHG**	**State Date of PHG**	**Federal MCL**	**Federal MCLG**
Copper	1.3	0.05	0.3	2008	1.3	1.3
Lead	0.015	0.005	0.0002	2009	0.015	zero

Radiological Table, Radionuclides with MCLs in 22 CCR §64441 and §64443

[units are picocuries per liter (pCi/L), unless otherwise state; n/a = not applicable]

State Regulated Radionuclides Contaminant	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Gross alpha particle activity - OEHHA concluded in 2003 that a PHG was not practical	15	3	none	n/a	15	zero
Gross beta particle activity - OEHHA concluded in 2003 that a PHG was not practical	4 mrem/yr	4	none	n/a	4 mrem/yr	zero
Radium-226	--	1	0.05	2006		
Radium-228	--	1	0.019	2006		
Radium-226 + Radium-228	5	--	--	--	5	zero
Strontium-90	8	2	0.35	2006	--	--
Tritium	"20,000"	"1,000"	400	2006	--	--
Uranium	20	1	0.43	2001	30 µg/L	zero

Organic Chemicals Table, Chemicals with MCLs in 22 CCR §64444

Volatile Organic Chemicals (VOCs)

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Benzene	0.001	0.0005	0.00015	2001	0.005	zero
Carbon tetrachloride	0.0005	0.0005	0.0001	2000	0.005	zero
1,2-Dichlorobenzene	0.6	0.0005	0.6	1997 (rev2009)	0.6	0.6
1,4-Dichlorobenzene	0.005	0.0005	0.006	1997	0.075	0.075

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
(p-DCB)						
1,1-Dichloroethane (1,1-DCA)	0.005	0.0005	0.003	2003	--	--
1,2-Dichloroethane (1,2-DCA)	0.0005	0.0005	0.0004	1999 (rev2005)	0.005	zero
1,1-Dichloroethylene (1,1-DCE)	0.006	0.0005	0.01	1999	0.007	0.007
cis-1,2-Dichloroethylene	0.006	0.0005	0.013	2018	0.07	0.07
trans-1,2-Dichloroethylene	0.01	0.0005	0.05	2018	0.1	0.1
Dichloromethane (Methylene chloride)	0.005	0.0005	0.004	2000	0.005	zero
1,2-Dichloropropane	0.005	0.0005	0.0005	1999	0.005	zero
1,3-Dichloropropene	0.0005	0.0005	0.0002	1999 (rev2006)	--	--
Ethylbenzene	0.3	0.0005	0.3	1997	0.7	0.7
Methyl tertiary butyl ether (MTBE)	0.013	0.003	0.013	1999	--	--
Monochlorobenzene	0.07	0.0005	0.07	2014	0.1	0.1
Styrene	0.1	0.0005	0.0005	2010	0.1	0.1
1,1,2,2-Tetrachloroethane	0.001	0.0005	0.0001	2003	0.1	0.1
Tetrachloroethylene (PCE)	0.005	0.0005	0.00006	2001	0.005	zero
Toluene	0.15	0.0005	0.15	1999	1	1

State Regulated Volatile Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
1,2,4-Trichlorobenzene	0.005	0.0005	0.005	1999	0.07	0.07
1,1,1-Trichloroethane (1,1,1-TCA)	0.200	0.0005	1	2006	0.2	0.2
1,1,2-Trichloroethane (1,1,2-TCA)	0.005	0.0005	0.0003	2006	0.005	0.003
Trichloroethylene (TCE)	0.005	0.0005	0.0017	2009	0.005	zero
Trichlorofluoromethane (Freon 11)	0.15	0.005	1.3	2014	--	--
"1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)"	1.2	0.01	4	1997 (rev2011)	--	--
Vinyl chloride	0.0005	0.0005	0.00005	2000	0.002	zero
Xylenes	1.750	0.0005	1.8	1997	10	10

Non-Volatile Synthetic Organic Chemicals (SOCs)

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Alachlor	0.002	0.001	0.004	1997	0.002	zero
Atrazine	0.001	0.0005	0.00015	1999	0.003	0.003
Bentazon	0.018	0.002	0.2	1999 (rev2009)	--	--
Benzo(a)pyrene	0.0002	0.0001	0.000007	2010	0.0002	zero
Carbofuran	0.018	0.005	0.0007	2016	0.04	0.04
Chlordane	0.0001	0.0001	0.00003	1997 (rev200	0.002	zero

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
				6)		
Dalapon	0.2	0.01	0.79	1997 (rev2009)	0.2	0.2
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00001	0.000003	2020	0.0002	zero
2,4-Dichlorophenoxyacetic acid (2,4-D)	0.07	0.01	0.02	2009	0.07	0.07
Di(2-ethylhexyl)adipate	0.4	0.005	0.2	2003	0.4	0.4
Di(2-ethylhexyl)phthalate (DEHP)	0.004	0.003	0.012	1997	0.006	zero
Dinoseb	0.007	0.002	0.014	1997 (rev2010)	0.007	0.007
Diquat	0.02	0.004	0.006	2016	0.02	0.02
Endothal	0.1	0.045	0.094	2014	0.1	0.1
Endrin	0.002	0.0001	0.0003	2016	0.002	0.002
Ethylene dibromide (EDB)	0.00005	0.00002	0.00001	2003	0.00005	zero
Glyphosate	0.7	0.025	0.9	2007	0.7	0.7
Heptachlor	0.00001	0.00001	0.000008	1999	0.0004	zero
Heptachlor epoxide	0.00001	0.00001	0.000006	1999	0.0002	zero
Hexachlorobenzene	0.001	0.0005	0.00003	2003	0.001	zero
Hexachlorocyclopentadiene	0.05	0.001	0.002	2014	0.05	0.05
Lindane	0.0002	0.0002	0.000032	1999	0.0002	0.0002

State Regulated Non-Volatile Synthetic Organic Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
				(rev2005)		
Methoxychlor	0.03	0.01	0.00009	2010	0.04	0.04
Molinate	0.02	0.002	0.001	2008	--	--
Oxamyl	0.05	0.02	0.026	2009	0.2	0.2
Pentachlorophenol	0.001	0.0002	0.0003	2009	0.001	zero
Picloram	0.5	0.001	0.166	2016	0.5	0.5
Polychlorinated biphenyls (PCBs)	0.0005	0.0005	0.00009	2007	0.0005	zero
Simazine	0.004	0.001	0.004	2001	0.004	0.004
Thiobencarb	0.07	0.001	0.042	2016	--	--
Toxaphene	0.003	0.001	0.00003	2003	0.003	zero
1,2,3-Trichloropropane	0.000005	0.000005	0.0000007	2009	--	--
2,3,7,8-TCDD (dioxin)	3x10-8	5x10-9	5x10-11	2010	3x10-8	zero
2,4,5-TP (Silvex)	0.05	0.001	0.003	2014	0.05	0.05

Disinfection Byproducts Table, Chemicals with MCLs in 22 CCR §64533

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Total Trihalomethanes	0.080	--	--	--	0.080	--
Bromodichloromethane	--	0.0010	0.00006	2018 draft	--	zero

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
Bromoform	--	0.0010	0.0005	2018 draft	--	zero
Chloroform	--	0.0010	0.0004	2018 draft	--	0.07
Dibromochloromethane	--	0.0010	0.0001	2018 draft	--	0.06
Haloacetic Acids (five) (HAA5)	0.060	--	--	--	0.060	--
Monochloroacetic Acid	--	0.0020	--	--	--	0.07
Dichloroacetic Adic	--	0.0010	--	--	--	zero
Trichloroacetic Acid	--	0.0010	--	--	--	0.02
Monobromoacetic Acid	--	0.0010	--	--	--	--
Dibromoacetic Acid	--	0.0010	--	--	--	--
Bromate	0.010	0.0050**	0.0001	2009	0.01	zero
Chlorite	1.0	0.020	0.05	2009	1	0.8

Chemicals with PHGs established in response to DDW requests. These are not currently regulated drinking water contaminants.

State Regulated Disinfection Byproducts Contaminants	State MCL	State DLR	State PHG	State Date of PHG	Federal MCL	Federal MCLG
N-Nitrosodimethylamine (NDMA)	--	--	0.000003	2006	--	--

*OEHHA's review of this chemical during the year indicated (rev20XX) resulted in no change in the PHG.

**The DLR for Bromate is 0.0010 mg/L for analysis performed using EPA Method 317.0 Revision 2.0, 321.8, or 326.0.

Secondary Drinking Water Standards

California Code of Regulations, Title 22
Division 4. Environmental Health
Chapter 15. Domestic Water Quality and Monitoring Regulations
Article 16. Secondary Drinking Water Standards

Constituents	Maximum Contaminant Levels Consumer Acceptance Contaminant Levels
Aluminum	0.2 mg/L
Color	15 Units
Copper	1.0 mg/L
Foaming Agents [MBAS]	0.5 mg/L
Iron	0.3 mg/L
Manganese	0.05 mg/L
Methyl-*tert*-butyl ether [MTBE]	0.005 mg/L
Odor---Threshold	3 Units
Silver	0.1 mg/L
Thiobencarb	0.001 mg/L
Turbidity	5 Units
Zinc	5.0 mg/L

Maximum Contaminant Levels
Consumer Acceptance Contaminant Levels Ranges

Constituents	Recommended	Upper	Short Term
Total Dissolved Solids [TDS]	500 mg/L	1,000 mg/L	1,500 mg/L
Specific Conductance	900 µS/cm	1,600 µS/cm	2,200 µS/cm
Chloride	250 mg/L	500 mg/L	600 mg/L
Sulfate	250 mg/L	500 mg/L	600 mg/L

Note: There are no public health goals (PHGs) or maximum contaminant level goals (MCLGs) for these constituents because secondary standards are set on the basis of aesthetic concerns.
Revised October 1, 2018

Appendix B Bon Tempe and San Geronimo WTP Raw Water Total Coliform Data (January 2015 to January 2021)

Bon Tempe and San Geronimo WTP Raw Water - Total Coliform Data

January 2015 - January 2021

Bon Tempe WTP							
Sample Num	Sample Collection Date	Collected By	Reported Value	Unit	Test Ref. Methodology	Description	Comment
WQ15040627	4/6/2015 7:50:00 AM	Clark John	14.6	MPN	SM 9223	Week 07 - West & Central	
WQ15041335	4/13/2015 11:30:00 AM	Clark John	26.2	MPN	SM 9223	Week 08 - West & Central	
WQ15042036	4/20/2015 12:05:00 PM	Fuller Jennie	10.9	MPN	SM 9223	Week 09 - West & Central	
WQ15042731	4/27/2015 10:20:00 AM	Clark John	18.3	MPN	SM 9223	Week 10 - West & Central	
WQ15050432	5/4/2015 9:05:00 AM	Fuller Jennie	14.8	MPN	SM 9223	Week 11 - West & Central	
WQ15051133	5/11/2015 8:45:00 AM	Fuller Jennie	14.4	MPN	SM 9223	Week 12 - West & Central	
WQ15051838	5/18/2015 9:35:00 AM	Battaglia Larry	16.9	MPN	SM 9223	Week 01 - West & Central	
WQ15052531	5/26/2015 8:10:00 AM	Fuller Jennie	62	MPN	SM 9223	Week 02 - West & Central	
WQ15060155	6/1/2015 8:50:00 AM	Fuller Jennie	235.9	MPN	SM 9223	Week 03 - West & Central	
WQ15060833	6/8/2015 8:35:00 AM	Fuller Jennie	54.8	MPN	SM 9223	Week 04 - West & Central	
WQ15061538	6/15/2015 11:15:00 AM	Fuller Jennie	35	MPN	SM 9223	Week 05 - West & Central	
WQ15062232	6/23/2015 8:55:00 AM	Battaglia Larry	42.2	MPN	SM 9223	Week 06 - West & Central	
WQ15062932	6/29/2015 1:45:00 PM	Fuller Jennie	22.8	MPN	SM 9223	Week 07 - West & Central	
WQ15070635	7/6/2015 9:00:00 AM	Bowers Rhonda	17.3	MPN	SM 9223	Week 08 - West & Central	
WQ15071332	7/13/2015 9:15:00 AM	Bowers Rhonda	17.1	MPN	SM 9223	Week 09 - West & Central	
WQ15072035	7/20/2015 8:20:00 AM	Bowers Rhonda	16.1	MPN	SM 9223	Week 10 - West & Central	
WQ15072732	7/27/2015 8:05:00 AM	Bowers Rhonda	15.6	MPN	SM 9223	Week 11 - West & Central	
WQ15080333	8/3/2015 9:35:00 AM	Bowers Rhonda	64.4	MPN	SM 9223	Week 12 - West & Central	
WQ15081033	8/10/2015 9:55:00 AM	Bowers Rhonda	21.1	MPN	SM 9223	Week 01 - West & Central	
WQ15081736	8/17/2015 8:45:00 AM	Bowers Rhonda	67.6	MPN	SM 9223	Week 02 - West & Central	
WQ15082434	8/24/2015 8:30:00 AM	Bowers Rhonda	33.6	MPN	SM 9223	Week 03 - West & Central	
WQ15083133	8/31/2015 9:00:00 AM	Battaglia Larry	11	MPN	SM 9223	Week 04 - West & Central	
WQ15090733	9/8/2015 11:10:00 AM	Fuller Jennie	16.1	MPN	SM 9223	Week 05 - West & Central	
WQ15091432	9/14/2015 8:50:00 AM	Fuller Jennie	59.8	MPN	SM 9223	Week 06 - West & Central	
WQ15092137	9/21/2015 8:35:00 AM	Fuller Jennie	22.8	MPN	SM 9223	Week 07 - West & Central	
WQ15092835	9/28/2015 11:00:00 AM	Fuller Jennie	135.5	MPN	SM 9223	Week 08 - West & Central	
WQ15100532	10/5/2015 12:25:00 PM	Fuller Jennie	62	MPN	SM 9223	Week 09 - West & Central	
WQ15101231	10/12/2015 10:10:00 AM	Fuller Jennie	90.6	MPN	SM 9223	Week 10 - West & Central	
WQ15101936	10/19/2015 8:45:00 AM	Fuller Jennie	98.7	MPN	SM 9223	Week 11 - West & Central	
WQ15102633	10/26/2015 11:05:00 AM	Clark John	153.9	MPN	SM 9223	Week 12 - West & Central	
WQ15110233	11/2/2015 9:30:00 AM	Fuller Jennie	118.7	MPN	SM 9223	Week 01 - West & Central	
WQ15110931	11/9/2015 8:15:00 AM	Fuller Jennie	214.3	MPN	SM 9223	Week 02 - West & Central	
WQ15111639	11/16/2015 10:40:00 AM	Fuller Jennie	214.3	MPN	SM 9223	Week 03 - West & Central	
WQ15112327	11/23/2015 9:30:00 AM	Fuller Jennie	158.5	MPN	SM 9223	Week 04 - West & Central	
WQ15120203	12/2/2015 8:00:00 AM	Battaglia Larry	9208	MPN	SM 9223	BTTP Raw Resample	
WQ15120726	12/7/2015 9:25:00 AM	Fuller Jennie	7270	MPN	SM 9223	Week 06 - West & Central	
WQ15121426	12/14/2015 11:55:00 AM	Clark John	631	MPN	SM 9223	Week 07 - West & Central	
WQ15122129	12/21/2015 11:05:00 AM	Heifetz Rachel	439	MPN	SM 9223	Week 08 - West & Central	
WQ15122826	12/28/2015 10:00:00 AM	Fuller Jennie	179.3	MPN	SM 9223	Week 09 - West & Central	
WQ16010425	1/4/2016 10:35:00 AM	Fuller Jennie	133.3	MPN	SM 9223	Week 10 - West & Central	
WQ16011126	1/11/2016 10:45:00 AM	Fuller Jennie	214.3	MPN	SM 9223	Week 11 - West & Central	
WQ16011831	1/20/2016 10:00:00 AM	Battaglia Larry	2419.6	MPN	SM 9223	Week 12 - West & Central	
WQ16012527	1/25/2016 11:10:00 AM	Clark John	4884	MPN	SM 9223	Week 01 - West & Central	
WQ16020145	2/1/2016 8:40:00 AM	Battaglia Larry	325.5	MPN	SM 9223	Week 02 - West & Central	
WQ16020828	2/9/2016 12:50:00 PM	Clark John	101.7	MPN	SM 9223	Week 03 - West & Central	
WQ16021532	2/16/2016 9:40:00 AM	Battaglia Larry	143.9	MPN	SM 9223	Week 04 - West & Central	
WQ16022227	2/23/2016 8:25:00 AM	Clark John	261.3	MPN	SM 9223	Week 05 - West & Central	
WQ16022926	3/1/2016 9:20:00 AM	Battaglia Larry	224.7	MPN	SM 9223	Week 06 - West & Central	
WQ16030726	3/8/2016 8:15:00 AM	Battaglia Larry	547.5	MPN	SM 9223	Week 07 - West & Central	
WQ16031429	3/16/2016 10:15:00 AM	Clark John	307.6	MPN	SM 9223	Week 08 - West & Central	
WQ16031707	3/17/2016 8:55:00 AM	Clark John	290.9	MPN	SM 9223	LT2	
WQ16032126	3/22/2016 8:45:00 AM	Battaglia Larry	218.7	MPN	SM 9223	Week 09 - West & Central	
WQ16032825	3/28/2016 9:10:00 AM	Tanomrat Ammon	344.8	MPN	SM 9223	Week 10 - West & Central	
WQ16040426	4/4/2016 12:25:00 PM	Clark John	1203.3	MPN	SM 9223	Week 11 - West & Central	
WQ16041138	4/11/2016 8:40:00 AM	Battaglia Larry	488.4	MPN	SM 9223	Week 12 - West & Central	
WQ16041837	4/18/2016 11:05:00 AM	Clark John	307.6	MPN	SM 9223	Week 01 - West & Central	
WQ16042531	4/25/2016 8:30:00 AM	Battaglia Larry	307.6	MPN	SM 9223	Week 02 - West & Central	
WQ16050234	5/2/2016 10:30:00 AM	Clark John	325.5	MPN	SM 9223	Week 03 - West & Central	
WQ16050933	5/9/2016 1:05:00 PM	Battaglia Larry	108.6	MPN	SM 9223	Week 04 - West & Central	
WQ16051638	5/16/2016 11:40:00 AM	Clark John	178.5	MPN	SM 9223	Week 05 - West & Central	
WQ16052332	5/24/2016 8:45:00 AM	Battaglia Larry	74.9	MPN	SM 9223	Week 06 - West & Central	
WQ16053032	5/31/2016 11:45:00 AM	Clark John	83	MPN	SM 9223	Week 07 - West & Central	
WQ16060635	6/6/2016 8:35:00 AM	Battaglia Larry	75.4	MPN	SM 9223	Week 08 - West & Central	
WQ16061332	6/13/2016 12:00:00 PM	Clark John	178.5	MPN	SM 9223	Week 09 - West & Central	
WQ16062036	6/20/2016 8:35:00 AM	Battaglia Larry	>2419.6	MPN	SM 9223	Week 10 - West & Central	
WQ16062732	6/27/2016 11:45:00 AM	Clark John	275.5	MPN	SM 9223	Week 11 - West & Central	
WQ16070433	7/5/2016 10:35:00 AM	Heifetz Rachel	2419.6	MPN	SM 9223	Week 12 - West & Central	TOC samples were not collected in the field, aliquot from TON sample bottle by EG
WQ16071133	7/11/2016 9:45:00 AM	Heifetz Rachel	816.4	MPN	SM 9223	Week 01 - West & Central	
WQ16071835	7/18/2016 8:45:00 AM	Battaglia Larry	613.1	MPN	SM 9223	Week 02 - West & Central	
WQ16072534	7/25/2016 11:55:00 AM	Clark John	1299.7	MPN	SM 9223	Week 03 - West & Central	
WQ16080153	8/1/2016 8:30:00 AM	Battaglia Larry	3130	MPN	SM 9223	Week 04 - West & Central	
WQ16080833	8/8/2016 1:30:00 PM	Fuller Jennie	3654	MPN	SM 9223	Week 05 - West & Central	
WQ16081537	8/15/2016 9:50:00 AM	Fuller Jennie	1413.6	MPN	SM 9223	Week 06 - West & Central	
WQ16082232	8/22/2016 10:35:00 AM	Fuller Jennie	1732.9	MPN	SM 9223	Week 07 - West & Central	
WQ16082935	8/29/2016 8:45:00 AM	Fuller Jennie	1553.1	MPN	SM 9223	Week 08 - West & Central	
WQ16090532	9/6/2016 8:35:00 AM	Fuller Jennie	1119.9	MPN	SM 9223	Week 09 - West & Central	
WQ16091231	9/12/2016 10:20:00 AM	Fuller Jennie	816.4	MPN	SM 9223	Week 10 - West & Central	
WQ16091937	9/19/2016 10:30:00 AM	Fuller Jennie	1986.3	MPN	SM 9223	Week 11 - West & Central	
WQ16092633	9/26/2016 7:35:00 AM	Fuller Jennie	2489	MPN	SM 9223	Week 12 - West & Central	
WQ16100333	10/3/2016 10:20:00 AM	Fuller Jennie	2419.6	MPN	SM 9223	Week 01 - West & Central	
WQ16101031	10/10/2016 8:15:00 AM	Fuller Jennie	1553.1	MPN	SM 9223	Week 02 - West & Central	
WQ16101738	10/17/2016 10:15:00 AM	Fuller Jennie	866.4	MPN	SM 9223	Week 03 - West & Central	
WQ16102433	10/24/2016 9:40:00 AM	Fuller Jennie	172.3	MPN	SM 9223	Week 04 - West & Central	
WQ16103133	10/31/2016 12:30:00 PM	Clark John	77.6	MPN	SM 9223	Week 05 - West & Central	
WQ16110726	11/7/2016 9:20:00 AM	Fuller Jennie	46.7	MPN	SM 9223	Week 06 - West & Central	
WQ16111426	11/14/2016 9:45:00 AM	Fuller Jennie	16.1	MPN	SM 9223	Week 07 - West & Central	
WQ16112134	11/21/2016 8:35:00 AM	Fuller Jennie	387.3	MPN	SM 9223	Week 08 - West & Central	
WQ16112826	11/28/2016 9:00:00 AM	Fuller Jennie	102.2	MPN	SM 9223	Week 09 - West & Central	
WQ16120525	12/5/2016 1:00:00 PM	Battaglia Larry	81.3	MPN	SM 9223	Week 10 - West & Central	
WQ16121226	12/13/2016 11:20:00 AM	Fuller Jennie	129.1	MPN	SM 9223	Week 11 - West & Central	
WQ16121927	12/19/2016 9:15:00 AM	Fuller Jennie	396.8	MPN	SM 9223	Week 12 - West & Central	
WQ16122627	12/27/2016 9:30:00 AM	Fuller Jennie	187.2	MPN	SM 9223	Week 01 - West & Central	
WQ17010225	1/3/2017 10:55:00 AM	Heifetz Rachel	65	MPN	SM 9223	Week 02 - West & Central	
WQ17010928	1/9/2017 1:05:00 PM	Battaglia Larry	125.9	MPN	SM 9223	Week 03 - West & Central	
WQ17011631	1/17/2017 8:50:00 AM	Battaglia Larry	93.3	MPN	SM 9223	Week 04 - West & Central	
WQ17012327	1/23/2017 8:20:00 AM	Clark John	235.9	MPN	SM 9223	Week 05 - West & Central	
WQ17013026	1/30/2017 11:30:00 AM	Battaglia Larry	56.5	MPN	SM 9223	Week 06 - West & Central	
WQ17020626	2/6/2017 10:05:00 AM	Clark John	38.4	MPN	SM 9223	Week 07 - West & Central	
WQ17021329	2/13/2017 11:50:00 AM	Battaglia Larry	172.3	MPN	SM 9223	Week 08 - West & Central	
WQ17022026	2/21/2017 12:30:00 PM	Clark John	201.4	MPN	SM 9223	Week 09 - West & Central	
WQ17022725	2/27/2017 8:30:00 AM	Battaglia Larry	135.4	MPN	SM 9223	Week 10 - West & Central	
WQ17030626	3/6/2017 12:10:00 PM	Clark John	23.1	MPN	SM 9223	Week 11 - West & Central	
WQ17031327	3/13/2017 8:45:00 AM	Battaglia Larry	35.9	MPN	SM 9223	Week 12 - West & Central	
WQ17032032	3/20/2017 11:15:00 AM	Clark John	46.4	MPN	SM 9223	Week 01 - West & Central	
WQ17032725	3/27/2017 9:50:00 AM	Battaglia Larry	214.3	MPN	SM 9223	Week 02 - West & Central	
WQ17040328	4/3/2017 11:10:00 AM	Clark John	261.3	MPN	SM 9223	Week 03 - West & Central	
WQ17041027	4/10/2017 10:00:00 AM	Battaglia Larry	547.5	MPN	SM 9223	Week 04 - West & Central	
WQ17041731	4/17/2017 11:10:00 AM	Clark John	2419.6	MPN	SM 9223	Week 05 - West & Central	
WQ17042426	4/24/2017 10:15:00 AM	Battaglia Larry	488.4	MPN	SM 9223	Week 06 - West & Central	
WQ17050149	5/1/2017 12:20:00 PM	Clark John	4352	MPN	SM 9223	Week 07 - West & Central	
WQ17050829	5/8/2017 10:45:00 AM	Battaglia Larry	14136	MPN	SM 9223	Week 08 - West & Central	
WQ17051537	5/15/2017 10:55:00 AM	Clark John	1986.3	MPN	SM 9223	Week 09 - West & Central	
WQ17052231	5/22/2017 12:35:00 PM	Battaglia Larry	866.4	MPN	SM 9223	Week 10 - West & Central	
WQ17052932	5/30/2017 10:30:00 AM	Clark John	178.5	MPN	SM 9223	Week 11 - West & Central	
WQ17060533	6/5/2017 8:45:00 AM	Battaglia Larry	325.5	MPN	SM 9223	Week 12 - West & Central	

WQ17061233	6/12/2017 10:55:00 AM	Clark John	325.5	MPN	SM 9223	Week 01 - West & Central	
WQ17061936	6/19/2017 12:20:00 PM	Battaglia Larry	435.2	MPN	SM 9223	Week 02 - West & Central	
WQ17062634	6/26/2017 10:55:00 AM	Clark John	3255	MPN	SM 9223	Week 03 - West & Central	
WQ17070333	7/5/2017 10:40:00 AM	Battaglia Larry	6488	MPN	SM 9223	Week 04 - West & Central	
WQ17071033	7/10/2017 1:05:00 PM	Gondola Trevor	2909	MPN	SM 9223	Week 05 - West & Central	
WQ17071732	7/17/2017 1:00:00 PM	Gondola Trevor	323	MPN	SM 9223	Week 06 - West & Central	
WQ17072432	7/24/2017 11:50:00 AM	Gondola Trevor	1203.3	MPN	SM 9223	Week 07 - West & Central	
WQ17073135	7/31/2017 10:50:00 AM	Gondola Trevor	3255	MPN	SM 9223	Week 08 - West & Central	
WQ17080732	8/7/2017 11:50:00 AM	Gondola Trevor	461.1	MPN	SM 9223	Week 09 - West & Central	
WQ17081431	8/14/2017 12:15:00 PM	Gondola Trevor	161.6	MPN	SM 9223	Week 10 - West & Central	
WQ17082137	8/21/2017 10:40:00 AM	Gondola Trevor	1299.7	MPN	SM 9223	Week 11 - West & Central	
WQ17082833	8/28/2017 10:30:00 AM	Gondola Trevor	2419.6	MPN	SM 9223	Week 12 - West & Central	
WQ17090433	9/5/2017 9:10:00 AM	Gondola Trevor	866.4	MPN	SM 9223	Week 01 - West & Central	
WQ17091131	9/11/2017 12:10:00 PM	Gondola Trevor	816.4	MPN	SM 9223	Week 02 - West & Central	
WQ17091839	9/18/2017 12:30:00 PM	Battaglia Larry	579.4	MPN	SM 9223	Week 03 - West & Central	
WQ17092533	9/25/2017 11:20:00 AM	Gondola Trevor	316.9	MPN	SM 9223	Week 04 - West & Central	
WQ17100233	10/2/2017 11:15:00 AM	Clark John	2419.6	MPN	SM 9223	Week 05 - West & Central	
WQ17100932	10/9/2017 10:35:00 AM	Battaglia Larry	1553.1	MPN	SM 9223	Week 06 - West & Central	
WQ17101636	10/16/2017 10:20:00 AM	Battaglia Larry	3076	MPN	SM 9223	Week 07 - West & Central	
WQ17102335	10/23/2017 10:35:00 AM	Battaglia Larry	1203.3	MPN	SM 9223	Week 08 - West & Central	
WQ17103032	10/30/2017 1:00:00 PM	Clark John	185	MPN	SM 9223	Week 09 - West & Central	
WQ17110631	11/6/2017 11:50:00 AM	Gondola Trevor	69.1	MPN	SM 9223	Week 10 - West & Central	
WQ17111332	11/13/2017 10:50:00 AM	Battaglia Larry	79.4	MPN	SM 9223	Week 11 - West & Central	
WQ17112027	11/20/2017 11:30:00 AM	Heifetz Rachel	68.3	MPN	SM 9223	Week 12 - West & Central	
WQ17112727	11/27/2017 11:50:00 AM	Gondola Trevor	133.3	MPN	SM 9223	Week 01 - West & Central	
WQ17120425	12/4/2017 10:45:00 AM	Battaglia Larry	95.9	MPN	SM 9223	Week 02 - West & Central	
WQ17121128	12/11/2017 10:50:00 AM	Battaglia Larry	55.6	MPN	SM 9223	Week 03 - West & Central	
WQ17121832	12/18/2017 11:35:00 AM	Heifetz Rachel	36.9	MPN	SM 9223	Week 04 - West & Central	
WQ17122527	12/26/2017 11:00:00 AM	Gondola Trevor	152.3	MPN	SM 9223	Week 05 - West & Central	
WQ18010147	1/2/2018 8:40:00 AM	Battaglia Larry	146.4	MPN	SM 9223	Week 06 - West & Central	
WQ18010826	1/8/2018 10:50:00 AM	Gondola Trevor	158.5	MPN	SM 9223	Week 07 - West & Central	
WQ18011533	1/16/2018 10:55:00 AM	Rogina Minerva	172	MPN	SM 9223	Week 08 - West & Central	
WQ18012226	1/22/2018 9:15:00 AM	Battaglia Larry	42.6	MPN	SM 9223	Week 09 - West & Central	
WQ18012925	1/29/2018 11:50:00 AM	Gondola Trevor	19.9	MPN	SM 9223	Week 10 - West & Central	
WQ18020526	2/7/2018 10:50:00 AM	Battaglia Larry	8.5	MPN	SM 9223	Week 11 - West & Central	
WQ18021223	2/12/2018 10:10:00 AM	Gondola Trevor	11	MPN	SM 9223	Week 12 - West & Central	
WQ18021932	2/20/2018 10:10:00 AM	Gondola Trevor	10.9	MPN	SM 9223	Week 01 - West & Central	
WQ18022624	2/26/2018 11:35:00 AM	Gondola Trevor	8.6	MPN	SM 9223	Week 02 - West & Central	
WQ18030528	3/5/2018 10:00:00 AM	Battaglia Larry	39.9	MPN	SM 9223	Week 03 - West & Central	
WQ18031227	3/12/2018 10:35:00 AM	Battaglia Larry	21.6	MPN	SM 9223	Week 04 - West & Central	
WQ18031938	3/19/2018 10:25:00 AM	Gondola Trevor	93.3	MPN	SM 9223	Week 05 - West & Central	
WQ18032632	3/26/2018 12:00:00 PM	Clark John	ND	MPN	SM 9223	Week 06 - West & Central	
WQ18040232	4/2/2018 9:50:00 AM	Gondola Trevor	ND	MPN	SM 9223	Week 07 - West & Central	
WQ18040935	4/9/2018 10:45:00 AM	Battaglia Larry	111.2	MPN	SM 9223	Week 08 - West & Central	
WQ18041636	4/16/2018 12:40:00 PM	Gondola Trevor	51.2	MPN	SM 9223	Week 09 - West & Central	
WQ18043032	5/1/2018 10:50:00 AM	Clark John	866.4	MPN	SM 9223	Week 11 - West & Central	
WQ18050733	5/7/2018 8:40:00 AM	Gondola Trevor	93.3	MPN	SM 9223	Week 12 - West & Central	
WQ18051433	5/14/2018 11:20:00 AM	Gondola Trevor	80.9	MPN	SM 9223	Week 01 - West & Central	
WQ18052135	5/21/2018 9:50:00 AM	Gondola Trevor	68.3	MPN	SM 9223	Week 02 - West & Central	
WQ18052834	5/29/2018 10:50:00 AM	Gondola Trevor	307.6	MPN	SM 9223	Week 03 - West & Central	
WQ18060433	6/4/2018 10:40:00 AM	Gondola Trevor	214.3	MPN	SM 9223	Week 04 - West & Central	
WQ18061133	6/11/2018 9:40:00 AM	Gondola Trevor	201.4	MPN	SM 9223	Week 05 - West & Central	
WQ18061837	6/18/2018 12:55:00 PM	Gondola Trevor	159.7	MPN	SM 9223	Week 06 - West & Central	
WQ18062532	6/25/2018 8:55:00 AM	Battaglia Larry	224.7	MPN	SM 9223	Week 07 - West & Central	
WQ18070235	7/2/2018 8:45:00 AM	Brougham Lauren	187.2	MPN	SM 9223	Week 08 - West & Central	
WQ18070932	7/9/2018 11:05:00 AM	Kerins Kelly	579.4	MPN	SM 9223	Week 09 - West & Central	
WQ18071635	7/17/2018 11:05:00 AM	Kerins Kelly	613.1	MPN	SM 9223	Week 10 - West & Central	
WQ18072332	7/23/2018 8:25:00 AM	Kerins Kelly	727	MPN	SM 9223	Week 11 - West & Central	
WQ18073033	7/30/2018 8:30:00 AM	Kerins Kelly	435.2	MPN	SM 9223	Week 12 - West & Central	
WQ18080633	8/6/2018 9:00:00 AM	Kerins Kelly	410.6	MPN	SM 9223	Week 01 - West & Central	
WQ18081330	8/13/2018 10:45:00 AM	Kerins Kelly	195.6	MPN	SM 9223	Week 02 - West & Central	
WQ18082039	8/20/2018 8:45:00 AM	Kerins Kelly	344.8	MPN	SM 9223	Week 03 - West & Central	
WQ18082733	8/27/2018 8:45:00 AM	Kerins Kelly	488.4	MPN	SM 9223	Week 04 - West & Central	
WQ18090333	9/4/2018 8:40:00 AM	Kerins Kelly	119.8	MPN	SM 9223	Week 05 - West & Central	
WQ18091032	9/10/2018 8:30:00 AM	Kerins Kelly	114.5	MPN	SM 9223	Week 06 - West & Central	
WQ18091737	9/17/2018 10:15:00 AM	Kerins Kelly	118.7	MPN	SM 9223	Week 07 - West & Central	
WQ18092605	9/26/2018 1:15:00 PM	Kerins Kelly	165.8	MPN	SM 9223	Week 08 - West & Central	
WQ18100155	10/1/2018 9:30:00 AM	Kerins Kelly	146.7	MPN	SM 9223	Week 09 - West & Central	
WQ18100831	10/8/2018 9:30:00 AM	Kerins Kelly	193.5	MPN	SM 9223	Week 10 - West & Central	
WQ18101536	10/15/2018 10:30:00 AM	Kerins Kelly	95.9	MPN	SM 9223	Week 11 - West & Central	
WQ18102233	10/22/2018 10:00:00 AM	Kerins Kelly	235.9	MPN	SM 9223	Week 12 - West & Central	
WQ18102933	10/29/2018 10:00:00 AM	Kerins Kelly	9.8	MPN	SM 9223	Week 01 - West & Central	
WQ18110524	11/5/2018 8:46:00 AM	Kerins Kelly	161.6	MPN	SM 9223	Week 02 - West & Central	
WQ18111228	11/13/2018 10:01:00 AM	Kerins Kelly	387.3	MPN	SM 9223	Week 03 - West & Central	
WQ18111932	11/19/2018 10:01:00 AM	Kerins Kelly	365.4	MPN	SM 9223	Week 04 - West & Central	
WQ18112627	11/26/2018 10:01:00 AM	Kerins Kelly	290.9	MPN	SM 9223	Week 05 - West & Central	
WQ18120735	12/7/2018 12:30:00 PM	Battaglia Larry	250	MPN	SM9223B (Colilert, Quar	Week 6 - West	
WQ18121026	12/10/2018 9:46:00 AM	Kerins Kelly	330	MPN	SM9223B (Colilert, Quar	Week 07 - West & Central	
WQ18122002	12/20/2018 8:50:00 AM	Clark John	>2400	MPN	SM9223B (Colilert, Quar	Week 08 Resample	
WQ18122426	12/26/2018 12:25:00 PM	Clark John	>2400	MPN	SM9223B (Colilert, Quar	Week 09 - West & Central	
WQ18123125	1/2/2019 11:40:00 AM	Gondola Trevor	>2400	MPN	SM9223B (Colilert, Quar	Week 10 - West & Central	
WQ19010726	1/7/2019 9:00:00 AM	Battaglia Larry	2400	MPN	SM9223B (Colilert, Quar	Week 11 - West & Central	
WQ19011427	1/14/2019 11:30:00 AM	Clark John	770	MPN	SM9223B (Colilert, Quar	Week 12 - West & Central	Bacti sample temp is over 10C and outside of 2hrs window. okay to proceed per lab manager.LL
WQ19012131	1/22/2019 10:30:00 AM	Gondola Trevor	1100	MPN	SM9223B (Colilert, Quar	Week 01 - West & Central	
WQ19012824	1/28/2019 12:10:00 PM	Clark John	1600	MPN	SM9223B (Colilert, Quar	Week 02 - West & Central	
WQ19020428	2/4/2019 10:55:00 AM	Gondola Trevor	1600	MPN	SM9223B (Colilert, Quar	Week 03 - West & Central	
WQ19021127	2/15/2019 8:40:00 AM	Clark John	460	MPN	SM9223B (Colilert, Quar	Week 04 - West & Central	
WQ19021832	2/19/2019 10:00:00 AM	Clark John	120	MPN	SM9223B (Colilert, Quar	Week 05 - West & Central	
WQ19022526	2/25/2019 10:55:00 AM	Gondola Trevor	74	MPN	SM9223B (Colilert, Quar	Week 06 - West & Central	
WQ19030426	3/4/2019 10:40:00 AM	Battaglia Larry	210	MPN	SM9223B (Colilert, Quar	Week 07 - West & Central	
WQ19031129	3/11/2019 9:25:00 AM	Clark John	42	MPN	SM9223B (Colilert, Quar	Week 08 - West & Central	
WQ19031831	3/18/2019 11:25:00 AM	Gondola Trevor	25	MPN	SM9223B (Colilert, Quar	Week 09 - West & Central	
WQ19032525	3/25/2019 10:30:00 AM	Gondola Trevor	36	MPN	SM9223B (Colilert, Quar	Week 10 - West & Central	
WQ19040149	4/1/2019 10:20:00 AM	Gondola Trevor	46	MPN	SM9223B (Colilert, Quar	Week 11 - West & Central	
WQ19040827	4/8/2019 11:20:00 AM	Radley Joseph	58	MPN	SM9223B (Colilert, Quar	Week 12 - West & Central	
WQ19040904	4/9/2019 8:35:00 AM	Clark John	130	MPN	SM9223B (Colilert, Quar	BTTP Raw	
WQ19041704	4/17/2019 12:50:00 PM	Battaglia Larry	4611	MPN	SM 9223	BTTP Raw - Blowout check	
WQ19042224	4/22/2019 11:30:00 AM	Gondola Trevor	5794	MPN	SM 9223	Week 02 - West & Central	Carbon result is from batch 1905131. RH
WQ19042928	4/29/2019 12:30:00 PM	Clark John	517.2	MPN	SM 9223	Week 03 - West & Central	
WQ19050627	5/9/2019 10:40:00 AM	Gondola Trevor	5475	MPN	SM 9223	Week 04 - West & Central	
WQ19051327	5/16/2019 12:40:00 PM	Gondola Trevor	620	MPN	SM 9223	Week 05 - West & Central	
WQ19052031	5/23/2019 8:40:00 AM	Gondola Trevor	199	MPN	SM 9223	Week 06 - West & Central	
WQ19052726	5/30/2019 12:20:00 PM	Clark John	290.9	MPN	SM 9223	Week 07 - West & Central	
WQ19060329	6/6/2019 8:40:00 AM	Gondola Trevor	461.1	MPN	SM 9223	Week 08 - West & Central	
WQ19061026	6/11/2019 11:15:00 AM	Gondola Trevor	344.8	MPN	SM 9223	Week 09 - West & Central	
WQ19061730	6/17/2019 10:55:00 AM	Battaglia Larry	365.4	MPN	SM 9223	Week 10 - West & Central	
WQ19062426	6/24/2019 11:25:00 AM	Kerins Kelly	62	MPN	SM 9223	Week 11 - West & Central	
WQ19070150	7/1/2019 8:10:00 AM	Kerins Kelly	39.3	MPN	SM 9223	Week 12 - West & Central	
WQ19070827	7/8/2019 8:45:00 AM	Kerins Kelly	96	MPN	SM 9223	Week 01 - West & Central	
WQ19071528	7/15/2019 8:40:00 AM	Kerins Kelly	135.4	MPN	SM 9223	Week 02 - West & Central	
WQ19072228	7/22/2019 8:35:00 AM	Kerins Kelly	517.2	MPN	SM 9223	Week 03 - West & Central	The TOC vials froze on 08/02/19. RH
WQ19072927	7/29/2019 10:50:00 AM	Gondola Trevor	116.9	MPN	SM 9223	Week 04 - West & Central	
WQ19080526	8/5/2019 12:40:00 PM	Gondola Trevor	222.4	MPN	SM 9223	Week 05 - West & Central	
WQ19081223	8/12/2019 12:40:00 PM	Gondola Trevor	461.1	MPN	SM 9223	Week 06 - West & Central	
WQ19081930	8/19/2019 7:35:00 AM	Clark John	142.1	MPN	SM 9223	Week 07 - West & Central	
WQ19082629	8/26/2019 9:20:00 AM	Kerins Kelly	29.2	MPN	SM 9223	Week 08 - West & Central	
WQ19090225	9/3/2019 11:30:00 AM	Gondola Trevor	2419.6	MPN	SM 9223	Week 09 - West & Central	
WQ19090925	9/9/2019 11:10:00 AM	Kerins Kelly	1732.9	MPN	SM 9223	Week 10 - West & Central	
WQ19091631	9/16/2019 8:30:00 AM	Kerins Kelly	1553.1	MPN	SM 9223	Week 11 - West & Central	
WQ19092327	9/23/2019 11:55:00 AM	Kerins Kelly	201.4	MPN	SM 9223	Week 12 - West & Central	
WQ19093027	10/1/2019 11:40:00 AM	Clark John	115.3	MPN	SM 9223	Week 01 - West & Central	
WQ19100724	10/7/2019 12:20:00 PM	Kerins Kelly	58.3	MPN	SM 9223	Week 02 - West & Central	

WQ19101428	10/14/2019 9:00:00 AM	Kerins Kelly	68.9	MPN	SM 9223	Week 03 - West & Central	
WQ19102131	10/21/2019 10:00:00 AM	Kerins Kelly	81.3	MPN	SM 9223	Week 04 - West & Central	
WQ19102827	10/28/2019 1:15:00 PM	Gondola Trevor	90.6	MPN	SM 9223	Week 05 - West & Central	
WQ19110426	11/4/2019 12:50:00 PM	Gondola Trevor	387.3	MPN	SM 9223	Week 06 - West & Central	
WQ19111125	11/12/2019 11:55:00 AM	Gondola Trevor	261.3	MPN	SM 9223	Week 07 - West & Central	
WQ19111834	11/18/2019 10:00:00 AM	Clark John	104.3	MPN	SM 9223	Week 08 - West & Central	
WQ19112525	11/25/2019 7:30:00 AM	Gondola Trevor	84.2	MPN	SM 9223	Week 09 - West & Central	
WQ19120224	12/2/2019 11:40:00 AM	Gondola Trevor	325.5	MPN	SM 9223	Week 10 - West & Central	
WQ19120925	12/9/2019 11:10:00 AM	Battaglia Larry	648.8	MPN	SM 9223	Week 11 - West & Central	
WQ19121627	12/16/2019 10:00:00 AM	Clark John	261.3	MPN	SM 9223	Week 12 - West & Central	
WQ19122326	12/26/2019 11:25:00 AM	Gondola Trevor	307.6	MPN	SM 9223	Week 01 - West & Central	
WQ19123024	12/30/2019 10:05:00 AM	Battaglia Larry	193.5	MPN	SM 9223	Week 02 - West & Central	
WQ20010627	1/6/2020 11:40:00 AM	Gondola Trevor	45	MPN	SM 9223	Week 03 - West & Central	
WQ20011327	1/13/2020 10:30:00 AM	Clark John	13.5	MPN	SM 9223	Week 04 - West & Central	
WQ20012030	1/21/2020 11:40:00 AM	Gondola Trevor	45.7	MPN	SM 9223	Week 05 - West & Central	
WQ20012725	1/27/2020 10:15:00 AM	Battaglia Larry	14.6	MPN	SM 9223	Week 06 - West & Central	
WQ20020325	2/3/2020 11:45:00 AM	Gondola Trevor	13.4	MPN	SM 9223	Week 07 - West & Central	
WQ20021036	2/10/2020 11:45:00 AM	Clark John	140.8	MPN	SM 9223	Week 08 - West & Central	
WQ20021730	2/18/2020 7:50:00 AM	Gondola Trevor	152.3	MPN	SM 9223	Week 09 - West & Central	
WQ20022424	2/24/2020 11:15:00 AM	Clark John	140.8	MPN	SM 9223	Week 10 - West & Central	
WQ20030226	3/2/2020 11:00:00 AM	Gondola Trevor	14.8	MPN	SM 9223	Week 11 - West & Central	
WQ20030926	3/9/2020 11:55:00 AM	Heifetz Rachel	35.5	MPN	SM 9223	Week 12 - West & Central	
WQ20031632	3/16/2020 11:15:00 AM	Clark John	19.9	MPN	SM 9223	Week 01 - West & Central	
WQ20032323	3/23/2020 11:55:00 AM	Gondola Trevor	33.2	MPN	SM 9223	Week 02 - West & Central	
WQ20033028	3/30/2020 10:20:00 AM	Battaglia Larry	23.1	MPN	SM 9223	Week 03 - West & Central	
							Alkalinity cancelled due to out of hold time. 7/8/2020 RH
WQ20040614	4/6/2020 10:35:00 AM	Clark John	36.9	MPN	SM 9223	Week 04 - West & Central	
WQ20041314	4/13/2020 10:45:00 AM	Gondola Trevor	15.8	MPN	SM 9223	Week 05 - West & Central	
WQ20042017	4/20/2020 12:00:00 PM	Clark John	48	MPN	SM 9223	Week 06 - West & Central	
WQ20042714	4/27/2020 10:20:00 AM	Gondola Trevor	167	MPN	SM 9223	Week 07 - West & Central	
WQ20050415	5/4/2020 10:50:00 AM	Clark John	37.3	MPN	SM 9223	Week 08 - West & Central	
WQ20051132	5/11/2020 1:00:00 PM	Gondola Trevor	648.8	MPN	SM 9223	Week 09 - West & Central	
WQ20051824	5/18/2020 9:10:00 AM	Battaglia Larry	2419.6	MPN	SM 9223	Week 10 - West & Central	
WQ20052005	5/20/2020 6:05:00 AM	Clark John	1299.7	MPN	SM 9223	BTTP RAW BACTI	
WQ20052625	5/26/2020 11:25:00 AM	Gondola Trevor	24196	MPN	SM 9223	Week 11 - West & Central	
WQ20060149	6/1/2020 9:20:00 AM	Clark John	2419.6	MPN	SM 9223	Week 12 - West & Central	
WQ20060826	6/8/2020 11:50:00 AM	Gondola Trevor	2613	MPN	SM 9223	Week 01 - West & Central	
WQ20061529	6/15/2020 12:15:00 PM	Clark John	175	MPN	SM 9223	Week 02 - West & Central	
WQ20062228	6/22/2020 10:55:00 AM	Battaglia Larry	172.3	MPN	SM 9223	Week 03 - West & Central	
WQ20062927	6/30/2020 11:55:00 AM	Gondola Trevor	7701	MPN	SM 9223	Week 04 - West & Central	
WQ20070627	7/7/2020 11:40:00 AM	Gondola Trevor	1986.3	MPN	SM 9223	Week 05 - West & Central	
WQ20071326	7/13/2020 12:15:00 PM	Clark John	344.8	MPN	SM 9223	Week 06 - West & Central	
WQ20072030	7/20/2020 1:00:00 PM	Gondola Trevor	3255	MPN	SM 9223	Week 07 - West & Central	
WQ20072729	7/27/2020 10:50:00 AM	Gondola Trevor	1119.9	MPN	SM 9223	Week 08 - West & Central	
WQ20080326	8/4/2020 12:20:00 PM	Stern Sarah	32.7	MPN	SM 9223	Week 09 - West & Central	
WQ20081022	8/10/2020 9:05:00 AM	Battaglia Larry	54.8	MPN	SM 9223	Week 10 - West & Central	
WQ20081731	8/17/2020 10:50:00 AM	Stern Sarah	24.6	MPN	SM 9223	Week 11 - West & Central	
WQ20082427	8/24/2020 8:25:00 AM	Stern Sarah	55.6	MPN	SM 9223	Week 12 - West & Central	
WQ20083127	8/31/2020 8:30:00 AM	Stern Sarah	55.6	MPN	SM 9223	Week 01 - West & Central	
WQ20090724	9/8/2020 8:40:00 AM	Stern Sarah	16.1	MPN	SM 9223	Week 02 - West & Central	
WQ20091428	9/14/2020 8:35:00 AM	Stern Sarah	13.4	MPN	SM 9223	Week 03 - West & Central	
WQ20092132	9/21/2020 8:35:00 AM	Stern Sarah	23.3	MPN	SM 9223	Week 04 - West & Central	
WQ20092827	9/28/2020 11:00:00 AM	Stern Sarah	21.6	MPN	SM 9223	Week 05 - West & Central	
WQ20100526	10/5/2020 8:35:00 AM	Stern Sarah	58.6	MPN	SM 9223	Week 06 - West & Central	
WQ20101226	10/12/2020 8:40:00 AM	Stern Sarah	42.6	MPN	SM 9223	Week 07 - West & Central	
WQ20101933	10/19/2020 8:40:00 AM	Stern Sarah	72.7	MPN	SM 9223	Week 08 - West & Central	
WQ20102802	10/28/2020 10:50:00 AM	Stern Sarah	235.9	MPN	SM 9223	BTTP Raw - Bacti Recollection for TCR	
WQ20110225	11/2/2020 6:30:00 AM	Clark John	111.9	MPN	SM 9223	Week 10 - West & Central	The chloride value entered is associated with the QC run on 11-03-2020. 11-24-2020 RH
WQ20110926	11/9/2020 8:35:00 AM	Stern Sarah	104.3	MPN	SM 9223	Week 11 - West & Central	
WQ20111632	11/17/2020 10:35:00 AM	Gondola Trevor	69.7	MPN	SM 9223	Week 12 - West & Central	
WQ20112327	11/23/2020 8:30:00 AM	Stern Sarah	24.1	MPN	SM 9223	Week 01 - West & Central	
WQ20113024	11/30/2020 11:25:00 AM	Clark John	60.9	MPN	SM 9223	Week 02 - West & Central	
WQ20120728	12/7/2020 10:50:00 AM	Gondola Trevor	34.5	MPN	SM 9223	Week 03 - West & Central	
WQ20121427	12/14/2020 12:00:00 PM	Clark John	7.5	MPN	SM 9223	Week 04 - West & Central	
WQ20122127	12/21/2020 8:25:00 AM	Stern Sarah	21.1	MPN	SM 9223	Week 05 - West & Central	
WQ20122826	12/28/2020 8:50:00 AM	Stern Sarah	48.7	MPN	SM 9223	Week 06 - West & Central	
WQ21010426	1/4/2021 8:45:00 AM	Stern Sarah	11	MPN	SM 9223	Week 07 - West & Central	
WQ21011129	1/11/2021 8:45:00 AM	Stern Sarah	9.8	MPN	SM 9223	Week 08 - West & Central	
WQ21011830	1/19/2021 9:35:00 AM	Stern Sarah	34.1	MPN	SM 9223	Week 09 - West & Central	
WQ21012525	1/25/2021 8:40:00 AM	Stern Sarah	461.1	MPN	SM 9223	Week 10 - West & Central	

San Geronimo WTP							
Sample Num	Sample Collection Date	Collected By	Reported Value	Unit	Test Ref. Methodology	Description	Comment
WQ15040628	4/7/2015 1:56:00 PM	Battaglia Larry	111.9	MPN	SM 9223	Week 07 - West & Central	
WQ15041336	4/13/2015 8:00:00 AM	Clark John	108.1	MPN	SM 9223	Week 08 - West & Central	
WQ15042037	4/21/2015 9:20:00 AM	Fuller Jennie	139.1	MPN	SM 9223	Week 09 - West & Central	
WQ15042732	4/27/2015 7:35:00 AM	Clark John	206.4	MPN	SM 9223	Week 10 - West & Central	
WQ15050433	5/4/2015 1:05:00 PM	Fuller Jennie	325.5	MPN	SM 9223	Week 11 - West & Central	
WQ15051134	5/11/2015 11:30:00 AM	Fuller Jennie	547.5	MPN	SM 9223	Week 12 - West & Central	
WQ15051839	5/18/2015 11:25:00 AM	Battaglia Larry	313	MPN	SM 9223	Week 01 - West & Central	
WQ15052532	5/26/2015 10:15:00 AM	Fuller Jennie	920.8	MPN	SM 9223	Week 02 - West & Central	
WQ15060156	6/1/2015 11:50:00 AM	Fuller Jennie	307.6	MPN	SM 9223	Week 03 - West & Central	
WQ15060834	6/8/2015 10:30:00 AM	Fuller Jennie	387.3	MPN	SM 9223	Week 04 - West & Central	
WQ15061539	6/15/2015 12:50:00 PM	Fuller Jennie	2419.6	MPN	SM 9223	Week 05 - West & Central	
WQ15062233	6/23/2015 11:30:00 AM	Battaglia Larry	1046.2	MPN	SM 9223	Week 06 - West & Central	
WQ15062933	6/29/2015 1:00:00 PM	Bowers Rhonda	1203.3	MPN	SM 9223	Week 07 - West & Central	
WQ15070703	7/7/2015 9:50:00 AM	Bowers Rhonda	14136	MPN	SM 9223	SGTP RAW - Resample	
WQ15070819	7/8/2015 2:00:00 PM	Bowers Rhonda	9208	MPN	SM 9223	SGTP Raw - Resample	
WQ15071333	7/13/2015 10:45:00 AM	Bowers Rhonda	1986.3	MPN	SM 9223	Week 09 - West & Central	
WQ15072036	7/20/2015 10:30:00 AM	Bowers Rhonda	2419.6	MPN	SM 9223	Week 10 - West & Central	
WQ15072733	7/27/2015 10:55:00 AM	Bowers Rhonda	3076	MPN	SM 9223	Week 11 - West & Central	
WQ15080334	8/3/2015 11:55:00 AM	Bowers Rhonda	8664	MPN	SM 9223	Week 12 - West & Central	
WQ15081034	8/10/2015 12:45:00 PM	Bowers Rhonda	1553.1	MPN	SM 9223	Week 01 - West & Central	
WQ15081737	8/17/2015 11:45:00 AM	Bowers Rhonda	4611	MPN	SM 9223	Week 02 - West & Central	
WQ15082435	8/24/2015 10:40:00 AM	Bowers Rhonda	1413.6	MPN	SM 9223	Week 03 - West & Central	
WQ15083134	8/31/2015 10:25:00 AM	Battaglia Larry	1553.1	MPN	SM 9223	Week 04 - West & Central	
WQ15090734	9/8/2015 12:40:00 PM	Fuller Jennie	387.3	MPN	SM 9223	Week 05 - West & Central	
WQ15091433	9/14/2015 11:20:00 AM	Fuller Jennie	1299.7	MPN	SM 9223	Week 06 - West & Central	
WQ15092138	9/21/2015 10:45:00 AM	Fuller Jennie	344.8	MPN	SM 9223	Week 07 - West & Central	
WQ15092836	9/28/2015 11:55:00 AM	Fuller Jennie	51.2	MPN	SM 9223	Week 08 - West & Central	
WQ15100533	10/5/2015 1:30:00 PM	Fuller Jennie	191.8	MPN	SM 9223	Week 09 - West & Central	
WQ15101232	10/12/2015 11:40:00 AM	Fuller Jennie	166.4	MPN	SM 9223	Week 10 - West & Central	
WQ15101937	10/19/2015 9:50:00 AM	Fuller Jennie	344.8	MPN	SM 9223	Week 11 - West & Central	
WQ15102634	10/26/2015 8:15:00 AM	Clark John	344.8	MPN	SM 9223	Week 12 - West & Central	
WQ15110234	11/2/2015 11:45:00 AM	Fuller Jennie	218.7	MPN	SM 9223	Week 01 - West & Central	
WQ15110932	11/9/2015 10:25:00 AM	Fuller Jennie	172.3	MPN	SM 9223	Week 02 - West & Central	
WQ15111640	11/16/2015 12:50:00 PM	Fuller Jennie	195.6	MPN	SM 9223	Week 03 - West & Central	
WQ15112328	11/23/2015 11:20:00 AM	Fuller Jennie	179.3	MPN	SM 9223	Week 04 - West & Central	
WQ15113028	11/30/2015 12:35:00 PM	Fuller Jennie	107.1	MPN	SM 9223	Week 05 - West & Central	
WQ15120727	12/7/2015 11:20:00 AM	Fuller Jennie	131.4	MPN	SM 9223	Week 06 - West & Central	
WQ15121427	12/14/2015 7:50:00 AM	Clark John	93.3	MPN	SM 9223	Week 07 - West & Central	
WQ15122130	12/21/2015 12:20:00 PM	Heifetz Rachel	63.7	MPN	SM 9223	Week 08 - West & Central	
WQ15122827	12/28/2015 11:40:00 AM	Fuller Jennie	435.2	MPN	SM 9223	Week 09 - West & Central	
WQ16010426	1/4/2016 12:10:00 PM	Fuller Jennie	10.8	MPN	SM 9223	Week 10 - West & Central	
WQ16011127	1/11/2016 12:10:00 PM	Fuller Jennie	121.1	MPN	SM 9223	Week 11 - West & Central	
WQ16011832	1/20/2016 11:40:00 AM	Battaglia Larry	187.2	MPN	SM 9223	Week 12 - West & Central	
WQ16012528	1/25/2016 8:10:00 AM	Clark John	33.1	MPN	SM 9223	Week 01 - West & Central	
WQ16020146	2/1/2016 11:50:00 AM	Battaglia Larry	17.5	MPN	SM 9223	Week 02 - West & Central	
WQ16020829	2/9/2016 8:00:00 AM	Clark John	12.1	MPN	SM 9223	Week 03 - West & Central	
WQ16021533	2/16/2016 11:55:00 AM	Battaglia Larry	8.5	MPN	SM 9223	Week 04 - West & Central	
WQ16022228	2/23/2016 12:30:00 PM	Clark John	6.3	MPN	SM 9223	Week 05 - West & Central	
WQ16022927	3/1/2016 11:15:00 AM	Battaglia Larry	8.5	MPN	SM 9223	Week 06 - West & Central	
WQ16030727	3/8/2016 11:10:00 AM	Battaglia Larry	16	MPN	SM 9223	Week 07 - West & Central	
WQ16031430	3/16/2016 8:45:00 AM	Clark John	50.4	MPN	SM 9223	Week 08 - West & Central	
WQ16031706	3/17/2016 7:45:00 AM	Clark John	71.2	MPN	SM 9223	LT2	
WQ16032127	3/22/2016 10:40:00 AM	Battaglia Larry	52.9	MPN	SM 9223	Week 09 - West & Central	
WQ16032826	3/28/2016 12:00:00 PM	Tanomrat Ammon	77.1	MPN	SM 9223	Week 10 - West & Central	
WQ16040427	4/4/2016 8:40:00 AM	Clark John	56.5	MPN	SM 9223	Week 11 - West & Central	
WQ16041139	4/11/2016 10:30:00 AM	Battaglia Larry	57.6	MPN	SM 9223	Week 12 - West & Central	
WQ16041838	4/18/2016 8:30:00 AM	Clark John	307.6	MPN	SM 9223	Week 01 - West & Central	
WQ16042532	4/25/2016 12:05:00 PM	Battaglia Larry	980.4	MPN	SM 9223	Week 02 - West & Central	
WQ16050235	5/2/2016 8:35:00 AM	Clark John	204.6	MPN	SM 9223	Week 03 - West & Central	
WQ16050934	5/9/2016 10:50:00 AM	Battaglia Larry	235.9	MPN	SM 9223	Week 04 - West & Central	
WQ16051639	5/16/2016 8:35:00 AM	Clark John	727	MPN	SM 9223	Week 05 - West & Central	
WQ16052333	5/24/2016 11:30:00 AM	Battaglia Larry	461.1	MPN	SM 9223	Week 06 - West & Central	
WQ16053033	5/31/2016 7:50:00 AM	Clark John	517.2	MPN	SM 9223	Week 07 - West & Central	
WQ16060636	6/6/2016 11:10:00 AM	Battaglia Larry	816.4	MPN	SM 9223	Week 08 - West & Central	
WQ16061333	6/13/2016 8:15:00 AM	Clark John	816.4	MPN	SM 9223	Week 09 - West & Central	
WQ16062037	6/20/2016 11:20:00 AM	Battaglia Larry	629.4	MPN	SM 9223	Week 10 - West & Central	
WQ16062733	6/27/2016 8:15:00 AM	Clark John	1986.3	MPN	SM 9223	Week 11 - West & Central	
WQ16070434	7/5/2016 11:30:00 AM	Heifetz Rachel	1732.9	MPN	SM 9223	Week 12 - West & Central	
WQ16071134	7/11/2016 11:35:00 AM	Heifetz Rachel	5794	MPN	SM 9223	Week 01 - West & Central	
WQ16071836	7/18/2016 12:15:00 PM	Battaglia Larry	1732.9	MPN	SM 9223	Week 02 - West & Central	
WQ16072535	7/25/2016 8:30:00 AM	Clark John	17329	MPN	SM 9223	Week 03 - West & Central	
WQ16080154	8/1/2016 11:30:00 AM	Battaglia Larry	648.8	MPN	SM 9223	Week 04 - West & Central	
WQ16080834	8/8/2016 11:45:00 AM	Fuller Jennie	325.5	MPN	SM 9223	Week 05 - West & Central	
WQ16081538	8/15/2016 12:20:00 PM	Fuller Jennie	195.6	MPN	SM 9223	Week 06 - West & Central	
WQ16082233	8/22/2016 12:50:00 PM	Fuller Jennie	135.4	MPN	SM 9223	Week 07 - West & Central	
WQ16082936	8/29/2016 12:50:00 PM	Fuller Jennie	104.6	MPN	SM 9223	Week 08 - West & Central	
WQ16090533	9/6/2016 10:20:00 AM	Fuller Jennie	78.8	MPN	SM 9223	Week 09 - West & Central	
WQ16091232	9/12/2016 12:15:00 PM	Fuller Jennie	42.8	MPN	SM 9223	Week 10 - West & Central	
WQ16091938	9/19/2016 11:40:00 AM	Fuller Jennie	62.4	MPN	SM 9223	Week 11 - West & Central	
WQ16092634	9/26/2016 10:20:00 AM	Fuller Jennie	57.6	MPN	SM 9223	Week 12 - West & Central	
WQ16100334	10/3/2016 12:35:00 PM	Fuller Jennie	57.6	MPN	SM 9223	Week 01 - West & Central	
WQ16101032	10/10/2016 11:05:00 AM	Fuller Jennie	410.6	MPN	SM 9223	Week 02 - West & Central	
WQ16101739	10/17/2016 12:05:00 PM	Fuller Jennie	3654	MPN	SM 9223	Week 03 - West & Central	
WQ16102434	10/24/2016 12:05:00 PM	Fuller Jennie	1732.9	MPN	SM 9223	Week 04 - West & Central	
WQ16103134	10/31/2016 7:20:00 AM	Clark John	238.2	MPN	SM 9223	Week 05 - West & Central	
WQ16110727	11/7/2016 11:40:00 AM	Fuller Jennie	79.6	MPN	SM 9223	Week 06 - West & Central	
WQ16111427	11/14/2016 11:15:00 AM	Fuller Jennie	172.2	MPN	SM 9223	Week 07 - West & Central	
WQ16112135	11/21/2016 11:05:00 AM	Fuller Jennie	235.9	MPN	SM 9223	Week 08 - West & Central	
WQ16112827	11/28/2016 11:10:00 AM	Fuller Jennie	198.9	MPN	SM 9223	Week 09 - West & Central	
WQ16120526	12/5/2016 11:15:00 AM	Battaglia Larry	196.8	MPN	SM 9223	Week 10 - West & Central	
WQ16121227	12/13/2016 1:05:00 PM	Fuller Jennie	178.5	MPN	SM 9223	Week 11 - West & Central	
WQ16121928	12/19/2016 11:25:00 AM	Fuller Jennie	>2419.6	MPN	SM 9223	Week 12 - West & Central	
WQ16122628	12/27/2016 11:55:00 AM	Fuller Jennie	32.3	MPN	SM 9223	Week 01 - West & Central	
WQ17010226	1/3/2017 11:45:00 AM	Heifetz Rachel	21.8	MPN	SM 9223	Week 02 - West & Central	
WQ17010929	1/9/2017 10:15:00 AM	Battaglia Larry	52.1	MPN	SM 9223	Week 03 - West & Central	
WQ17011632	1/17/2017 10:45:00 AM	Battaglia Larry	74.4	MPN	SM 9223	Week 04 - West & Central	
WQ17012328	1/23/2017 9:40:00 AM	Clark John	30.5	MPN	SM 9223	Week 05 - West & Central	
WQ17013027	1/30/2017 1:05:00 PM	Battaglia Larry	135.4	MPN	SM 9223	Week 06 - West & Central	
							Temperature is outside acceptable limits for raw bact sample. Chris Nanney approved using the bact. 2-6-17 MCR At 9.4C, the sample is within the acceptable temp range. The sample needs to be <10C if received two or more hours after collection. CRN 3-2-2017
WQ17020627	2/6/2017 7:30:00 AM	Clark John	50.4	MPN	SM 9223	Week 07 - West & Central	
WQ17021330	2/13/2017 9:40:00 AM	Battaglia Larry	22.8	MPN	SM 9223	Week 08 - West & Central	
WQ17022027	2/21/2017 10:50:00 AM	Clark John	17.3	MPN	SM 9223	Week 09 - West & Central	
WQ17022726	2/27/2017 11:40:00 AM	Battaglia Larry	19.9	MPN	SM 9223	Week 10 - West & Central	
WQ17030627	3/6/2017 7:20:00 AM	Clark John	6.2	MPN	SM 9223	Week 11 - West & Central	
WQ17031328	3/13/2017 10:40:00 AM	Battaglia Larry	5.2	MPN	SM 9223	Week 12 - West & Central	
WQ17032033	3/20/2017 7:30:00 AM	Clark John	2	MPN	SM 9223	Week 01 - West & Central	
WQ17032726	3/27/2017 12:45:00 PM	Battaglia Larry	5.2	MPN	SM 9223	Week 02 - West & Central	
WQ17040329	4/3/2017 7:35:00 AM	Clark John	140.8	MPN	SM 9223	Week 03 - West & Central	
WQ17041028	4/10/2017 12:50:00 PM	Battaglia Larry	2419.6	MPN	SM 9223	Week 04 - West & Central	
WQ17041732	4/17/2017 8:15:00 AM	Clark John	399	MPN	SM 9223	Week 05 - West & Central	
WQ17042427	4/24/2017 12:15:00 PM	Battaglia Larry	325.5	MPN	SM 9223	Week 06 - West & Central	
							Bacti Temp was out of compliance. The sample was not frozen. I notified the Lab Manager, he was ok with setting up the bacti. 5/2/17 MCR
WQ17050150	5/1/2017 7:25:00 AM	Clark John	488.4	MPN	SM 9223	Week 07 - West & Central	
WQ17050830	5/8/2017 12:20:00 PM	Battaglia Larry	325.5	MPN	SM 9223	Week 08 - West & Central	
WQ17051538	5/15/2017 7:35:00 AM	Clark John	195.6	MPN	SM 9223	Week 09 - West & Central	
WQ17052232	5/22/2017 10:20:00 AM	Battaglia Larry	172.2	MPN	SM 9223	Week 10 - West & Central	
WQ17052933	5/30/2017 7:25:00 AM	Clark John	122.3	MPN	SM 9223	Week 11 - West & Central	

WQ17060534	6/5/2017 11:30:00 AM	Battaglia Larry	2613	MPN	SM 9223	Week 12 - West & Central	
WQ17061234	6/12/2017 7:30:00 AM	Clark John	9208	MPN	SM 9223	Week 01 - West & Central	
WQ17061937	6/19/2017 10:40:00 AM	Battaglia Larry	7701	MPN	SM 9223	Week 02 - West & Central	
WQ17062635	6/26/2017 7:35:00 AM	Clark John	4884	MPN	SM 9223	Week 03 - West & Central	
WQ17070334	7/5/2017 8:25:00 AM	Battaglia Larry	2282	MPN	SM 9223	Week 04 - West & Central	
WQ17071034	7/10/2017 10:30:00 AM	Gondola Trevor	4352	MPN	SM 9223	Week 05 - West & Central	
WQ17071733	7/17/2017 11:05:00 AM	Gondola Trevor	602	MPN	SM 9223	Week 06 - West & Central	
WQ17072433	7/24/2017 12:45:00 PM	Gondola Trevor	365.4	MPN	SM 9223	Week 07 - West & Central	
WQ17073136	7/31/2017 9:10:00 AM	Gondola Trevor	204.6	MPN	SM 9223	Week 08 - West & Central	
WQ17080733	8/7/2017 8:30:00 AM	Gondola Trevor	235.9	MPN	SM 9223	Week 09 - West & Central	
WQ17081432	8/14/2017 11:10:00 AM	Gondola Trevor	114.5	MPN	SM 9223	Week 10 - West & Central	
WQ17082138	8/21/2017 9:10:00 AM	Gondola Trevor	63.7	MPN	SM 9223	Week 11 - West & Central	
WQ17082834	8/28/2017 8:30:00 AM	Gondola Trevor	39.3	MPN	SM 9223	Week 12 - West & Central	
WQ17090434	9/5/2017 12:40:00 PM	Gondola Trevor	48	MPN	SM 9223	Week 01 - West & Central	
WQ17091132	9/11/2017 9:10:00 AM	Gondola Trevor	30.1	MPN	SM 9223	Week 02 - West & Central	
WQ17091840	9/18/2017 10:00:00 AM	Battaglia Larry	24.1	MPN	SM 9223	Week 03 - West & Central	
WQ17092534	9/25/2017 9:10:00 AM	Gondola Trevor	11	MPN	SM 9223	Week 04 - West & Central	
WQ17100303	10/3/2017 7:20:00 AM	Clark John	146.7	MPN	SM 9223	SGTP Raw - Bacti only	Sample from previous day was received frozen. This is a replacement bacti for the TCR week. MCR
WQ17100933	10/9/2017 12:55:00 PM	Battaglia Larry	101.4	MPN	SM 9223	Week 06 - West & Central	
WQ17101637	10/16/2017 1:10:00 PM	Battaglia Larry	47.3	MPN	SM 9223	Week 07 - West & Central	
WQ17102336	10/23/2017 12:50:00 PM	Battaglia Larry	686.7	MPN	SM 9223	Week 08 - West & Central	
WQ17103033	10/30/2017 8:30:00 AM	Clark John	547.5	MPN	SM 9223	Week 09 - West & Central	
WQ17110632	11/6/2017 9:10:00 AM	Gondola Trevor	235.9	MPN	SM 9223	Week 10 - West & Central	
WQ17111333	11/13/2017 1:00:00 PM	Battaglia Larry	224.7	MPN	SM 9223	Week 11 - West & Central	
WQ17112028	11/20/2017 9:45:00 AM	Heifetz Rachel	224.7	MPN	SM 9223	Week 12 - West & Central	
WQ17112728	11/27/2017 9:20:00 AM	Gondola Trevor	151.5	MPN	SM 9223	Week 01 - West & Central	
WQ17120426	12/4/2017 12:40:00 PM	Battaglia Larry	193.5	MPN	SM 9223	Week 02 - West & Central	
WQ17121129	12/11/2017 8:50:00 AM	Battaglia Larry	248.1	MPN	SM 9223	Week 03 - West & Central	
WQ17121833	12/18/2017 9:20:00 AM	Heifetz Rachel	435.2	MPN	SM 9223	Week 04 - West & Central	
WQ17122528	12/26/2017 8:30:00 AM	Gondola Trevor	290.9	MPN	SM 9223	Week 05 - West & Central	
WQ18010148	1/2/2018 12:10:00 PM	Battaglia Larry	165.8	MPN	SM 9223	Week 06 - West & Central	
WQ18010827	1/8/2018 8:40:00 AM	Gondola Trevor	260.3	MPN	SM 9223	Week 07 - West & Central	
WQ18011534	1/17/2018 12:10:00 PM	Battaglia Larry	387.3	MPN	SM 9223	Week 08 - West & Central	
WQ18012227	1/22/2018 11:45:00 AM	Battaglia Larry	378.4	MPN	SM 9223	Week 09 - West & Central	
WQ18012926	1/29/2018 9:00:00 AM	Gondola Trevor	727	MPN	SM 9223	Week 10 - West & Central	
WQ18020527	2/7/2018 10:00:00 AM	Battaglia Larry	186	MPN	SM 9223	Week 11 - West & Central	
WQ18021224	2/12/2018 12:00:00 PM	Gondola Trevor	187.2	MPN	SM 9223	Week 12 - West & Central	
WQ18021933	2/20/2018 8:45:00 AM	Gondola Trevor	248.1	MPN	SM 9223	Week 01 - West & Central	
WQ18022625	2/26/2018 9:25:00 AM	Gondola Trevor	91	MPN	SM 9223	Week 02 - West & Central	
WQ18030529	3/5/2018 12:35:00 PM	Battaglia Larry	307.6	MPN	SM 9223	Week 03 - West & Central	
WQ18031228	3/12/2018 1:05:00 PM	Battaglia Larry	127.4	MPN	SM 9223	Week 04 - West & Central	
WQ18031939	3/19/2018 8:35:00 AM	Gondola Trevor	159.7	MPN	SM 9223	Week 05 - West & Central	
WQ18032633	3/26/2018 8:10:00 AM	Clark John	ND	MPN	SM 9223	Week 06 - West & Central	
WQ18040233	4/2/2018 8:30:00 AM	Gondola Trevor	5.2	MPN	SM 9223	Week 07 - West & Central	
WQ18040936	4/9/2018 11:45:00 AM	Battaglia Larry	172.5	MPN	SM 9223	Week 08 - West & Central	
WQ18041637	4/16/2018 8:30:00 AM	Gondola Trevor	186	MPN	SM 9223	Week 09 - West & Central	
WQ18042332	4/23/2018 8:45:00 AM	Gondola Trevor	290.9	MPN	SM 9223	Week 10 - West & Central	
WQ18043033	5/1/2018 7:25:00 AM	Clark John	387.3	MPN	SM 9223	Week 11 - West & Central	
WQ18050734	5/7/2018 9:35:00 AM	Battaglia Larry	387.3	MPN	SM 9223	Week 12 - West & Central	
WQ18051434	5/14/2018 10:30:00 AM	Gondola Trevor	461.1	MPN	SM 9223	Week 01 - West & Central	
WQ18052136	5/21/2018 8:25:00 AM	Gondola Trevor	290.9	MPN	SM 9223	Week 02 - West & Central	
WQ18052835	5/29/2018 9:10:00 AM	Gondola Trevor	290.9	MPN	SM 9223	Week 03 - West & Central	
WQ18060434	6/4/2018 8:50:00 AM	Gondola Trevor	201.4	MPN	SM 9223	Week 04 - West & Central	
WQ18061134	6/11/2018 8:30:00 AM	Gondola Trevor	365.4	MPN	SM 9223	Week 05 - West & Central	
WQ18061838	6/18/2018 8:30:00 AM	Gondola Trevor	344.8	MPN	SM 9223	Week 06 - West & Central	
WQ18062533	6/25/2018 12:05:00 PM	Battaglia Larry	201.4	MPN	SM 9223	Week 07 - West & Central	
WQ18070236	7/2/2018 10:20:00 AM	Brougham Lauren	275.5	MPN	SM 9223	Week 08 - West & Central	
WQ18070933	7/9/2018 12:05:00 PM	Kerins Kelly	435.2	MPN	SM 9223	Week 09 - West & Central	
WQ18071636	7/17/2018 1:10:00 PM	Kerins Kelly	290.9	MPN	SM 9223	Week 10 - West & Central	
WQ18072333	7/23/2018 9:25:00 AM	Kerins Kelly	248.1	MPN	SM 9223	Week 11 - West & Central	
WQ18073034	7/30/2018 9:40:00 AM	Kerins Kelly	325.5	MPN	SM 9223	Week 12 - West & Central	
WQ18080634	8/6/2018 10:30:00 AM	Kerins Kelly	65.7	MPN	SM 9223	Week 01 - West & Central	
WQ18081331	8/13/2018 1:10:00 PM	Kerins Kelly	204.6	MPN	SM 9223	Week 02 - West & Central	
WQ18082040	8/20/2018 10:45:00 AM	Kerins Kelly	151.5	MPN	SM 9223	Week 03 - West & Central	
WQ18082734	8/27/2018 11:00:00 AM	Kerins Kelly	461.1	MPN	SM 9223	Week 04 - West & Central	
WQ18090334	9/4/2018 12:40:00 PM	Kerins Kelly	161.6	MPN	SM 9223	Week 05 - West & Central	
WQ18091033	9/10/2018 10:45:00 AM	Kerins Kelly	172.3	MPN	SM 9223	Week 06 - West & Central	
WQ18091738	9/17/2018 11:45:00 AM	Kerins Kelly	151.5	MPN	SM 9223	Week 07 - West & Central	
WQ18092452	9/25/2018 10:45:00 AM	Kerins Kelly	238.2	MPN	SM 9223	Week 08 - West & Central	
WQ18100156	10/1/2018 10:40:00 AM	Kerins Kelly	137.6	MPN	SM 9223	Week 09 - West & Central	
WQ18100832	10/8/2018 11:45:00 AM	Kerins Kelly	156.5	MPN	SM 9223	Week 10 - West & Central	
WQ18101537	10/15/2018 12:30:00 PM	Kerins Kelly	110.6	MPN	SM 9223	Week 11 - West & Central	
WQ18102234	10/22/2018 11:15:00 AM	Kerins Kelly	178.5	MPN	SM 9223	Week 12 - West & Central	
WQ18102934	10/29/2018 12:30:00 PM	Kerins Kelly	90.6	MPN	SM 9223	Week 01 - West & Central	
WQ18110525	11/5/2018 10:46:00 AM	Kerins Kelly	4.1	MPN	SM 9223	Week 02 - West & Central	
WQ18111229	11/13/2018 12:01:00 PM	Kerins Kelly	1	MPN	SM 9223	Week 03 - West & Central	
WQ18111933	11/19/2018 12:01:00 PM	Kerins Kelly	6	MPN	SM 9223	Week 04 - West & Central	
WQ18112628	11/26/2018 12:01:00 PM	Kerins Kelly	14.6	MPN	SM 9223	Week 05 - West & Central	
WQ18120737	12/7/2018 10:00:00 AM	Battaglia Larry	8.6	MPN	SM9223B (Colilert, Quar	Week 6 - West	
WQ18121027	12/10/2018 10:46:00 AM	Kerins Kelly	8.6	MPN	SM9223B (Colilert, Quar	Week 07 - West & Central	
WQ18122003	12/20/2018 7:50:00 AM	Clark John	96	MPN	SM9223B (Colilert, Quar	Week 08 Resample	
WQ18122427	12/26/2018 8:35:00 AM	Clark John	12	MPN	SM9223B (Colilert, Quar	Week 09 - West & Central	
WQ18123126	1/2/2019 8:20:00 AM	Gondola Trevor	7.4	MPN	SM9223B (Colilert, Quar	Week 10 - West & Central	
WQ19010727	1/7/2019 11:15:00 AM	Battaglia Larry	18	MPN	SM9223B (Colilert, Quar	Week 11 - West & Central	
WQ19011428	1/14/2019 12:30:00 PM	Clark John	610	MPN	SM9223B (Colilert, Quar	Week 12 - West & Central	
WQ19012132	1/22/2019 11:45:00 AM	Gondola Trevor	99	MPN	SM9223B (Colilert, Quar	Week 01 - West & Central	
WQ19012825	1/28/2019 7:15:00 AM	Clark John	180	MPN	SM9223B (Colilert, Quar	Week 02 - West & Central	
WQ19020429	2/4/2019 11:45:00 AM	Gondola Trevor	34	MPN	SM9223B (Colilert, Quar	Week 03 - West & Central	
WQ19021128	2/11/2019 11:15:00 AM	Battaglia Larry	67	MPN	SM9223B (Colilert, Quar	Week 04 - West & Central	
WQ19021833	2/19/2019 11:15:00 AM	Clark John	100	MPN	SM9223B (Colilert, Quar	Week 05 - West & Central	
WQ19022527	2/25/2019 1:10:00 PM	Gondola Trevor	61	MPN	SM9223B (Colilert, Quar	Week 06 - West & Central	
WQ19030427	3/4/2019 12:30:00 PM	Battaglia Larry	190	MPN	SM9223B (Colilert, Quar	Week 07 - West & Central	
WQ19031130	3/11/2019 12:00:00 PM	Clark John	34	MPN	SM9223B (Colilert, Quar	Week 08 - West & Central	
WQ19031832	3/18/2019 12:50:00 PM	Gondola Trevor	22	MPN	SM9223B (Colilert, Quar	Week 09 - West & Central	
WQ19032526	3/25/2019 11:20:00 AM	Gondola Trevor	15	MPN	SM9223B (Colilert, Quar	Week 10 - West & Central	
WQ19040150	4/1/2019 11:35:00 AM	Gondola Trevor	8.5	MPN	SM9223B (Colilert, Quar	Week 11 - West & Central	
WQ19040828	4/8/2019 8:30:00 AM	Radley Joseph	7.4	MPN	SM9223B (Colilert, Quar	Week 12 - West & Central	
WQ19040905	4/9/2019 7:45:00 AM	Clark John	15	MPN	SM9223B (Colilert, Quar	SGTP Raw	
WQ19041532	4/15/2019 12:00:00 PM	Battaglia Larry	172.3	MPN	SM 9223	Week 01 - West & Central	
WQ19042225	4/22/2019 8:40:00 AM	Gondola Trevor	37.9	MPN	SM 9223	Week 02 - West & Central	
WQ19042929	4/29/2019 7:45:00 AM	Clark John	59.1	MPN	SM 9223	Week 03 - West & Central	
WQ19050628	5/6/2019 9:00:00 AM	Gondola Trevor	33.6	MPN	SM 9223	Week 04 - West & Central	
WQ19051328	5/16/2019 11:25:00 AM	Gondola Trevor	48	MPN	SM 9223	Week 05 - West & Central	
WQ19052032	5/20/2019 8:35:00 AM	Gondola Trevor	37.9	MPN	SM 9223	Week 06 - West & Central	
WQ19052727	5/28/2019 9:55:00 AM	Battaglia Larry	21.8	MPN	SM 9223	Week 07 - West & Central	
WQ19060330	6/3/2019 11:05:00 AM	Clark John	22.8	MPN	SM 9223	Week 08 - West & Central	
WQ19061027	6/10/2019 9:00:00 AM	Battaglia Larry	17.3	MPN	SM 9223	Week 09 - West & Central	
WQ19061731	6/18/2019 8:15:00 AM	Gondola Trevor	387.3	MPN	SM 9223	Week 10 - West & Central	
WQ19062427	6/24/2019 12:40:00 PM	Kerins Kelly	648.8	MPN	SM 9223	Week 11 - West & Central	
WQ19070151	7/1/2019 10:10:00 AM	Kerins Kelly	547.5	MPN	SM 9223	Week 12 - West & Central	
WQ19070828	7/8/2019 11:35:00 AM	Kerins Kelly	201.4	MPN	SM 9223	Week 01 - West & Central	
WQ19071529	7/15/2019 11:05:00 AM	Kerins Kelly	166.4	MPN	SM 9223	Week 02 - West & Central	
WQ19072229	7/22/2019 10:25:00 AM	Kerins Kelly	275.5	MPN	SM 9223	Week 03 - West & Central	
WQ19072928	7/29/2019 8:40:00 AM	Gondola Trevor	290.9	MPN	SM 9223	Week 04 - West & Central	
WQ19080527	8/5/2019 8:40:00 AM	Gondola Trevor	190.4	MPN	SM 9223	Week 05 - West & Central	
WQ19081224	8/12/2019 9:10:00 AM	Gondola Trevor	198.9	MPN	SM 9223	Week 06 - West & Central	
WQ19081931	8/19/2019 12:45:00 PM	Clark John	238.2	MPN	SM 9223	Week 07 - West & Central	
WQ19082630	8/26/2019 10:45:00 AM	Kerins Kelly	435.2	MPN	SM 9223	Week 08 - West & Central	
WQ19090226	9/3/2019 8:25:00 AM	Gondola Trevor	435.2	MPN	SM 9223	Week 09 - West & Central	
WQ19090926	9/9/2019 9:00:00 AM	Kerins Kelly	195.6	MPN	SM 9223	Week 10 - West & Central	
WQ19091632	9/16/2019 9:50:00 AM	Kerins Kelly	198.9	MPN	SM 9223	Week 11 - West & Central	
WQ19092328	9/23/2019 9:30:00 AM	Kerins Kelly	146.7	MPN	SM 9223	Week 12 - West & Central	

WQ19093028	10/1/2019 8:00:00 AM	Clark John	151.5	MPN	SM 9223	Week 01 - West & Central	
WQ19100725	10/7/2019 9:20:00 AM	Kerins Kelly	88	MPN	SM 9223	Week 02 - West & Central	
WQ19101429	10/14/2019 10:25:00 AM	Kerins Kelly	206.4	MPN	SM 9223	Week 03 - West & Central	
WQ19102132	10/21/2019 11:05:00 AM	Kerins Kelly	81.3	MPN	SM 9223	Week 04 - West & Central	
WQ19102828	10/28/2019 10:30:00 AM	Gondola Trevor	40.8	MPN	SM 9223	Week 05 - West & Central	
WQ19110427	11/4/2019 8:05:00 AM	Gondola Trevor	42	MPN	SM 9223	Week 06 - West & Central	
WQ19111126	11/13/2019 7:50:00 AM	Gondola Trevor	15.8	MPN	SM 9223	Week 07 - West & Central	
WQ19111835	11/18/2019 7:35:00 AM	Clark John	18.5	MPN	SM 9223	Week 08 - West & Central	
WQ19112526	11/25/2019 10:30:00 AM	Gondola Trevor	9.8	MPN	SM 9223	Week 09 - West & Central	
WQ19120225	12/2/2019 8:50:00 AM	Gondola Trevor	7.4	MPN	SM 9223	Week 10 - West & Central	
WQ19120926	12/9/2019 12:45:00 PM	Battaglia Larry	13.2	MPN	SM 9223	Week 11 - West & Central	
WQ19121628	12/16/2019 7:00:00 AM	Clark John	3.1	MPN	SM 9223	Week 12 - West & Central	
WQ19122327	12/26/2019 8:15:00 AM	Gondola Trevor	3.1	MPN	SM 9223	Week 01 - West & Central	
WQ19123025	12/30/2019 12:40:00 PM	Battaglia Larry	4.1	MPN	SM 9223	Week 02 - West & Central	
WQ20010628	1/6/2020 10:10:00 AM	Gondola Trevor	1	MPN	SM 9223	Week 03 - West & Central	
WQ20011328	1/13/2020 8:20:00 AM	Clark John	2	MPN	SM 9223	Week 04 - West & Central	
WQ20012031	1/21/2020 2:37:00 PM	Gondola Trevor	12.2	MPN	SM 9223	Week 05 - West & Central	
WQ20012726	1/27/2020 12:20:00 PM	Battaglia Larry	9.7	MPN	SM 9223	Week 06 - West & Central	
WQ20020326	2/3/2020 8:35:00 AM	Gondola Trevor	4.1	MPN	SM 9223	Week 07 - West & Central	
WQ20021037	2/10/2020 7:30:00 AM	Clark John	11	MPN	SM 9223	Week 08 - West & Central	
WQ20021731	2/18/2020 9:25:00 AM	Gondola Trevor	2	MPN	SM 9223	Week 09 - West & Central	
WQ20022425	2/24/2020 8:35:00 AM	Clark John	5.2	MPN	SM 9223	Week 10 - West & Central	
WQ20030227	3/2/2020 8:05:00 AM	Gondola Trevor	2	MPN	SM 9223	Week 11 - West & Central	
WQ20030927	3/9/2020 10:40:00 AM	Heifetz Rachel	25.9	MPN	SM 9223	Week 12 - West & Central	
WQ20031633	3/16/2020 8:15:00 AM	Clark John	22.8	MPN	SM 9223	Week 01 - West & Central	
WQ20032324	3/23/2020 8:40:00 AM	Gondola Trevor	35	MPN	SM 9223	Week 02 - West & Central	
WQ20033029	3/30/2020 11:50:00 AM	Battaglia Larry	122.3	MPN	SM 9223	Week 03 - West & Central	
WQ20040615	4/6/2020 6:20:00 AM	Clark John	62	MPN	SM 9223	Week 04 - West & Central	Alkalinity cancelled due to out of hold time. 07/08/2020 RH
WQ20041315	4/13/2020 8:15:00 AM	Gondola Trevor	99	MPN	SM 9223	Week 05 - West & Central	
WQ20042018	4/20/2020 7:00:00 AM	Clark John	121.1	MPN	SM 9223	Week 06 - West & Central	
WQ20042715	4/27/2020 8:00:00 AM	Gondola Trevor	104.6	MPN	SM 9223	Week 07 - West & Central	
WQ20050416	5/4/2020 6:30:00 AM	Clark John	206.4	MPN	SM 9223	Week 08 - West & Central	
WQ20051133	5/11/2020 10:15:00 AM	Gondola Trevor	178.5	MPN	SM 9223	Week 09 - West & Central	
WQ20051825	5/18/2020 1:05:00 PM	Battaglia Larry	150	MPN	SM 9223	Week 10 - West & Central	
WQ20052626	5/26/2020 8:25:00 AM	Gondola Trevor	113	MPN	SM 9223	Week 11 - West & Central	
WQ20060150	6/1/2020 6:25:00 AM	Clark John	360.9	MPN	SM 9223	Week 12 - West & Central	
WQ20060827	6/8/2020 9:00:00 AM	Gondola Trevor	1553.1	MPN	SM 9223	Week 01 - West & Central	
WQ20061530	6/15/2020 6:45:00 AM	Clark John	980.4	MPN	SM 9223	Week 02 - West & Central	
WQ20062229	6/22/2020 12:15:00 PM	Battaglia Larry	>2419.6	MPN	SM 9223	Week 03 - West & Central	
WQ20062928	6/30/2020 9:00:00 AM	Gondola Trevor	99	MPN	SM 9223	Week 04 - West & Central	
WQ20070628	7/7/2020 9:00:00 AM	Gondola Trevor	290.9	MPN	SM 9223	Week 05 - West & Central	
WQ20071327	7/13/2020 7:35:00 AM	Clark John	435.2	MPN	SM 9223	Week 06 - West & Central	
WQ20072031	7/20/2020 8:30:00 AM	Gondola Trevor	222.4	MPN	SM 9223	Week 07 - West & Central	
WQ20072730	7/27/2020 8:20:00 AM	Gondola Trevor	178.9	MPN	SM 9223	Week 08 - West & Central	
WQ20080327	8/4/2020 1:15:00 PM	Stern Sarah	307.6	MPN	SM 9223	Week 09 - West & Central	
WQ20081023	8/10/2020 1:10:00 PM	Battaglia Larry	365.4	MPN	SM 9223	Week 10 - West & Central	
WQ20081732	8/17/2020 1:10:00 PM	Stern Sarah	122.3	MPN	SM 9223	Week 11 - West & Central	
WQ20082428	8/24/2020 10:30:00 AM	Stern Sarah	387.3	MPN	SM 9223	Week 12 - West & Central	
WQ20083128	8/31/2020 11:45:00 AM	Stern Sarah	121.1	MPN	SM 9223	Week 01 - West & Central	
WQ20090725	9/8/2020 12:25:00 PM	Stern Sarah	228.2	MPN	SM 9223	Week 02 - West & Central	
WQ20091429	9/14/2020 11:35:00 AM	Stern Sarah	129.6	MPN	SM 9223	Week 03 - West & Central	
WQ20092133	9/21/2020 10:55:00 AM	Stern Sarah	124.6	MPN	SM 9223	Week 04 - West & Central	
WQ20092828	9/28/2020 12:05:00 PM	Stern Sarah	218.7	MPN	SM 9223	Week 05 - West & Central	
WQ20100527	10/5/2020 11:20:00 AM	Stern Sarah	107.6	MPN	SM 9223	Week 06 - West & Central	
WQ20101227	10/12/2020 11:20:00 AM	Stern Sarah	146.7	MPN	SM 9223	Week 07 - West & Central	
WQ20101934	10/19/2020 11:10:00 AM	Stern Sarah	111.9	MPN	SM 9223	Week 08 - West & Central	
WQ20102627	10/26/2020 10:35:00 AM	Stern Sarah	51.2	MPN	SM 9223	Week 09 - West & Central	
WQ20110226	11/2/2020 12:25:00 PM	Battaglia Larry	98.7	MPN	SM 9223	Week 10 - West & Central	The chloride value entered is associated with the QC run on 11-03-2020. 11-24-2020 RH
WQ20110927	11/9/2020 12:00:00 PM	Stern Sarah	325.5	MPN	SM 9223	Week 11 - West & Central	
WQ20111633	11/17/2020 8:15:00 AM	Gondola Trevor	85.7	MPN	SM 9223	Week 12 - West & Central	
WQ20112328	11/23/2020 12:45:00 PM	Stern Sarah	158.5	MPN	SM 9223	Week 01 - West & Central	
WQ20113025	11/30/2020 7:00:00 AM	Clark John	133.3	MPN	SM 9223	Week 02 - West & Central	
WQ20120729	12/7/2020 1:05:00 PM	Gondola Trevor	137.6	MPN	SM 9223	Week 03 - West & Central	
WQ20121428	12/14/2020 6:40:00 AM	Clark John	41.4	MPN	SM 9223	Week 04 - West & Central	
WQ20122128	12/21/2020 11:05:00 AM	Stern Sarah	51.2	MPN	SM 9223	Week 05 - West & Central	
WQ20122827	12/28/2020 11:05:00 AM	Stern Sarah	31.3	MPN	SM 9223	Week 06 - West & Central	TOC instrument experience issues during run. TOC and alkalinity were resampled 12/31/2020. 12/31/2020 RH
WQ21010427	1/4/2021 12:20:00 PM	Stern Sarah	61.8	MPN	SM 9223	Week 07 - West & Central	
WQ21011130	1/11/2021 12:15:00 PM	Stern Sarah	35	MPN	SM 9223	Week 08 - West & Central	
WQ21011831	1/19/2021 10:30:00 AM	Stern Sarah	5.2	MPN	SM 9223	Week 09 - West & Central	
WQ21012526	1/25/2021 11:55:00 AM	Stern Sarah	1	MPN	SM 9223	Week 10 - West & Central	

Appendix C Bon Tempe and San Geronimo WTP Raw Water Turbidity Data (January 2015 to January 2021)

Bon Tempe and San Geronimo WTP Raw Water - Turbidity Data

January 2015 - January 2021

Bon Tempe WTP							
Sample Num	Sample Collection Date	Collected By	Reported Value	Unit	Test Ref. Methodology	Description	Comment
WQ15040627	4/6/2015 7:50:00 AM	Clark John	0.63	NTU	SM 2130B	Week 07 - West & Central	
WQ15041335	4/13/2015 11:30:00 AM	Clark John	0.49	NTU	SM 2130B	Week 08 - West & Central	
WQ15042036	4/20/2015 12:05:00 PM	Fuller Jennie	0.53	NTU	SM 2130B	Week 09 - West & Central	
WQ15042731	4/27/2015 10:20:00 AM	Clark John	0.49	NTU	SM 2130B	Week 10 - West & Central	
WQ15050432	5/4/2015 9:05:00 AM	Fuller Jennie	0.38	NTU	SM 2130B	Week 11 - West & Central	
WQ15051133	5/11/2015 8:45:00 AM	Fuller Jennie	0.4	NTU	SM 2130B	Week 12 - West & Central	
WQ15051838	5/18/2015 9:35:00 AM	Battaglia Larry	0.47	NTU	SM 2130B	Week 01 - West & Central	
WQ15052531	5/26/2015 8:10:00 AM	Fuller Jennie	0.56	NTU	SM 2130B	Week 02 - West & Central	
WQ15060155	6/1/2015 8:50:00 AM	Fuller Jennie	0.46	NTU	SM 2130B	Week 03 - West & Central	
WQ15060833	6/8/2015 8:35:00 AM	Fuller Jennie	0.44	NTU	SM 2130B	Week 04 - West & Central	
WQ15061538	6/15/2015 11:15:00 AM	Fuller Jennie	0.45	NTU	SM 2130B	Week 05 - West & Central	
WQ15062232	6/23/2015 8:55:00 AM	Battaglia Larry	0.42	NTU	SM 2130B	Week 06 - West & Central	
WQ15062932	6/29/2015 1:45:00 PM	Fuller Jennie	0.39	NTU	SM 2130B	Week 07 - West & Central	
WQ15070635	7/6/2015 9:00:00 AM	Bowers Rhonda	0.47	NTU	SM 2130B	Week 08 - West & Central	
WQ15071332	7/13/2015 9:15:00 AM	Bowers Rhonda	0.6	NTU	SM 2130B	Week 09 - West & Central	
WQ15072035	7/20/2015 8:20:00 AM	Bowers Rhonda	1.64	NTU	SM 2130B	Week 10 - West & Central	
WQ15072732	7/27/2015 8:05:00 AM	Bowers Rhonda	0.58	NTU	SM 2130B	Week 11 - West & Central	
WQ15080333	8/3/2015 9:35:00 AM	Bowers Rhonda	0.51	NTU	SM 2130B	Week 12 - West & Central	
WQ15081033	8/10/2015 9:55:00 AM	Bowers Rhonda	0.48	NTU	SM 2130B	Week 01 - West & Central	
WQ15081736	8/17/2015 8:45:00 AM	Bowers Rhonda	0.48	NTU	SM 2130B	Week 02 - West & Central	
WQ15082434	8/24/2015 8:30:00 AM	Bowers Rhonda	0.41	NTU	SM 2130B	Week 03 - West & Central	
WQ15083133	8/31/2015 9:00:00 AM	Battaglia Larry	0.56	NTU	SM 2130B	Week 04 - West & Central	
WQ15090733	9/8/2015 11:10:00 AM	Fuller Jennie	0.63	NTU	SM 2130B	Week 05 - West & Central	
WQ15091432	9/14/2015 8:50:00 AM	Fuller Jennie	0.62	NTU	SM 2130B	Week 06 - West & Central	
WQ15092137	9/21/2015 8:35:00 AM	Fuller Jennie	0.55	NTU	SM 2130B	Week 07 - West & Central	
WQ15092835	9/28/2015 11:00:00 AM	Fuller Jennie	0.44	NTU	SM 2130B	Week 08 - West & Central	
WQ15100532	10/5/2015 12:25:00 PM	Fuller Jennie	0.47	NTU	SM 2130B	Week 09 - West & Central	
WQ15101231	10/12/2015 10:10:00 AM	Fuller Jennie	0.39	NTU	SM 2130B	Week 10 - West & Central	
WQ15101936	10/19/2015 8:45:00 AM	Fuller Jennie	0.31	NTU	SM 2130B	Week 11 - West & Central	
WQ15102633	10/26/2015 11:05:00 AM	Clark John	0.35	NTU	SM 2130B	Week 12 - West & Central	
WQ15110233	11/2/2015 9:30:00 AM	Fuller Jennie	0.42	NTU	SM 2130B	Week 01 - West & Central	
WQ15110931	11/9/2015 8:15:00 AM	Fuller Jennie	0.68	NTU	SM 2130B	Week 02 - West & Central	
WQ15111639	11/16/2015 10:40:00 AM	Fuller Jennie	0.67	NTU	SM 2130B	Week 03 - West & Central	
WQ15112327	11/23/2015 9:30:00 AM	Fuller Jennie	0.6	NTU	SM 2130B	Week 04 - West & Central	
WQ15113027	11/30/2015 10:30:00 AM	Fuller Jennie	0.43	NTU	SM 2130B	Week 05 - West & Central	Quantitray was >2419.6 and not countable. Bacti resampled and reset 12/2/15. MCR
WQ15120726	12/7/2015 9:25:00 AM	Fuller Jennie	0.41	NTU	SM 2130B	Week 06 - West & Central	
WQ15121426	12/14/2015 11:55:00 AM	Clark John	0.71	NTU	SM 2130B	Week 07 - West & Central	
WQ15122129	12/21/2015 11:05:00 AM	Heifetz Rachel	0.76	NTU	SM 2130B	Week 08 - West & Central	
WQ15122826	12/28/2015 10:00:00 AM	Fuller Jennie	0.78	NTU	SM 2130B	Week 09 - West & Central	
WQ16010425	1/4/2016 10:35:00 AM	Fuller Jennie	0.51	NTU	SM 2130B	Week 10 - West & Central	
WQ16011126	1/11/2016 10:45:00 AM	Fuller Jennie	0.98	NTU	SM 2130B	Week 11 - West & Central	
WQ16011831	1/20/2016 10:00:00 AM	Battaglia Larry	1.92	NTU	SM 2130B	Week 12 - West & Central	
WQ16012527	1/25/2016 11:10:00 AM	Clark John	2.47	NTU	SM 2130B	Week 01 - West & Central	
WQ16020145	2/1/2016 8:40:00 AM	Battaglia Larry	1.58	NTU	SM 2130B	Week 02 - West & Central	
WQ16020828	2/9/2016 12:50:00 PM	Clark John	1.24	NTU	SM 2130B	Week 03 - West & Central	
WQ16021532	2/16/2016 9:40:00 AM	Battaglia Larry	0.91	NTU	SM 2130B	Week 04 - West & Central	
WQ16022227	2/23/2016 8:25:00 AM	Clark John	0.88	NTU	SM 2130B	Week 05 - West & Central	
WQ16022926	3/1/2016 9:20:00 AM	Battaglia Larry	0.81	NTU	SM 2130B	Week 06 - West & Central	
WQ16030726	3/8/2016 8:15:00 AM	Battaglia Larry	2.44	NTU	SM 2130B	Week 07 - West & Central	
WQ16031429	3/16/2016 10:15:00 AM	Clark John	2.83	NTU	SM 2130B	Week 08 - West & Central	
WQ16031707	3/17/2016 8:55:00 AM	Clark John	3.04	NTU	SM 2130B	LT2	
WQ16032126	3/22/2016 8:45:00 AM	Battaglia Larry	2.15	NTU	SM 2130B	Week 09 - West & Central	
WQ16032825	3/28/2016 9:10:00 AM	Tanomrat Ammon	2.2	NTU	SM 2130B	Week 10 - West & Central	
WQ16040426	4/4/2016 12:25:00 PM	Clark John	1.87	NTU	SM 2130B	Week 11 - West & Central	
WQ16041138	4/11/2016 8:40:00 AM	Battaglia Larry	1.29	NTU	SM 2130B	Week 12 - West & Central	
WQ16041837	4/18/2016 11:05:00 AM	Clark John	1.1	NTU	SM 2130B	Week 01 - West & Central	
WQ16042531	4/25/2016 8:30:00 AM	Battaglia Larry	0.86	NTU	SM 2130B	Week 02 - West & Central	
WQ16050234	5/2/2016 10:30:00 AM	Clark John	0.89	NTU	SM 2130B	Week 03 - West & Central	
WQ16050933	5/9/2016 1:05:00 PM	Battaglia Larry	0.77	NTU	SM 2130B	Week 04 - West & Central	
WQ16051638	5/16/2016 11:40:00 AM	Clark John	0.79	NTU	SM 2130B	Week 05 - West & Central	
WQ16052332	5/24/2016 8:45:00 AM	Battaglia Larry	0.75	NTU	SM 2130B	Week 06 - West & Central	
WQ16053032	5/31/2016 11:45:00 AM	Clark John	0.66	NTU	SM 2130B	Week 07 - West & Central	
WQ16060635	6/6/2016 8:35:00 AM	Battaglia Larry	0.58	NTU	SM 2130B	Week 08 - West & Central	
WQ16061332	6/13/2016 12:00:00 PM	Clark John	0.6	NTU	SM 2130B	Week 09 - West & Central	
WQ16062036	6/20/2016 8:35:00 AM	Battaglia Larry	0.56	NTU	SM 2130B	Week 10 - West & Central	
WQ16062732	6/27/2016 11:45:00 AM	Clark John	0.42	NTU	SM 2130B	Week 11 - West & Central	
WQ16070433	7/5/2016 10:35:00 AM	Heifetz Rachel	0.48	NTU	SM 2130B	Week 12 - West & Central	TOC samples were not collected in the field, aliquot from TON sample bottle by EG
WQ16071133	7/11/2016 9:45:00 AM	Heifetz Rachel	0.51	NTU	SM 2130B	Week 01 - West & Central	
WQ16071835	7/18/2016 8:45:00 AM	Battaglia Larry	0.5	NTU	SM 2130B	Week 02 - West & Central	
WQ16072534	7/25/2016 11:55:00 AM	Clark John	0.51	NTU	SM 2130B	Week 03 - West & Central	
WQ16080153	8/1/2016 8:30:00 AM	Battaglia Larry	0.55	NTU	SM 2130B	Week 04 - West & Central	
WQ16080833	8/8/2016 1:30:00 PM	Fuller Jennie	0.52	NTU	SM 2130B	Week 05 - West & Central	
WQ16081537	8/15/2016 9:50:00 AM	Fuller Jennie	0.78	NTU	SM 2130B	Week 06 - West & Central	
WQ16082232	8/22/2016 10:35:00 AM	Fuller Jennie	0.49	NTU	SM 2130B	Week 07 - West & Central	
WQ16082935	8/29/2016 8:45:00 AM	Fuller Jennie	0.48	NTU	SM 2130B	Week 08 - West & Central	
WQ16090532	9/6/2016 8:35:00 AM	Fuller Jennie	0.42	NTU	SM 2130B	Week 09 - West & Central	
WQ16091231	9/12/2016 10:20:00 AM	Fuller Jennie	0.39	NTU	SM 2130B	Week 10 - West & Central	
WQ16091937	9/19/2016 10:30:00 AM	Fuller Jennie	0.32	NTU	SM 2130B	Week 11 - West & Central	
WQ16092633	9/26/2016 7:35:00 AM	Fuller Jennie	0.31	NTU	SM 2130B	Week 12 - West & Central	
WQ16100333	10/3/2016 10:20:00 AM	Fuller Jennie	0.47	NTU	SM 2130B	Week 01 - West & Central	
WQ16101031	10/10/2016 8:15:00 AM	Fuller Jennie	0.52	NTU	SM 2130B	Week 02 - West & Central	
WQ16101738	10/17/2016 10:15:00 AM	Fuller Jennie	0.4	NTU	SM 2130B	Week 03 - West & Central	
WQ16102433	10/24/2016 9:40:00 AM	Fuller Jennie	0.49	NTU	SM 2130B	Week 04 - West & Central	
WQ16103133	10/31/2016 12:30:00 PM	Clark John	0.48	NTU	SM 2130B	Week 05 - West & Central	
WQ16110726	11/7/2016 9:20:00 AM	Fuller Jennie	0.38	NTU	SM 2130B	Week 06 - West & Central	
WQ16111426	11/14/2016 9:45:00 AM	Fuller Jennie	0.34	NTU	SM 2130B	Week 07 - West & Central	
WQ16112134	11/21/2016 8:35:00 AM	Fuller Jennie	0.74	NTU	SM 2130B	Week 08 - West & Central	
WQ16112826	11/28/2016 9:00:00 AM	Fuller Jennie	0.9	NTU	SM 2130B	Week 09 - West & Central	
WQ16120525	12/5/2016 1:00:00 PM	Battaglia Larry	0.53	NTU	SM 2130B	Week 10 - West & Central	
WQ16121226	12/13/2016 11:20:00 AM	Fuller Jennie	1.15	NTU	SM 2130B	Week 11 - West & Central	
WQ16121927	12/19/2016 9:15:00 AM	Fuller Jennie	4.35	NTU	SM 2130B	Week 12 - West & Central	
WQ16122627	12/27/2016 9:30:00 AM	Fuller Jennie	2.95	NTU	SM 2130B	Week 01 - West & Central	
WQ17010225	1/3/2017 10:55:00 AM	Heifetz Rachel	2.49	NTU	SM 2130B	Week 02 - West & Central	
WQ17010928	1/9/2017 1:05:00 PM	Battaglia Larry	3.85	NTU	SM 2130B	Week 03 - West & Central	
WQ17011631	1/17/2017 8:50:00 AM	Battaglia Larry	5.27	NTU	SM 2130B	Week 04 - West & Central	
WQ17012327	1/23/2017 8:20:00 AM	Clark John	6.38	NTU	SM 2130B	Week 05 - West & Central	
WQ17013026	1/30/2017 11:30:00 AM	Battaglia Larry	5.14	NTU	SM 2130B	Week 06 - West & Central	
WQ17020626	2/6/2017 10:05:00 AM	Clark John	4.82	NTU	SM 2130B	Week 07 - West & Central	
WQ17021329	2/13/2017 11:50:00 AM	Battaglia Larry	7.22	NTU	SM 2130B	Week 08 - West & Central	
WQ17022026	2/21/2017 12:30:00 PM	Clark John	6.36	NTU	SM 2130B	Week 09 - West & Central	
WQ17022725	2/27/2017 8:30:00 AM	Battaglia Larry	5.62	NTU	SM 2130B	Week 10 - West & Central	
WQ17030626	3/6/2017 12:10:00 PM	Clark John	4.9	NTU	SM 2130B	Week 11 - West & Central	
WQ17031327	3/13/2017 8:45:00 AM	Battaglia Larry	4.02	NTU	SM 2130B	Week 12 - West & Central	
WQ17032032	3/20/2017 11:15:00 AM	Clark John	3.04	NTU	SM 2130B	Week 01 - West & Central	
WQ17032725	3/27/2017 9:50:00 AM	Battaglia Larry	3.16	NTU	SM 2130B	Week 02 - West & Central	
WQ17040328	4/3/2017 11:10:00 AM	Clark John	2.77	NTU	SM 2130B	Week 03 - West & Central	
WQ17041027	4/10/2017 10:00:00 AM	Battaglia Larry	3.2	NTU	SM 2130B	Week 04 - West & Central	
WQ17041731	4/17/2017 11:10:00 AM	Clark John	2.21	NTU	SM 2130B	Week 05 - West & Central	
WQ17042426	4/24/2017 10:15:00 AM	Battaglia Larry	1.55	NTU	SM 2130B	Week 06 - West & Central	
WQ17050149	5/1/2017 12:20:00 PM	Clark John	2.46	NTU	SM 2130B	Week 07 - West & Central	
WQ17050829	5/8/2017 10:45:00 AM	Battaglia Larry	1.49	NTU	SM 2130B	Week 08 - West & Central	
WQ17051537	5/15/2017 10:55:00 AM	Clark John	1.21	NTU	SM 2130B	Week 09 - West & Central	
WQ17052231	5/22/2017 12:35:00 PM	Battaglia Larry	0.92	NTU	SM 2130B	Week 10 - West & Central	
WQ17052932	5/30/2017 10:30:00 AM	Clark John	0.83	NTU	SM 2130B	Week 11 - West & Central	
WQ17060533	6/5/2017 8:45:00 AM	Battaglia Larry	0.86	NTU	SM 2130B	Week 12 - West & Central	

WQ17061233	6/12/2017 10:55:00 AM	Clark John	0.84	NTU	SM 2130B	Week 01 - West & Central	
WQ17061936	6/19/2017 12:20:00 PM	Battaglia Larry	0.88	NTU	SM 2130B	Week 02 - West & Central	
WQ17062634	6/26/2017 10:55:00 AM	Clark John	0.86	NTU	SM 2130B	Week 03 - West & Central	
WQ17070333	7/5/2017 10:40:00 AM	Battaglia Larry	0.65	NTU	SM 2130B	Week 04 - West & Central	
WQ17071033	7/10/2017 1:05:00 PM	Gondola Trevor	0.6	NTU	SM 2130B	Week 05 - West & Central	
WQ17071732	7/17/2017 1:00:00 PM	Gondola Trevor	0.58	NTU	SM 2130B	Week 06 - West & Central	
WQ17072432	7/24/2017 11:50:00 AM	Gondola Trevor	0.44	NTU	SM 2130B	Week 07 - West & Central	
WQ17073135	7/31/2017 10:50:00 AM	Gondola Trevor	0.43	NTU	SM 2130B	Week 08 - West & Central	
WQ17080732	8/7/2017 11:50:00 AM	Gondola Trevor	0.43	NTU	SM 2130B	Week 09 - West & Central	
WQ17081431	8/14/2017 12:15:00 PM	Gondola Trevor	0.59	NTU	SM 2130B	Week 10 - West & Central	
WQ17082137	8/21/2017 10:40:00 AM	Gondola Trevor	0.53	NTU	SM 2130B	Week 11 - West & Central	
WQ17082833	8/28/2017 10:30:00 AM	Gondola Trevor	0.45	NTU	SM 2130B	Week 12 - West & Central	
WQ17090433	9/5/2017 9:10:00 AM	Gondola Trevor	0.51	NTU	SM 2130B	Week 01 - West & Central	
WQ17091131	9/11/2017 12:10:00 PM	Gondola Trevor	0.54	NTU	SM 2130B	Week 02 - West & Central	
WQ17091839	9/18/2017 12:30:00 PM	Battaglia Larry	0.51	NTU	SM 2130B	Week 03 - West & Central	
WQ17092533	9/25/2017 11:20:00 AM	Gondola Trevor	0.53	NTU	SM 2130B	Week 04 - West & Central	
WQ17100233	10/2/2017 11:15:00 AM	Clark John	0.66	NTU	SM 2130B	Week 05 - West & Central	
WQ17100932	10/9/2017 10:35:00 AM	Battaglia Larry	1.12	NTU	SM 2130B	Week 06 - West & Central	
WQ17101636	10/16/2017 10:20:00 AM	Battaglia Larry	1.59	NTU	SM 2130B	Week 07 - West & Central	
WQ17102335	10/23/2017 10:35:00 AM	Battaglia Larry	1.88	NTU	SM 2130B	Week 08 - West & Central	
WQ17103032	10/30/2017 1:00:00 PM	Clark John	2.85	NTU	SM 2130B	Week 09 - West & Central	
WQ17110631	11/6/2017 11:50:00 AM	Gondola Trevor	3.3	NTU	SM 2130B	Week 10 - West & Central	
WQ17111332	11/13/2017 10:50:00 AM	Battaglia Larry	3.5	NTU	SM 2130B	Week 11 - West & Central	
WQ17112027	11/20/2017 11:30:00 AM	Heifetz Rachel	4.05	NTU	SM 2130B	Week 12 - West & Central	
WQ17112727	11/27/2017 11:50:00 AM	Gondola Trevor	4.98	NTU	SM 2130B	Week 01 - West & Central	
WQ17120425	12/4/2017 10:45:00 AM	Battaglia Larry	4.73	NTU	SM 2130B	Week 02 - West & Central	
WQ17121128	12/11/2017 10:50:00 AM	Battaglia Larry	4.23	NTU	SM 2130B	Week 03 - West & Central	
WQ17121832	12/18/2017 11:35:00 AM	Heifetz Rachel	2.58	NTU	SM 2130B	Week 04 - West & Central	
WQ17122527	12/26/2017 11:00:00 AM	Gondola Trevor	2.4	NTU	SM 2130B	Week 05 - West & Central	
WQ18010147	1/2/2018 8:40:00 AM	Battaglia Larry	1.76	NTU	SM 2130B	Week 06 - West & Central	
WQ18010826	1/8/2018 10:50:00 AM	Gondola Trevor	0.67	NTU	SM 2130B	Week 07 - West & Central	
WQ18011533	1/16/2018 10:55:00 AM	Rogina Minerva	7.66	NTU	SM 2130B	Week 08 - West & Central	
WQ18012226	1/22/2018 9:15:00 AM	Battaglia Larry	0.98	NTU	SM 2130B	Week 09 - West & Central	
WQ18012925	1/29/2018 11:50:00 AM	Gondola Trevor	0.79	NTU	SM 2130B	Week 10 - West & Central	
WQ18020526	2/7/2018 10:50:00 AM	Battaglia Larry	0.76	NTU	SM 2130B	Week 11 - West & Central	
WQ18021223	2/12/2018 10:10:00 AM	Gondola Trevor	1.18	NTU	SM 2130B	Week 12 - West & Central	
WQ18021932	2/20/2018 10:10:00 AM	Gondola Trevor	1.09	NTU	SM 2130B	Week 01 - West & Central	
WQ18022624	2/26/2018 11:35:00 AM	Gondola Trevor	1.21	NTU	SM 2130B	Week 02 - West & Central	
WQ18030528	3/5/2018 10:00:00 AM	Battaglia Larry	1.36	NTU	SM 2130B	Week 03 - West & Central	
WQ18031227	3/12/2018 10:35:00 AM	Battaglia Larry	1.09	NTU	SM 2130B	Week 04 - West & Central	
WQ18031938	3/19/2018 10:25:00 AM	Gondola Trevor	1.01	NTU	SM 2130B	Week 05 - West & Central	
WQ18032632	3/26/2018 12:00:00 PM	Clark John	1.38	NTU	SM 2130B	Week 06 - West & Central	
WQ18040232	4/2/2018 9:50:00 AM	Gondola Trevor	1.44	NTU	SM 2130B	Week 07 - West & Central	
WQ18040935	4/9/2018 10:45:00 AM	Battaglia Larry	2.48	NTU	SM 2130B	Week 08 - West & Central	
WQ18041636	4/16/2018 12:40:00 PM	Gondola Trevor	1.51	NTU	SM 2130B	Week 09 - West & Central	
WQ18043032	5/1/2018 10:50:00 AM	Clark John	1.29	NTU	SM 2130B	Week 11 - West & Central	
WQ18050733	5/7/2018 8:40:00 AM	Gondola Trevor	1.09	NTU	SM 2130B	Week 12 - West & Central	
WQ18051433	5/14/2018 11:20:00 AM	Gondola Trevor	1.28	NTU	SM 2130B	Week 01 - West & Central	
WQ18052135	5/21/2018 9:50:00 AM	Gondola Trevor	0.97	NTU	SM 2130B	Week 02 - West & Central	
WQ18052834	5/29/2018 10:50:00 AM	Gondola Trevor	0.81	NTU	SM 2130B	Week 03 - West & Central	
WQ18060433	6/4/2018 10:40:00 AM	Gondola Trevor	0.99	NTU	SM 2130B	Week 04 - West & Central	
WQ18061133	6/11/2018 9:40:00 AM	Gondola Trevor	0.84	NTU	SM 2130B	Week 05 - West & Central	
WQ18061837	6/18/2018 12:55:00 PM	Gondola Trevor	0.67	NTU	SM 2130B	Week 06 - West & Central	
WQ18062532	6/25/2018 8:55:00 AM	Battaglia Larry	0.64	NTU	SM 2130B	Week 07 - West & Central	
WQ18070235	7/2/2018 8:45:00 AM	Brougham Lauren	0.79	NTU	SM 2130B	Week 08 - West & Central	
WQ18070932	7/9/2018 11:05:00 AM	Kerins Kelly	0.45	NTU	SM 2130B	Week 09 - West & Central	
WQ18071635	7/17/2018 11:05:00 AM	Kerins Kelly	0.45	NTU	SM 2130B	Week 10 - West & Central	
WQ18072332	7/23/2018 8:25:00 AM	Kerins Kelly	0.66	NTU	SM 2130B	Week 11 - West & Central	
WQ18073033	7/30/2018 8:30:00 AM	Kerins Kelly	0.52	NTU	SM 2130B	Week 12 - West & Central	
WQ18080633	8/6/2018 9:00:00 AM	Kerins Kelly	0.46	NTU	SM 2130B	Week 01 - West & Central	
WQ18081330	8/13/2018 10:45:00 AM	Kerins Kelly	0.49	NTU	SM 2130B	Week 02 - West & Central	
WQ18082039	8/20/2018 8:45:00 AM	Kerins Kelly	0.66	NTU	SM 2130B	Week 03 - West & Central	
WQ18082733	8/27/2018 8:45:00 AM	Kerins Kelly	0.66	NTU	SM 2130B	Week 04 - West & Central	
WQ18090333	9/4/2018 8:40:00 AM	Kerins Kelly	0.47	NTU	SM 2130B	Week 05 - West & Central	
WQ18091032	9/10/2018 8:30:00 AM	Kerins Kelly	0.5	NTU	SM 2130B	Week 06 - West & Central	
WQ18091737	9/17/2018 10:15:00 AM	Kerins Kelly	0.48	NTU	SM 2130B	Week 07 - West & Central	
WQ18092435	9/24/2018 12:45:00 PM	Kerins Kelly	0.37	NTU	SM 2130B	Week 08 - West & Central	Bacti results were not valid. Sample was resampled 9/26/18 WQ18092605. LEB 9/26/18
WQ18100155	10/1/2018 9:30:00 AM	Kerins Kelly	0.43	NTU	SM 2130B	Week 09 - West & Central	
WQ18100831	10/8/2018 9:30:00 AM	Kerins Kelly	0.44	NTU	SM 2130B	Week 10 - West & Central	
WQ18101536	10/15/2018 10:30:00 AM	Kerins Kelly	0.36	NTU	SM 2130B	Week 11 - West & Central	
WQ18102233	10/22/2018 10:00:00 AM	Kerins Kelly	0.38	NTU	SM 2130B	Week 12 - West & Central	
WQ18102933	10/29/2018 10:00:00 AM	Kerins Kelly	0.43	NTU	SM 2130B	Week 01 - West & Central	
WQ18110524	11/5/2018 8:46:00 AM	Kerins Kelly	0.64	NTU	SM 2130B	Week 02 - West & Central	
WQ18111228	11/13/2018 10:01:00 AM	Kerins Kelly	0.56	NTU	SM 2130B	Week 03 - West & Central	
WQ18111932	11/19/2018 10:01:00 AM	Kerins Kelly	0.6	NTU	SM 2130B	Week 04 - West & Central	
WQ18112627	11/26/2018 10:01:00 AM	Kerins Kelly	0.57	NTU	SM 2130B	Week 05 - West & Central	
WQ18120326	12/3/2018 12:21:00 PM	Kerins Kelly	0.72	NTU	SM 2130B	Week 06 - West & Central	
WQ18121026	12/10/2018 9:46:00 AM	Kerins Kelly	0.58	NTU	SM 2130B	Week 07 - West & Central	
WQ18121734	12/17/2018 11:45:00 AM	Battaglia Larry	1.11	NTU	SM 2130B	Week 08 - West & Central	
WQ18122426	12/26/2018 12:25:00 PM	Clark John	0.72	NTU	SM 2130B	Week 09 - West & Central	
WQ18123125	1/2/2019 11:40:00 AM	Gondola Trevor	0.82	NTU	SM 2130B	Week 10 - West & Central	
WQ19010726	1/7/2019 9:00:00 AM	Battaglia Larry	1.64	NTU	SM 2130B	Week 11 - West & Central	
WQ19011427	1/14/2019 11:30:00 AM	Clark John	1.02	NTU	SM 2130B	Week 12 - West & Central	Bacti sample temp is over 10C and outside of 2hrs window. okay to proceed per lab manager.LL
WQ19012131	1/22/2019 10:30:00 AM	Gondola Trevor	1.64	NTU	SM 2130B	Week 01 - West & Central	
WQ19012824	1/28/2019 12:10:00 PM	Clark John	1.32	NTU	SM 2130B	Week 02 - West & Central	
WQ19020428	2/4/2019 10:55:00 AM	Gondola Trevor	3	NTU	SM 2130B	Week 03 - West & Central	
WQ19021127	2/15/2019 8:40:00 AM	Clark John	4.3	NTU	SM 2130B	Week 04 - West & Central	
WQ19021832	2/19/2019 10:00:00 AM	Clark John	4	NTU	SM 2130B	Week 05 - West & Central	
WQ19022526	2/25/2019 10:55:00 AM	Gondola Trevor	4.15	NTU	SM 2130B	Week 06 - West & Central	
WQ19030426	3/4/2019 10:40:00 AM	Battaglia Larry	4.31	NTU	SM 2130B	Week 07 - West & Central	
WQ19031129	3/11/2019 9:25:00 AM	Clark John	3.92	NTU	SM 2130B	Week 08 - West & Central	
WQ19031831	3/18/2019 11:25:00 AM	Gondola Trevor	3.51	NTU	SM 2130B	Week 09 - West & Central	
WQ19032525	3/25/2019 10:30:00 AM	Gondola Trevor	3.19	NTU	SM 2130B	Week 10 - West & Central	
WQ19040149	4/1/2019 10:20:00 AM	Gondola Trevor	2.18	NTU	SM 2130B	Week 11 - West & Central	
WQ19040827	4/8/2019 11:20:00 AM	Radley Joseph	1.99	NTU	SM 2130B	Week 12 - West & Central	
WQ19041531	4/15/2019 10:20:00 AM	Battaglia Larry	1.55	NTU	SM 2130B	Week 01 - West & Central	Q-tray set up was blown out and could not get an accurate MPN for analysis. Sample was recollected and scheduled as WQ19041704. 4/22/19 LEB
WQ19042224	4/22/2019 11:30:00 AM	Gondola Trevor	1.23	NTU	SM 2130B	Week 02 - West & Central	Carbon result is from batch 1905131. RH
WQ19042928	4/29/2019 12:30:00 PM	Clark John	1.1	NTU	SM 2130B	Week 03 - West & Central	
WQ19050627	5/9/2019 10:40:00 AM	Gondola Trevor	1.37	NTU	SM 2130B	Week 04 - West & Central	
WQ19051327	5/16/2019 12:40:00 PM	Gondola Trevor	1.19	NTU	SM 2130B	Week 05 - West & Central	
WQ19052031	5/23/2019 8:40:00 AM	Gondola Trevor	1.61	NTU	SM 2130B	Week 06 - West & Central	
WQ19052726	5/30/2019 12:20:00 PM	Clark John	1.55	NTU	SM 2130B	Week 07 - West & Central	
WQ19060329	6/6/2019 8:40:00 AM	Gondola Trevor	1.21	NTU	SM 2130B	Week 08 - West & Central	
WQ19061026	6/11/2019 11:15:00 AM	Gondola Trevor	0.87	NTU	SM 2130B	Week 09 - West & Central	
WQ19061730	6/17/2019 10:55:00 AM	Battaglia Larry	0.82	NTU	SM 2130B	Week 10 - West & Central	
WQ19062426	6/24/2019 11:25:00 AM	Kerins Kelly	0.68	NTU	SM 2130B	Week 11 - West & Central	
WQ19070150	7/1/2019 8:10:00 AM	Kerins Kelly	0.79	NTU	SM 2130B	Week 12 - West & Central	
WQ19070827	7/8/2019 8:45:00 AM	Kerins Kelly	0.81	NTU	SM 2130B	Week 01 - West & Central	
WQ19071528	7/15/2019 8:40:00 AM	Kerins Kelly	0.44	NTU	SM 2130B	Week 02 - West & Central	
WQ19072228	7/22/2019 8:35:00 AM	Kerins Kelly	0.66	NTU	SM 2130B	Week 03 - West & Central	The TOC vials froze on 08/02/19. RH
WQ19072927	7/29/2019 10:50:00 AM	Gondola Trevor	0.62	NTU	SM 2130B	Week 04 - West & Central	
WQ19080526	8/5/2019 12:40:00 PM	Gondola Trevor	0.48	NTU	SM 2130B	Week 05 - West & Central	
WQ19081223	8/12/2019 12:40:00 PM	Gondola Trevor	0.61	NTU	SM 2130B	Week 06 - West & Central	
WQ19081930	8/19/2019 7:35:00 AM	Clark John	0.5	NTU	SM 2130B	Week 07 - West & Central	
WQ19082629	8/26/2019 9:20:00 AM	Kerins Kelly	0.37	NTU	SM 2130B	Week 08 - West & Central	
WQ19090225	9/3/2019 11:30:00 AM	Gondola Trevor	0.31	NTU	SM 2130B	Week 09 - West & Central	
WQ19090925	9/9/2019 11:10:00 AM	Kerins Kelly	0.36	NTU	SM 2130B	Week 10 - West & Central	
WQ19091631	9/16/2019 8:30:00 AM	Kerins Kelly	0.37	NTU	SM 2130B	Week 11 - West & Central	
WQ19092327	9/23/2019 11:55:00 AM	Kerins Kelly	0.46	NTU	SM 2130B	Week 12 - West & Central	
WQ19093027	10/1/2019 11:40:00 AM	Clark John	0.46	NTU	SM 2130B	Week 01 - West & Central	
WQ19100724	10/7/2019 12:20:00 PM	Kerins Kelly	0.35	NTU	SM 2130B	Week 02 - West & Central	

WQ19101428	10/14/2019 9:00:00 AM	Kerins Kelly	0.37	NTU	SM 2130B	Week 03 - West & Central	
WQ19102131	10/21/2019 10:00:00 AM	Kerins Kelly	0.44	NTU	SM 2130B	Week 04 - West & Central	
WQ19102827	10/28/2019 1:15:00 PM	Gondola Trevor	0.46	NTU	SM 2130B	Week 05 - West & Central	
WQ19110426	11/4/2019 12:50:00 PM	Gondola Trevor	0.35	NTU	SM 2130B	Week 06 - West & Central	
WQ19111125	11/12/2019 11:55:00 AM	Gondola Trevor	0.42	NTU	SM 2130B	Week 07 - West & Central	
WQ19111834	11/18/2019 10:00:00 AM	Clark John	0.5	NTU	SM 2130B	Week 08 - West & Central	
WQ19112525	11/25/2019 7:30:00 AM	Gondola Trevor	0.51	NTU	SM 2130B	Week 09 - West & Central	
WQ19120224	12/2/2019 11:40:00 AM	Gondola Trevor	0.62	NTU	SM 2130B	Week 10 - West & Central	
WQ19120925	12/9/2019 11:10:00 AM	Battaglia Larry	1.07	NTU	SM 2130B	Week 11 - West & Central	
WQ19121627	12/16/2019 10:00:00 AM	Clark John	0.7	NTU	SM 2130B	Week 12 - West & Central	
WQ19122326	12/26/2019 11:25:00 AM	Gondola Trevor	0.89	NTU	SM 2130B	Week 01 - West & Central	
WQ19123024	12/30/2019 10:05:00 AM	Battaglia Larry	0.73	NTU	SM 2130B	Week 02 - West & Central	
WQ20010627	1/6/2020 11:40:00 AM	Gondola Trevor	0.67	NTU	SM 2130B	Week 03 - West & Central	
WQ20011327	1/13/2020 10:30:00 AM	Clark John	0.48	NTU	SM 2130B	Week 04 - West & Central	
WQ20012030	1/21/2020 11:40:00 AM	Gondola Trevor	0.52	NTU	SM 2130B	Week 05 - West & Central	
WQ20012725	1/27/2020 10:15:00 AM	Battaglia Larry	0.66	NTU	SM 2130B	Week 06 - West & Central	
WQ20020325	2/3/2020 11:45:00 AM	Gondola Trevor	0.62	NTU	SM 2130B	Week 07 - West & Central	
WQ20021036	2/10/2020 11:45:00 AM	Clark John	0.58	NTU	SM 2130B	Week 08 - West & Central	
WQ20021730	2/18/2020 7:50:00 AM	Gondola Trevor	0.63	NTU	SM 2130B	Week 09 - West & Central	
WQ20022424	2/24/2020 11:15:00 AM	Clark John	0.44	NTU	SM 2130B	Week 10 - West & Central	
WQ20030226	3/2/2020 11:00:00 AM	Gondola Trevor	0.43	NTU	SM 2130B	Week 11 - West & Central	
WQ20030926	3/9/2020 11:55:00 AM	Heifetz Rachel	0.38	NTU	SM 2130B	Week 12 - West & Central	
WQ20031632	3/16/2020 11:15:00 AM	Clark John	0.35	NTU	SM 2130B	Week 01 - West & Central	
WQ20032323	3/23/2020 11:55:00 AM	Gondola Trevor	0.35	NTU	SM 2130B	Week 02 - West & Central	
WQ20033028	3/30/2020 10:20:00 AM	Battaglia Larry	0.32	NTU	SM 2130B	Week 03 - West & Central	
WQ20040614	4/6/2020 10:35:00 AM	Clark John	0.36	NTU	SM 2130B	Week 04 - West & Central	Alkalinity cancelled due to out of hold time. 7/8/2020 RH
WQ20041314	4/13/2020 10:45:00 AM	Gondola Trevor	0.34	NTU	SM 2130B	Week 05 - West & Central	
WQ20042017	4/20/2020 12:00:00 PM	Clark John	0.31	NTU	SM 2130B	Week 06 - West & Central	
WQ20042714	4/27/2020 10:20:00 AM	Gondola Trevor	0.39	NTU	SM 2130B	Week 07 - West & Central	
WQ20050415	5/4/2020 10:50:00 AM	Clark John	0.4	NTU	SM 2130B	Week 08 - West & Central	
WQ20051132	5/11/2020 1:00:00 PM	Gondola Trevor	0.32	NTU	SM 2130B	Week 09 - West & Central	
WQ20051824	5/18/2020 9:10:00 AM	Battaglia Larry	0.34	NTU	SM 2130B	Week 10 - West & Central	
WQ20052625	5/26/2020 11:25:00 AM	Gondola Trevor	0.35	NTU	SM 2130B	Week 11 - West & Central	
WQ20060149	6/1/2020 9:20:00 AM	Clark John	0.31	NTU	SM 2130B	Week 12 - West & Central	
WQ20060826	6/8/2020 11:50:00 AM	Gondola Trevor	0.4	NTU	SM 2130B	Week 01 - West & Central	
WQ20061529	6/15/2020 12:15:00 PM	Clark John	0.37	NTU	SM 2130B	Week 02 - West & Central	
WQ20062228	6/22/2020 10:55:00 AM	Battaglia Larry	0.72	NTU	SM 2130B	Week 03 - West & Central	
WQ20062927	6/30/2020 11:55:00 AM	Gondola Trevor	0.44	NTU	SM 2130B	Week 04 - West & Central	
WQ20070627	7/7/2020 11:40:00 AM	Gondola Trevor	0.38	NTU	SM 2130B	Week 05 - West & Central	
WQ20071326	7/13/2020 12:15:00 PM	Clark John	0.37	NTU	SM 2130B	Week 06 - West & Central	
WQ20072030	7/20/2020 1:00:00 PM	Gondola Trevor	0.58	NTU	SM 2130B	Week 07 - West & Central	
WQ20072729	7/27/2020 10:50:00 AM	Gondola Trevor	0.33	NTU	SM 2130B	Week 08 - West & Central	
WQ20080326	8/4/2020 12:20:00 PM	Stern Sarah	0.38	NTU	SM 2130B	Week 09 - West & Central	
WQ20081022	8/10/2020 9:05:00 AM	Battaglia Larry	0.4	NTU	SM 2130B	Week 10 - West & Central	
WQ20081731	8/17/2020 10:50:00 AM	Stern Sarah	0.41	NTU	SM 2130B	Week 11 - West & Central	
WQ20082427	8/24/2020 8:25:00 AM	Stern Sarah	0.58	NTU	SM 2130B	Week 12 - West & Central	
WQ20083127	8/31/2020 8:30:00 AM	Stern Sarah	0.73	NTU	SM 2130B	Week 01 - West & Central	
WQ20090724	9/8/2020 8:40:00 AM	Stern Sarah	0.88	NTU	SM 2130B	Week 02 - West & Central	
WQ20091428	9/14/2020 8:35:00 AM	Stern Sarah	0.87	NTU	SM 2130B	Week 03 - West & Central	
WQ20092132	9/21/2020 8:35:00 AM	Stern Sarah	1.72	NTU	SM 2130B	Week 04 - West & Central	
WQ20092827	9/28/2020 11:00:00 AM	Stern Sarah	1.71	NTU	SM 2130B	Week 05 - West & Central	
WQ20100526	10/5/2020 8:35:00 AM	Stern Sarah	1.11	NTU	SM 2130B	Week 06 - West & Central	
WQ20101226	10/12/2020 8:40:00 AM	Stern Sarah	0.85	NTU	SM 2130B	Week 07 - West & Central	
WQ20101933	10/19/2020 8:40:00 AM	Stern Sarah	0.67	NTU	SM 2130B	Week 08 - West & Central	
WQ20102626	10/26/2020 8:40:00 AM	Stern Sarah	0.7	NTU	SM 2130B	Week 09 - West & Central	Total coliform and E.coli tests were setup with incorrect QT on 10/26/20, so cancelled tests. A new sample (WQ20102802)was collected on 10/28/20 for these two tests. 10/28/20LL
WQ20110225	11/2/2020 6:30:00 AM	Clark John	0.5	NTU	SM 2130B	Week 10 - West & Central	The chloride value entered is associated with the QC run on 11-03-2020. 11-24-2020 RH
WQ20110926	11/9/2020 8:35:00 AM	Stern Sarah	0.75	NTU	SM 2130B	Week 11 - West & Central	
WQ20111632	11/17/2020 10:35:00 AM	Gondola Trevor	0.58	NTU	SM 2130B	Week 12 - West & Central	
WQ20112327	11/23/2020 8:30:00 AM	Stern Sarah	0.46	NTU	SM 2130B	Week 01 - West & Central	
WQ20113024	11/30/2020 11:25:00 AM	Clark John	0.39	NTU	SM 2130B	Week 02 - West & Central	
WQ20120728	12/7/2020 10:50:00 AM	Gondola Trevor	0.81	NTU	SM 2130B	Week 03 - West & Central	
WQ20121427	12/14/2020 12:00:00 PM	Clark John	0.39	NTU	SM 2130B	Week 04 - West & Central	
WQ20122127	12/21/2020 8:25:00 AM	Stern Sarah	0.39	NTU	SM 2130B	Week 05 - West & Central	
WQ20122826	12/28/2020 8:50:00 AM	Stern Sarah	0.51	NTU	SM 2130B	Week 06 - West & Central	
WQ21010426	1/4/2021 8:45:00 AM	Stern Sarah	0.51	NTU	SM 2130B	Week 07 - West & Central	
WQ21011129	1/11/2021 8:45:00 AM	Stern Sarah	0.59	NTU	SM 2130B	Week 08 - West & Central	
WQ21011830	1/19/2021 9:35:00 AM	Stern Sarah	0.47	NTU	SM 2130B	Week 09 - West & Central	
WQ21012525	1/25/2021 8:40:00 AM	Stern Sarah	0.42	NTU	SM 2130B	Week 10 - West & Central	
WQ21020150	2/1/2021 8:30:00 AM	Gondola Trevor	0.74	NTU	SM 2130B	Week 11 - West & Central	

San Geronimo WTP							
Sample Num	Sample Collection Date	Collected By	Reported Value	Unit	Test Ref. Methodology	Description	Comment
WQ15040628	4/7/2015 1:56:00 PM	Battaglia Larry	14.7	NTU	SM 2130B	Week 07 - West & Central	
WQ15041336	4/13/2015 8:00:00 AM	Clark John	13	NTU	SM 2130B	Week 08 - West & Central	
WQ15042037	4/21/2015 9:20:00 AM	Fuller Jennie	11.6	NTU	SM 2130B	Week 09 - West & Central	
WQ15042732	4/27/2015 7:35:00 AM	Clark John	16.5	NTU	SM 2130B	Week 10 - West & Central	
WQ15050433	5/4/2015 1:05:00 PM	Fuller Jennie	12.2	NTU	SM 2130B	Week 11 - West & Central	
WQ15051134	5/11/2015 11:30:00 AM	Fuller Jennie	17.7	NTU	SM 2130B	Week 12 - West & Central	
WQ15051839	5/18/2015 11:25:00 AM	Battaglia Larry	15.4	NTU	SM 2130B	Week 01 - West & Central	
WQ15052532	5/26/2015 10:15:00 AM	Fuller Jennie	17.6	NTU	SM 2130B	Week 02 - West & Central	
WQ15060156	6/1/2015 11:50:00 AM	Fuller Jennie	14.6	NTU	SM 2130B	Week 03 - West & Central	
WQ15060834	6/8/2015 10:30:00 AM	Fuller Jennie	15.8	NTU	SM 2130B	Week 04 - West & Central	
WQ15061539	6/15/2015 12:50:00 PM	Fuller Jennie	11.2	NTU	SM 2130B	Week 05 - West & Central	
WQ15062233	6/23/2015 11:30:00 AM	Battaglia Larry	7.94	NTU	SM 2130B	Week 06 - West & Central	
WQ15062933	6/29/2015 1:00:00 PM	Bowers Rhonda	10.4	NTU	SM 2130B	Week 07 - West & Central	
WQ15070636	7/6/2015 11:10:00 AM	Bowers Rhonda	9.94	NTU	SM 2130B	Week 08 - West & Central	
WQ15071333	7/13/2015 10:45:00 AM	Bowers Rhonda	16.2	NTU	SM 2130B	Week 09 - West & Central	
WQ15072036	7/20/2015 10:30:00 AM	Bowers Rhonda	9.43	NTU	SM 2130B	Week 10 - West & Central	
WQ15072733	7/27/2015 10:55:00 AM	Bowers Rhonda	7.14	NTU	SM 2130B	Week 11 - West & Central	
WQ15080334	8/3/2015 11:55:00 AM	Bowers Rhonda	6.46	NTU	SM 2130B	Week 12 - West & Central	
WQ15081034	8/10/2015 12:45:00 PM	Bowers Rhonda	0.62	NTU	SM 2130B	Week 01 - West & Central	
WQ15081737	8/17/2015 11:45:00 AM	Bowers Rhonda	9.84	NTU	SM 2130B	Week 02 - West & Central	
WQ15082435	8/24/2015 10:40:00 AM	Bowers Rhonda	12.1	NTU	SM 2130B	Week 03 - West & Central	
WQ15083134	8/31/2015 10:25:00 AM	Battaglia Larry	19.1	NTU	SM 2130B	Week 04 - West & Central	
WQ15090734	9/8/2015 12:40:00 PM	Fuller Jennie	0.78	NTU	SM 2130B	Week 05 - West & Central	
WQ15091433	9/14/2015 11:20:00 AM	Fuller Jennie	52.2	NTU	SM 2130B	Week 06 - West & Central	
WQ15092138	9/21/2015 10:45:00 AM	Fuller Jennie	11.3	NTU	SM 2130B	Week 07 - West & Central	
WQ15092836	9/28/2015 11:55:00 AM	Fuller Jennie	10.3	NTU	SM 2130B	Week 08 - West & Central	
WQ15100533	10/5/2015 1:30:00 PM	Fuller Jennie	9.52	NTU	SM 2130B	Week 09 - West & Central	
WQ15101232	10/12/2015 11:40:00 AM	Fuller Jennie	7.5	NTU	SM 2130B	Week 10 - West & Central	
WQ15101937	10/19/2015 9:50:00 AM	Fuller Jennie	9.43	NTU	SM 2130B	Week 11 - West & Central	
WQ15102634	10/26/2015 8:15:00 AM	Clark John	16.5	NTU	SM 2130B	Week 12 - West & Central	
WQ15110234	11/2/2015 11:45:00 AM	Fuller Jennie	15.3	NTU	SM 2130B	Week 01 - West & Central	
WQ15110932	11/9/2015 10:25:00 AM	Fuller Jennie	23.7	NTU	SM 2130B	Week 02 - West & Central	
WQ15111640	11/16/2015 12:50:00 PM	Fuller Jennie	25.3	NTU	SM 2130B	Week 03 - West & Central	
WQ15112328	11/23/2015 11:20:00 AM	Fuller Jennie	22.8	NTU	SM 2130B	Week 04 - West & Central	
WQ15113028	11/30/2015 12:35:00 PM	Fuller Jennie	23	NTU	SM 2130B	Week 05 - West & Central	
WQ15120727	12/7/2015 11:20:00 AM	Fuller Jennie	20.3	NTU	SM 2130B	Week 06 - West & Central	
WQ15121427	12/14/2015 7:50:00 AM	Clark John	20.2	NTU	SM 2130B	Week 07 - West & Central	
WQ15122130	12/21/2015 12:20:00 PM	Heifetz Rachel	13.2	NTU	SM 2130B	Week 08 - West & Central	
WQ15122827	12/28/2015 11:40:00 AM	Fuller Jennie	16.1	NTU	SM 2130B	Week 09 - West & Central	
WQ16010426	1/4/2016 12:10:00 PM	Fuller Jennie	0.78	NTU	SM 2130B	Week 10 - West & Central	
WQ16011127	1/11/2016 12:10:00 PM	Fuller Jennie	0.96	NTU	SM 2130B	Week 11 - West & Central	
WQ16011832	1/20/2016 11:40:00 AM	Battaglia Larry	1.55	NTU	SM 2130B	Week 12 - West & Central	
WQ16012528	1/25/2016 8:10:00 AM	Clark John	1.58	NTU	SM 2130B	Week 01 - West & Central	
WQ16020146	2/1/2016 11:50:00 AM	Battaglia Larry	1.21	NTU	SM 2130B	Week 02 - West & Central	
WQ16020829	2/9/2016 8:00:00 AM	Clark John	1.59	NTU	SM 2130B	Week 03 - West & Central	
WQ16021533	2/16/2016 11:55:00 AM	Battaglia Larry	1.3	NTU	SM 2130B	Week 04 - West & Central	
WQ16022228	2/23/2016 12:30:00 PM	Clark John	1.26	NTU	SM 2130B	Week 05 - West & Central	
WQ16022927	3/1/2016 11:15:00 AM	Battaglia Larry	1.29	NTU	SM 2130B	Week 06 - West & Central	
WQ16030727	3/8/2016 11:10:00 AM	Battaglia Larry	1.02	NTU	SM 2130B	Week 07 - West & Central	
WQ16031430	3/16/2016 8:45:00 AM	Clark John	0.9	NTU	SM 2130B	Week 08 - West & Central	
WQ16031706	3/17/2016 7:45:00 AM	Clark John	0.93	NTU	SM 2130B	LT2	
WQ16032127	3/22/2016 10:40:00 AM	Battaglia Larry	0.95	NTU	SM 2130B	Week 09 - West & Central	
WQ16032826	3/28/2016 12:00:00 PM	Tanomrat Ammon	0.98	NTU	SM 2130B	Week 10 - West & Central	
WQ16040427	4/4/2016 8:40:00 AM	Clark John	0.9	NTU	SM 2130B	Week 11 - West & Central	
WQ16041139	4/11/2016 10:30:00 AM	Battaglia Larry	1.39	NTU	SM 2130B	Week 12 - West & Central	
WQ16041838	4/18/2016 8:30:00 AM	Clark John	11.4	NTU	SM 2130B	Week 01 - West & Central	
WQ16042532	4/25/2016 12:05:00 PM	Battaglia Larry	9.45	NTU	SM 2130B	Week 02 - West & Central	
WQ16050235	5/2/2016 8:35:00 AM	Clark John	7.54	NTU	SM 2130B	Week 03 - West & Central	
WQ16050934	5/9/2016 10:50:00 AM	Battaglia Larry	6.31	NTU	SM 2130B	Week 04 - West & Central	
WQ16051639	5/16/2016 8:35:00 AM	Clark John	8.2	NTU	SM 2130B	Week 05 - West & Central	
WQ16052333	5/24/2016 11:30:00 AM	Battaglia Larry	8.72	NTU	SM 2130B	Week 06 - West & Central	
WQ16053033	5/31/2016 7:50:00 AM	Clark John	7.45	NTU	SM 2130B	Week 07 - West & Central	
WQ16060636	6/6/2016 11:10:00 AM	Battaglia Larry	5.69	NTU	SM 2130B	Week 08 - West & Central	
WQ16061333	6/13/2016 8:15:00 AM	Clark John	7.32	NTU	SM 2130B	Week 09 - West & Central	
WQ16062037	6/20/2016 11:20:00 AM	Battaglia Larry	9.28	NTU	SM 2130B	Week 10 - West & Central	
WQ16062733	6/27/2016 8:15:00 AM	Clark John	9.21	NTU	SM 2130B	Week 11 - West & Central	
WQ16070434	7/5/2016 11:30:00 AM	Heifetz Rachel	9.37	NTU	SM 2130B	Week 12 - West & Central	
WQ16071134	7/11/2016 11:35:00 AM	Heifetz Rachel	10.7	NTU	SM 2130B	Week 01 - West & Central	
WQ16071836	7/18/2016 12:15:00 PM	Battaglia Larry	9.73	NTU	SM 2130B	Week 02 - West & Central	
WQ16072535	7/25/2016 8:30:00 AM	Clark John	8.01	NTU	SM 2130B	Week 03 - West & Central	
WQ16080154	8/1/2016 11:30:00 AM	Battaglia Larry	1.91	NTU	SM 2130B	Week 04 - West & Central	
WQ16080834	8/8/2016 11:45:00 AM	Fuller Jennie	0.8	NTU	SM 2130B	Week 05 - West & Central	
WQ16081538	8/15/2016 12:20:00 PM	Fuller Jennie	1.13	NTU	SM 2130B	Week 06 - West & Central	
WQ16082233	8/22/2016 12:50:00 PM	Fuller Jennie	1.33	NTU	SM 2130B	Week 07 - West & Central	
WQ16082936	8/29/2016 12:50:00 PM	Fuller Jennie	1.13	NTU	SM 2130B	Week 08 - West & Central	
WQ16090533	9/6/2016 10:20:00 AM	Fuller Jennie	1.46	NTU	SM 2130B	Week 09 - West & Central	
WQ16091232	9/12/2016 12:15:00 PM	Fuller Jennie	1.64	NTU	SM 2130B	Week 10 - West & Central	
WQ16091938	9/19/2016 11:40:00 AM	Fuller Jennie	1.96	NTU	SM 2130B	Week 11 - West & Central	
WQ16092634	9/26/2016 10:20:00 AM	Fuller Jennie	2.33	NTU	SM 2130B	Week 12 - West & Central	
WQ16100334	10/3/2016 12:35:00 PM	Fuller Jennie	2.06	NTU	SM 2130B	Week 01 - West & Central	
WQ16101032	10/10/2016 11:05:00 AM	Fuller Jennie	1.96	NTU	SM 2130B	Week 02 - West & Central	
WQ16101739	10/17/2016 12:05:00 PM	Fuller Jennie	2.23	NTU	SM 2130B	Week 03 - West & Central	
WQ16102434	10/24/2016 12:05:00 PM	Fuller Jennie	3.66	NTU	SM 2130B	Week 04 - West & Central	
WQ16103134	10/31/2016 7:20:00 AM	Clark John	16.2	NTU	SM 2130B	Week 05 - West & Central	
WQ16110727	11/7/2016 11:40:00 AM	Fuller Jennie	14.7	NTU	SM 2130B	Week 06 - West & Central	
WQ16111427	11/14/2016 11:15:00 AM	Fuller Jennie	11.1	NTU	SM 2130B	Week 07 - West & Central	
WQ16112135	11/21/2016 11:05:00 AM	Fuller Jennie	10.6	NTU	SM 2130B	Week 08 - West & Central	
WQ16112827	11/28/2016 11:10:00 AM	Fuller Jennie	11.3	NTU	SM 2130B	Week 09 - West & Central	
WQ16120526	12/5/2016 11:15:00 AM	Battaglia Larry	11.5	NTU	SM 2130B	Week 10 - West & Central	
WQ16121227	12/13/2016 1:05:00 PM	Fuller Jennie	8.51	NTU	SM 2130B	Week 11 - West & Central	
WQ16121928	12/19/2016 11:25:00 AM	Fuller Jennie	35.7	NTU	SM 2130B	Week 12 - West & Central	
WQ16122628	12/27/2016 11:55:00 AM	Fuller Jennie	1.83	NTU	SM 2130B	Week 01 - West & Central	
WQ17010226	1/3/2017 11:45:00 AM	Heifetz Rachel	2.66	NTU	SM 2130B	Week 02 - West & Central	
WQ17010929	1/9/2017 10:15:00 AM	Battaglia Larry	3.36	NTU	SM 2130B	Week 03 - West & Central	
WQ17011632	1/17/2017 10:45:00 AM	Battaglia Larry	5.42	NTU	SM 2130B	Week 04 - West & Central	
WQ17012328	1/23/2017 9:40:00 AM	Clark John	4.1	NTU	SM 2130B	Week 05 - West & Central	
WQ17013027	1/30/2017 1:05:00 PM	Battaglia Larry	8.23	NTU	SM 2130B	Week 06 - West & Central	Temperature is outside acceptable limits for raw bact sample. Chris Nanney approved using the bact. 2-6-17 MCR. At 9.4C, the sample is within the acceptable temp range. The sample needs to be <10C if received two or more hours after collection. CRN 3-2-2017
WQ17020627	2/6/2017 7:30:00 AM	Clark John	5.73	NTU	SM 2130B	Week 07 - West & Central	
WQ17021330	2/13/2017 9:40:00 AM	Battaglia Larry	6.86	NTU	SM 2130B	Week 08 - West & Central	
WQ17022027	2/21/2017 10:50:00 AM	Clark John	5.45	NTU	SM 2130B	Week 09 - West & Central	
WQ17022726	2/27/2017 11:40:00 AM	Battaglia Larry	5.62	NTU	SM 2130B	Week 10 - West & Central	
WQ17030627	3/6/2017 7:20:00 AM	Clark John	5.01	NTU	SM 2130B	Week 11 - West & Central	
WQ17031328	3/13/2017 10:40:00 AM	Battaglia Larry	4.85	NTU	SM 2130B	Week 12 - West & Central	
WQ17032033	3/20/2017 7:30:00 AM	Clark John	4.52	NTU	SM 2130B	Week 01 - West & Central	
WQ17032726	3/27/2017 12:45:00 PM	Battaglia Larry	4.86	NTU	SM 2130B	Week 02 - West & Central	
WQ17040329	4/3/2017 7:35:00 AM	Clark John	4.51	NTU	SM 2130B	Week 03 - West & Central	
WQ17041028	4/10/2017 12:50:00 PM	Battaglia Larry	3.97	NTU	SM 2130B	Week 04 - West & Central	
WQ17041732	4/17/2017 8:15:00 AM	Clark John	3.59	NTU	SM 2130B	Week 05 - West & Central	
WQ17042427	4/24/2017 12:15:00 PM	Battaglia Larry	3.21	NTU	SM 2130B	Week 06 - West & Central	
WQ17050150	5/1/2017 7:25:00 AM	Clark John	3.82	NTU	SM 2130B	Week 07 - West & Central	Bacti Temp was out of compliance. The sample was not frozen. I notified the Lab Manager, he was ok with setting up the bacti. 5/2/17 MCR
WQ17050830	5/8/2017 12:20:00 PM	Battaglia Larry	4.62	NTU	SM 2130B	Week 08 - West & Central	
WQ17051538	5/15/2017 7:35:00 AM	Clark John	3.56	NTU	SM 2130B	Week 09 - West & Central	
WQ17052232	5/22/2017 10:20:00 AM	Battaglia Larry	3.25	NTU	SM 2130B	Week 10 - West & Central	
WQ17052933	5/30/2017 7:25:00 AM	Clark John	3.12	NTU	SM 2130B	Week 11 - West & Central	
WQ17060534	6/5/2017 11:30:00 AM	Battaglia Larry	2.66	NTU	SM 2130B	Week 12 - West & Central	
WQ17061234	6/12/2017 7:30:00 AM	Clark John	2.82	NTU	SM 2130B	Week 01 - West & Central	

WQ17061937	6/19/2017 10:40:00 AM	Battaglia Larry	2.66	NTU	SM 2130B	Week 02 - West & Central	
WQ17062635	6/26/2017 7:35:00 AM	Clark John	3.02	NTU	SM 2130B	Week 03 - West & Central	
WQ17070334	7/5/2017 8:25:00 AM	Battaglia Larry	2.85	NTU	SM 2130B	Week 04 - West & Central	
WQ17071034	7/10/2017 10:30:00 AM	Gondola Trevor	2.69	NTU	SM 2130B	Week 05 - West & Central	
WQ17071733	7/17/2017 11:05:00 AM	Gondola Trevor	2.63	NTU	SM 2130B	Week 06 - West & Central	
WQ17072433	7/24/2017 12:45:00 PM	Gondola Trevor	3.26	NTU	SM 2130B	Week 07 - West & Central	
WQ17073136	7/31/2017 9:10:00 AM	Gondola Trevor	3.49	NTU	SM 2130B	Week 08 - West & Central	
WQ17080733	8/7/2017 8:30:00 AM	Gondola Trevor	4.53	NTU	SM 2130B	Week 09 - West & Central	
WQ17081432	8/14/2017 11:10:00 AM	Gondola Trevor	2.6	NTU	SM 2130B	Week 10 - West & Central	
WQ17082138	8/21/2017 9:10:00 AM	Gondola Trevor	2.82	NTU	SM 2130B	Week 11 - West & Central	
WQ17082834	8/28/2017 8:30:00 AM	Gondola Trevor	2.48	NTU	SM 2130B	Week 12 - West & Central	
WQ17090434	9/5/2017 12:40:00 PM	Gondola Trevor	2.66	NTU	SM 2130B	Week 01 - West & Central	
WQ17091132	9/11/2017 9:10:00 AM	Gondola Trevor	2.41	NTU	SM 2130B	Week 02 - West & Central	
WQ17091840	9/18/2017 10:00:00 AM	Battaglia Larry	2.26	NTU	SM 2130B	Week 03 - West & Central	
WQ17092534	9/25/2017 9:10:00 AM	Gondola Trevor	2.18	NTU	SM 2130B	Week 04 - West & Central	
WQ17100234	10/2/2017 7:30:00 AM	Clark John	1.93	NTU	SM 2130B	Week 05 - West & Central	Bacti sample was frozen,so the bacti sample was discarded and scheduled for resampling per CN. 10/2/17LL
WQ17100933	10/9/2017 12:55:00 PM	Battaglia Larry	7.44	NTU	SM 2130B	Week 06 - West & Central	
WQ17101637	10/16/2017 1:10:00 PM	Battaglia Larry	2.71	NTU	SM 2130B	Week 07 - West & Central	
WQ17102336	10/23/2017 12:50:00 PM	Battaglia Larry	7.99	NTU	SM 2130B	Week 08 - West & Central	
WQ17103033	10/30/2017 8:30:00 AM	Clark John	5.76	NTU	SM 2130B	Week 09 - West & Central	
WQ17110632	11/6/2017 9:10:00 AM	Gondola Trevor	4.86	NTU	SM 2130B	Week 10 - West & Central	
WQ17111333	11/13/2017 1:00:00 PM	Battaglia Larry	4.33	NTU	SM 2130B	Week 11 - West & Central	
WQ17112028	11/20/2017 9:45:00 AM	Heifetz Rachel	8.33	NTU	SM 2130B	Week 12 - West & Central	
WQ17112728	11/27/2017 9:20:00 AM	Gondola Trevor	6.23	NTU	SM 2130B	Week 01 - West & Central	
WQ17120426	12/4/2017 12:40:00 PM	Battaglia Larry	6.91	NTU	SM 2130B	Week 02 - West & Central	
WQ17121129	12/11/2017 8:50:00 AM	Battaglia Larry	8.08	NTU	SM 2130B	Week 03 - West & Central	
WQ17121833	12/18/2017 9:20:00 AM	Heifetz Rachel	7.72	NTU	SM 2130B	Week 04 - West & Central	
WQ17122528	12/26/2017 8:30:00 AM	Gondola Trevor	8.41	NTU	SM 2130B	Week 05 - West & Central	
WQ18010148	1/2/2018 12:10:00 PM	Battaglia Larry	6.27	NTU	SM 2130B	Week 06 - West & Central	
WQ18010827	1/8/2018 8:40:00 AM	Gondola Trevor	5.98	NTU	SM 2130B	Week 07 - West & Central	
WQ18011534	1/17/2018 12:10:00 PM	Battaglia Larry	7.75	NTU	SM 2130B	Week 08 - West & Central	
WQ18012227	1/22/2018 11:45:00 AM	Battaglia Larry	9.1	NTU	SM 2130B	Week 09 - West & Central	
WQ18012926	1/29/2018 9:00:00 AM	Gondola Trevor	9.64	NTU	SM 2130B	Week 10 - West & Central	
WQ18020527	2/7/2018 10:00:00 AM	Battaglia Larry	6.57	NTU	SM 2130B	Week 11 - West & Central	
WQ18021224	2/12/2018 12:00:00 PM	Gondola Trevor	4.27	NTU	SM 2130B	Week 12 - West & Central	
WQ18021933	2/20/2018 8:45:00 AM	Gondola Trevor	7.32	NTU	SM 2130B	Week 01 - West & Central	
WQ18022625	2/26/2018 9:25:00 AM	Gondola Trevor	7.25	NTU	SM 2130B	Week 02 - West & Central	
WQ18030529	3/5/2018 12:35:00 PM	Battaglia Larry	9.59	NTU	SM 2130B	Week 03 - West & Central	
WQ18031228	3/12/2018 1:05:00 PM	Battaglia Larry	11	NTU	SM 2130B	Week 04 - West & Central	
WQ18031939	3/19/2018 8:35:00 AM	Gondola Trevor	11.4	NTU	SM 2130B	Week 05 - West & Central	
WQ18032633	3/26/2018 8:10:00 AM	Clark John	13	NTU	SM 2130B	Week 06 - West & Central	
WQ18040233	4/2/2018 8:30:00 AM	Gondola Trevor	14.5	NTU	SM 2130B	Week 07 - West & Central	
WQ18040936	4/9/2018 11:45:00 AM	Battaglia Larry	13.2	NTU	SM 2130B	Week 08 - West & Central	
WQ18041637	4/16/2018 8:30:00 AM	Gondola Trevor	11.8	NTU	SM 2130B	Week 09 - West & Central	
WQ18042332	4/23/2018 8:45:00 AM	Gondola Trevor	9.35	NTU	SM 2130B	Week 10 - West & Central	
WQ18043033	5/1/2018 7:25:00 AM	Clark John	11.8	NTU	SM 2130B	Week 11 - West & Central	
WQ18050734	5/7/2018 9:35:00 AM	Battaglia Larry	10	NTU	SM 2130B	Week 12 - West & Central	
WQ18051434	5/14/2018 10:30:00 AM	Gondola Trevor	13.8	NTU	SM 2130B	Week 01 - West & Central	
WQ18052136	5/21/2018 8:25:00 AM	Gondola Trevor	10.8	NTU	SM 2130B	Week 02 - West & Central	
WQ18052835	5/29/2018 9:10:00 AM	Gondola Trevor	13.3	NTU	SM 2130B	Week 03 - West & Central	
WQ18060434	6/4/2018 8:50:00 AM	Gondola Trevor	10.8	NTU	SM 2130B	Week 04 - West & Central	
WQ18061134	6/11/2018 8:30:00 AM	Gondola Trevor	14.8	NTU	SM 2130B	Week 05 - West & Central	
WQ18061838	6/18/2018 8:30:00 AM	Gondola Trevor	10.1	NTU	SM 2130B	Week 06 - West & Central	
WQ18062533	6/25/2018 12:05:00 PM	Battaglia Larry	9.14	NTU	SM 2130B	Week 07 - West & Central	
WQ18070236	7/2/2018 10:20:00 AM	Brougham Lauren	6.68	NTU	SM 2130B	Week 08 - West & Central	
WQ18070933	7/9/2018 12:05:00 PM	Kerins Kelly	6.81	NTU	SM 2130B	Week 09 - West & Central	
WQ18071636	7/17/2018 1:10:00 PM	Kerins Kelly	4.36	NTU	SM 2130B	Week 10 - West & Central	
WQ18072333	7/23/2018 9:25:00 AM	Kerins Kelly	4.37	NTU	SM 2130B	Week 11 - West & Central	
WQ18073034	7/30/2018 9:40:00 AM	Kerins Kelly	7.7	NTU	SM 2130B	Week 12 - West & Central	
WQ18080634	8/6/2018 10:30:00 AM	Kerins Kelly	0.78	NTU	SM 2130B	Week 01 - West & Central	
WQ18081331	8/13/2018 1:10:00 PM	Kerins Kelly	8.47	NTU	SM 2130B	Week 02 - West & Central	
WQ18082040	8/20/2018 10:45:00 AM	Kerins Kelly	7.12	NTU	SM 2130B	Week 03 - West & Central	
WQ18082734	8/27/2018 11:00:00 AM	Kerins Kelly	9.12	NTU	SM 2130B	Week 04 - West & Central	
WQ18090334	9/4/2018 12:40:00 PM	Kerins Kelly	10.6	NTU	SM 2130B	Week 05 - West & Central	
WQ18091033	9/10/2018 10:45:00 AM	Kerins Kelly	8.91	NTU	SM 2130B	Week 06 - West & Central	
WQ18091738	9/17/2018 11:45:00 AM	Kerins Kelly	10.3	NTU	SM 2130B	Week 07 - West & Central	
WQ18092436	9/24/2018 10:50:00 AM	Kerins Kelly	7.26	NTU	SM 2130B	Week 08 - West & Central	
WQ18100156	10/1/2018 10:40:00 AM	Kerins Kelly	5.6	NTU	SM 2130B	Week 09 - West & Central	
WQ18100832	10/8/2018 11:45:00 AM	Kerins Kelly	9.7	NTU	SM 2130B	Week 10 - West & Central	
WQ18101537	10/15/2018 12:30:00 PM	Kerins Kelly	8.6	NTU	SM 2130B	Week 11 - West & Central	
WQ18102234	10/22/2018 11:15:00 AM	Kerins Kelly	7.8	NTU	SM 2130B	Week 12 - West & Central	
WQ18102934	10/29/2018 12:30:00 PM	Kerins Kelly	4.1	NTU	SM 2130B	Week 01 - West & Central	
WQ18110525	11/5/2018 10:46:00 AM	Kerins Kelly	2.43	NTU	SM 2130B	Week 02 - West & Central	
WQ18111229	11/13/2018 12:01:00 PM	Kerins Kelly	2.31	NTU	SM 2130B	Week 03 - West & Central	
WQ18111933	11/19/2018 12:01:00 PM	Kerins Kelly	0.66	NTU	SM 2130B	Week 04 - West & Central	
WQ18112628	11/26/2018 12:01:00 PM	Kerins Kelly	1.46	NTU	SM 2130B	Week 05 - West & Central	
WQ18120327	12/3/2018 9:15:00 AM	Kerins Kelly	3.25	NTU	SM 2130B	Week 06 - West & Central	
WQ18121027	12/10/2018 10:46:00 AM	Kerins Kelly	1.73	NTU	SM 2130B	Week 07 - West & Central	
WQ18121735	12/17/2018 10:50:00 AM	Battaglia Larry	0.86	NTU	SM 2130B	Week 08 - West & Central	
WQ18122427	12/26/2018 8:35:00 AM	Clark John	0.75	NTU	SM 2130B	Week 09 - West & Central	
WQ18123126	1/2/2019 8:20:00 AM	Gondola Trevor	0.91	NTU	SM 2130B	Week 10 - West & Central	
WQ19010727	1/7/2019 11:15:00 AM	Battaglia Larry	0.98	NTU	SM 2130B	Week 11 - West & Central	
WQ19011428	1/14/2019 12:30:00 PM	Clark John	4.17	NTU	SM 2130B	Week 12 - West & Central	
WQ19012132	1/22/2019 11:45:00 AM	Gondola Trevor	1.78	NTU	SM 2130B	Week 01 - West & Central	
WQ19012825	1/28/2019 7:15:00 AM	Clark John	2.63	NTU	SM 2130B	Week 02 - West & Central	
WQ19020429	2/4/2019 11:45:00 AM	Gondola Trevor	2.7	NTU	SM 2130B	Week 03 - West & Central	
WQ19021128	2/11/2019 11:15:00 AM	Battaglia Larry	2.3	NTU	SM 2130B	Week 04 - West & Central	
WQ19021833	2/19/2019 11:15:00 AM	Clark John	4.4	NTU	SM 2130B	Week 05 - West & Central	
WQ19022527	2/25/2019 1:10:00 PM	Gondola Trevor	3.6	NTU	SM 2130B	Week 06 - West & Central	
WQ19030427	3/4/2019 12:30:00 PM	Battaglia Larry	7	NTU	SM 2130B	Week 07 - West & Central	
WQ19031130	3/11/2019 12:00:00 PM	Clark John	5.28	NTU	SM 2130B	Week 08 - West & Central	
WQ19031832	3/18/2019 12:50:00 PM	Gondola Trevor	4.44	NTU	SM 2130B	Week 09 - West & Central	
WQ19032526	3/25/2019 11:20:00 AM	Gondola Trevor	4.17	NTU	SM 2130B	Week 10 - West & Central	
WQ19040150	4/1/2019 11:35:00 AM	Gondola Trevor	3.82	NTU	SM 2130B	Week 11 - West & Central	
WQ19040828	4/8/2019 8:30:00 AM	Radley Joseph	4.24	NTU	SM 2130B	Week 12 - West & Central	
WQ19041532	4/15/2019 12:00:00 PM	Battaglia Larry	3.51	NTU	SM 2130B	Week 01 - West & Central	
WQ19042225	4/22/2019 8:40:00 AM	Gondola Trevor	3.46	NTU	SM 2130B	Week 02 - West & Central	
WQ19042929	4/29/2019 7:45:00 AM	Clark John	3.51	NTU	SM 2130B	Week 03 - West & Central	
WQ19050628	5/6/2019 9:00:00 AM	Gondola Trevor	3.15	NTU	SM 2130B	Week 04 - West & Central	
WQ19051328	5/16/2019 11:25:00 AM	Gondola Trevor	3.1	NTU	SM 2130B	Week 05 - West & Central	
WQ19052032	5/20/2019 8:35:00 AM	Gondola Trevor	2.64	NTU	SM 2130B	Week 06 - West & Central	
WQ19052727	5/28/2019 9:55:00 AM	Battaglia Larry	2.33	NTU	SM 2130B	Week 07 - West & Central	
WQ19060330	6/3/2019 11:05:00 AM	Clark John	2.66	NTU	SM 2130B	Week 08 - West & Central	
WQ19061027	6/10/2019 9:00:00 AM	Battaglia Larry	2.17	NTU	SM 2130B	Week 09 - West & Central	
WQ19061731	6/18/2019 8:15:00 AM	Gondola Trevor	19.1	NTU	SM 2130B	Week 10 - West & Central	
WQ19062427	6/24/2019 12:40:00 PM	Kerins Kelly	16.7	NTU	SM 2130B	Week 11 - West & Central	
WQ19070151	7/1/2019 10:10:00 AM	Kerins Kelly	15	NTU	SM 2130B	Week 12 - West & Central	
WQ19070828	7/8/2019 11:35:00 AM	Kerins Kelly	13	NTU	SM 2130B	Week 01 - West & Central	
WQ19071529	7/15/2019 11:05:00 AM	Kerins Kelly	7.6	NTU	SM 2130B	Week 02 - West & Central	
WQ19072229	7/22/2019 10:25:00 AM	Kerins Kelly	7.55	NTU	SM 2130B	Week 03 - West & Central	
WQ19072928	7/29/2019 8:40:00 AM	Gondola Trevor	9.29	NTU	SM 2130B	Week 04 - West & Central	
WQ19080527	8/5/2019 8:40:00 AM	Gondola Trevor	10.5	NTU	SM 2130B	Week 05 - West & Central	
WQ19081224	8/12/2019 9:10:00 AM	Gondola Trevor	10.1	NTU	SM 2130B	Week 06 - West & Central	
WQ19081931	8/19/2019 12:45:00 PM	Clark John	7.83	NTU	SM 2130B	Week 07 - West & Central	
WQ19082630	8/26/2019 10:45:00 AM	Kerins Kelly	2.86	NTU	SM 2130B	Week 08 - West & Central	
WQ19090226	9/3/2019 8:25:00 AM	Gondola Trevor	6.8	NTU	SM 2130B	Week 09 - West & Central	
WQ19090926	9/9/2019 9:00:00 AM	Kerins Kelly	7.75	NTU	SM 2130B	Week 10 - West & Central	
WQ19091632	9/16/2019 9:50:00 AM	Kerins Kelly	8.83	NTU	SM 2130B	Week 11 - West & Central	
WQ19092328	9/23/2019 9:30:00 AM	Kerins Kelly	8.8	NTU	SM 2130B	Week 12 - West & Central	
WQ19093028	10/1/2019 8:00:00 AM	Clark John	15	NTU	SM 2130B	Week 01 - West & Central	
WQ19100725	10/7/2019 9:20:00 AM	Kerins Kelly	11.5	NTU	SM 2130B	Week 02 - West & Central	
WQ19101429	10/14/2019 10:25:00 AM	Kerins Kelly	12.7	NTU	SM 2130B	Week 03 - West & Central	

WQ19102132	10/21/2019 11:05:00 AM	Kerins Kelly	9.82	NTU	SM 2130B	Week 04 - West & Central	
WQ19102828	10/28/2019 10:30:00 AM	Gondola Trevor	0.78	NTU	SM 2130B	Week 05 - West & Central	
WQ19110427	11/4/2019 8:05:00 AM	Gondola Trevor	1.74	NTU	SM 2130B	Week 06 - West & Central	
WQ19111126	11/13/2019 7:50:00 AM	Gondola Trevor	1.01	NTU	SM 2130B	Week 07 - West & Central	
WQ19111835	11/18/2019 7:35:00 AM	Clark John	1.42	NTU	SM 2130B	Week 08 - West & Central	
WQ19112526	11/25/2019 10:30:00 AM	Gondola Trevor	1.69	NTU	SM 2130B	Week 09 - West & Central	
WQ19120225	12/2/2019 8:50:00 AM	Gondola Trevor	1.72	NTU	SM 2130B	Week 10 - West & Central	
WQ19120926	12/9/2019 12:45:00 PM	Battaglia Larry	1.5	NTU	SM 2130B	Week 11 - West & Central	
WQ19121628	12/16/2019 7:00:00 AM	Clark John	1.56	NTU	SM 2130B	Week 12 - West & Central	
WQ19122327	12/26/2019 8:15:00 AM	Gondola Trevor	1.76	NTU	SM 2130B	Week 01 - West & Central	
WQ19123025	12/30/2019 12:40:00 PM	Battaglia Larry	1.52	NTU	SM 2130B	Week 02 - West & Central	
WQ20010628	1/6/2020 10:10:00 AM	Gondola Trevor	1.52	NTU	SM 2130B	Week 03 - West & Central	
WQ20011328	1/13/2020 8:20:00 AM	Clark John	0.83	NTU	SM 2130B	Week 04 - West & Central	
WQ20012031	1/21/2020 2:37:00 PM	Gondola Trevor	0.83	NTU	SM 2130B	Week 05 - West & Central	
WQ20012726	1/27/2020 12:20:00 PM	Battaglia Larry	1.12	NTU	SM 2130B	Week 06 - West & Central	
WQ20020326	2/3/2020 8:35:00 AM	Gondola Trevor	1.16	NTU	SM 2130B	Week 07 - West & Central	
WQ20021037	2/10/2020 7:30:00 AM	Clark John	0.85	NTU	SM 2130B	Week 08 - West & Central	
WQ20021731	2/18/2020 9:25:00 AM	Gondola Trevor	0.99	NTU	SM 2130B	Week 09 - West & Central	
WQ20022425	2/24/2020 8:35:00 AM	Clark John	1.07	NTU	SM 2130B	Week 10 - West & Central	
WQ20030227	3/2/2020 8:05:00 AM	Gondola Trevor	0.67	NTU	SM 2130B	Week 11 - West & Central	
WQ20030927	3/9/2020 10:40:00 AM	Heifetz Rachel	2.6	NTU	SM 2130B	Week 12 - West & Central	
WQ20031633	3/16/2020 8:15:00 AM	Clark John	1.4	NTU	SM 2130B	Week 01 - West & Central	
WQ20032324	3/23/2020 8:40:00 AM	Gondola Trevor	3.78	NTU	SM 2130B	Week 02 - West & Central	
WQ20033029	3/30/2020 11:50:00 AM	Battaglia Larry	4.51	NTU	SM 2130B	Week 03 - West & Central	
WQ20040615	4/6/2020 6:20:00 AM	Clark John	3.2	NTU	SM 2130B	Week 04 - West & Central	Alkalinity cancelled due to out of hold time. 07/08/2020 RH
WQ20041315	4/13/2020 8:15:00 AM	Gondola Trevor	2.8	NTU	SM 2130B	Week 05 - West & Central	
WQ20042018	4/20/2020 7:00:00 AM	Clark John	4.42	NTU	SM 2130B	Week 06 - West & Central	
WQ20042715	4/27/2020 8:00:00 AM	Gondola Trevor	3.27	NTU	SM 2130B	Week 07 - West & Central	
WQ20050416	5/4/2020 6:30:00 AM	Clark John	3.93	NTU	SM 2130B	Week 08 - West & Central	
WQ20051133	5/11/2020 10:15:00 AM	Gondola Trevor	4.41	NTU	SM 2130B	Week 09 - West & Central	
WQ20051825	5/18/2020 1:05:00 PM	Battaglia Larry	5.69	NTU	SM 2130B	Week 10 - West & Central	
WQ20052626	5/26/2020 8:25:00 AM	Gondola Trevor	4.56	NTU	SM 2130B	Week 11 - West & Central	
WQ20060150	6/1/2020 6:25:00 AM	Clark John	5.72	NTU	SM 2130B	Week 12 - West & Central	
WQ20060827	6/8/2020 9:00:00 AM	Gondola Trevor	10.1	NTU	SM 2130B	Week 01 - West & Central	
WQ20061530	6/15/2020 6:45:00 AM	Clark John	7.47	NTU	SM 2130B	Week 02 - West & Central	
WQ20062229	6/22/2020 12:15:00 PM	Battaglia Larry	20.6	NTU	SM 2130B	Week 03 - West & Central	
WQ20062928	6/30/2020 9:00:00 AM	Gondola Trevor	5.71	NTU	SM 2130B	Week 04 - West & Central	
WQ20070628	7/7/2020 9:00:00 AM	Gondola Trevor	6.42	NTU	SM 2130B	Week 05 - West & Central	
WQ20071327	7/13/2020 7:35:00 AM	Clark John	5.93	NTU	SM 2130B	Week 06 - West & Central	
WQ20072031	7/20/2020 8:30:00 AM	Gondola Trevor	6.31	NTU	SM 2130B	Week 07 - West & Central	
WQ20072730	7/27/2020 8:20:00 AM	Gondola Trevor	1.92	NTU	SM 2130B	Week 08 - West & Central	
WQ20080327	8/4/2020 1:15:00 PM	Stern Sarah	1.61	NTU	SM 2130B	Week 09 - West & Central	
WQ20081023	8/10/2020 1:10:00 PM	Battaglia Larry	2.8	NTU	SM 2130B	Week 10 - West & Central	
WQ20081732	8/17/2020 1:10:00 PM	Stern Sarah	4.46	NTU	SM 2130B	Week 11 - West & Central	
WQ20082428	8/24/2020 10:30:00 AM	Stern Sarah	1.65	NTU	SM 2130B	Week 12 - West & Central	
WQ20083128	8/31/2020 11:45:00 AM	Stern Sarah	6.1	NTU	SM 2130B	Week 01 - West & Central	
WQ20090725	9/8/2020 12:25:00 PM	Stern Sarah	6.32	NTU	SM 2130B	Week 02 - West & Central	
WQ20091429	9/14/2020 11:35:00 AM	Stern Sarah	7.97	NTU	SM 2130B	Week 03 - West & Central	
WQ20092133	9/21/2020 10:55:00 AM	Stern Sarah	8.91	NTU	SM 2130B	Week 04 - West & Central	
WQ20092828	9/28/2020 12:05:00 PM	Stern Sarah	2.42	NTU	SM 2130B	Week 05 - West & Central	
WQ20100527	10/5/2020 11:20:00 AM	Stern Sarah	6.41	NTU	SM 2130B	Week 06 - West & Central	
WQ20101227	10/12/2020 11:20:00 AM	Stern Sarah	9.66	NTU	SM 2130B	Week 07 - West & Central	
WQ20101934	10/19/2020 11:10:00 AM	Stern Sarah	9.55	NTU	SM 2130B	Week 08 - West & Central	
WQ20102627	10/26/2020 10:35:00 AM	Stern Sarah	2.23	NTU	SM 2130B	Week 09 - West & Central	
WQ20110226	11/2/2020 12:25:00 PM	Battaglia Larry	7.98	NTU	SM 2130B	Week 10 - West & Central	The chloride value entered is associated with the QC run on 11-03-2020. 11-24-2020 RH
WQ20110927	11/9/2020 12:00:00 PM	Stern Sarah	10.5	NTU	SM 2130B	Week 11 - West & Central	
WQ20111633	11/17/2020 8:15:00 AM	Gondola Trevor	10.6	NTU	SM 2130B	Week 12 - West & Central	
WQ20112328	11/23/2020 12:45:00 PM	Stern Sarah	12.7	NTU	SM 2130B	Week 01 - West & Central	
WQ20113025	11/30/2020 7:00:00 AM	Clark John	10.8	NTU	SM 2130B	Week 02 - West & Central	
WQ20120729	12/7/2020 1:05:00 PM	Gondola Trevor	11.6	NTU	SM 2130B	Week 03 - West & Central	
WQ20121428	12/14/2020 6:40:00 AM	Clark John	8.33	NTU	SM 2130B	Week 04 - West & Central	
WQ20122128	12/21/2020 11:05:00 AM	Stern Sarah	11.1	NTU	SM 2130B	Week 05 - West & Central	
WQ20122827	12/28/2020 11:05:00 AM	Stern Sarah	9.03	NTU	SM 2130B	Week 06 - West & Central	TOC instrument experience issues during run. TOC and alkalinity were resampled 12/31/2020. 12/31/2020 RH
WQ21010427	1/4/2021 12:20:00 PM	Stern Sarah	9.86	NTU	SM 2130B	Week 07 - West & Central	
WQ21011130	1/11/2021 12:15:00 PM	Stern Sarah	9.69	NTU	SM 2130B	Week 08 - West & Central	
WQ21011831	1/19/2021 10:30:00 AM	Stern Sarah	0.82	NTU	SM 2130B	Week 09 - West & Central	
WQ21012526	1/25/2021 11:55:00 AM	Stern Sarah	0.7	NTU	SM 2130B	Week 10 - West & Central	
WQ21020151	2/1/2021 6:30:00 AM	Clark John	1.35	NTU	SM 2130B	Week 11 - West & Central	

Appendix D Bon Tempe and San Geronimo WTP Raw Water Total Organic Carbon Data (January 2015 to January 2021)

Bon Tempe and San Geronimo WTP Raw Water - Total Organic Carbon Data

January 2015 - January 2021

Bon Tempe WTP							
Sample Num	Sample Collection Date	Collected By	Reported Value	Unit	Test Ref. Methodology	Description	Comment
WQ15040627	4/6/2015 7:50:00 AM	Clark John	3.2	mg/L	SM 5310B	Week 07 - West & Central	
WQ15041335	4/13/2015 11:30:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 08 - West & Central	
WQ15042036	4/20/2015 12:05:00 PM	Fuller Jennie	3.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ15042731	4/27/2015 10:20:00 AM	Clark John	3.2	mg/L	SM 5310B	Week 10 - West & Central	
WQ15050432	5/4/2015 9:05:00 AM	Fuller Jennie	3.2	mg/L	SM 5310B	Week 11 - West & Central	
WQ15051133	5/11/2015 8:45:00 AM	Fuller Jennie	3.5	mg/L	SM 5310B	Week 12 - West & Central	
WQ15051838	5/18/2015 9:35:00 AM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 01 - West & Central	
WQ15052531	5/26/2015 8:10:00 AM	Fuller Jennie	3.4	mg/L	SM 5310B	Week 02 - West & Central	
WQ15060155	6/1/2015 8:50:00 AM	Fuller Jennie	3.5	mg/L	SM 5310B	Week 03 - West & Central	
WQ15060833	6/8/2015 8:35:00 AM	Fuller Jennie	3.5	mg/L	SM 5310B	Week 04 - West & Central	
WQ15061538	6/15/2015 11:15:00 AM	Fuller Jennie	4	mg/L	SM 5310B	Week 05 - West & Central	
WQ15062232	6/23/2015 8:55:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 06 - West & Central	
WQ15062932	6/29/2015 1:45:00 PM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 07 - West & Central	
WQ15070635	7/6/2015 9:00:00 AM	Bowers Rhonda	2.9	mg/L	SM 5310B	Week 08 - West & Central	
WQ15071332	7/13/2015 9:15:00 AM	Bowers Rhonda	2.8	mg/L	SM 5310B	Week 09 - West & Central	
WQ15072035	7/20/2015 8:20:00 AM	Bowers Rhonda	3.5	mg/L	SM 5310B	Week 10 - West & Central	
WQ15072732	7/27/2015 8:05:00 AM	Bowers Rhonda	3.5	mg/L	SM 5310B	Week 11 - West & Central	
WQ15080333	8/3/2015 9:35:00 AM	Bowers Rhonda	3.8	mg/L	SM 5310B	Week 12 - West & Central	
WQ15081033	8/10/2015 9:55:00 AM	Bowers Rhonda	3.4	mg/L	SM 5310B	Week 01 - West & Central	
WQ15081736	8/17/2015 8:45:00 AM	Bowers Rhonda	3.5	mg/L	SM 5310B	Week 02 - West & Central	
WQ15082434	8/24/2015 8:30:00 AM	Bowers Rhonda	3.3	mg/L	SM 5310B	Week 03 - West & Central	
WQ15083133	8/31/2015 9:00:00 AM	Battaglia Larry	3.3	mg/L	SM 5310B	Week 04 - West & Central	
WQ15090733	9/8/2015 11:10:00 AM	Fuller Jennie	3.5	mg/L	SM 5310B	Week 05 - West & Central	
WQ15091432	9/14/2015 8:50:00 AM	Fuller Jennie	3.8	mg/L	SM 5310B	Week 06 - West & Central	
WQ15092137	9/21/2015 8:35:00 AM	Fuller Jennie	3.6	mg/L	SM 5310B	Week 07 - West & Central	
WQ15092835	9/28/2015 11:00:00 AM	Fuller Jennie	3.9	mg/L	SM 5310B	Week 08 - West & Central	
WQ15100532	10/5/2015 12:25:00 PM	Fuller Jennie	4	mg/L	SM 5310B	Week 09 - West & Central	
WQ15101231	10/12/2015 10:10:00 AM	Fuller Jennie	3.6	mg/L	SM 5310B	Week 10 - West & Central	
WQ15101936	10/19/2015 8:45:00 AM	Fuller Jennie	4	mg/L	SM 5310B	Week 11 - West & Central	
WQ15102633	10/26/2015 11:05:00 AM	Clark John	3.7	mg/L	SM 5310B	Week 12 - West & Central	
WQ15110233	11/2/2015 9:30:00 AM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ15110931	11/9/2015 8:15:00 AM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 02 - West & Central	
WQ15111639	11/16/2015 10:40:00 AM	Fuller Jennie	2.9	mg/L	SM 5310B	Week 03 - West & Central	
WQ15112327	11/23/2015 9:30:00 AM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ15113027	11/30/2015 10:30:00 AM	Fuller Jennie	3	mg/L	SM 5310B	Week 05 - West & Central	Quantitray was >2419.6 and not countable. Bacti resampled and reset 12/2/15. MCR
WQ15120726	12/7/2015 9:25:00 AM	Fuller Jennie	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ15121426	12/14/2015 11:55:00 AM	Clark John	3.2	mg/L	SM 5310B	Week 07 - West & Central	
WQ15122129	12/21/2015 11:05:00 AM	Heifetz Rachel	2.9	mg/L	SM 5310B	Week 08 - West & Central	
WQ15122826	12/28/2015 10:00:00 AM	Fuller Jennie	3.2	mg/L	SM 5310B	Week 09 - West & Central	
WQ16010425	1/4/2016 10:35:00 AM	Fuller Jennie	3.4	mg/L	SM 5310B	Week 10 - West & Central	
WQ16011126	1/11/2016 10:45:00 AM	Fuller Jennie	3.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ16011831	1/20/2016 10:00:00 AM	Battaglia Larry	3.5	mg/L	SM 5310B	Week 12 - West & Central	
WQ16012527	1/25/2016 11:10:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 01 - West & Central	
WQ16020145	2/1/2016 8:40:00 AM	Battaglia Larry	3.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ16020828	2/9/2016 12:50:00 PM	Clark John	3.1	mg/L	SM 5310B	Week 03 - West & Central	
WQ16021532	2/16/2016 9:40:00 AM	Battaglia Larry	3.5	mg/L	SM 5310B	Week 04 - West & Central	
WQ16022227	2/23/2016 8:25:00 AM	Clark John	3.9	mg/L	SM 5310B	Week 05 - West & Central	
WQ16022926	3/1/2016 9:20:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ16030726	3/8/2016 8:15:00 AM	Battaglia Larry	3.3	mg/L	SM 5310B	Week 07 - West & Central	
WQ16031429	3/16/2016 10:15:00 AM	Clark John	2.5	mg/L	SM 5310B	Week 08 - West & Central	
WQ16032126	3/22/2016 8:45:00 AM	Battaglia Larry	2.7	mg/L	SM 5310B	Week 09 - West & Central	
WQ16032825	3/28/2016 9:10:00 AM	Tanomrat Ammon	2.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ16040426	4/4/2016 12:25:00 PM	Clark John	3.4	mg/L	SM 5310B	Week 11 - West & Central	
WQ16041138	4/11/2016 8:40:00 AM	Battaglia Larry	3.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ16041837	4/18/2016 11:05:00 AM	Clark John	3.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ16042531	4/25/2016 8:30:00 AM	Battaglia Larry	3.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ16050234	5/2/2016 10:30:00 AM	Clark John	3.4	mg/L	SM 5310B	Week 03 - West & Central	
WQ16050933	5/9/2016 1:05:00 PM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 04 - West & Central	
WQ16051638	5/16/2016 11:40:00 AM	Clark John	3.1	mg/L	SM 5310B	Week 05 - West & Central	
WQ16052332	5/24/2016 8:45:00 AM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 06 - West & Central	
WQ16053032	5/31/2016 11:45:00 AM	Clark John	3	mg/L	SM 5310B	Week 07 - West & Central	
WQ16060635	6/6/2016 8:35:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 08 - West & Central	
WQ16061332	6/13/2016 12:00:00 PM	Clark John	3.1	mg/L	SM 5310B	Week 09 - West & Central	
WQ16062036	6/20/2016 8:35:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 10 - West & Central	
WQ16062732	6/27/2016 11:45:00 AM	Clark John	3.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ16070433	7/5/2016 10:35:00 AM	Heifetz Rachel	3.2	mg/L	SM 5310B	Week 12 - West & Central	TOC samples were not collected in the field, aliquot from TON sample bottle by EG
WQ16071133	7/11/2016 9:45:00 AM	Heifetz Rachel	3	mg/L	SM 5310B	Week 01 - West & Central	
WQ16071835	7/18/2016 8:45:00 AM	Battaglia Larry	3.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ16072534	7/25/2016 11:55:00 AM	Clark John	3.1	mg/L	SM 5310B	Week 03 - West & Central	
WQ16080153	8/1/2016 8:30:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 04 - West & Central	
WQ16080833	8/8/2016 1:30:00 PM	Fuller Jennie	2.9	mg/L	SM 5310B	Week 05 - West & Central	
WQ16081537	8/15/2016 9:50:00 AM	Fuller Jennie	3.4	mg/L	SM 5310B	Week 06 - West & Central	
WQ16082232	8/22/2016 10:35:00 AM	Fuller Jennie	3	mg/L	SM 5310B	Week 07 - West & Central	
WQ16082935	8/29/2016 8:45:00 AM	Fuller Jennie	2.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ16090532	9/6/2016 8:35:00 AM	Fuller Jennie	2.7	mg/L	SM 5310B	Week 09 - West & Central	
WQ16091231	9/12/2016 10:20:00 AM	Fuller Jennie	3.3	mg/L	SM 5310B	Week 10 - West & Central	
WQ16091937	9/19/2016 10:30:00 AM	Fuller Jennie	2.7	mg/L	SM 5310B	Week 11 - West & Central	
WQ16092633	9/26/2016 7:35:00 AM	Fuller Jennie	3	mg/L	SM 5310B	Week 12 - West & Central	
WQ16100333	10/3/2016 10:20:00 AM	Fuller Jennie	2.9	mg/L	SM 5310B	Week 01 - West & Central	
WQ16101031	10/10/2016 8:15:00 AM	Fuller Jennie	3.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ16101738	10/17/2016 10:15:00 AM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 03 - West & Central	
WQ16102433	10/24/2016 9:40:00 AM	Fuller Jennie	3	mg/L	SM 5310B	Week 04 - West & Central	
WQ16103133	10/31/2016 12:30:00 PM	Clark John	2.8	mg/L	SM 5310B	Week 05 - West & Central	
WQ16110726	11/7/2016 9:20:00 AM	Fuller Jennie	2.8	mg/L	SM 5310B	Week 06 - West & Central	
WQ16111426	11/14/2016 9:45:00 AM	Fuller Jennie	2.8	mg/L	SM 5310B	Week 07 - West & Central	
WQ16112134	11/21/2016 8:35:00 AM	Fuller Jennie	3.4	mg/L	SM 5310B	Week 08 - West & Central	
WQ16112826	11/28/2016 9:00:00 AM	Fuller Jennie	3.5	mg/L	SM 5310B	Week 09 - West & Central	
WQ16120525	12/5/2016 1:00:00 PM	Battaglia Larry	3	mg/L	SM 5310B	Week 10 - West & Central	
WQ16121226	12/13/2016 11:20:00 AM	Fuller Jennie	3.2	mg/L	SM 5310B	Week 11 - West & Central	
WQ16121927	12/19/2016 9:15:00 AM	Fuller Jennie	3.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ16122627	12/27/2016 9:30:00 AM	Fuller Jennie	3	mg/L	SM 5310B	Week 01 - West & Central	
WQ17010225	1/3/2017 10:55:00 AM	Heifetz Rachel	3.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ17010928	1/9/2017 1:05:00 PM	Battaglia Larry	3.7	mg/L	SM 5310B	Week 03 - West & Central	
WQ17011631	1/17/2017 8:50:00 AM	Battaglia Larry	3.5	mg/L	SM 5310B	Week 04 - West & Central	
WQ17012327	1/23/2017 8:20:00 AM	Clark John	3.4	mg/L	SM 5310B	Week 05 - West & Central	
WQ17013026	1/30/2017 11:30:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 06 - West & Central	
WQ17020626	2/6/2017 10:05:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 07 - West & Central	
WQ17021329	2/13/2017 11:50:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 08 - West & Central	
WQ17022026	2/21/2017 12:30:00 PM	Clark John	3.2	mg/L	SM 5310B	Week 09 - West & Central	
WQ17022725	2/27/2017 8:30:00 AM	Battaglia Larry	2.9	mg/L	SM 5310B	Week 10 - West & Central	
WQ17030626	3/6/2017 12:10:00 PM	Clark John	3.4	mg/L	SM 5310B	Week 11 - West & Central	
WQ17031327	3/13/2017 8:45:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ17032032	3/20/2017 11:15:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 01 - West & Central	
WQ17032725	3/27/2017 9:50:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 02 - West & Central	
WQ17040328	4/3/2017 11:10:00 AM	Clark John	2.7	mg/L	SM 5310B	Week 03 - West & Central	
WQ17041027	4/10/2017 10:00:00 AM	Battaglia Larry	2.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ17041731	4/17/2017 11:10:00 AM	Clark John	2.3	mg/L	SM 5310B	Week 05 - West & Central	
WQ17042426	4/24/2017 10:15:00 AM	Battaglia Larry	2	mg/L	SM 5310B	Week 06 - West & Central	
WQ17050149	5/1/2017 12:20:00 PM	Clark John	2.2	mg/L	SM 5310B	Week 07 - West & Central	
WQ17050829	5/8/2017 10:45:00 AM	Battaglia Larry	1.9	mg/L	SM 5310B	Week 08 - West & Central	
WQ17051537	5/15/2017 10:55:00 AM	Clark John	2.1	mg/L	SM 5310B	Week 09 - West & Central	
WQ17052231	5/22/2017 12:35:00 PM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 10 - West & Central	
WQ17052932	5/30/2017 10:30:00 AM	Clark John	2.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ17060533	6/5/2017 8:45:00 AM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 12 - West & Central	
WQ17061233	6/12/2017 10:55:00 AM	Clark John	2.8	mg/L	SM 5310B	Week 01 - West & Central	

WQ17061936	6/19/2017 12:20:00 PM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 02 - West & Central	
WQ17062634	6/26/2017 10:55:00 AM	Clark John	2.9	mg/L	SM 5310B	Week 03 - West & Central	
WQ17070333	7/5/2017 10:40:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ17071033	7/10/2017 1:05:00 PM	Gondola Trevor	2.3	mg/L	SM 5310B	Week 05 - West & Central	
WQ17071732	7/17/2017 1:00:00 PM	Gondola Trevor	2.3	mg/L	SM 5310B	Week 06 - West & Central	
WQ17072432	7/24/2017 11:50:00 AM	Gondola Trevor	2.3	mg/L	SM 5310B	Week 07 - West & Central	
WQ17073135	7/31/2017 10:50:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 08 - West & Central	
WQ17080732	8/7/2017 11:50:00 AM	Gondola Trevor	2.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ17081431	8/14/2017 12:15:00 PM	Gondola Trevor	2.5	mg/L	SM 5310B	Week 10 - West & Central	
WQ17082137	8/21/2017 10:40:00 AM	Gondola Trevor	2.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ17082833	8/28/2017 10:30:00 AM	Gondola Trevor	2.5	mg/L	SM 5310B	Week 12 - West & Central	
WQ17090433	9/5/2017 9:10:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 01 - West & Central	
WQ17091131	9/11/2017 12:10:00 PM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 02 - West & Central	
WQ17091839	9/18/2017 12:30:00 PM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ17092533	9/25/2017 11:20:00 AM	Gondola Trevor	2.6	mg/L	SM 5310B	Week 04 - West & Central	
WQ17100233	10/2/2017 11:15:00 AM	Clark John	2.6	mg/L	SM 5310B	Week 05 - West & Central	
WQ17100932	10/9/2017 10:35:00 AM	Battaglia Larry	2.5	mg/L	SM 5310B	Week 06 - West & Central	
WQ17101636	10/16/2017 10:20:00 AM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 07 - West & Central	
WQ17102335	10/23/2017 10:35:00 AM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ17103032	10/30/2017 1:00:00 PM	Clark John	2.8	mg/L	SM 5310B	Week 09 - West & Central	
WQ17110631	11/6/2017 11:50:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ17111332	11/13/2017 10:50:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 11 - West & Central	
WQ17112027	11/20/2017 11:30:00 AM	Heifetz Rachel	3.5	mg/L	SM 5310B	Week 12 - West & Central	
WQ17112727	11/27/2017 11:50:00 AM	Gondola Trevor	3.5	mg/L	SM 5310B	Week 01 - West & Central	
WQ17120425	12/4/2017 10:45:00 AM	Battaglia Larry	3.8	mg/L	SM 5310B	Week 02 - West & Central	
WQ17121128	12/11/2017 10:50:00 AM	Battaglia Larry	3.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ17121832	12/18/2017 11:35:00 AM	Heifetz Rachel	3.8	mg/L	SM 5310B	Week 04 - West & Central	
WQ17122527	12/26/2017 11:00:00 AM	Gondola Trevor	3.5	mg/L	SM 5310B	Week 05 - West & Central	
WQ18010147	1/2/2018 8:40:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 06 - West & Central	
WQ18010826	1/8/2018 10:50:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 07 - West & Central	
WQ18011533	1/16/2018 10:55:00 AM	Rogina Minerva	3.6	mg/L	SM 5310B	Week 08 - West & Central	
WQ18012226	1/22/2018 9:15:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 09 - West & Central	
WQ18012925	1/29/2018 11:50:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 10 - West & Central	
WQ18020526	2/7/2018 10:50:00 AM	Battaglia Larry	3.2	mg/L	SM 5310B	Week 11 - West & Central	
WQ18021223	2/12/2018 10:10:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ18021247	2/12/2018 10:10:00 AM	Gondola Trevor	2.6	mg/L		DBPs - Stage 2	
WQ18021932	2/20/2018 10:10:00 AM	Gondola Trevor	3.6	mg/L	SM 5310B	Week 01 - West & Central	
WQ18022624	2/26/2018 11:35:00 AM	Gondola Trevor	3.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ18030528	3/5/2018 10:00:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 03 - West & Central	
WQ18031227	3/12/2018 10:35:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ18031938	3/19/2018 10:25:00 AM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 05 - West & Central	
WQ18032632	3/26/2018 12:00:00 PM	Clark John	3.3	mg/L	SM 5310B	Week 06 - West & Central	
WQ18040232	4/2/2018 9:50:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 07 - West & Central	
WQ18040935	4/9/2018 10:45:00 AM	Battaglia Larry	3.2	mg/L	SM 5310B	Week 08 - West & Central	
WQ18041636	4/16/2018 12:40:00 PM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 09 - West & Central	
WQ18043032	5/1/2018 10:50:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 11 - West & Central	
WQ18050733	5/7/2018 8:40:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ18051433	5/14/2018 11:20:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 01 - West & Central	
WQ18051433	5/14/2018 11:20:00 AM	Gondola Trevor	2.7	mg/L		Week 01 - West & Central	
WQ18051471	5/14/2018 11:20:00 AM	Gondola Trevor	2.7	mg/L		DBPs - Stage 2	
WQ18052135	5/21/2018 9:50:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ18052834	5/29/2018 10:50:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 03 - West & Central	
WQ18060433	6/4/2018 10:40:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 04 - West & Central	
WQ18061133	6/11/2018 9:40:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ18061837	6/18/2018 12:55:00 PM	Gondola Trevor	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ18062532	6/25/2018 8:55:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 07 - West & Central	
WQ18070235	7/2/2018 8:45:00 AM	Brougham Lauren	3	mg/L	SM 5310B	Week 08 - West & Central	
WQ18070932	7/9/2018 11:05:00 AM	Kerins Kelly	3	mg/L	SM 5310B	Week 09 - West & Central	
WQ18071635	7/17/2018 11:05:00 AM	Kerins Kelly	3	mg/L	SM 5310B	Week 10 - West & Central	
WQ18072332	7/23/2018 8:25:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ18073033	7/30/2018 8:30:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ18080633	8/6/2018 9:00:00 AM	Kerins Kelly	3	mg/L	SM 5310B	Week 01 - West & Central	
WQ18081330	8/13/2018 10:45:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 02 - West & Central	
WQ18081364	8/13/2018 10:45:00 AM	Kerins Kelly	2.6	mg/L		DBPs - Stage 2 UCMR4	
WQ18082039	8/20/2018 8:45:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 03 - West & Central	
WQ18082733	8/27/2018 8:45:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ18090333	9/4/2018 8:40:00 AM	Kerins Kelly	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ18091032	9/10/2018 8:30:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 06 - West & Central	
WQ18091737	9/17/2018 10:15:00 AM	Kerins Kelly	3	mg/L	SM 5310B	Week 07 - West & Central	
WQ18092435	9/24/2018 12:45:00 PM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 08 - West & Central	Bacti results were not valid. Sample was resampled 9/26/18 WQ18092605. LEB 9/26/18
WQ18100155	10/1/2018 9:30:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 09 - West & Central	
WQ18100831	10/8/2018 9:30:00 AM	Kerins Kelly	4.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ18101536	10/15/2018 10:30:00 AM	Kerins Kelly	3.3	mg/L	SM 5310B	Week 11 - West & Central	
WQ18102233	10/22/2018 10:00:00 AM	Kerins Kelly	3.2	mg/L	SM 5310B	Week 12 - West & Central	
WQ18102933	10/29/2018 10:00:00 AM	Kerins Kelly	3.5	mg/L	SM 5310B	Week 01 - West & Central	
WQ18110524	11/5/2018 8:46:00 AM	Kerins Kelly	3.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ18111228	11/13/2018 10:01:00 AM	Kerins Kelly	3.4	mg/L	SM 5310B	Week 03 - West & Central	
WQ18111932	11/19/2018 10:01:00 AM	Kerins Kelly	3.3	mg/L	SM 5310B	Week 04 - West & Central	
WQ18112627	11/26/2018 10:01:00 AM	Kerins Kelly	3.7	mg/L	SM 5310B	Week 05 - West & Central	
WQ18120326	12/3/2018 12:21:00 PM	Kerins Kelly	3.6	mg/L	SM 5310B	Week 06 - West & Central	
WQ18121026	12/10/2018 9:46:00 AM	Kerins Kelly	3.4	mg/L	SM 5310B	Week 07 - West & Central	
WQ18121734	12/17/2018 11:45:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 08 - West & Central	
WQ18122426	12/26/2018 12:25:00 PM	Clark John	2.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ18123125	1/2/2019 11:40:00 AM	Gondola Trevor	3.5	mg/L	SM 5310B	Week 10 - West & Central	
WQ19010726	1/7/2019 9:00:00 AM	Battaglia Larry	3.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ19011427	1/14/2019 11:30:00 AM	Clark John	3.6	mg/L	SM 5310B	Week 12 - West & Central	Bacti sample temp is over 10C and outside of 2hrs window. okay to proceed per lab manager.LL
WQ19012131	1/22/2019 10:30:00 AM	Gondola Trevor	3.7	mg/L	SM 5310B	Week 01 - West & Central	
WQ19012824	1/28/2019 12:10:00 PM	Clark John	3.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ19020428	2/4/2019 10:55:00 AM	Gondola Trevor	3.7	mg/L	SM 5310B	Week 03 - West & Central	
WQ19021127	2/15/2019 8:40:00 AM	Clark John	3.7	mg/L	SM 5310B	Week 04 - West & Central	
WQ19021832	2/19/2019 10:00:00 AM	Clark John	3.4	mg/L	SM 5310B	Week 05 - West & Central	
WQ19022526	2/25/2019 10:55:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 06 - West & Central	
WQ19030426	3/4/2019 10:40:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 07 - West & Central	
WQ19031129	3/11/2019 9:25:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 08 - West & Central	
WQ19031831	3/18/2019 11:25:00 AM	Gondola Trevor	3.5	mg/L	SM 5310B	Week 09 - West & Central	
WQ19032525	3/25/2019 10:30:00 AM	Gondola Trevor	4.1	mg/L	SM 5310B	Week 10 - West & Central	
WQ19040149	4/1/2019 10:20:00 AM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 11 - West & Central	
WQ19040827	4/8/2019 11:20:00 AM	Radley Joseph	3.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ19041531	4/15/2019 10:20:00 AM	Battaglia Larry	3.5	mg/L	SM 5310B	Week 01 - West & Central	Q-tray set up was blown out and could not get an accurate MPN for analysis. Sample was recollected and scheduled as WQ19041704. 4/22/19 LEB
WQ19042224	4/22/2019 11:30:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 02 - West & Central	Carbon result is from batch 1905131. RH
WQ19042928	4/29/2019 12:30:00 PM	Clark John	3	mg/L	SM 5310B	Week 03 - West & Central	
WQ19050627	5/9/2019 10:40:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ19051327	5/16/2019 12:40:00 PM	Gondola Trevor	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ19052031	5/23/2019 8:40:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 06 - West & Central	
WQ19052726	5/30/2019 12:20:00 PM	Clark John	2.8	mg/L	SM 5310B	Week 07 - West & Central	
WQ19060329	6/6/2019 8:40:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 08 - West & Central	
WQ19061026	6/11/2019 11:15:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 09 - West & Central	
WQ19061730	6/17/2019 10:55:00 AM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ19062426	6/24/2019 11:25:00 AM	Kerins Kelly	2.9	mg/L	SM 5310B	Week 11 - West & Central	
WQ19070150	7/1/2019 8:10:00 AM	Kerins Kelly	2.6	mg/L	SM 5310B	Week 12 - West & Central	
WQ19070827	7/8/2019 8:45:00 AM	Kerins Kelly	2.6	mg/L	SM 5310B	Week 01 - West & Central	
WQ19071528	7/15/2019 8:40:00 AM	Kerins Kelly	2.5	mg/L	SM 5310B	Week 02 - West & Central	
WQ19072228	7/22/2019 8:35:00 AM	Kerins Kelly	3.2	mg/L	SM 5310B	Week 03 - West & Central	The TOC vials froze on 08/02/19. RH
WQ19072927	7/29/2019 10:50:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 04 - West & Central	
WQ19080526	8/5/2019 12:40:00 PM	Gondola Trevor	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ19081223	8/12/2019 12:40:00 PM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 06 - West & Central	
WQ19081930	8/19/2019 7:35:00 AM	Clark John	2.4	mg/L	SM 5310B	Week 07 - West & Central	
WQ19082629	8/26/2019 9:20:00 AM	Kerins Kelly	2.4	mg/L	SM 5310B	Week 08 - West & Central	
WQ19090225	9/3/2019 11:30:00 AM	Gondola Trevor	2.5	mg/L	SM 5310B	Week 09 - West & Central	
WQ19090925	9/9/2019 11:10:00 AM	Kerins Kelly	2.4	mg/L	SM 5310B	Week 10 - West & Central	
WQ19091631	9/16/2019 8:30:00 AM	Kerins Kelly	2.4	mg/L	SM 5310B	Week 11 - West & Central	

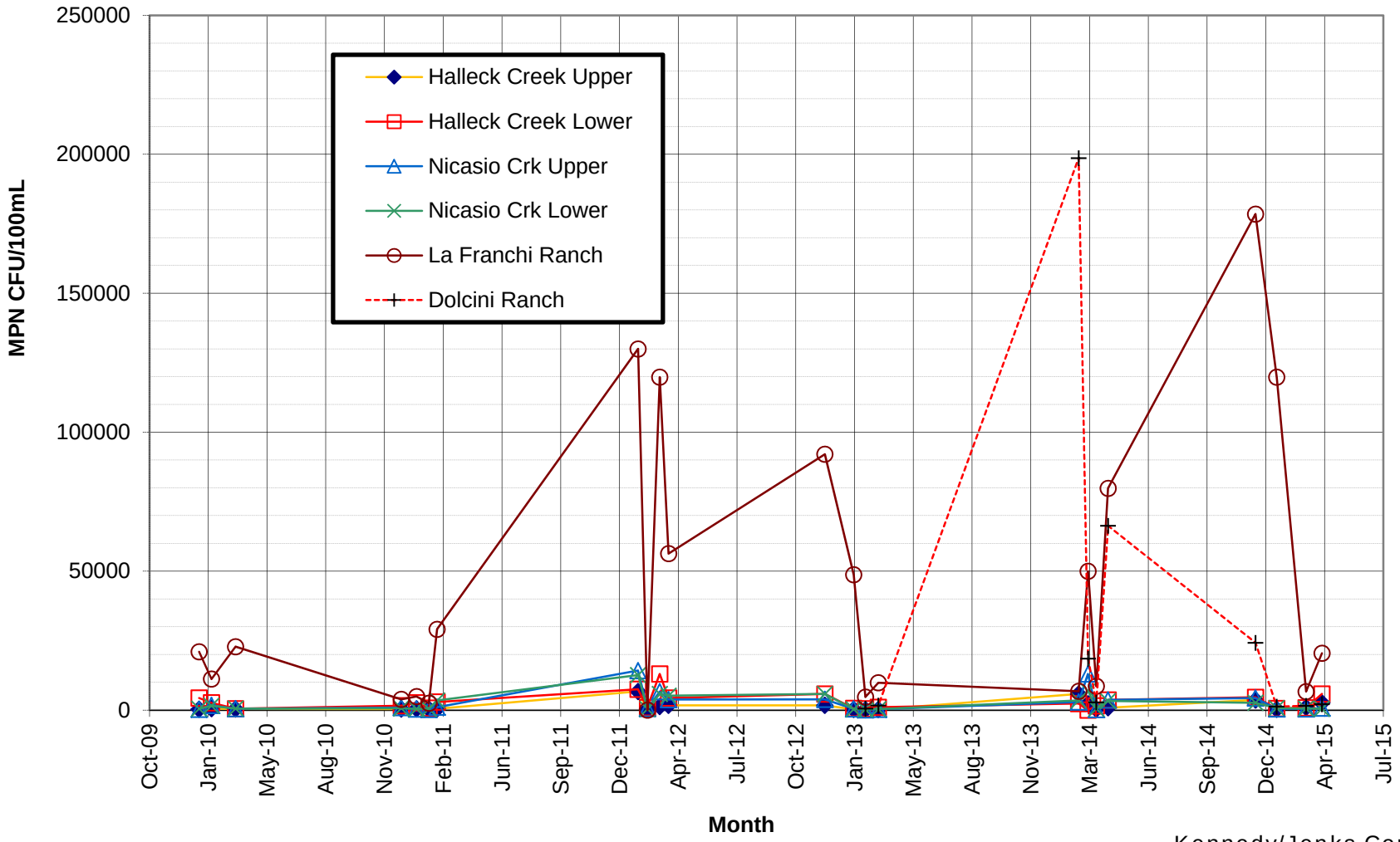
WQ19092327	9/23/2019 11:55:00 AM	Kerins Kelly	2.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ19093027	10/1/2019 11:40:00 AM	Clark John	2.5	mg/L	SM 5310B	Week 01 - West & Central	
WQ19100724	10/7/2019 12:20:00 PM	Kerins Kelly	2.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ19101428	10/14/2019 9:00:00 AM	Kerins Kelly	2.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ19102131	10/21/2019 10:00:00 AM	Kerins Kelly	2.8	mg/L	SM 5310B	Week 04 - West & Central	
WQ19102827	10/28/2019 1:15:00 PM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 05 - West & Central	
WQ19110426	11/4/2019 12:50:00 PM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 06 - West & Central	
WQ19111125	11/12/2019 11:55:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ19111834	11/18/2019 10:00:00 AM	Clark John	2.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ19112525	11/25/2019 7:30:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 09 - West & Central	
WQ19120224	12/2/2019 11:40:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 10 - West & Central	
WQ19120925	12/9/2019 11:10:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 11 - West & Central	
WQ19121627	12/16/2019 10:00:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ19122326	12/26/2019 11:25:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 01 - West & Central	
WQ19123024	12/30/2019 10:05:00 AM	Battaglia Larry	3.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ20010627	1/6/2020 11:40:00 AM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 03 - West & Central	
WQ20011327	1/13/2020 10:30:00 AM	Clark John	3.2	mg/L	SM 5310B	Week 04 - West & Central	
WQ20012030	1/21/2020 11:40:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 05 - West & Central	
WQ20012725	1/27/2020 10:15:00 AM	Battaglia Larry	3.5	mg/L	SM 5310B	Week 06 - West & Central	
WQ20020325	2/3/2020 11:45:00 AM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 07 - West & Central	
WQ20021036	2/10/2020 11:45:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 08 - West & Central	
WQ20021730	2/18/2020 7:50:00 AM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 09 - West & Central	
WQ20022424	2/24/2020 11:15:00 AM	Clark John	3.4	mg/L	SM 5310B	Week 10 - West & Central	
WQ20030226	3/2/2020 11:00:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 11 - West & Central	
WQ20030926	3/9/2020 11:55:00 AM	Heifetz Rachel	3.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ20031632	3/16/2020 11:15:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 01 - West & Central	
WQ20032323	3/23/2020 11:55:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ20033028	3/30/2020 10:20:00 AM	Battaglia Larry	3.2	mg/L	SM 5310B	Week 03 - West & Central	
WQ20040614	4/6/2020 10:35:00 AM	Clark John	3	mg/L	SM 5310B	Week 04 - West & Central	Alkalinity cancelled due to out of hold time. 7/8/2020 RH
WQ20041314	4/13/2020 10:45:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ20042017	4/20/2020 12:00:00 PM	Clark John	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ20042714	4/27/2020 10:20:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 07 - West & Central	
WQ20050415	5/4/2020 10:50:00 AM	Clark John	3	mg/L	SM 5310B	Week 08 - West & Central	
WQ20051132	5/11/2020 1:00:00 PM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 09 - West & Central	
WQ20051824	5/18/2020 9:10:00 AM	Battaglia Larry	3.2	mg/L	SM 5310B	Week 10 - West & Central	
WQ20052625	5/26/2020 11:25:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ20060149	6/1/2020 9:20:00 AM	Clark John	3.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ20060826	6/8/2020 11:50:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 01 - West & Central	
WQ20061529	6/15/2020 12:15:00 PM	Clark John	3.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ20062228	6/22/2020 10:55:00 AM	Battaglia Larry	2.9	mg/L	SM 5310B	Week 03 - West & Central	
WQ20062927	6/30/2020 11:55:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 04 - West & Central	
WQ20070627	7/7/2020 11:40:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 05 - West & Central	
WQ20071326	7/13/2020 12:15:00 PM	Clark John	3.2	mg/L	SM 5310B	Week 06 - West & Central	
WQ20072030	7/20/2020 1:00:00 PM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 07 - West & Central	
WQ20072729	7/27/2020 10:50:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 08 - West & Central	
WQ20080326	8/4/2020 12:20:00 PM	Stern Sarah	3	mg/L	SM 5310B	Week 09 - West & Central	
WQ20081022	8/10/2020 9:05:00 AM	Battaglia Larry	2.5	mg/L	SM 5310B	Week 10 - West & Central	
WQ20081731	8/17/2020 10:50:00 AM	Stern Sarah	3.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ20082427	8/24/2020 8:25:00 AM	Stern Sarah	3.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ20083127	8/31/2020 8:30:00 AM	Stern Sarah	3.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ20090724	9/8/2020 8:40:00 AM	Stern Sarah	3.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ20091428	9/14/2020 8:35:00 AM	Stern Sarah	3.3	mg/L	SM 5310B	Week 03 - West & Central	
WQ20092132	9/21/2020 8:35:00 AM	Stern Sarah	3.4	mg/L	SM 5310B	Week 04 - West & Central	
WQ20092827	9/28/2020 11:00:00 AM	Stern Sarah	3.3	mg/L	SM 5310B	Week 05 - West & Central	
WQ20100526	10/5/2020 8:35:00 AM	Stern Sarah	3.2	mg/L	SM 5310B	Week 06 - West & Central	
WQ20101226	10/12/2020 8:40:00 AM	Stern Sarah	3.1	mg/L	SM 5310B	Week 07 - West & Central	
WQ20101933	10/19/2020 8:40:00 AM	Stern Sarah	3.2	mg/L	SM 5310B	Week 08 - West & Central	
WQ20102626	10/26/2020 8:40:00 AM	Stern Sarah	3	mg/L	SM 5310B	Week 09 - West & Central	Total coliform and E.coli tests were setup with incorrect QT on 10/26/20, so cancelled tests. A new sample (WQ20102802)was collected on 10/28/20 for these two tests. 10/28/20LL
WQ20110225	11/2/2020 6:30:00 AM	Clark John	3.2	mg/L	SM 5310B	Week 10 - West & Central	The chloride value entered is associated with the QC run on 11-03-2020. 11-24-2020 RH
WQ20110926	11/9/2020 8:35:00 AM	Stern Sarah	3	mg/L	SM 5310B	Week 11 - West & Central	
WQ20111632	11/17/2020 10:35:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ20112327	11/23/2020 8:30:00 AM	Stern Sarah	3.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ20113024	11/30/2020 11:25:00 AM	Clark John	3	mg/L	SM 5310B	Week 02 - West & Central	
WQ20120728	12/7/2020 10:50:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 03 - West & Central	
WQ20121427	12/14/2020 12:00:00 PM	Clark John	2.9	mg/L	SM 5310B	Week 04 - West & Central	
WQ20122127	12/21/2020 8:25:00 AM	Stern Sarah	2.8	mg/L	SM 5310B	Week 05 - West & Central	
WQ20122826	12/28/2020 8:50:00 AM	Stern Sarah	2.8	mg/L	SM 5310B	Week 06 - West & Central	
WQ21010426	1/4/2021 8:45:00 AM	Stern Sarah	2.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ21011129	1/11/2021 8:45:00 AM	Stern Sarah	3.2	mg/L	SM 5310B	Week 08 - West & Central	
WQ21011830	1/19/2021 9:35:00 AM	Stern Sarah	3.2	mg/L	SM 5310B	Week 09 - West & Central	

San Geronimo WTP							
Sample Num	Sample Collection Date	Collected By	Reported Value	Unit	Test Ref. Methodology	Description	Comment
WQ15040628	4/7/2015 1:56:00 PM	Battaglia Larry	6.3	mg/L	SM 5310B	Week 07 - West & Central	
WQ15041336	4/13/2015 8:00:00 AM	Clark John	6.6	mg/L	SM 5310B	Week 08 - West & Central	
WQ15042037	4/21/2015 9:20:00 AM	Fuller Jennie	6	mg/L	SM 5310B	Week 09 - West & Central	
WQ15042732	4/27/2015 7:35:00 AM	Clark John	6.6	mg/L	SM 5310B	Week 10 - West & Central	
WQ15050433	5/4/2015 1:05:00 PM	Fuller Jennie	6.8	mg/L	SM 5310B	Week 11 - West & Central	
WQ15051134	5/11/2015 11:30:00 AM	Fuller Jennie	6.6	mg/L	SM 5310B	Week 12 - West & Central	
WQ15051839	5/18/2015 11:25:00 AM	Battaglia Larry	5.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ15052532	5/26/2015 10:15:00 AM	Fuller Jennie	6.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ15060156	6/1/2015 11:50:00 AM	Fuller Jennie	6.4	mg/L	SM 5310B	Week 03 - West & Central	
WQ15060834	6/8/2015 10:30:00 AM	Fuller Jennie	6.4	mg/L	SM 5310B	Week 04 - West & Central	
WQ15061539	6/15/2015 12:50:00 PM	Fuller Jennie	6.8	mg/L	SM 5310B	Week 05 - West & Central	
WQ15062233	6/23/2015 11:30:00 AM	Battaglia Larry	6.1	mg/L	SM 5310B	Week 06 - West & Central	
WQ15062933	6/29/2015 1:00:00 PM	Bowers Rhonda	6.5	mg/L	SM 5310B	Week 07 - West & Central	
WQ15070636	7/6/2015 11:10:00 AM	Bowers Rhonda	5.6	mg/L	SM 5310B	Week 08 - West & Central	
WQ15071333	7/13/2015 10:45:00 AM	Bowers Rhonda	5.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ15072036	7/20/2015 10:30:00 AM	Bowers Rhonda	6.1	mg/L	SM 5310B	Week 10 - West & Central	
WQ15072733	7/27/2015 10:55:00 AM	Bowers Rhonda	6.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ15080334	8/3/2015 11:55:00 AM	Bowers Rhonda	6.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ15081034	8/10/2015 12:45:00 PM	Bowers Rhonda	3.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ15081737	8/17/2015 11:45:00 AM	Bowers Rhonda	6.6	mg/L	SM 5310B	Week 02 - West & Central	
WQ15082435	8/24/2015 10:40:00 AM	Bowers Rhonda	6.7	mg/L	SM 5310B	Week 03 - West & Central	
WQ15083134	8/31/2015 10:25:00 AM	Battaglia Larry	6.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ15090734	9/8/2015 12:40:00 PM	Fuller Jennie	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ15091433	9/14/2015 11:20:00 AM	Fuller Jennie	6.7	mg/L	SM 5310B	Week 06 - West & Central	
WQ15092138	9/21/2015 10:45:00 AM	Fuller Jennie	6.4	mg/L	SM 5310B	Week 07 - West & Central	
WQ15092836	9/28/2015 11:55:00 AM	Fuller Jennie	5.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ15100533	10/5/2015 1:30:00 PM	Fuller Jennie	6.2	mg/L	SM 5310B	Week 09 - West & Central	
WQ15101232	10/12/2015 11:40:00 AM	Fuller Jennie	6.2	mg/L	SM 5310B	Week 10 - West & Central	
WQ15101937	10/19/2015 9:50:00 AM	Fuller Jennie	6.4	mg/L	SM 5310B	Week 11 - West & Central	
WQ15102634	10/26/2015 8:15:00 AM	Clark John	6.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ15110234	11/2/2015 11:45:00 AM	Fuller Jennie	5.8	mg/L	SM 5310B	Week 01 - West & Central	
WQ15110932	11/9/2015 10:25:00 AM	Fuller Jennie	5.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ15111640	11/16/2015 12:50:00 PM	Fuller Jennie	5.5	mg/L	SM 5310B	Week 03 - West & Central	
WQ15112328	11/23/2015 11:20:00 AM	Fuller Jennie	5.5	mg/L	SM 5310B	Week 04 - West & Central	
WQ15113028	11/30/2015 12:35:00 PM	Fuller Jennie	5.6	mg/L	SM 5310B	Week 05 - West & Central	
WQ15120727	12/7/2015 11:20:00 AM	Fuller Jennie	5.5	mg/L	SM 5310B	Week 06 - West & Central	
WQ15121427	12/14/2015 7:50:00 AM	Clark John	5.5	mg/L	SM 5310B	Week 07 - West & Central	
WQ15122130	12/21/2015 12:20:00 PM	Heifetz Rachel	5.2	mg/L	SM 5310B	Week 08 - West & Central	
WQ15122827	12/28/2015 11:40:00 AM	Fuller Jennie	5	mg/L	SM 5310B	Week 09 - West & Central	
WQ16010426	1/4/2016 12:10:00 PM	Fuller Jennie	2.9	mg/L	SM 5310B	Week 10 - West & Central	
WQ16011127	1/11/2016 12:10:00 PM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ16011832	1/20/2016 11:40:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 12 - West & Central	
WQ16012528	1/25/2016 8:10:00 AM	Clark John	2.9	mg/L	SM 5310B	Week 01 - West & Central	
WQ16020146	2/1/2016 11:50:00 AM	Battaglia Larry	2.9	mg/L	SM 5310B	Week 02 - West & Central	
WQ16020829	2/9/2016 8:00:00 AM	Clark John	2.7	mg/L	SM 5310B	Week 03 - West & Central	
WQ16021533	2/16/2016 11:55:00 AM	Battaglia Larry	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ16022228	2/23/2016 12:30:00 PM	Clark John	3.4	mg/L	SM 5310B	Week 05 - West & Central	
WQ16022927	3/1/2016 11:15:00 AM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 06 - West & Central	
WQ16030727	3/8/2016 11:10:00 AM	Battaglia Larry	2.7	mg/L	SM 5310B	Week 07 - West & Central	
WQ16031430	3/16/2016 8:45:00 AM	Clark John	2.3	mg/L	SM 5310B	Week 08 - West & Central	
WQ16032127	3/22/2016 10:40:00 AM	Battaglia Larry	2.4	mg/L	SM 5310B	Week 09 - West & Central	
WQ16032826	3/28/2016 12:00:00 PM	Tanomrat Ammon	2.6	mg/L	SM 5310B	Week 10 - West & Central	
WQ16040427	4/4/2016 8:40:00 AM	Clark John	3	mg/L	SM 5310B	Week 11 - West & Central	
WQ16041139	4/11/2016 10:30:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 12 - West & Central	
WQ16041838	4/18/2016 8:30:00 AM	Clark John	6.7	mg/L	SM 5310B	Week 01 - West & Central	
WQ16042532	4/25/2016 12:05:00 PM	Battaglia Larry	6.8	mg/L	SM 5310B	Week 02 - West & Central	
WQ16050235	5/2/2016 8:35:00 AM	Clark John	6.8	mg/L	SM 5310B	Week 03 - West & Central	
WQ16050934	5/9/2016 10:50:00 AM	Battaglia Larry	6.2	mg/L	SM 5310B	Week 04 - West & Central	
WQ16051639	5/16/2016 8:35:00 AM	Clark John	6.2	mg/L	SM 5310B	Week 05 - West & Central	
WQ16052333	5/24/2016 11:30:00 AM	Battaglia Larry	6.5	mg/L	SM 5310B	Week 06 - West & Central	
WQ16053033	5/31/2016 7:50:00 AM	Clark John	6.7	mg/L	SM 5310B	Week 07 - West & Central	
WQ16060636	6/6/2016 11:10:00 AM	Battaglia Larry	6.6	mg/L	SM 5310B	Week 08 - West & Central	
WQ16061333	6/13/2016 8:15:00 AM	Clark John	6.7	mg/L	SM 5310B	Week 09 - West & Central	
WQ16062037	6/20/2016 11:20:00 AM	Battaglia Larry	6.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ16062733	6/27/2016 8:15:00 AM	Clark John	7	mg/L	SM 5310B	Week 11 - West & Central	
WQ16070434	7/5/2016 11:30:00 AM	Heifetz Rachel	6.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ16071134	7/11/2016 11:35:00 AM	Heifetz Rachel	6.5	mg/L	SM 5310B	Week 01 - West & Central	
WQ16071836	7/18/2016 12:15:00 PM	Battaglia Larry	6.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ16072535	7/25/2016 8:30:00 AM	Clark John	6.5	mg/L	SM 5310B	Week 03 - West & Central	
WQ16080154	8/1/2016 11:30:00 AM	Battaglia Larry	2.7	mg/L	SM 5310B	Week 04 - West & Central	
WQ16080834	8/8/2016 11:45:00 AM	Fuller Jennie	2.6	mg/L	SM 5310B	Week 05 - West & Central	
WQ16081538	8/15/2016 12:20:00 PM	Fuller Jennie	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ16082233	8/22/2016 12:50:00 PM	Fuller Jennie	3.2	mg/L	SM 5310B	Week 07 - West & Central	
WQ16082936	8/29/2016 12:50:00 PM	Fuller Jennie	2.7	mg/L	SM 5310B	Week 08 - West & Central	
WQ16090533	9/6/2016 10:20:00 AM	Fuller Jennie	2.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ16091232	9/12/2016 12:15:00 PM	Fuller Jennie	3.2	mg/L	SM 5310B	Week 10 - West & Central	
WQ16091938	9/19/2016 11:40:00 AM	Fuller Jennie	2.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ16092634	9/26/2016 10:20:00 AM	Fuller Jennie	2.5	mg/L	SM 5310B	Week 12 - West & Central	
WQ16100334	10/3/2016 12:35:00 PM	Fuller Jennie	3.5	mg/L	SM 5310B	Week 01 - West & Central	
WQ16101032	10/10/2016 11:05:00 AM	Fuller Jennie	2.9	mg/L	SM 5310B	Week 02 - West & Central	
WQ16101739	10/17/2016 12:05:00 PM	Fuller Jennie	3.1	mg/L	SM 5310B	Week 03 - West & Central	
WQ16102434	10/24/2016 12:05:00 PM	Fuller Jennie	2.7	mg/L	SM 5310B	Week 04 - West & Central	
WQ16103134	10/31/2016 7:20:00 AM	Clark John	5.3	mg/L	SM 5310B	Week 05 - West & Central	
WQ16110727	11/7/2016 11:40:00 AM	Fuller Jennie	5.1	mg/L	SM 5310B	Week 06 - West & Central	
WQ16111427	11/14/2016 11:15:00 AM	Fuller Jennie	5	mg/L	SM 5310B	Week 07 - West & Central	
WQ16112135	11/21/2016 11:05:00 AM	Fuller Jennie	6	mg/L	SM 5310B	Week 08 - West & Central	
WQ16112827	11/28/2016 11:10:00 AM	Fuller Jennie	6.1	mg/L	SM 5310B	Week 09 - West & Central	
WQ16120526	12/5/2016 11:15:00 AM	Battaglia Larry	5.3	mg/L	SM 5310B	Week 10 - West & Central	
WQ16121227	12/13/2016 1:05:00 PM	Fuller Jennie	5.4	mg/L	SM 5310B	Week 11 - West & Central	
WQ16121928	12/19/2016 11:25:00 AM	Fuller Jennie	5.6	mg/L	SM 5310B	Week 12 - West & Central	
WQ16122628	12/27/2016 11:55:00 AM	Fuller Jennie	2.4	mg/L	SM 5310B	Week 01 - West & Central	
WQ17010226	1/3/2017 11:45:00 AM	Heifetz Rachel	3.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ17010929	1/9/2017 10:15:00 AM	Battaglia Larry	3.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ17011632	1/17/2017 10:45:00 AM	Battaglia Larry	3.7	mg/L	SM 5310B	Week 04 - West & Central	
WQ17012328	1/23/2017 9:40:00 AM	Clark John	4.1	mg/L	SM 5310B	Week 05 - West & Central	
WQ17013027	1/30/2017 1:05:00 PM	Battaglia Larry	3.7	mg/L	SM 5310B	Week 06 - West & Central	Temperature is outside acceptable limits for raw bact sample. Chris Nanney approved using the bact. 2-6-17 MCR. At 9.4C, the sample is within the acceptable temp range. The sample needs to be <10C if received two or more hours after collection. CRN 3-2-2017
WQ17020627	2/6/2017 7:30:00 AM	Clark John	3.5	mg/L	SM 5310B	Week 07 - West & Central	
WQ17021330	2/13/2017 9:40:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 08 - West & Central	
WQ17022027	2/21/2017 10:50:00 AM	Clark John	3.4	mg/L	SM 5310B	Week 09 - West & Central	
WQ17022726	2/27/2017 11:40:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 10 - West & Central	
WQ17030627	3/6/2017 7:20:00 AM	Clark John	4.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ17031328	3/13/2017 10:40:00 AM	Battaglia Larry	4.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ17032033	3/20/2017 7:30:00 AM	Clark John	4	mg/L	SM 5310B	Week 01 - West & Central	
WQ17032726	3/27/2017 12:45:00 PM	Battaglia Larry	4.1	mg/L	SM 5310B	Week 02 - West & Central	
WQ17040329	4/3/2017 7:35:00 AM	Clark John	4	mg/L	SM 5310B	Week 03 - West & Central	
WQ17041028	4/10/2017 12:50:00 PM	Battaglia Larry	2.4	mg/L	SM 5310B	Week 04 - West & Central	
WQ17041732	4/17/2017 8:15:00 AM	Clark John	2.6	mg/L	SM 5310B	Week 05 - West & Central	
WQ17042427	4/24/2017 12:15:00 PM	Battaglia Larry	2.4	mg/L	SM 5310B	Week 06 - West & Central	Bacti Temp was out of compliance. The sample was not frozen. I notified the Lab Manager, he was ok with setting up the bacti. 5/2/17 MCR
WQ17050150	5/1/2017 7:25:00 AM	Clark John	1.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ17050830	5/8/2017 12:20:00 PM	Battaglia Larry	2.3	mg/L	SM 5310B	Week 08 - West & Central	
WQ17051538	5/15/2017 7:35:00 AM	Clark John	2.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ17052232	5/22/2017 10:20:00 AM	Battaglia Larry	3.4	mg/L	SM 5310B	Week 10 - West & Central	
WQ17052933	5/30/2017 7:25:00 AM	Clark John	3.5	mg/L	SM 5310B	Week 11 - West & Central	
WQ17060534	6/5/2017 11:30:00 AM	Battaglia Larry	3.9	mg/L	SM 5310B	Week 12 - West & Central	
WQ17061234	6/12/2017 7:30:00 AM	Clark John	3.8	mg/L	SM 5310B	Week 01 - West & Central	
WQ17061937	6/19/2017 10:40:00 AM	Battaglia Larry	3.9	mg/L	SM 5310B	Week 02 - West & Central	

WQ17062635	6/26/2017 7:35:00 AM	Clark John	3.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ17070334	7/5/2017 8:25:00 AM	Battaglia Larry	3.8	mg/L	SM 5310B	Week 04 - West & Central	
WQ17071034	7/10/2017 10:30:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 05 - West & Central	
WQ17071733	7/17/2017 11:05:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 06 - West & Central	
WQ17072433	7/24/2017 12:45:00 PM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 07 - West & Central	
WQ17073136	7/31/2017 9:10:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 08 - West & Central	
WQ17080733	8/7/2017 8:30:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 09 - West & Central	
WQ17081432	8/14/2017 11:10:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 10 - West & Central	
WQ17082138	8/21/2017 9:10:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 11 - West & Central	
WQ17082834	8/28/2017 8:30:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 12 - West & Central	
WQ17090434	9/5/2017 12:40:00 PM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 01 - West & Central	
WQ17091132	9/11/2017 9:10:00 AM	Gondola Trevor	3.5	mg/L	SM 5310B	Week 02 - West & Central	
WQ17091840	9/18/2017 10:00:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 03 - West & Central	
WQ17092534	9/25/2017 9:10:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 04 - West & Central	
WQ17100234	10/2/2017 7:30:00 AM	Clark John	2.9	mg/L	SM 5310B	Week 05 - West & Central	Bacti sample was frozen,so the bacti sample was discarded and scheduled for resampling per CN. 10/2/17LL
WQ17100933	10/9/2017 12:55:00 PM	Battaglia Larry	2.9	mg/L	SM 5310B	Week 06 - West & Central	
WQ17101637	10/16/2017 1:10:00 PM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 07 - West & Central	
WQ17102336	10/23/2017 12:50:00 PM	Battaglia Larry	4	mg/L	SM 5310B	Week 08 - West & Central	
WQ17103033	10/30/2017 8:30:00 AM	Clark John	3.9	mg/L	SM 5310B	Week 09 - West & Central	
WQ17110632	11/6/2017 9:10:00 AM	Gondola Trevor	3.9	mg/L	SM 5310B	Week 10 - West & Central	
WQ17111333	11/13/2017 1:00:00 PM	Battaglia Larry	3.8	mg/L	SM 5310B	Week 11 - West & Central	
WQ17112028	11/20/2017 9:45:00 AM	Heifetz Rachel	4.6	mg/L	SM 5310B	Week 12 - West & Central	
WQ17112728	11/27/2017 9:20:00 AM	Gondola Trevor	4.5	mg/L	SM 5310B	Week 01 - West & Central	
WQ17120426	12/4/2017 12:40:00 PM	Battaglia Larry	4.5	mg/L	SM 5310B	Week 02 - West & Central	
WQ17121129	12/11/2017 8:50:00 AM	Battaglia Larry	4.7	mg/L	SM 5310B	Week 03 - West & Central	
WQ17121833	12/18/2017 9:20:00 AM	Heifetz Rachel	4.7	mg/L	SM 5310B	Week 04 - West & Central	
WQ17122528	12/26/2017 8:30:00 AM	Gondola Trevor	4.7	mg/L	SM 5310B	Week 05 - West & Central	
WQ18010148	1/2/2018 12:10:00 PM	Battaglia Larry	4.4	mg/L	SM 5310B	Week 06 - West & Central	
WQ18010827	1/8/2018 8:40:00 AM	Gondola Trevor	4.3	mg/L	SM 5310B	Week 07 - West & Central	
WQ18011534	1/17/2018 12:10:00 PM	Battaglia Larry	4.5	mg/L	SM 5310B	Week 08 - West & Central	
WQ18012227	1/22/2018 11:45:00 AM	Battaglia Larry	4.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ18012926	1/29/2018 9:00:00 AM	Gondola Trevor	4.2	mg/L	SM 5310B	Week 10 - West & Central	
WQ18020527	2/7/2018 10:00:00 AM	Battaglia Larry	4.3	mg/L	SM 5310B	Week 11 - West & Central	
WQ18021224	2/12/2018 12:00:00 PM	Gondola Trevor	4.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ18021248	2/12/2018 12:00:00 PM	Gondola Trevor	3.6	mg/L		DBPs - Stage 2	
WQ18021933	2/20/2018 8:45:00 AM	Gondola Trevor	4.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ18022625	2/26/2018 9:25:00 AM	Gondola Trevor	4.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ18030529	3/5/2018 12:35:00 PM	Battaglia Larry	4.2	mg/L	SM 5310B	Week 03 - West & Central	
WQ18031228	3/12/2018 1:05:00 PM	Battaglia Larry	4.3	mg/L	SM 5310B	Week 04 - West & Central	
WQ18031939	3/19/2018 8:35:00 AM	Gondola Trevor	4.2	mg/L	SM 5310B	Week 05 - West & Central	
WQ18032633	3/26/2018 8:10:00 AM	Clark John	4.7	mg/L	SM 5310B	Week 06 - West & Central	
WQ18040233	4/2/2018 8:30:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 07 - West & Central	
WQ18040936	4/9/2018 11:45:00 AM	Battaglia Larry	4.7	mg/L	SM 5310B	Week 08 - West & Central	
WQ18041637	4/16/2018 8:30:00 AM	Gondola Trevor	4.9	mg/L	SM 5310B	Week 09 - West & Central	
WQ18042332	4/23/2018 8:45:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ18043033	5/1/2018 7:25:00 AM	Clark John	5.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ18050734	5/7/2018 9:35:00 AM	Battaglia Larry	5.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ18051434	5/14/2018 10:30:00 AM	Gondola Trevor	5.1	mg/L	SM 5310B	Week 01 - West & Central	
WQ18051434	5/14/2018 10:30:00 AM	Gondola Trevor	4.1	mg/L		Week 01 - West & Central	
WQ18051472	5/14/2018 10:30:00 AM	Gondola Trevor	4.1	mg/L		DBPs - Stage 2	
WQ18052136	5/21/2018 8:25:00 AM	Gondola Trevor	5	mg/L	SM 5310B	Week 02 - West & Central	
WQ18052835	5/29/2018 9:10:00 AM	Gondola Trevor	4.9	mg/L	SM 5310B	Week 03 - West & Central	
WQ18060434	6/4/2018 8:50:00 AM	Gondola Trevor	4.6	mg/L	SM 5310B	Week 04 - West & Central	
WQ18061134	6/11/2018 8:30:00 AM	Gondola Trevor	4.6	mg/L	SM 5310B	Week 05 - West & Central	
WQ18061838	6/18/2018 8:30:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 06 - West & Central	
WQ18062533	6/25/2018 12:05:00 PM	Battaglia Larry	4.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ18070236	7/2/2018 10:20:00 AM	Brougham Lauren	4.6	mg/L	SM 5310B	Week 08 - West & Central	
WQ18070933	7/9/2018 12:05:00 PM	Kerins Kelly	4.7	mg/L	SM 5310B	Week 09 - West & Central	
WQ18071636	7/17/2018 1:10:00 PM	Kerins Kelly	4.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ18072333	7/23/2018 9:25:00 AM	Kerins Kelly	4.7	mg/L	SM 5310B	Week 11 - West & Central	
WQ18073034	7/30/2018 9:40:00 AM	Kerins Kelly	4.7	mg/L	SM 5310B	Week 12 - West & Central	
WQ18080634	8/6/2018 10:30:00 AM	Kerins Kelly	2.9	mg/L	SM 5310B	Week 01 - West & Central	
WQ18081331	8/13/2018 1:10:00 PM	Kerins Kelly	4.4	mg/L	SM 5310B	Week 02 - West & Central	
WQ18081363	8/13/2018 1:10:00 PM	Kerins Kelly	3.7	mg/L		DBPs - Stage 2 UCMR4	
WQ18082040	8/20/2018 10:45:00 AM	Kerins Kelly	4.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ18082734	8/27/2018 11:00:00 AM	Kerins Kelly	4.9	mg/L	SM 5310B	Week 04 - West & Central	
WQ18090334	9/4/2018 12:40:00 PM	Kerins Kelly	4.7	mg/L	SM 5310B	Week 05 - West & Central	
WQ18091033	9/10/2018 10:45:00 AM	Kerins Kelly	5.2	mg/L	SM 5310B	Week 06 - West & Central	
WQ18091738	9/17/2018 11:45:00 AM	Kerins Kelly	4.7	mg/L	SM 5310B	Week 07 - West & Central	
WQ18092436	9/24/2018 10:50:00 AM	Kerins Kelly	4.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ18100156	10/1/2018 10:40:00 AM	Kerins Kelly	4.7	mg/L	SM 5310B	Week 09 - West & Central	
WQ18100832	10/8/2018 11:45:00 AM	Kerins Kelly	3.7	mg/L	SM 5310B	Week 10 - West & Central	
WQ18101537	10/15/2018 12:30:00 PM	Kerins Kelly	4.9	mg/L	SM 5310B	Week 11 - West & Central	
WQ18102234	10/22/2018 11:15:00 AM	Kerins Kelly	4.8	mg/L	SM 5310B	Week 12 - West & Central	
WQ18102934	10/29/2018 12:30:00 PM	Kerins Kelly	2.7	mg/L	SM 5310B	Week 01 - West & Central	
WQ18110525	11/5/2018 10:46:00 AM	Kerins Kelly	2.8	mg/L	SM 5310B	Week 02 - West & Central	
WQ18111229	11/13/2018 12:01:00 PM	Kerins Kelly	2.8	mg/L	SM 5310B	Week 03 - West & Central	
WQ18111933	11/19/2018 12:01:00 PM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ18112628	11/26/2018 12:01:00 PM	Kerins Kelly	3	mg/L	SM 5310B	Week 05 - West & Central	
WQ18120327	12/3/2018 9:15:00 AM	Kerins Kelly	3.1	mg/L	SM 5310B	Week 06 - West & Central	
WQ18121027	12/10/2018 10:46:00 AM	Kerins Kelly	2.7	mg/L	SM 5310B	Week 07 - West & Central	
WQ18121735	12/17/2018 10:50:00 AM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 08 - West & Central	
WQ18122427	12/26/2018 8:35:00 AM	Clark John	3.4	mg/L	SM 5310B	Week 09 - West & Central	
WQ18123126	1/2/2019 8:20:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ19010727	1/7/2019 11:15:00 AM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ19011428	1/14/2019 12:30:00 PM	Clark John	3.2	mg/L	SM 5310B	Week 12 - West & Central	
WQ19012132	1/22/2019 11:45:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 01 - West & Central	
WQ19012825	1/28/2019 7:15:00 AM	Clark John	5.4	mg/L	SM 5310B	Week 02 - West & Central	
WQ19020429	2/4/2019 11:45:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 03 - West & Central	
WQ19021128	2/11/2019 11:15:00 AM	Battaglia Larry	2.9	mg/L	SM 5310B	Week 04 - West & Central	
WQ19021833	2/19/2019 11:15:00 AM	Clark John	3.2	mg/L	SM 5310B	Week 05 - West & Central	
WQ19022527	2/25/2019 1:10:00 PM	Gondola Trevor	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ19030427	3/4/2019 12:30:00 PM	Battaglia Larry	3.5	mg/L	SM 5310B	Week 07 - West & Central	
WQ19031130	3/11/2019 12:00:00 PM	Clark John	3.5	mg/L	SM 5310B	Week 08 - West & Central	
WQ19031832	3/18/2019 12:50:00 PM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 09 - West & Central	
WQ19032526	3/25/2019 11:20:00 AM	Gondola Trevor	3.3	mg/L	SM 5310B	Week 10 - West & Central	
WQ19040150	4/1/2019 11:35:00 AM	Gondola Trevor	3.2	mg/L	SM 5310B	Week 11 - West & Central	
WQ19040828	4/8/2019 8:30:00 AM	Radley Joseph	3.1	mg/L	SM 5310B	Week 12 - West & Central	
WQ19041532	4/15/2019 12:00:00 PM	Battaglia Larry	3.6	mg/L	SM 5310B	Week 01 - West & Central	
WQ19042225	4/22/2019 8:40:00 AM	Gondola Trevor	3.4	mg/L	SM 5310B	Week 02 - West & Central	
WQ19042929	4/29/2019 7:45:00 AM	Clark John	2.9	mg/L	SM 5310B	Week 03 - West & Central	
WQ19050628	5/6/2019 9:00:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 04 - West & Central	
WQ19051328	5/16/2019 11:25:00 AM	Gondola Trevor	3.1	mg/L	SM 5310B	Week 05 - West & Central	
WQ19052032	5/20/2019 8:35:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 06 - West & Central	
WQ19052727	5/28/2019 9:55:00 AM	Battaglia Larry	3	mg/L	SM 5310B	Week 07 - West & Central	
WQ19060330	6/3/2019 11:05:00 AM	Clark John	3.1	mg/L	SM 5310B	Week 08 - West & Central	
WQ19061027	6/10/2019 9:00:00 AM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 09 - West & Central	
WQ19061731	6/18/2019 8:15:00 AM	Gondola Trevor	4.7	mg/L	SM 5310B	Week 10 - West & Central	
WQ19062427	6/24/2019 12:40:00 PM	Kerins Kelly	4.6	mg/L	SM 5310B	Week 11 - West & Central	
WQ19070151	7/1/2019 10:10:00 AM	Kerins Kelly	4.3	mg/L	SM 5310B	Week 12 - West & Central	
WQ19070828	7/8/2019 11:35:00 AM	Kerins Kelly	4.2	mg/L	SM 5310B	Week 01 - West & Central	
WQ19071529	7/15/2019 11:05:00 AM	Kerins Kelly	4.3	mg/L	SM 5310B	Week 02 - West & Central	
WQ19072229	7/22/2019 10:25:00 AM	Kerins Kelly	4.6	mg/L	SM 5310B	Week 03 - West & Central	
WQ19072928	7/29/2019 8:40:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 04 - West & Central	
WQ19080527	8/5/2019 8:40:00 AM	Gondola Trevor	4.6	mg/L	SM 5310B	Week 05 - West & Central	
WQ19081224	8/12/2019 9:10:00 AM	Gondola Trevor	4.6	mg/L	SM 5310B	Week 06 - West & Central	
WQ19081931	8/19/2019 12:45:00 PM	Clark John	4	mg/L	SM 5310B	Week 07 - West & Central	
WQ19082630	8/26/2019 10:45:00 AM	Kerins Kelly	2.9	mg/L	SM 5310B	Week 08 - West & Central	
WQ19090226	9/3/2019 8:25:00 AM	Gondola Trevor	3.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ19090926	9/9/2019 9:00:00 AM	Kerins Kelly	4	mg/L	SM 5310B	Week 10 - West & Central	
WQ19091632	9/16/2019 9:50:00 AM	Kerins Kelly	4.1	mg/L	SM 5310B	Week 11 - West & Central	
WQ19092328	9/23/2019 9:30:00 AM	Kerins Kelly	3.9	mg/L	SM 5310B	Week 12 - West & Central	

WQ19093028	10/1/2019 8:00:00 AM	Clark John	4.2	mg/L	SM 5310B	Week 01 - West & Central	
WQ19100725	10/7/2019 9:20:00 AM	Kerins Kelly	4.2	mg/L	SM 5310B	Week 02 - West & Central	
WQ19101429	10/14/2019 10:25:00 AM	Kerins Kelly	4.2	mg/L	SM 5310B	Week 03 - West & Central	
WQ19102132	10/21/2019 11:05:00 AM	Kerins Kelly	4.1	mg/L	SM 5310B	Week 04 - West & Central	
WQ19102828	10/28/2019 10:30:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 05 - West & Central	
WQ19110427	11/4/2019 8:05:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 06 - West & Central	
WQ19111126	11/13/2019 7:50:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 07 - West & Central	
WQ19111835	11/18/2019 7:35:00 AM	Clark John	2.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ19112526	11/25/2019 10:30:00 AM	Gondola Trevor	2.6	mg/L	SM 5310B	Week 09 - West & Central	
WQ19120225	12/2/2019 8:50:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ19120926	12/9/2019 12:45:00 PM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 11 - West & Central	
WQ19121628	12/16/2019 7:00:00 AM	Clark John	2.8	mg/L	SM 5310B	Week 12 - West & Central	
WQ19122327	12/26/2019 8:15:00 AM	Gondola Trevor	3	mg/L	SM 5310B	Week 01 - West & Central	
WQ19123025	12/30/2019 12:40:00 PM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 02 - West & Central	
WQ20010628	1/6/2020 10:10:00 AM	Gondola Trevor	2.8	mg/L	SM 5310B	Week 03 - West & Central	
WQ20011328	1/13/2020 8:20:00 AM	Clark John	2.8	mg/L	SM 5310B	Week 04 - West & Central	
WQ20012031	1/21/2020 2:37:00 PM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 05 - West & Central	
WQ20012726	1/27/2020 12:20:00 PM	Battaglia Larry	2.8	mg/L	SM 5310B	Week 06 - West & Central	
WQ20020326	2/3/2020 8:35:00 AM	Gondola Trevor	2.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ20021037	2/10/2020 7:30:00 AM	Clark John	2.7	mg/L	SM 5310B	Week 08 - West & Central	
WQ20021731	2/18/2020 9:25:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 09 - West & Central	
WQ20022425	2/24/2020 8:35:00 AM	Clark John	2.8	mg/L	SM 5310B	Week 10 - West & Central	
WQ20030227	3/2/2020 8:05:00 AM	Gondola Trevor	2.7	mg/L	SM 5310B	Week 11 - West & Central	
WQ20030927	3/9/2020 10:40:00 AM	Heifetz Rachel	4.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ20031633	3/16/2020 8:15:00 AM	Clark John	3.9	mg/L	SM 5310B	Week 01 - West & Central	
WQ20032324	3/23/2020 8:40:00 AM	Gondola Trevor	5.1	mg/L	SM 5310B	Week 02 - West & Central	
WQ20033029	3/30/2020 11:50:00 AM	Battaglia Larry	5	mg/L	SM 5310B	Week 03 - West & Central	
WQ20040615	4/6/2020 6:20:00 AM	Clark John	4.8	mg/L	SM 5310B	Week 04 - West & Central	Alkalinity cancelled due to out of hold time. 07/08/2020 RH
WQ20041315	4/13/2020 8:15:00 AM	Gondola Trevor	4.7	mg/L	SM 5310B	Week 05 - West & Central	
WQ20042018	4/20/2020 7:00:00 AM	Clark John	4.7	mg/L	SM 5310B	Week 06 - West & Central	
WQ20042715	4/27/2020 8:00:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 07 - West & Central	
WQ20050416	5/4/2020 6:30:00 AM	Clark John	4.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ20051133	5/11/2020 10:15:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 09 - West & Central	
WQ20051825	5/18/2020 1:05:00 PM	Battaglia Larry	4.6	mg/L	SM 5310B	Week 10 - West & Central	
WQ20052626	5/26/2020 8:25:00 AM	Gondola Trevor	4.7	mg/L	SM 5310B	Week 11 - West & Central	
WQ20060150	6/1/2020 6:25:00 AM	Clark John	4.9	mg/L	SM 5310B	Week 12 - West & Central	
WQ20060827	6/8/2020 9:00:00 AM	Gondola Trevor	4.8	mg/L	SM 5310B	Week 01 - West & Central	
WQ20061530	6/15/2020 6:45:00 AM	Clark John	4.7	mg/L	SM 5310B	Week 02 - West & Central	
WQ20062229	6/22/2020 12:15:00 PM	Battaglia Larry	4.5	mg/L	SM 5310B	Week 03 - West & Central	
WQ20062928	6/30/2020 9:00:00 AM	Gondola Trevor	4.4	mg/L	SM 5310B	Week 04 - West & Central	
WQ20070628	7/7/2020 9:00:00 AM	Gondola Trevor	4.9	mg/L	SM 5310B	Week 05 - West & Central	
WQ20071327	7/13/2020 7:35:00 AM	Clark John	4.7	mg/L	SM 5310B	Week 06 - West & Central	
WQ20072031	7/20/2020 8:30:00 AM	Gondola Trevor	4.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ20072730	7/27/2020 8:20:00 AM	Gondola Trevor	2.4	mg/L	SM 5310B	Week 08 - West & Central	
WQ20080327	8/4/2020 1:15:00 PM	Stern Sarah	2.2	mg/L	SM 5310B	Week 09 - West & Central	
WQ20081023	8/10/2020 1:10:00 PM	Battaglia Larry	2.6	mg/L	SM 5310B	Week 10 - West & Central	
WQ20081732	8/17/2020 1:10:00 PM	Stern Sarah	4.9	mg/L	SM 5310B	Week 11 - West & Central	
WQ20082428	8/24/2020 10:30:00 AM	Stern Sarah	2.4	mg/L	SM 5310B	Week 12 - West & Central	
WQ20083128	8/31/2020 11:45:00 AM	Stern Sarah	3.7	mg/L	SM 5310B	Week 01 - West & Central	
WQ20090725	9/8/2020 12:25:00 PM	Stern Sarah	4	mg/L	SM 5310B	Week 02 - West & Central	
WQ20091429	9/14/2020 11:35:00 AM	Stern Sarah	4.1	mg/L	SM 5310B	Week 03 - West & Central	
WQ20092133	9/21/2020 10:55:00 AM	Stern Sarah	5	mg/L	SM 5310B	Week 04 - West & Central	
WQ20092828	9/28/2020 12:05:00 PM	Stern Sarah	2.4	mg/L	SM 5310B	Week 05 - West & Central	
WQ20100527	10/5/2020 11:20:00 AM	Stern Sarah	5	mg/L	SM 5310B	Week 06 - West & Central	
WQ20101227	10/12/2020 11:20:00 AM	Stern Sarah	4.9	mg/L	SM 5310B	Week 07 - West & Central	
WQ20101934	10/19/2020 11:10:00 AM	Stern Sarah	4.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ20102627	10/26/2020 10:35:00 AM	Stern Sarah	2.4	mg/L	SM 5310B	Week 09 - West & Central	
WQ20110226	11/2/2020 12:25:00 PM	Battaglia Larry	4.9	mg/L	SM 5310B	Week 10 - West & Central	The chloride value entered is associated with the QC run on 11-03-2020. 11-24-2020 RH
WQ20110927	11/9/2020 12:00:00 PM	Stern Sarah	4.5	mg/L	SM 5310B	Week 11 - West & Central	
WQ20111633	11/17/2020 8:15:00 AM	Gondola Trevor	4.6	mg/L	SM 5310B	Week 12 - West & Central	
WQ20112328	11/23/2020 12:45:00 PM	Stern Sarah	4.6	mg/L	SM 5310B	Week 01 - West & Central	
WQ20113025	11/30/2020 7:00:00 AM	Clark John	4.5	mg/L	SM 5310B	Week 02 - West & Central	
WQ20120729	12/7/2020 1:05:00 PM	Gondola Trevor	4.4	mg/L	SM 5310B	Week 03 - West & Central	
WQ20121428	12/14/2020 6:40:00 AM	Clark John	4.2	mg/L	SM 5310B	Week 04 - West & Central	
WQ20122128	12/21/2020 11:05:00 AM	Stern Sarah	4.1	mg/L	SM 5310B	Week 05 - West & Central	
WQ20123102	12/31/2020 10:00:00 AM	Clark John	3.7	mg/L	E415.3	SGTP Raw Resample	
WQ21010427	1/4/2021 12:20:00 PM	Stern Sarah	4.8	mg/L	SM 5310B	Week 07 - West & Central	
WQ21011130	1/11/2021 12:15:00 PM	Stern Sarah	4.8	mg/L	SM 5310B	Week 08 - West & Central	
WQ21011831	1/19/2021 10:30:00 AM	Stern Sarah	2.2	mg/L	SM 5310B	Week 09 - West & Central	

Appendix E 2010 and 2015 Water Quality Graphs



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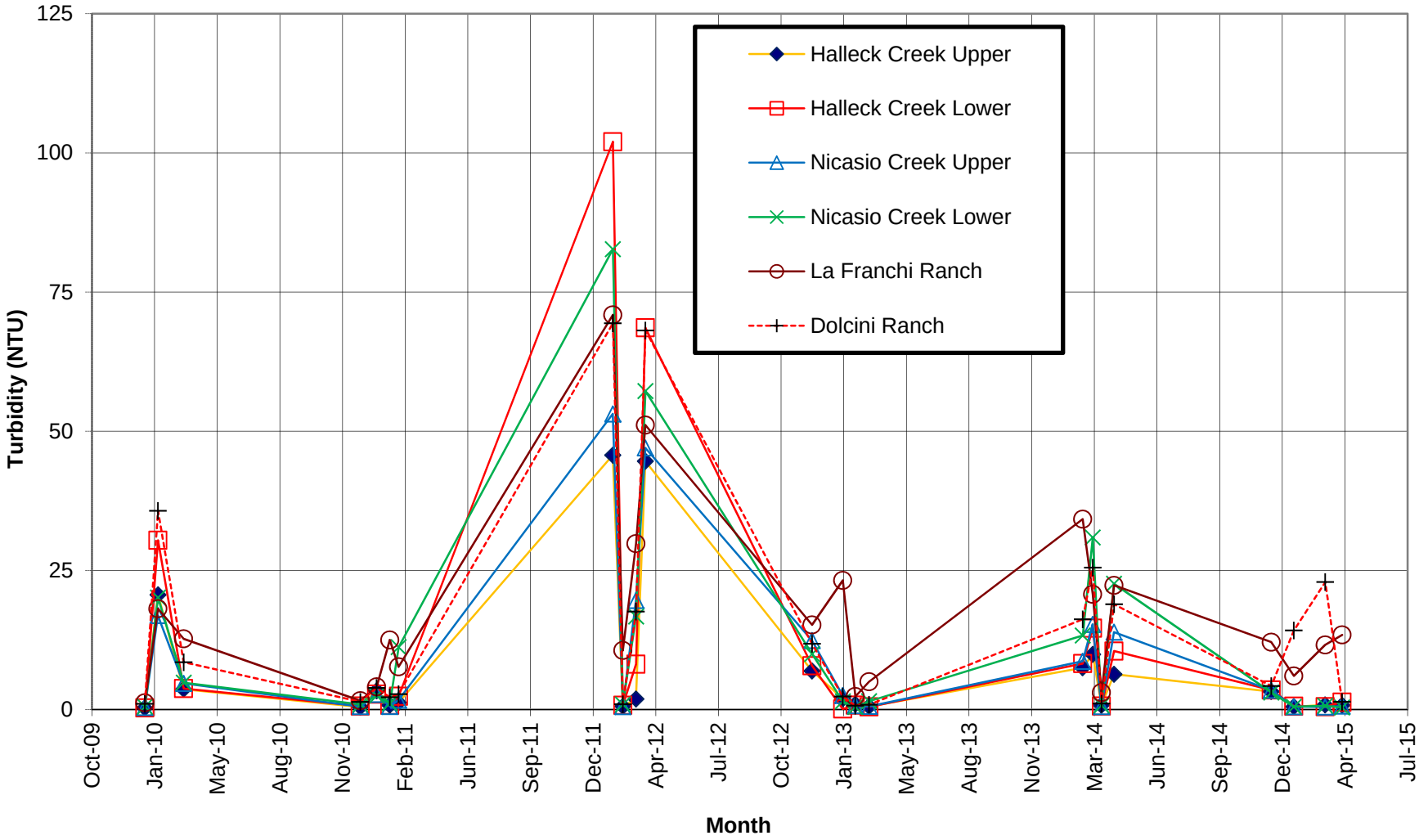
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Total Coliform Monitoring

April 2016
K/J 1568032

Figure 5



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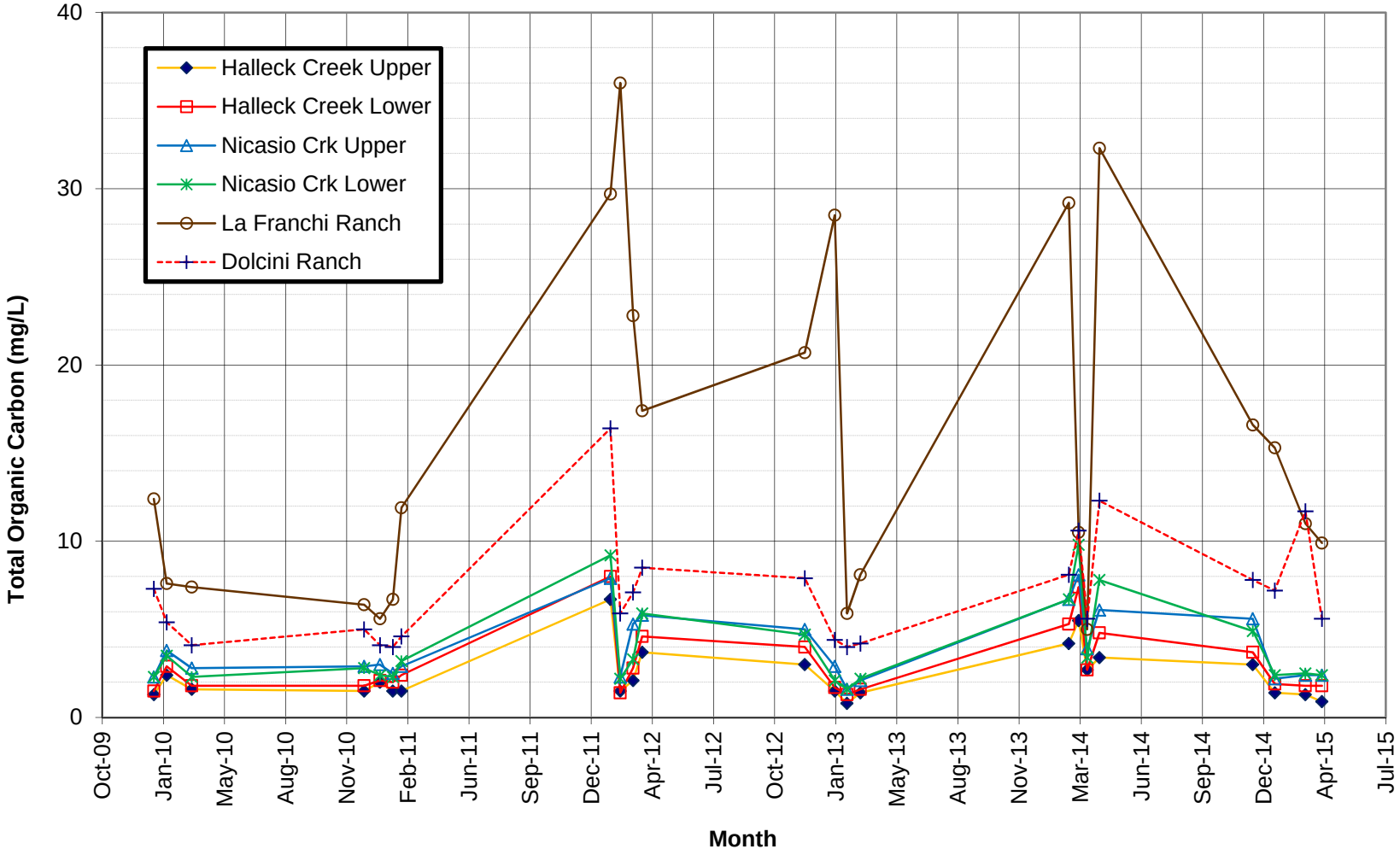
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Turbidity Monitoring

April 2016
K/J 1568032

Figure 6



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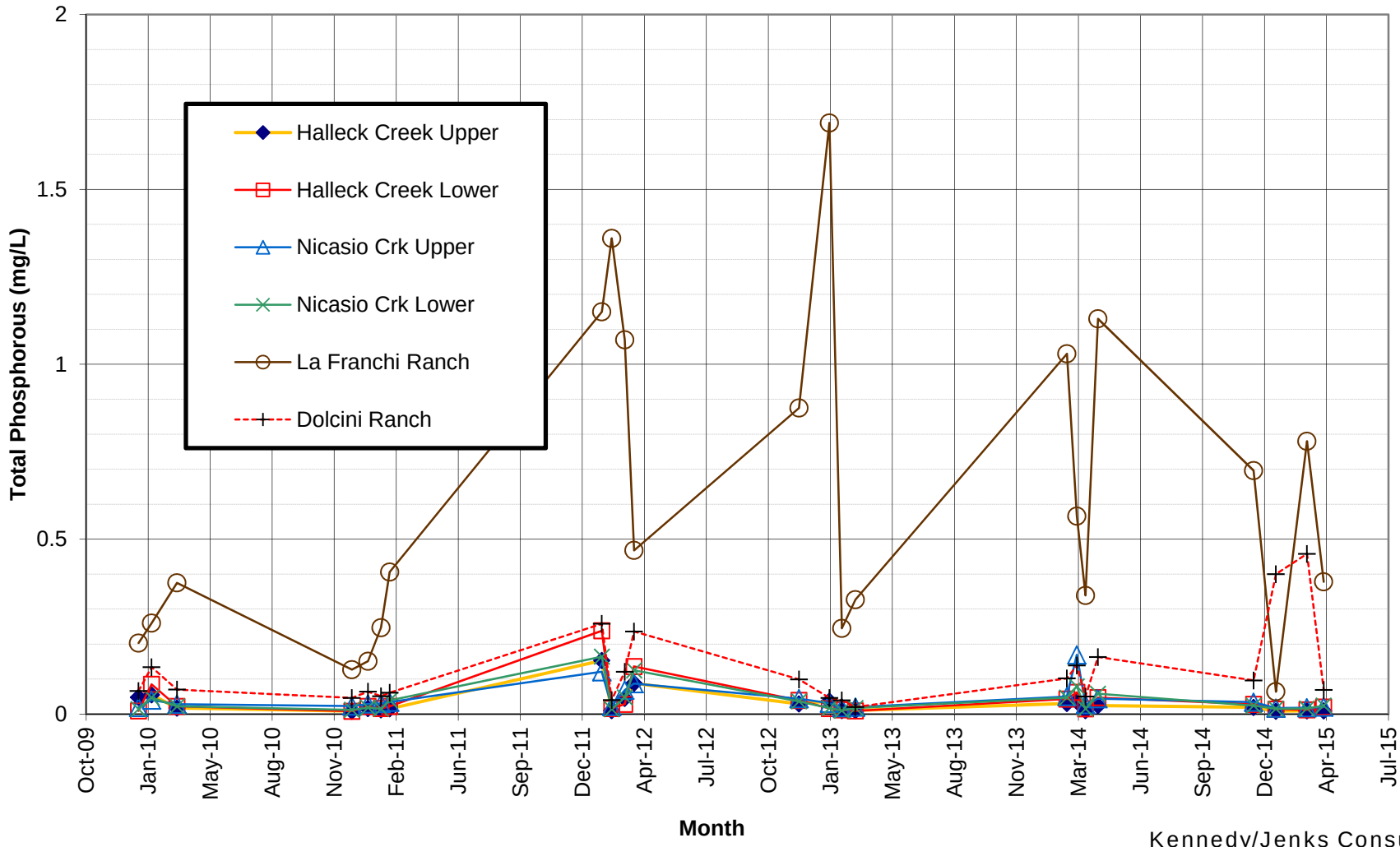
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Total Organic Carbon Monitoring

April 2016
K/J 1568032

Figure 7



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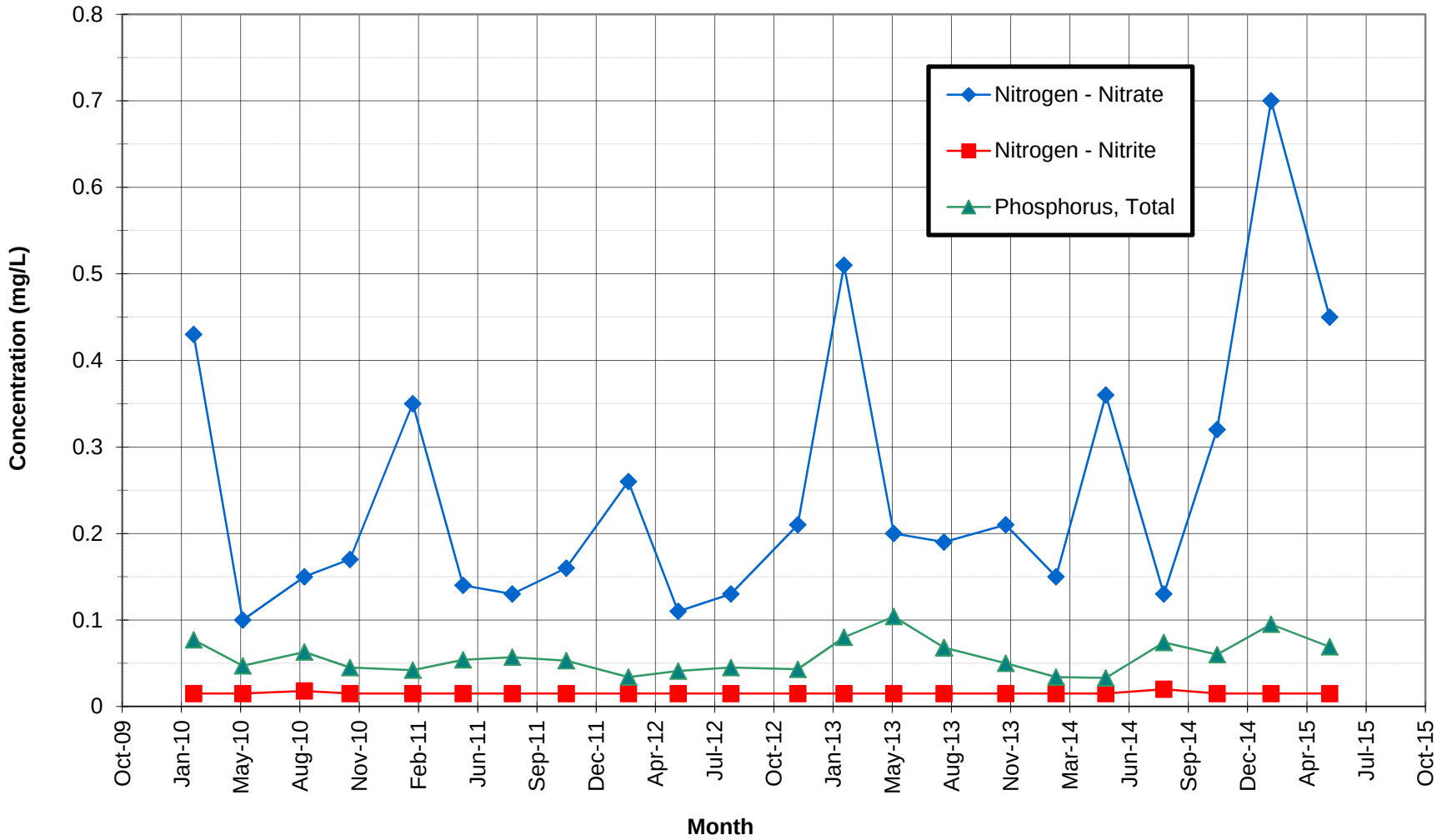
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Total Phosphorus Monitoring

April 2016
K/J 1568032

Figure 8



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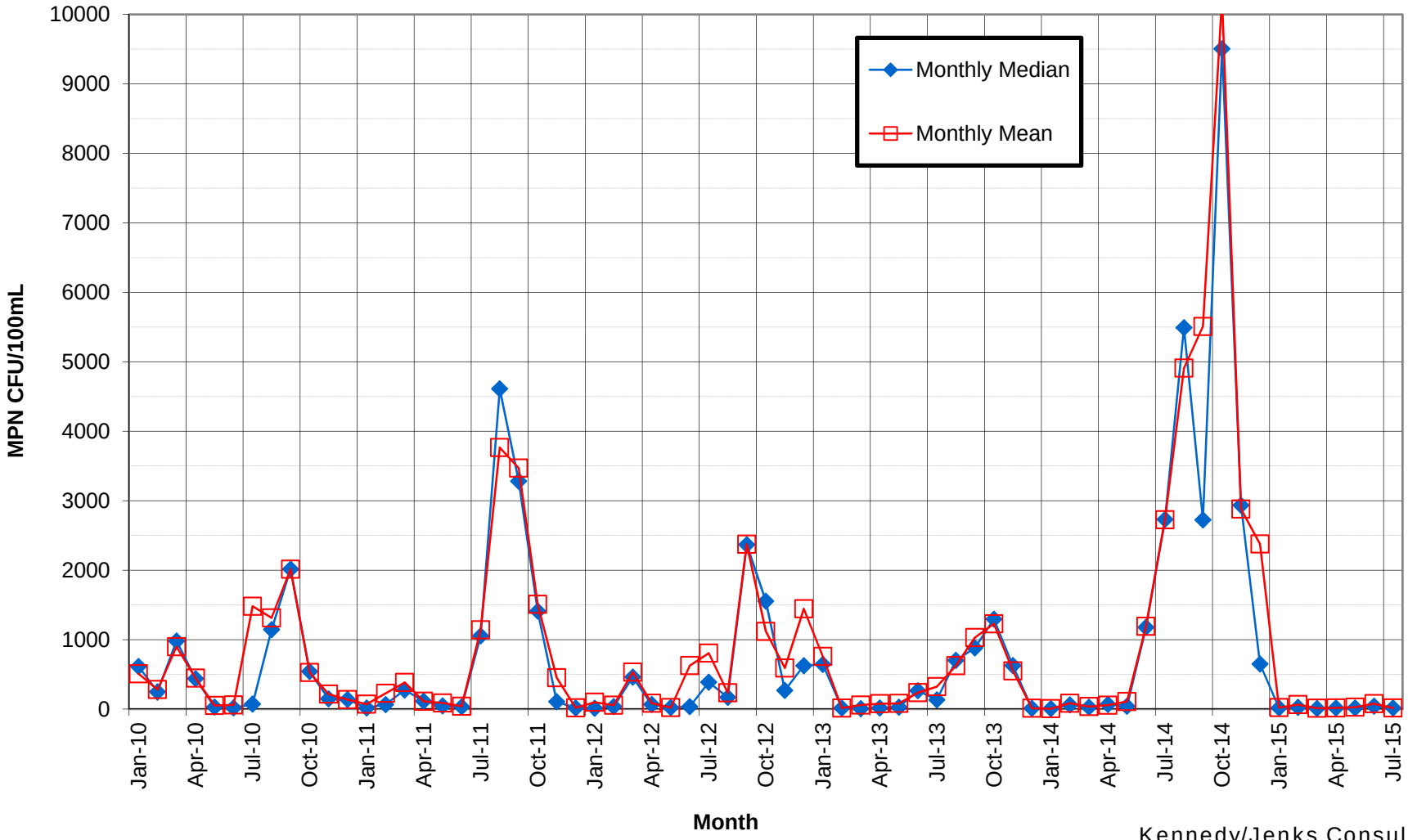
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Dam
Nutrient Monitoring

April 2016
K/J 1568032

Figure 9



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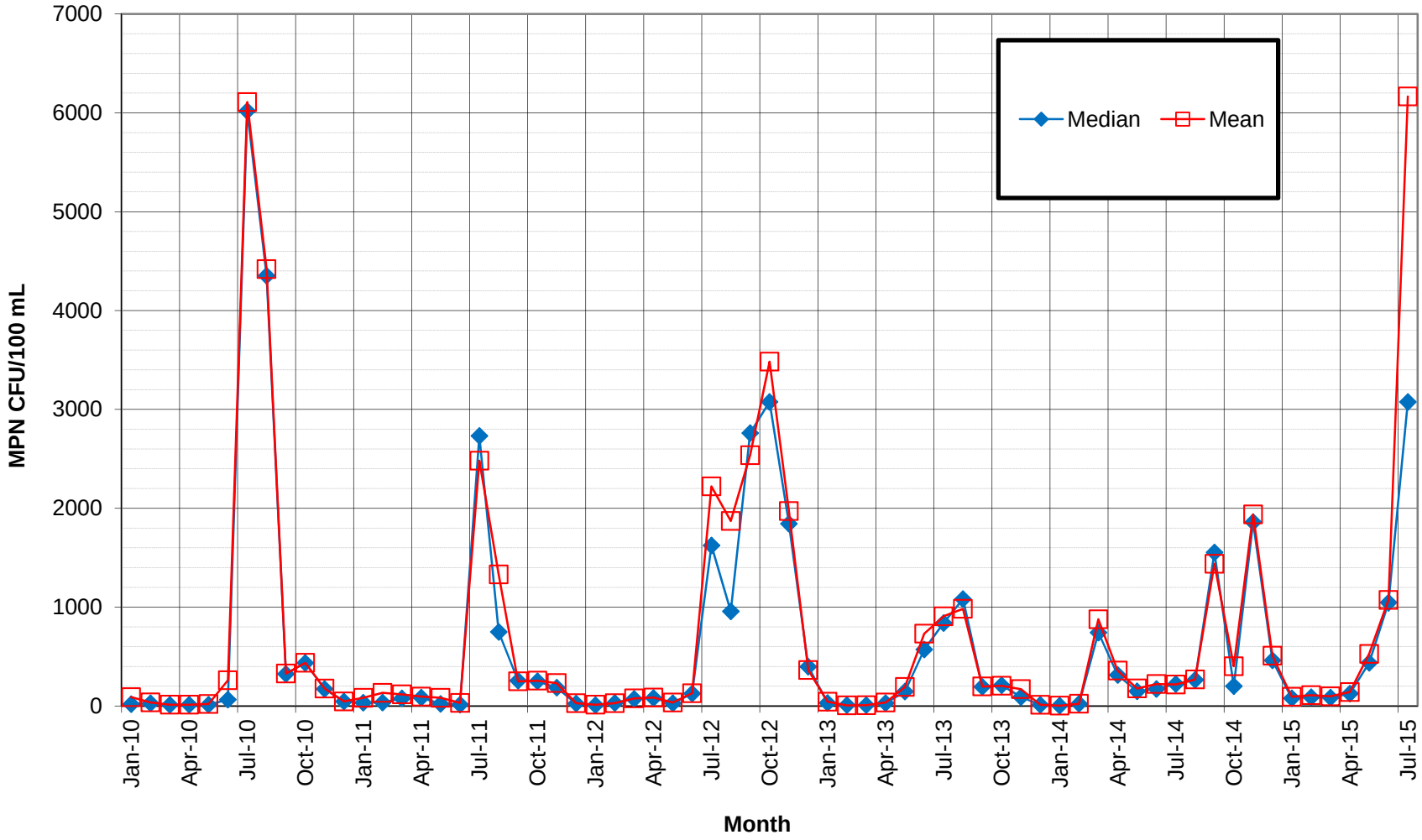
Marin Municipal Water District
Watershed Sanitary Survey Update

Bon Tempe WTP
Raw Water Total Coliform Monitoring

April 2016
K/J 1568032

Figure 10



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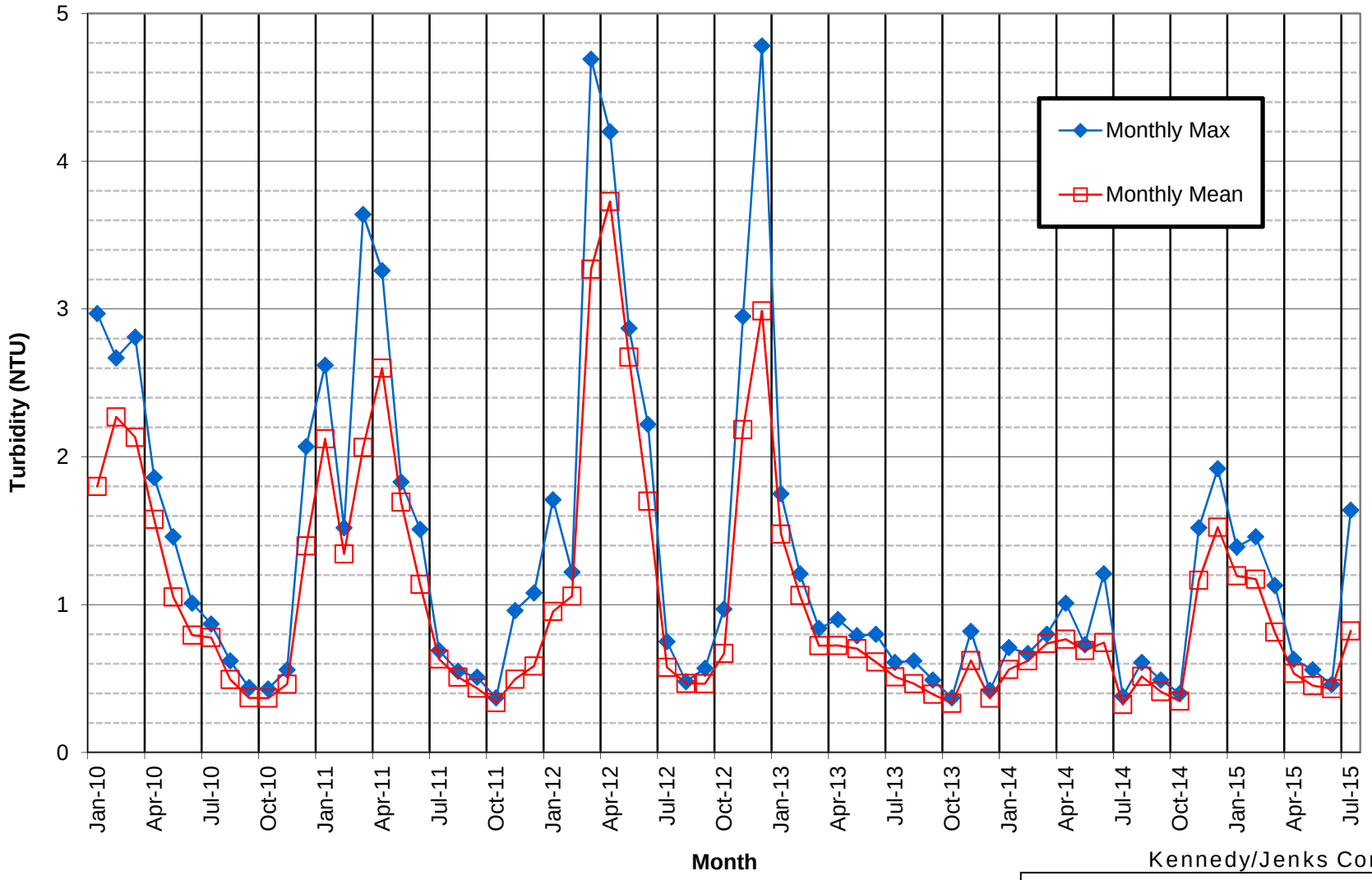
Marin Municipal Water District
Watershed Sanitary Survey Update

San Geronimo WTP
Raw Water Total Coliform Monitoring

April 2016
K/J 1568032

Figure 11



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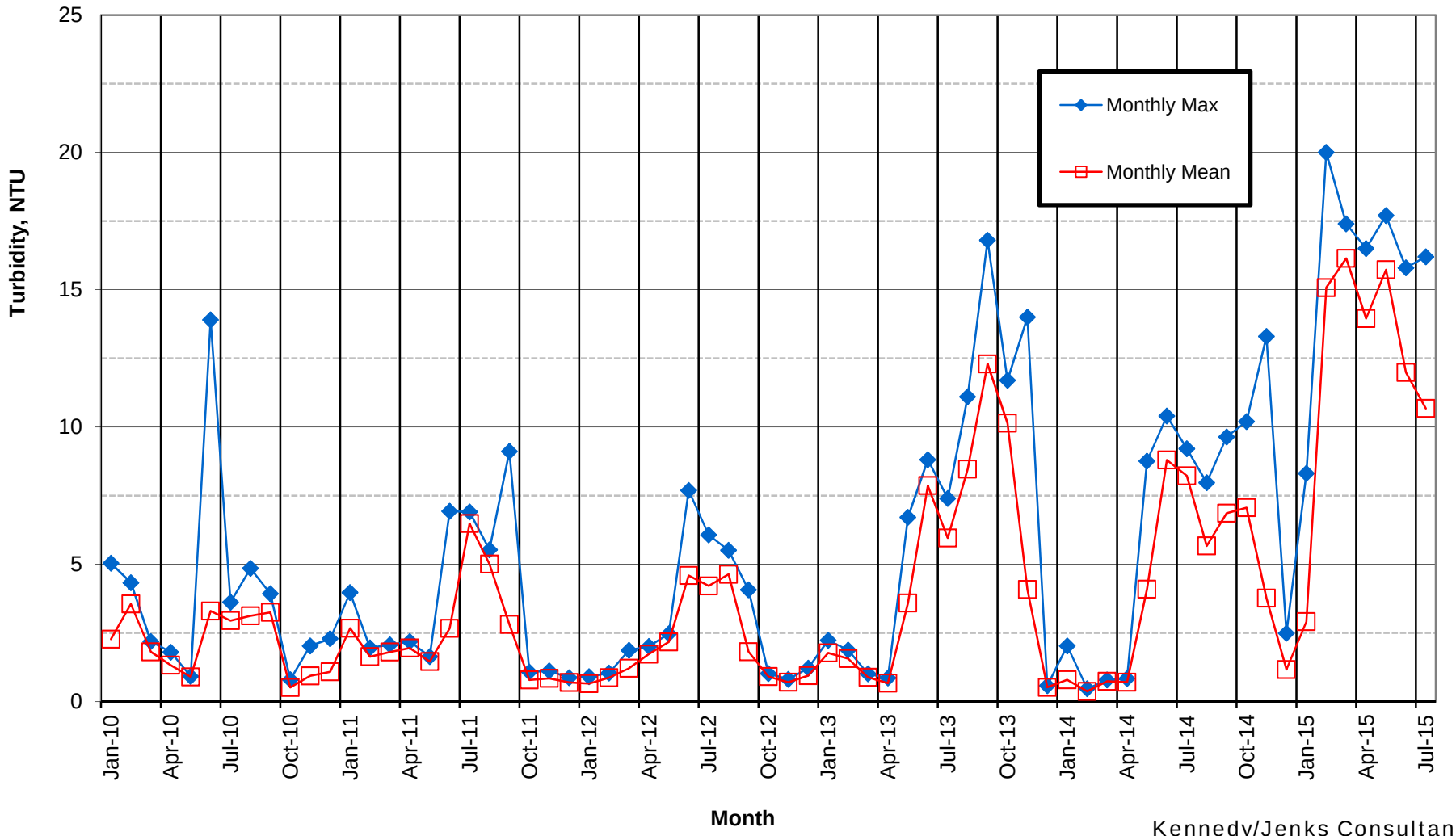
Marin Municipal Water District
Watershed Sanitary Survey Update

Bon Tempe WTP
Raw Water Turbidity Monitoring

April 2016
K/J 1568032

Figure 12



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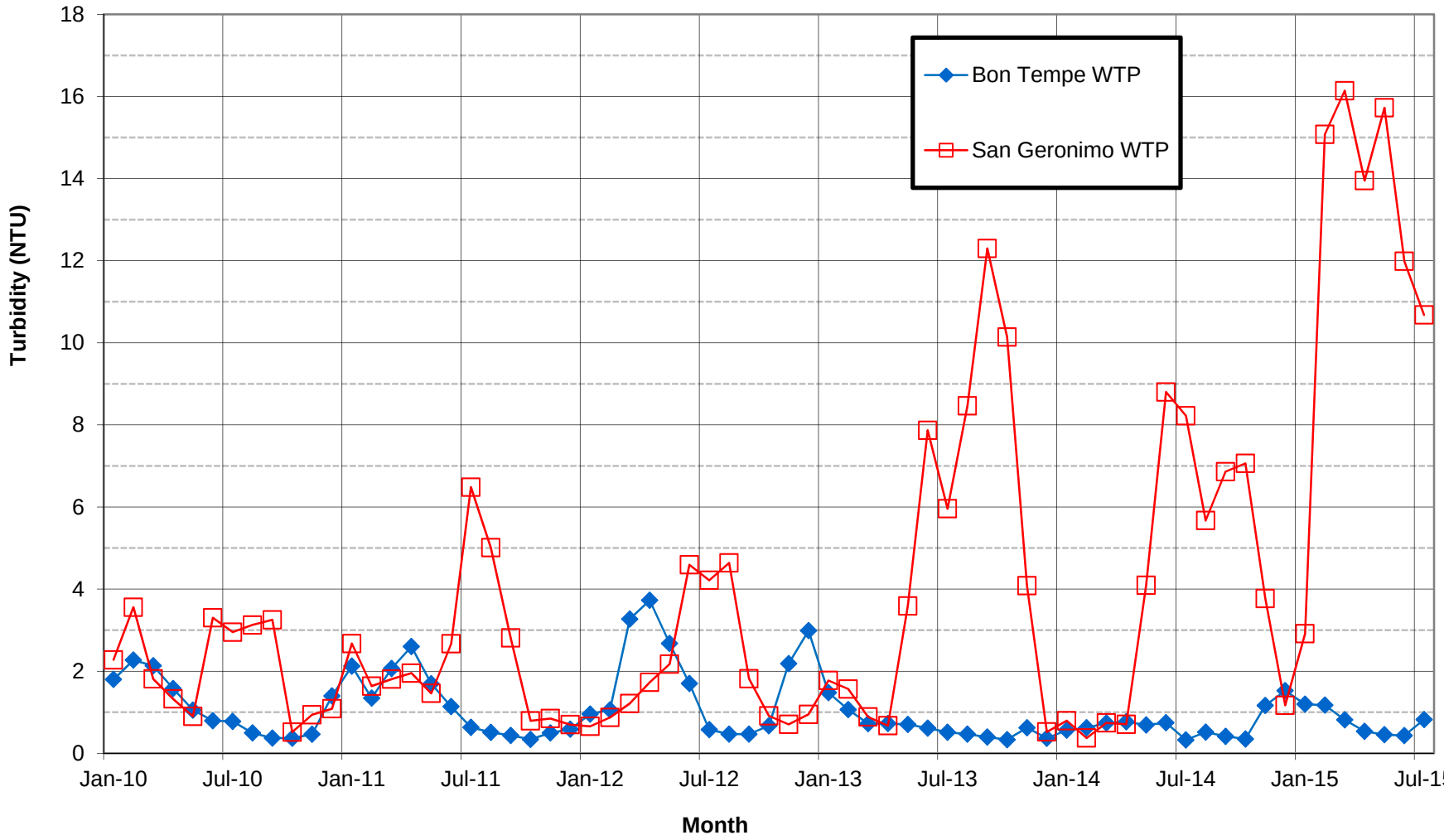
Marin Municipal Water District
Watershed Sanitary Survey Update

San Geronimo WTP
Raw Water Turbidity Monitoring

April 2016
K/J 1568032

Figure 13



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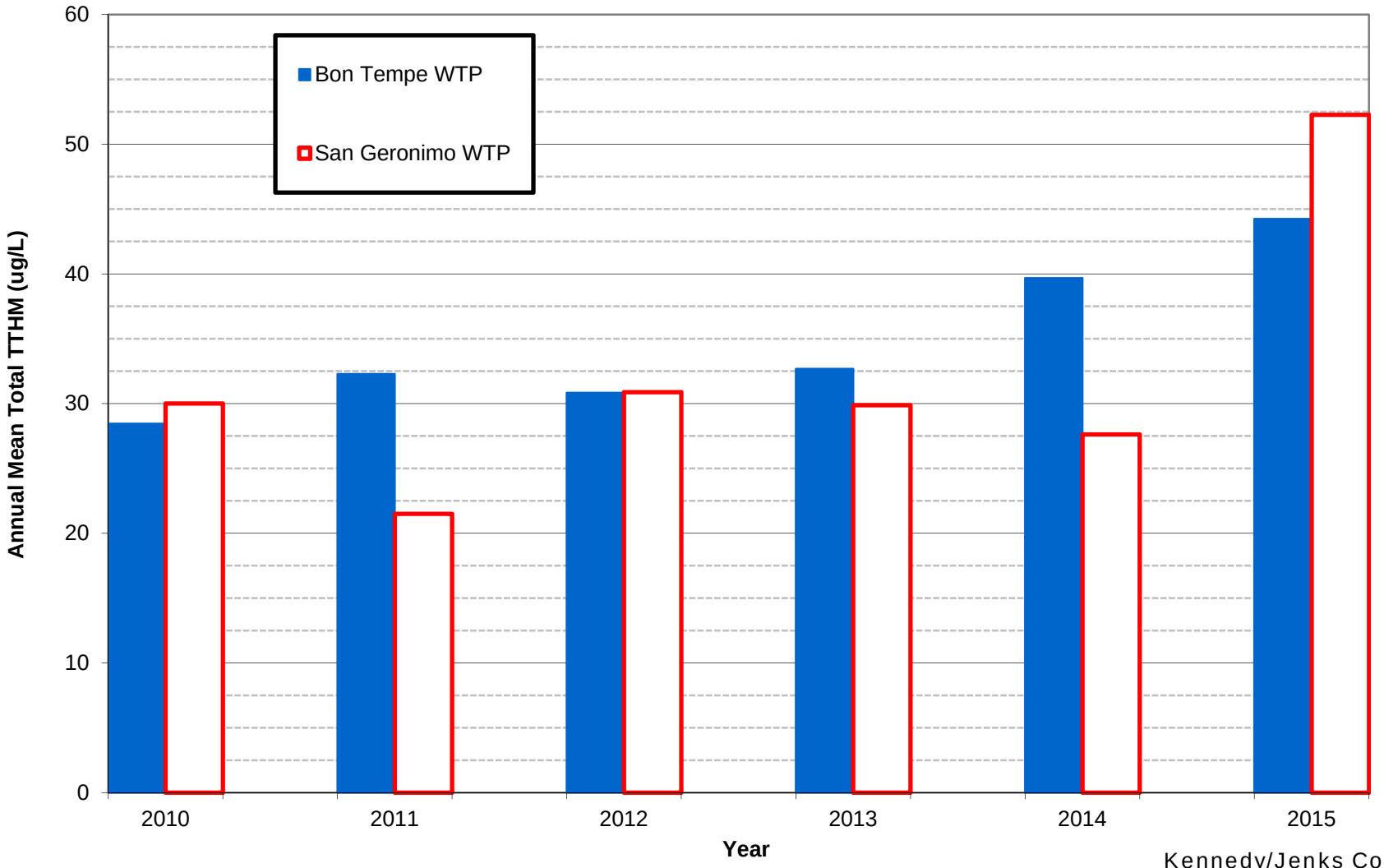
Marin Municipal Water District
Watershed Sanitary Survey Update

Comparison of Turbidity between Bon Tempe and San Geronimo WTPs

April 2016
K/J 1568032

Figure 14



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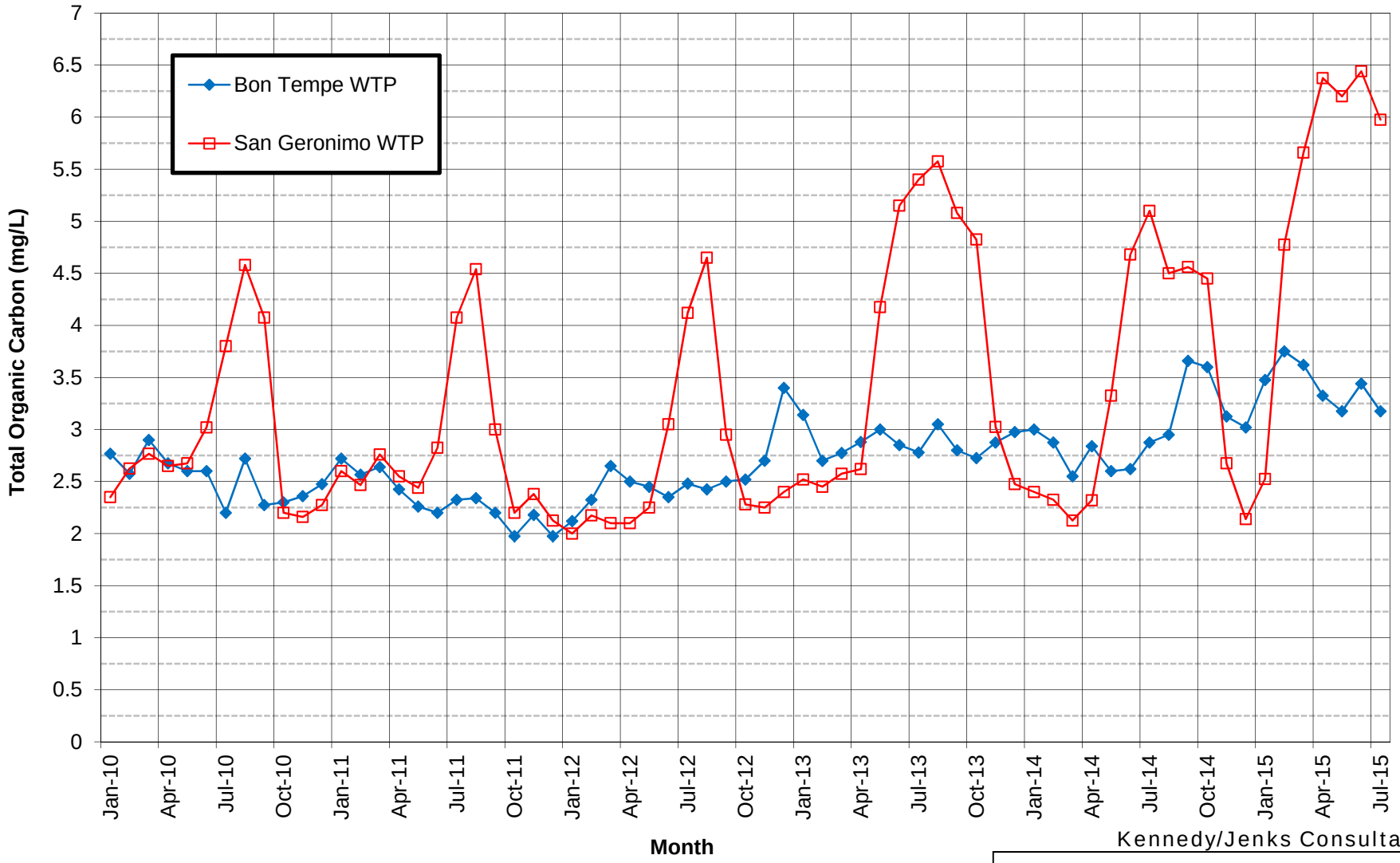
Marin Municipal Water District
Watershed Sanitary Survey Update

Annual Mean TTHM Values for the Bon Tempe and San Geronimo WTPs

April 2016
K/J 1568032

Figure 15



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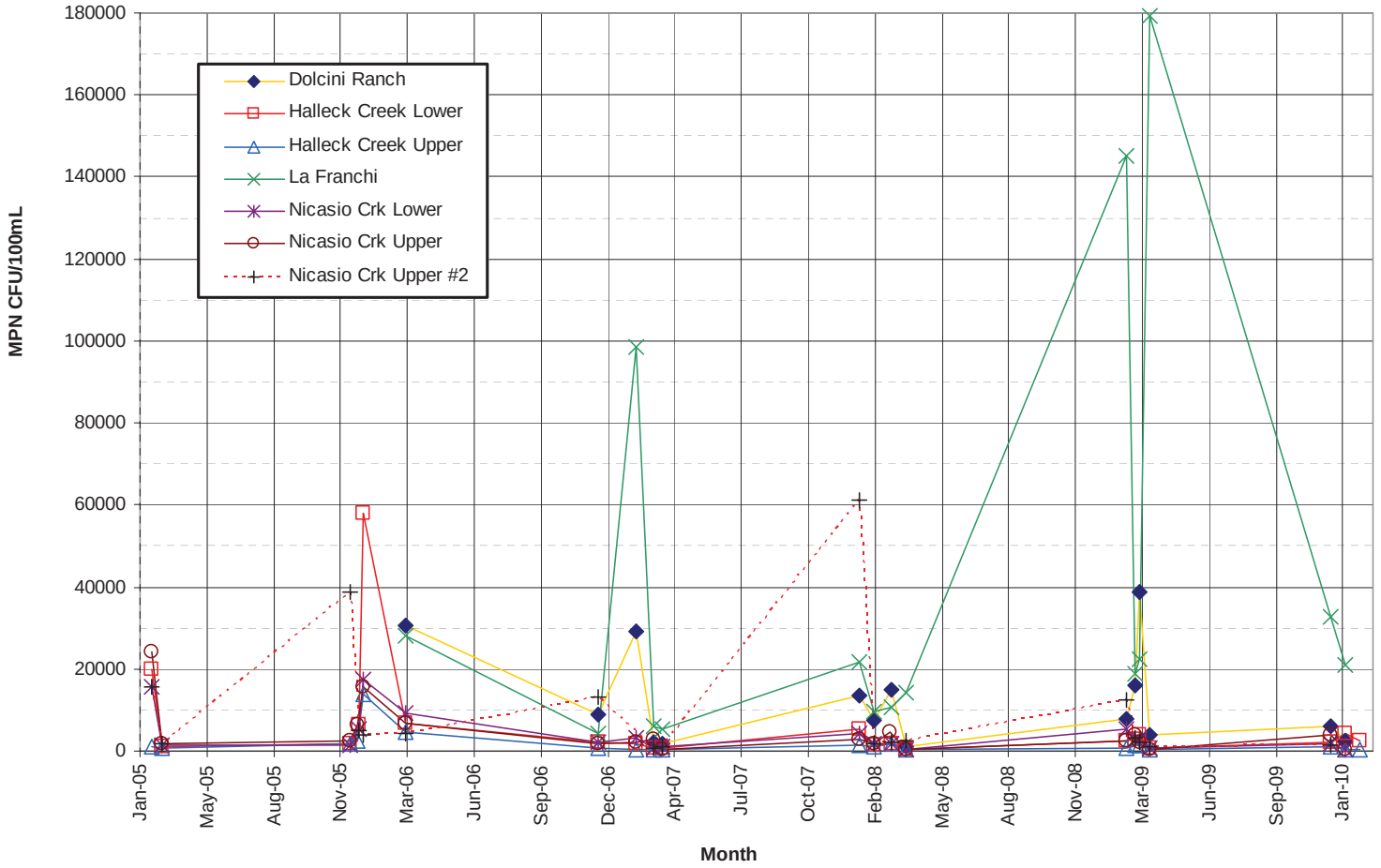
Marin Municipal Water District
Watershed Sanitary Survey Update

Comparison of Raw Water TOC Values for the Bon Tempe and San Geronimo WTPs

April 2016
K/J 1568032

Figure 16



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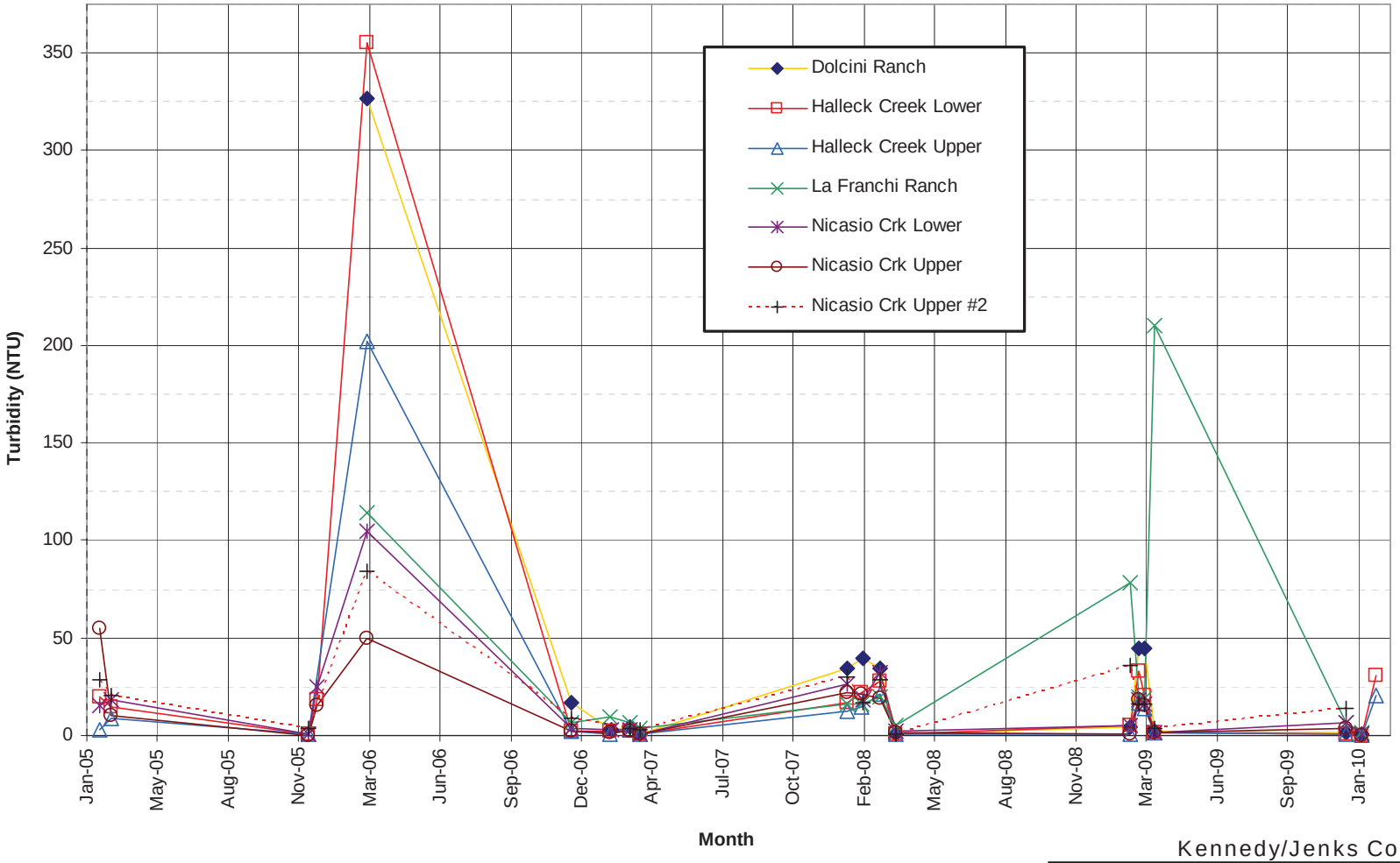
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Total Coliform Monitoring

December 2010
K/J 1088016

Figure 5



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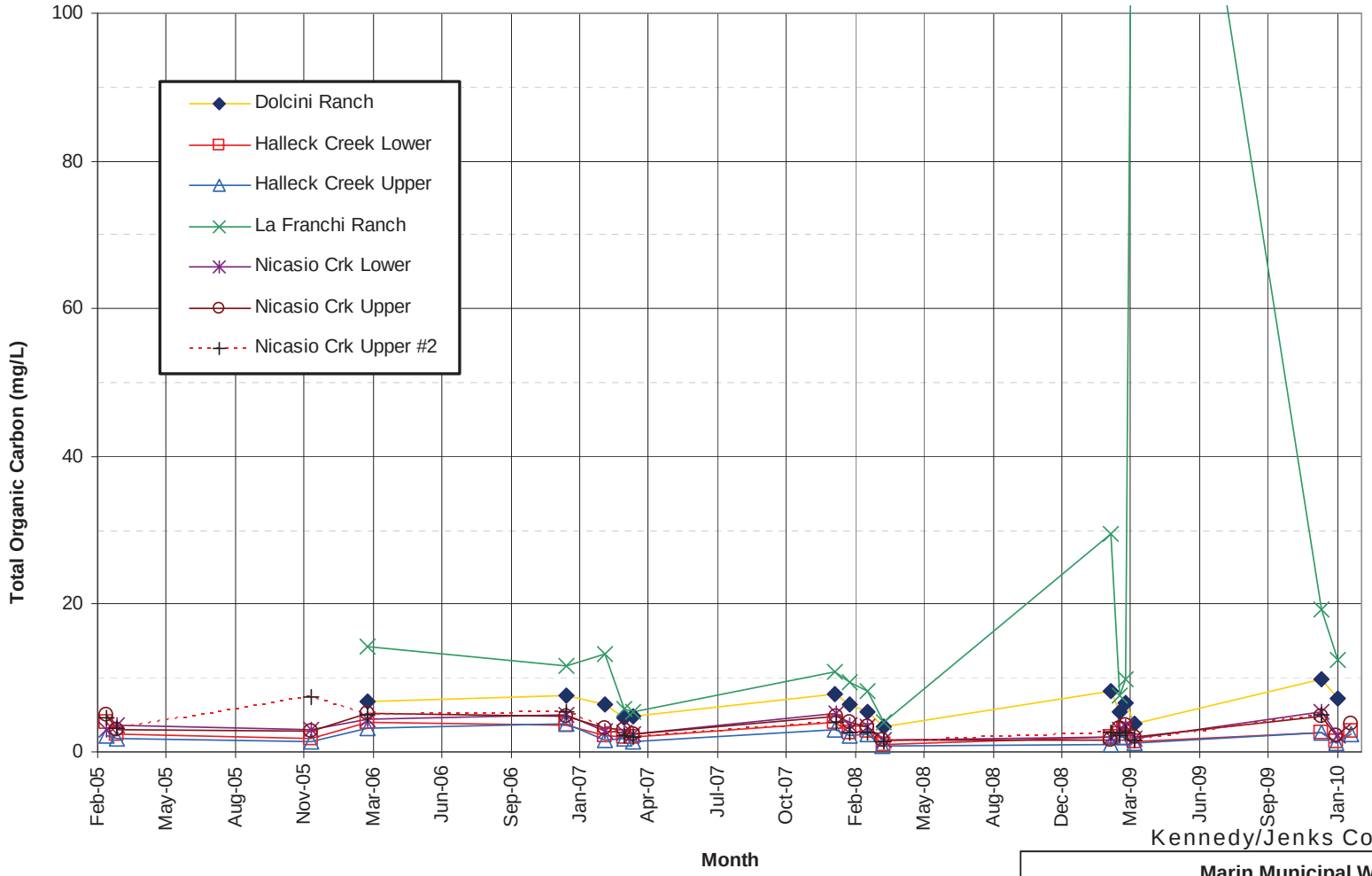
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Turbidity Monitoring

December 2010
K/J 1088016

Figure 6



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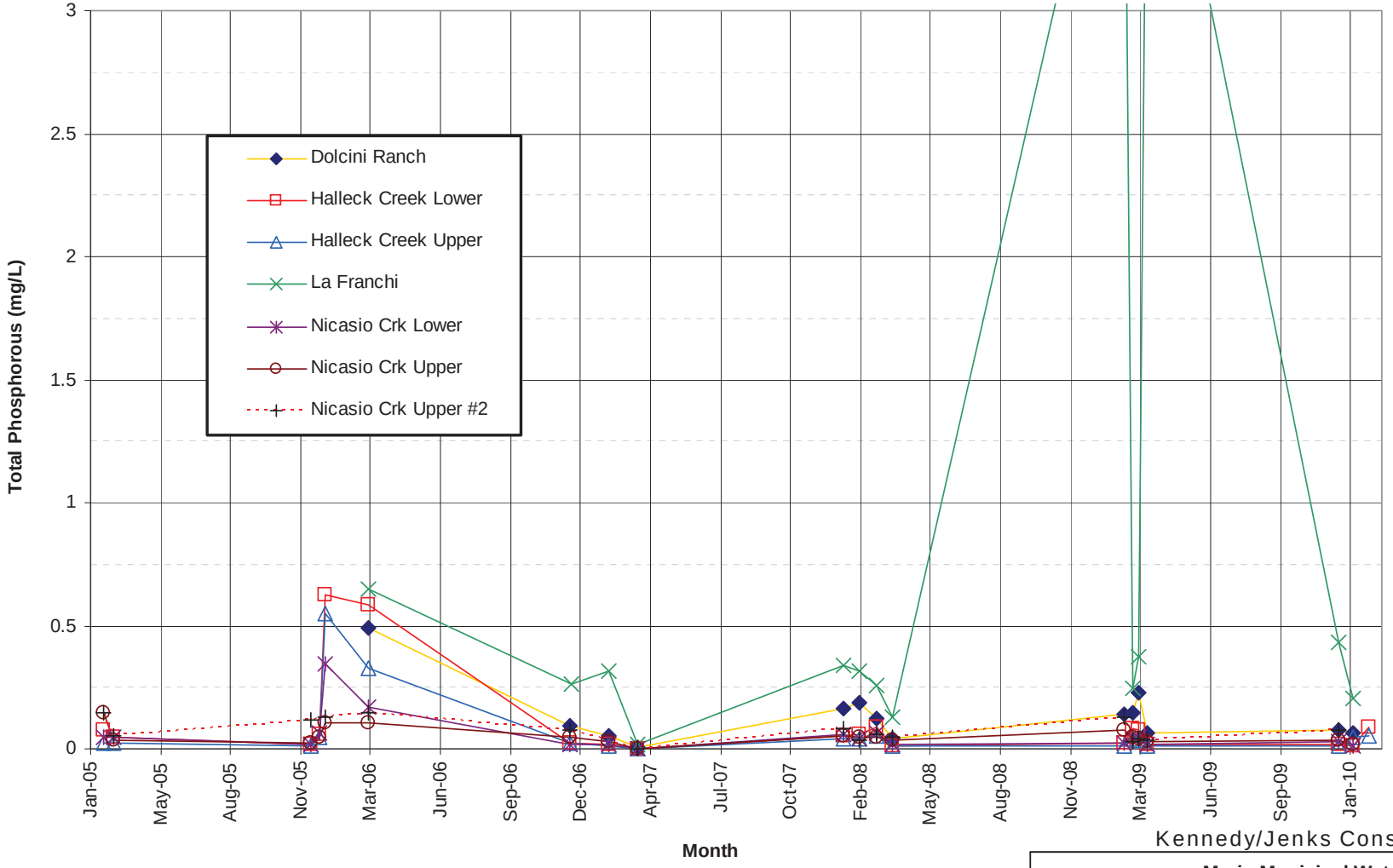
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Total Organic Carbon Monitoring

December 2010
K/J 1088016

Figure 7



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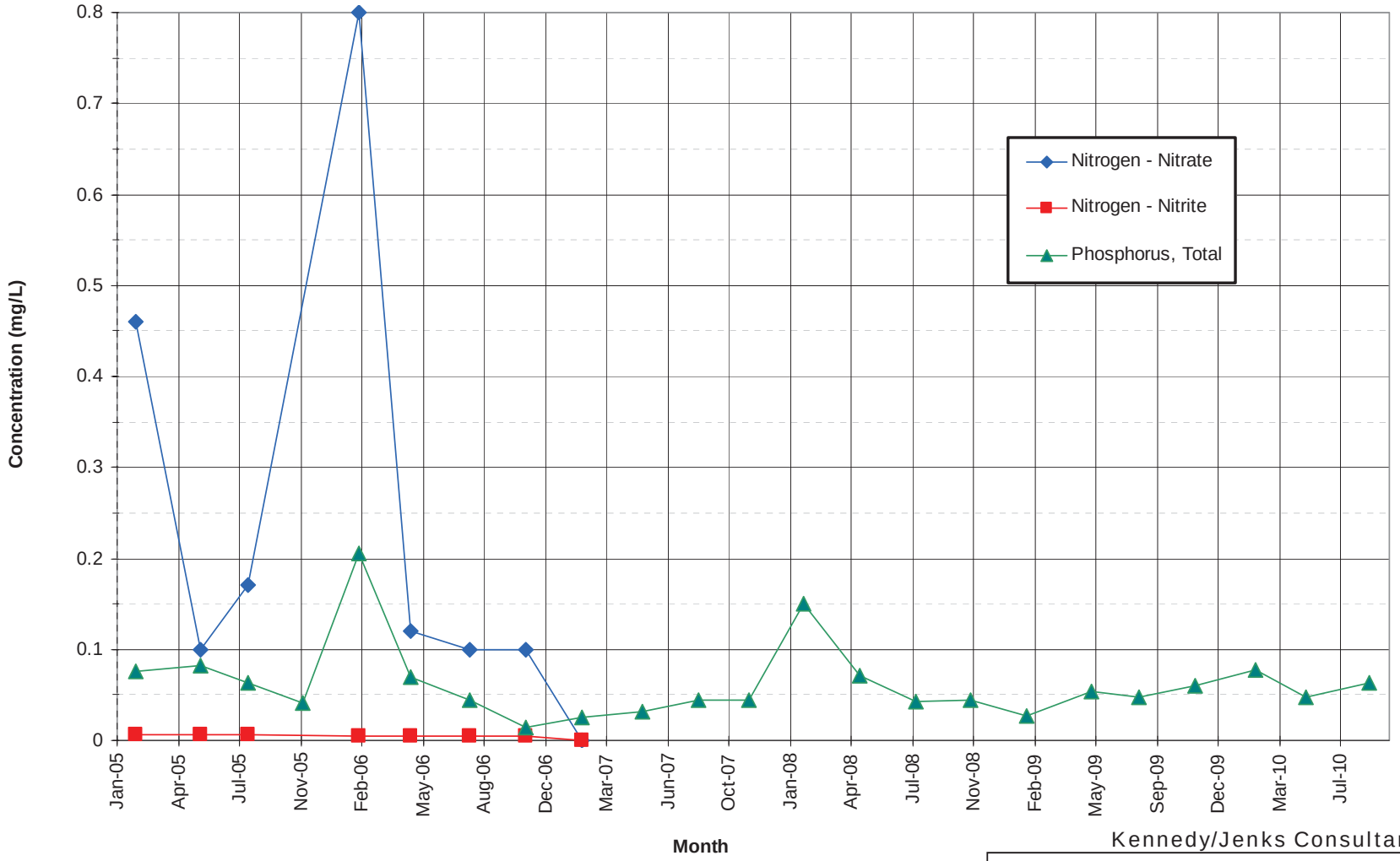
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Tributary
Total Phosphorus Monitoring

December 2010
K/J 1088016

Figure 8



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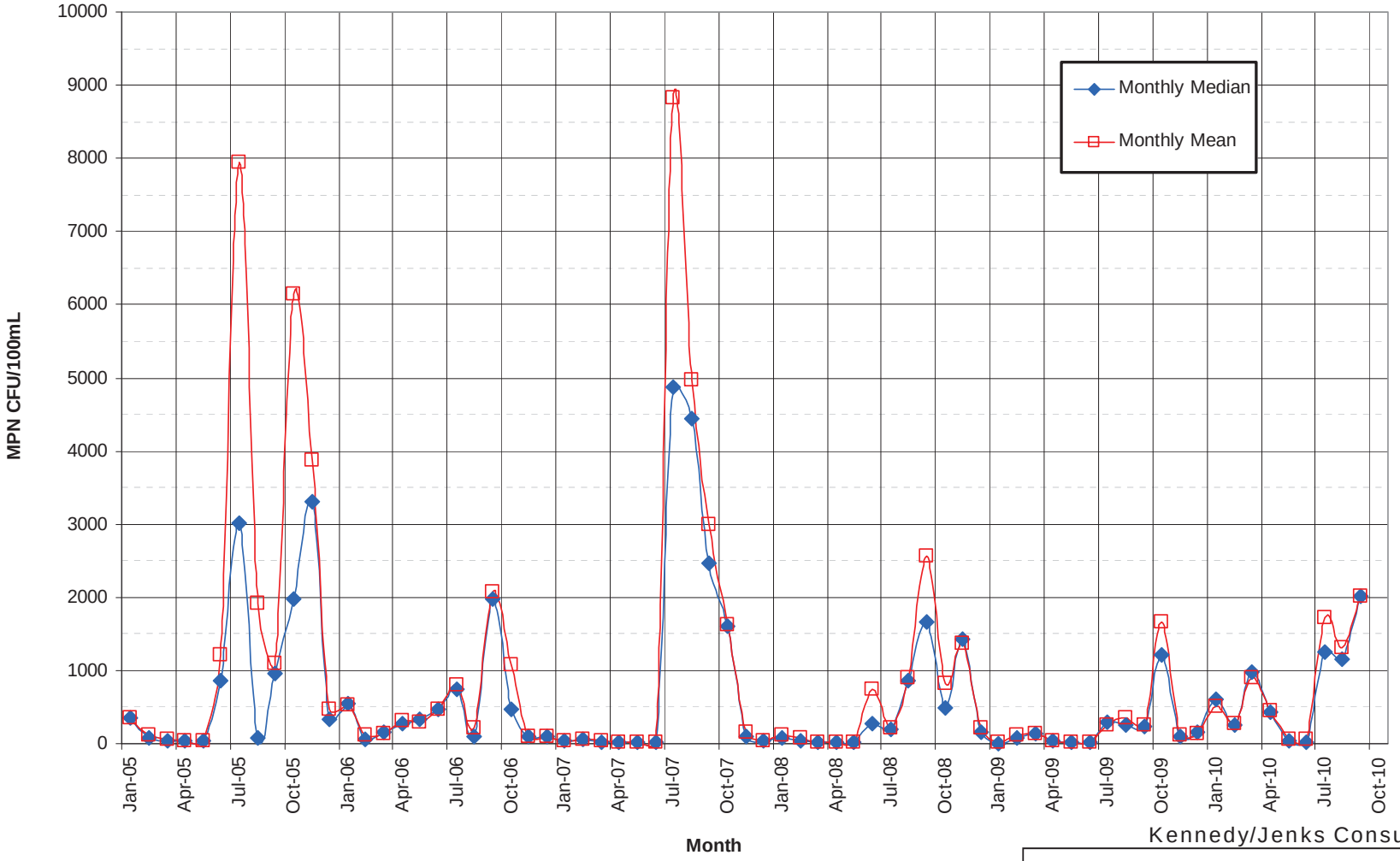
Marin Municipal Water District
Watershed Sanitary Survey Update

Nicasio Reservoir Dam
Nutrient Monitoring

December 2010
K/J 1088016

Figure 9



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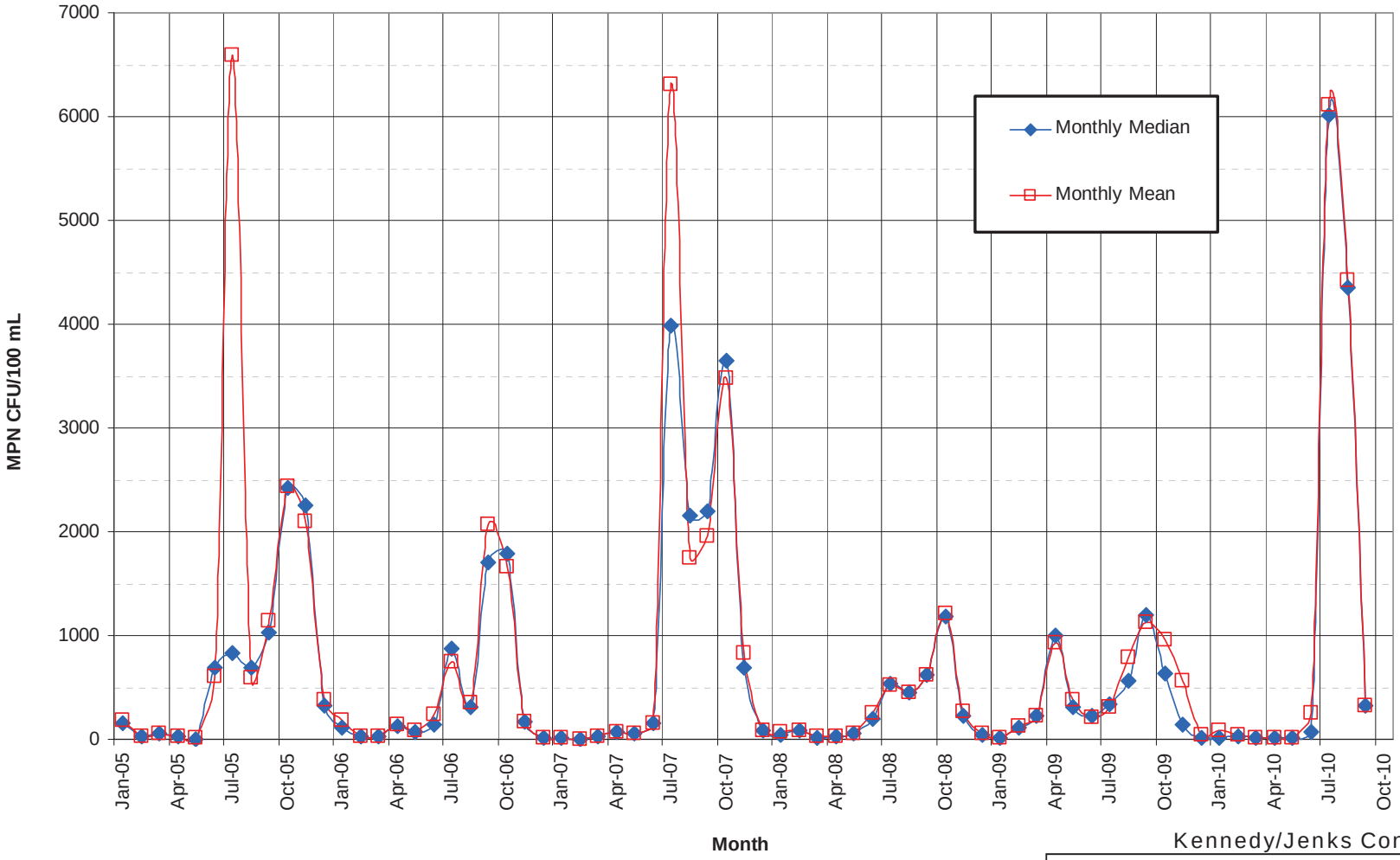
Marin Municipal Water District
Watershed Sanitary Survey Update

Bon Tempe WTP
Raw Water Total Coliform Monitoring

December 2010
K/J 1088016

Figure 10



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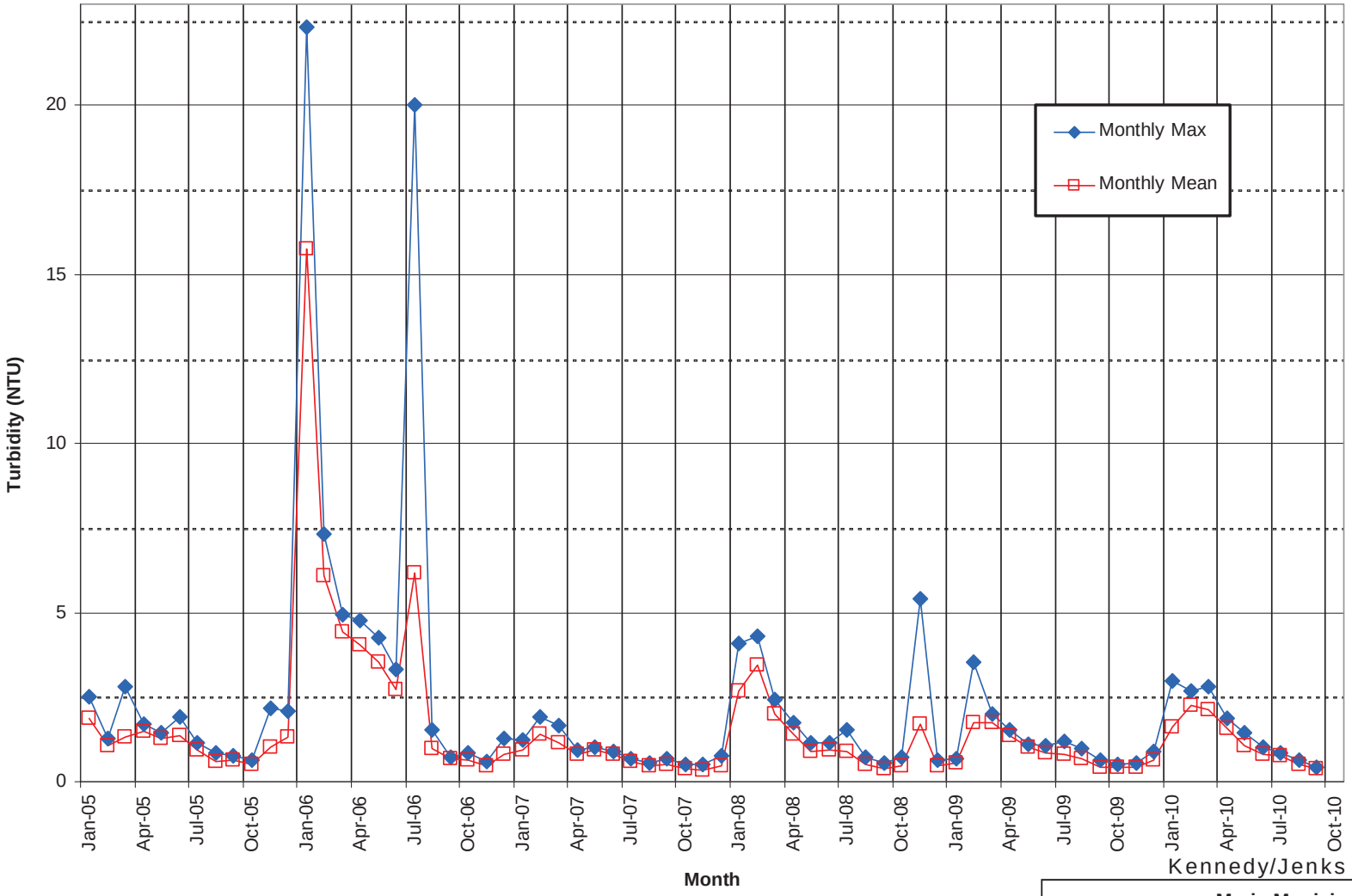
Marin Municipal Water District
Watershed Sanitary Survey Update

San Geronimo WTP
Raw Water Total Coliform Monitoring

December 2010
K/J 1088016

Figure 11



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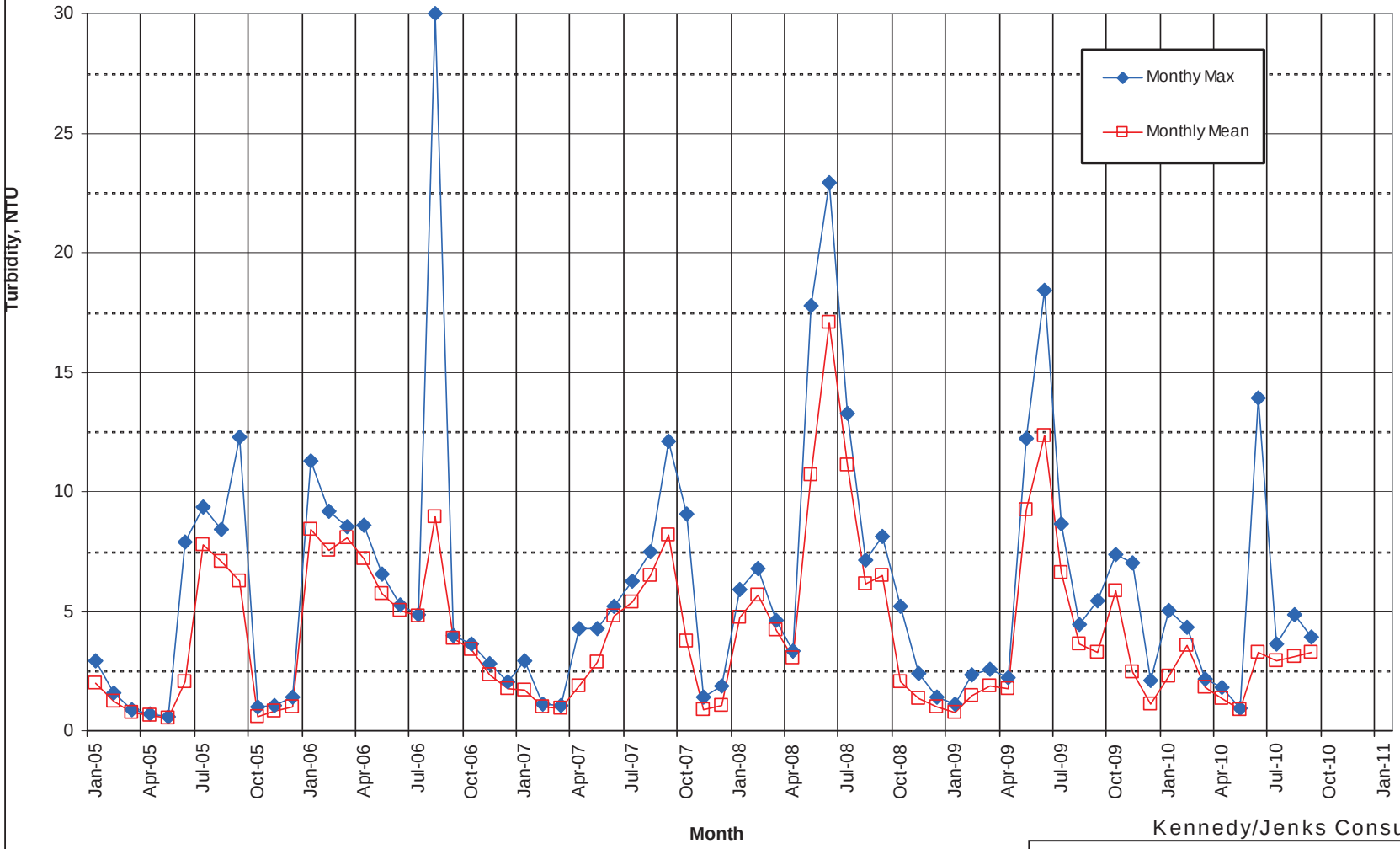
Marin Municipal Water District
Watershed Sanitary Survey Update

Bon Tempe WTP
Raw Water Turbidity Monitoring

December 2010
K/J 1088016

Figure 12



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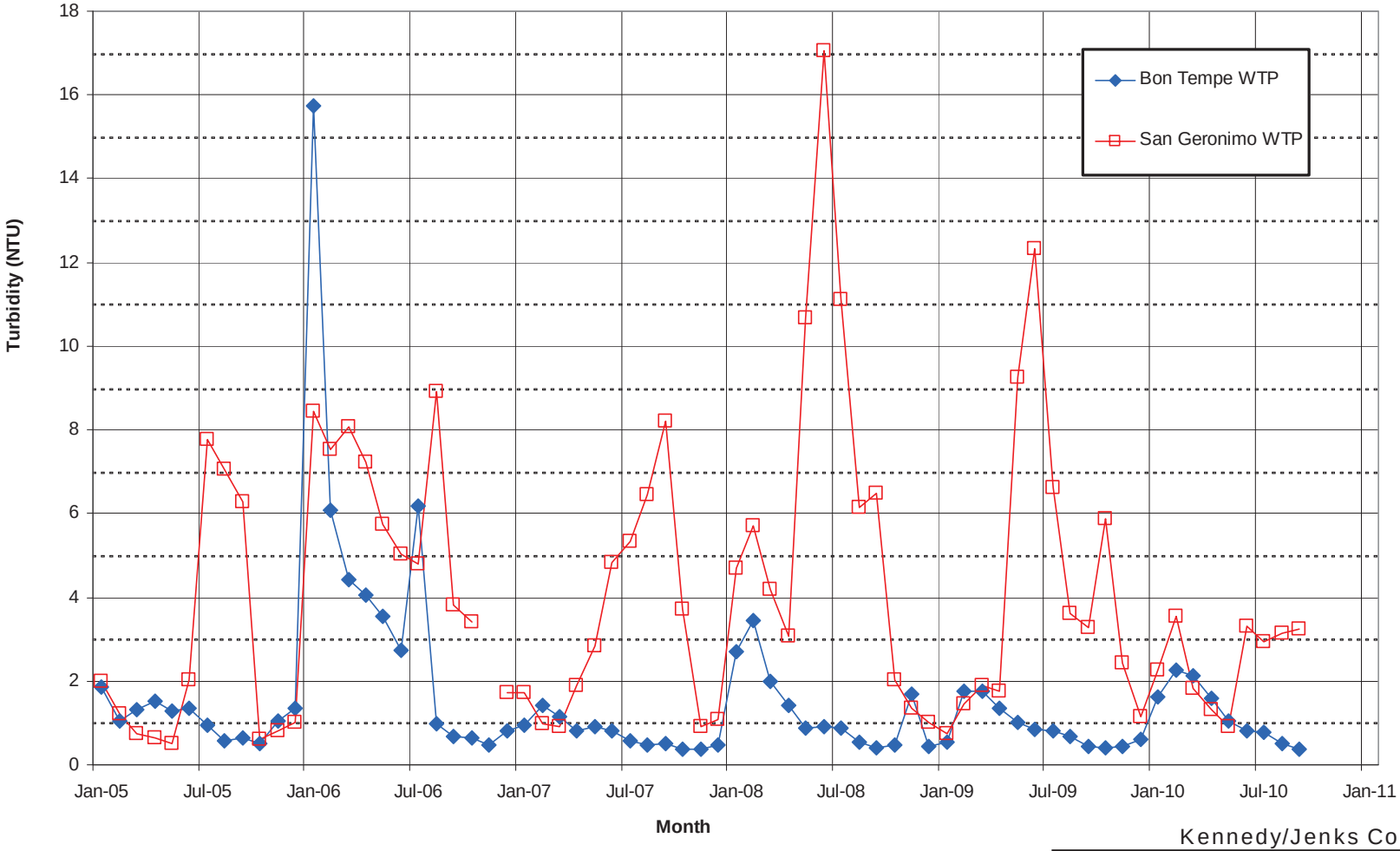
Marin Municipal Water District
Watershed Sanitary Survey Update

San Geronimo WTP
Raw Water Turbidity Monitoring

December 2010
K/J 1088016

Figure 13



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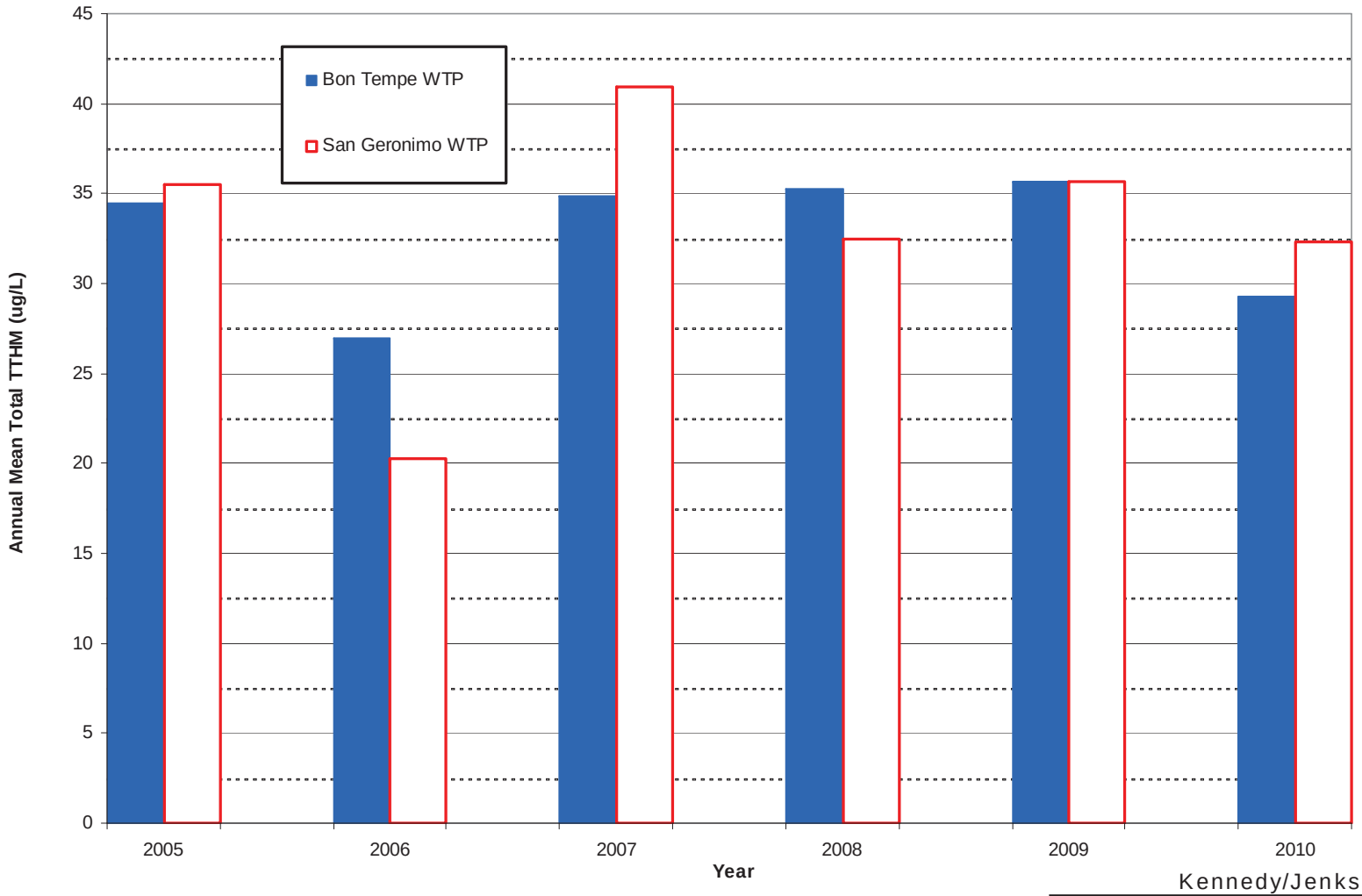
Marin Municipal Water District
Watershed Sanitary Survey Update

Comparison of Turbidity between Bon Tempe and San Geronimo WTPs

December 2010
K/J 1088016

Figure 14



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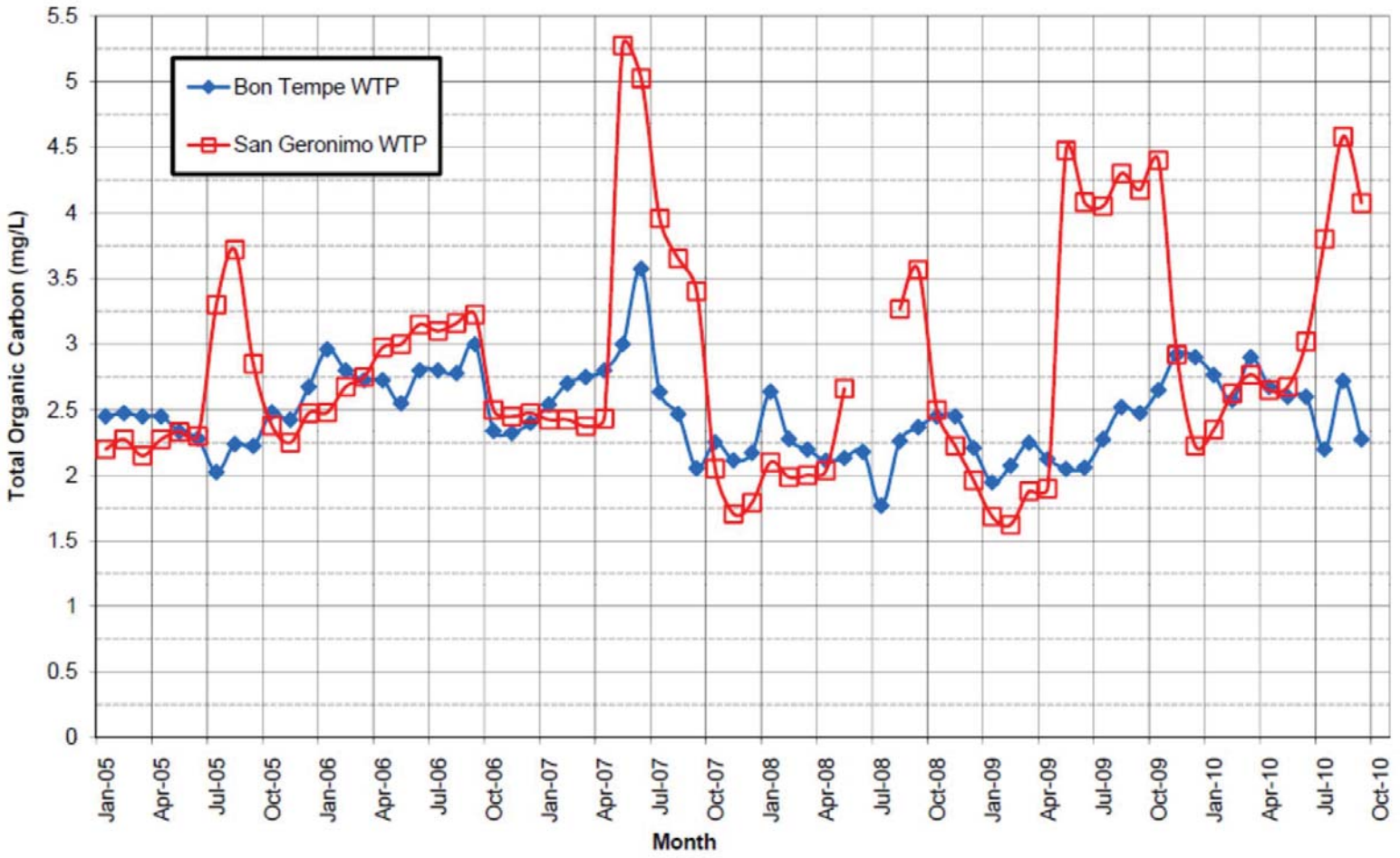
Watershed Sanitary Survey Update

Annual Mean TTHM Values for the Bon Tempe and San Geronimo WTPs

December 2010
K/J 1088016

Figure 15



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Marin Municipal Water District
Watershed Sanitary Survey Update

Comparison of Raw Water TOC Values for the Bon Tempe and San Geronimo WTPs

December 2010
K/J 1088016

Figure 16

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415-243-2150

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