STATE WATER RESOURCES CONTROL BOARD

NORTHEAST TULARE COUNTY REGIONAL WATER SUPPLY FEASIBILITY STUDY

TULARE COUNTY
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PREPARED FOR:
State Water Resources Control Board
Tulare County, CA

PREPARED BY:
PROVOST & PRITCHARD CONSULTING GROUP
455 W. Fir Avenue, Clovis, CALIFORNIA 93611

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Report Prepared for:
State Water Resources Control Board

Contact:
Salem Alyafeai, EIT | Water Resource Control Engineer
Small Community Technical Assistance - Unit 2
Division of Financial Assistance, State Water Board
(916) 341-5657

Report Prepared by:
Provost & Pritchard Consulting Group
John Plath, PE
Maija Madec, PE

Contact:
Maija Madec, Project Manager
(559) 449-2700

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ABBREVIATIONS

ACS .... American Community Survey
ADD .... Average Daily Demand
AF .... Acre-feet
AID .... Alta Irrigation District
AMR .... Automatic Meter Reading
APN .... Assessor's Parcel Number
ARPA .... American Rescue Plan Act
BAC-T .... Bacteriological Test
BAT .... Best Available Technology
bgs .... below ground surface
CCR .... California Code of Regulations
CEQA .... California Environmental Quality Act
cfs .... cubic feet per second
CPUC .... California Public Utilities Commission
CPUD .... Cutler Public Utility District
COSWPA .... Cutler Orosi Surface Water Project JPA
CSA .... County Service Area
CSD .... Community Services District
CT .... Concentration for a required Time
CWC .... Community Water Center
CWD .... County Water District
CVP .... Central Valley Project
DBP .... Disinfection By-Product
DBCP 1,2-Dibromo-3-Chloropropane
DDW .... State Water Board Division of Drinking Water
DFA .... State Water Board Division of Financial Assistance
DWR .... California Department of Water Resources
DWSRF .... Drinking Water State Revolving Fund
eAR .... Electronic Annual Report
EDWG .... Expedited Drinking Water Grant
EOCSD .... East Orosi Community Services District
EOPCC .... Engineer's Opinion of Probable Construction Cost
FKC .... Friant-Kern Canal
FWA .... Friant Water Authority
GAC .... Granular Activated Carbon
GAMA .... Groundwater Ambient Monitoring Assessment
GM .... General Mineral
GP .... General Physical
GPCD .... Gallons per Capita per Day
GPD .... Gallons per Day
GPM .... Gallons per Minute
GSA .... Groundwater Sustainability Agency
GSP .... Groundwater Sustainability Plan
G&W .... Genesee & Wyoming, Inc.
HAA5 .... Haloacetic Acids
HCF .... Hundred Cubic Feet

hp .... horsepower
IO .... Inorganic
IS/MND .... Initial Study / Mitigated Negative Declaration
IX .... Ion Exchange
JPA .... Joint Powers Authority or Joint Powers Agency
KDSA .... Kenneth D. Schmitt and Associates
KREGSP .... Kings River East Groundwater Sustainability Plan
KRWA .... Kings River Water Association
LAFCo .... Local Agency Formation Commission
LEFA .... Legal Entity Formation Assistance
MCC .... Motor Control Center
MCL .... Maximum Contaminant Level
MDD .... Maximum Day Demand
MHI .... Median Household Income
MG .... Million Gallons
MGD .... Million Gallons per Day
mg/L .... Milligrams per Liter
MMADD .... Maximum Month Average Day Demand
MOU .... Memorandum of Understanding
MWD .... Municipal Water District
ND .... Non-Detect
NEPA .... National Environmental Policy Act
NTC .... Northeast Tulare County
NTCRSWTPS .... North Tulare County Regional Surface Water Treatment Plant Study
NTCRWA .... North Tulare County Regional Water Alliance JPA
O&M .... Operations and Maintenance
OPEETA .... SWRCB Office of Public Engagement, Equity, and Tribal Affairs
OPUD .... Orosi Public Utility District
PCA .... Possible Contaminating Activity
PER .... Preliminary Engineering Report
PFAS .... Per- and Polyfluoroalkyl Substances
PHD .... Peak Hour Demand
P&P .... Provost & Pritchard Consulting Group
PRV .... Pressure Reducing Valve
PSI .... Pounds per Square Inch
PSV .... Pressure Sustaining Valve
PUD .... Public Utility District
PVC .... Polyvinyl Chloride
RCAC .... Rural Community Assistance Corporation
RO .... Reverse Osmosis
ROW .... Right-of-Way
SAFER .... Safe and Affordable Funding for Equity and Resilience
SB 552 .... Senate Bill 552
SCADA .... Supervisory Control and Data Acquisition
SCSD .... Sultana Community Services District
SDWIS .... Safe Drinking Water Information System
SGMA .... Sustainable Groundwater Management Act
SJVR .... San Joaquin Valley Railroad
SWRCB .... State Water Resources Control Board

SWTP .... Surface Water Treatment Plant
TA .... Technical Assistance
TCP 1,2,3-Trichloropropane
TMF .... Technical, Managerial, and Financial
TOC .... Total Organic Carbon
TTHM .... Total Trihalomethane
TVRR .... Tulare Valley Railroad
UOM .... Unit of Measure
USBR .... United States Bureau of Reclamation
USDA .... United States Department of Agriculture
VFD .... Variable Frequency Drive
VOC .... Volatile Organic Compound
WWTF .... Wastewater Treatment Facility
YSCSD .... Yettem-Seville Community Services District

EXECUTIVE SUMMARY

In March 2024, the State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW), requested Technical Assistance (TA) through the Safe and Affordable Funding for Equity and Resilience (SAFER) Drinking Water Technical Assistance Program. The goal was to evaluate the feasibility of regional consolidation in Northeast Tulare County (NTC), covering Cutler, Orosi, East Orosi, Yettem, Seville, Monson, and Sultana. Provost & Pritchard Consulting Group (P&P) was assigned in April 2024 to prepare the Northeast Tulare County Regional Water Supply Feasibility Study (Study).

PROJECT BACKGROUND

The Study assesses the technical viability of a regional water supply, considering both groundwater and surface water options, to provide a long-term, sustainable, and affordable water supply. It includes analysis of water rights, treatment plant capacity, distribution water quality, disinfection strategy, operator requirements, system hydraulics, and potential for conjunctive use.

Over the years, numerous projects for various agencies within the NTC study area have received funding, with some in planning or feasibility stages and others nearing construction completion. The SWRCB, Division of Financial Assistance (DFA) compiled a list of funding assistance that has been provided for this area, which is provided in Appendix A and summarized in the Study. The total DFA assistance that has been provided for this area is $55,583,580.

A previous regional community engagement process in 2018 led to the formation of two Joint Powers Authorities (JPAs): the Cutler Orosi Surface Water Project JPA (COSWPA) and the North Tulare County Regional Water Alliance JPA (NTCRWA).

PROBLEM DESCRIPTION

Northeast Tulare County includes several disadvantaged communities facing water quality issues, including nitrate, TCP, and DBCP contamination. The communities all currently rely on groundwater for their drinking water supply. As a result, the communities have a desire to evaluate alternatives for a long-term sustainable water supply from potential surface and/or groundwater sources.

The NTC area has several active groundwater wells meeting drinking water standards. The total current supply capacity, combining all seven NTC communities, is 4,275 gallons per minute (GPM), with a firm source capacity of 3,475 GPM when the largest source is offline. Demands are summarized in Table ES-1.

Table ES-1 Regional NTC Water System Demands

DEMAND TYPE	RESULT (GPM)
MMADD	2,100
MDD	3,150
PHD	4,725
Fire Flow	1,500

The current firm supply capacity of 3,475 GPM is adequate to meet the region's maximum day demand (MDD) of 3,150 GPM. However, the peak hour demand (PHD) of 4,725 GPM cannot be met by the current firm supply alone. The total water storage capacity of 1.62 million gallons (MG) across the seven communities provides sufficient capacity to meet four hours of PHD.

Several new and planned groundwater sources are expected to increase the total supply capacity to approximately 7,124 GPM, with a firm source capacity of 5,624 GPM. These sources include:

- Cutler Public Utility District (CPUD) Well C6: 750 GPM for blending will new Well C10 (expected completion 2026-2027)
- CPUD Well C10: 750 GPM (expected completion 2026-2027)
- East Orosi Well E3: 1,200 GPM (expected completion 2027)
- Yettem Well Y3: 149 GPM (expected completion 2027)

WATER SUPPLY ALTERNATIVES

The Study discusses the hydrogeologic conditions, recently developed wells, and considerations for ongoing and future groundwater supply in the region. The area features a basement complex of consolidated rocks overlain by unconsolidated deposits of Tertiary and Quaternary age. The aquifer above clay layers is generally unconfined shallow groundwater with higher concentrations of nitrate, TCP, and DBCP. Wells meeting water quality objectives have been successfully developed in the area; however, these deeper wells generally have lower yield factors compared to shallower wells.

Sites for future groundwater supplies would need to be completed on a case-by-case basis with professional hydrologists, considering contamination risks and would likely be limited to parts of the region west of Cutler and Orosi, and south of Sultana primarily due to depth to hard rock and the need to reach groundwater containing strata below confining beds that are less affected by irrigation practices.

The Study discusses the potential of utilizing surface water for municipal use in the study area. To consider a Surface Water Treatment Plant (SWTP) alternative, the region must obtain an adequate, dependable, and safe supply of surface water. The existing Friant Kern Canal (FKC) is the preferred conveyance due to its proximity to the project area and being lined.

The Study considers two potential sources for surface water supplies, the Kings River, via Alta Irrigation District (AID), with storage behind Pine Flat Dam, and the San Joaquin River with storage at Friant Dam, which is part of the Central Valley Project (CVP). The Study notes surface water costs can reach upwards of $1,500 per acre-foot during critically dry years. AID experienced zero diversion years in 2015 and 2021, and the CVP experienced zero allocations for Friant Class 1 water in 2014 and 2015.

Agreements with a Friant exchange contractor, either for CVP supply or to pump Kings River water into the FKC, will be necessary. The estimated cost of surface water supply (excluding treatment costs) is provided in Table ES-2.

Table ES-2 Estimated Surface Water Supply Cost

SUMMARY	PER AF
Water (drought) regulation/storage	$645
Water development (Purchase)	$214
AID Water Charge (2026)	$11.76
FKC Conveyance	$62.10
FKC Surcharge	$4.58
Total	**$937.44**

INFRASTRUCTURE ALTERNATIVES

The Study considers three infrastructure alternatives:

ALTERNATIVE 1 is based on a physically consolidated NTC area retaining nine (9) of the existing wells and four (4) water storage tanks, with older (pre-1990) wells and contaminated sources removed from the supply. By providing interties from Yettem to Monson, Yettem to East Orosi, and Sultana to East Orosi to complete a water distribution loop and utilizing existing and proposed interties between Sultana and Monson, Yettem and Seville, Orosi and East Orosi, and Orosi and Cutler, the alternative adds potential source redundancy to each community. If implemented, this would also prepare the infrastructure for distributing treated surface water or groundwater from a regional source, reduce reliance on small local wells by connecting the systems into one operational water system, and serve as a foundation for further alternatives, such as shared surface water supply.

The estimated cost of Alternative 1 is provided in Table ES-3.

Table ES-3 Alternative 1 Project Cost Summary

ITEM DESCRIPTION	ESTIMATED COST
Construction Costs	$22,490,000
Non-Construction Costs*	
Engineering Design (12%)	$3,508,000
Construction Management and Inspection (7%)	$2,047,000
Environmental, Legal, and Administration (5%)	$1,462,000
Cost Contingency (30%)	$8,852,000
Total Project Cost	**$38,359,000**
Groundwater Operational Costs	($142,350)
Annual Maintenance and Capital Replacement Costs	$787,150
Estimated Annual O&M Costs	**$644,800**
Present Value of O&M Costs**	**$9,593,000**
Total Life Cycle Cost	**$47,952,000**
*Does not include LAFCo and legal fees dependent on consolidated system governance selection **Present Value is based on 3% rate applied to Annual O&M Costs over a 20-year period	

ALTERNATIVE 2 leverages both groundwater and surface water resources to ensure a reliable and sustainable water supply for the communities. Understanding that existing wells will need to be retained for reliability during FKC maintenance periods, only 752 AF per year of surface water is proposed in this alternative for the SWTP, compared to the total water demand of approximately 2,656 AF per year.

The SWTP will use free chlorine for disinfection. While free chlorine is effective and cost-efficient, it can form disinfection byproducts (DBPs) when combined with organic matter. DBPs form when disinfectant residuals, like free chlorine, react with organic matter in water, posing a challenge for surface water treatment. The primary method to control DBPs is to increase the removal of total organic carbon (TOC) from the water. Local systems operating surface water treatment plants, such as those in Orange Cove and Lindsay, have faced DBP exceedances, highlighting the need for careful management. Introducing surface water from the Friant-Kern Canal, which is lower in mineral content and alkalinity, can also cause corrosion in legacy groundwater systems. To minimize DBPs, it is best to reduce TOC before chlorine addition. This can be done through optimized filtration, granular activated carbon (GAC) treatment, or blending with low-TOC groundwater. Blending, with a recommended ratio of 67% surface water to 33%

groundwater, is practical and cost-effective, also helping to dilute any contaminants. Space will be reserved for GAC vessels if needed in the future. Blending treated surface water with groundwater can help mitigate both DBP formation and general water chemistry issues, ensuring safe and compatible water quality.

An 18-inch pipeline will convey raw water from the FKC to the SWTP by gravity. The system will maintain reliability during FKC shutdowns, as the nine wells listed in Alternative 1 that will remain can meet the MDD independent of the SWTP. The SWTP will supplement existing groundwater supplies, reduce aquifer demand and benefit regional recharge efforts. Limiting the plant operation to a single 8-hour shift per day, 7 days a week, producing 1 MGD of blended water would keep the operating costs down and reduce the total cost of purchasing surface water, while retaining existing wells to supply the system during plant downtime or FKC maintenance.

The estimated cost of Alternative 2 is provided in Table ES-4.

Table ES-4 Alternative 2 Project Cost Summary

ITEM DESCRIPTION	ESTIMATED COST
Construction Costs	$47,334,000
Non-Construction Costs*	
Land Acquisition	$308,000
Engineering Design (12%)	$7,384,000
Construction Management and Inspection (7%)	$4,307,000
Environmental, Legal, and Administration (5%)	$3,077,000
Contingency (30%)	$18,723,000
Total Project Cost	**$81,133,000**
Groundwater Operational Costs	($142,350)
Surface Water Operational Costs	$1,380,000
Annual Maintenance and Capital Replacement Costs	$1,656,690
Estimated Annual O&M Costs	**$2,894,340**
Present Value of O&M Costs**	**$43,061,000**
Total Life Cycle Cost	**$124,194,000**
*Does not include LAFCo and legal fees dependent on consolidated system governance selection. **Present Value is based on 3% rate applied to Annual O&M Costs over a 20-year period	

ALTERNATIVE 3 proposes increasing the daily production capacity of the SWTP to meet the entire water demand without relying on groundwater wells, except for blending with Wells O8, O10, and EO3 for water quality purposes. This requires the SWTP to have sufficient storage and treatment capacity to deliver the MDD for the complete system, including securing an increased supply of surface water. Wells O8, O10, E3, and SL4 will be used to meet winter demand during canal maintenance periods, ensuring demands during winter months can be met with the largest well offline. Operation of these groundwater wells during the 3-month period every 3 years when the FKC is out of service would only meet demands during winter months with lower water usage.

The estimated cost of Alternative 3 is provided in Table ES-5.

Table ES-5 Alternative 3 Project Cost Summary

ITEM DESCRIPTION	ESTIMATED COST
Construction Costs (Includes 20% Contingency)	$48,472,000
Non-Construction Costs*	
Land Acquisition	$308,000
Engineering Design (12%)	$7,562,000
Construction Management and Inspection (7%)	$4,411,000
Environmental, Legal, and Administration (5%)	$3,151,000
Contingency (20%)	$19,172,000
Total Project Cost	**$83,076,000**
Groundwater Operational Costs	($226,610)
Surface Water Operational Costs	$2,642,000
Annual Maintenance and Capital Replacement Costs	$1,696,520
Estimated Annual O&M Costs	**$4,111,910**
Present Value of O&M Costs**	**$61,175,000**
Total Life Cycle Cost	**$144,251,000**
*Does not include LAFCo and legal fees dependent on consolidated system governance selection **Present Value is based on 3% rate applied to Annual O&M Costs over a 20-year period	

GOVERNANCE ALTERNATIVES

The Study discusses governance structures that could include all seven public water systems and potential domestic well users. The Study identifies strengths, risks, and next steps for the most promising governance options.

The following governance alternatives are discussed:

- County Service Area: Managed by the county to provide water services.
- Special Districts: Includes County Water District, Community Services District, Municipal Water District, Municipal or Public Utility District.
- Private: Options include Mutual Water Company or investor-owned utilities, subject to California Public Utilities Commission (CPUC) approval.
- Joint Powers Authority (JPA): Collaboration between multiple entities to provide water services.

These governance options provide various pathways to ensure effective and sustainable water service delivery in Northeast Tulare County by a regional entity.

FINANCIAL ANALYSIS

A planning-level operating budget for a regional entity was prepared, covering staffing, facilities, equipment, legal requirements, and compliance. An affordability analysis was conducted, with a comprehensive rate study needed once preferred options are selected.

A regionalized water system can significantly reduce operational expenditures by consolidating duplicated efforts across multiple separate systems. The planning level operating budget was developed using financial records, rate studies, and industry knowledge, referencing OPUD's and CPUD's audited financial statements and the Yettem-Seville Water Rate Study. Operator costs, sampling, and power costs are included in the O&M costs for each alternative. Administrative costs are based on the number of connections, with nominal amounts assigned to office supplies, materials, and postage. Fixed costs such as election fees, legal fees, and annual audits are also considered. Replacement costs for key components, such as wells and tanks are estimated at $1.5 million each, while distribution system replacement costs are estimated at $20,000 per connection. Repair and maintenance costs are assumed at 1% annually, with 2.5% depreciation for wells and tanks, and 1% for pipelines. The total cost per connection is intended to reflect the whole cost of operating the water system to be covered by water rates. However, a full water rate study is needed once a preferred project is selected, to further refine cost allocations and encourage conservation. The affordability index is the cost per connection as a percentage of the median household income (MHI).

Table ES-6 Affordability of Alternatives

	MONTHLY PER CONNECTION	OPERATING BUDGET	TOTAL RATE PER CONNECTION	AFFORDABILITY INDEX
Alternative 1	$16	$41	**$57**	1.31%
Alternative 2	$72	$41	**$113**	2.59%
Alternative 3	$102	$41	**$143**	3.28%

A significant portion of the costs for Alternatives 2 and 3 is the purchase of surface water, which will be subject to negotiation and contracting with a surface water provider. It is understood that Cutler and Orosi are pursuing a draft surface water agreement with AID, which is expected to be completed in December of 2025.

SUMMARY AND NEXT STEPS

Each of the alternatives described provides benefits of increasing resiliency and long-term sustainability by joining the communities together to share water infrastructure and resources in the region. Each alternative would provide more efficient operations by eliminating contaminated sources from the system. Operating as an independent special district would further reduce the administrative costs of operating separate water systems and spread those costs over the combined population. The costs per connection presented above are reflective of a sustainable system, including capital replacement costs over the lifespan of the infrastructure.

Alternatives 2 and 3 add surface water supply to the region. The primary benefits of surface water include providing a secondary source of supply for the region and reducing the pumping of groundwater. The drawbacks to surface water are the costs both to purchase and treat the water prior to use, and potential interruption of supply in dry years. In these dry years Alternative 2 retains sufficient existing groundwater supply to cover any shortfall due to supply or costs of water purchase.

To move forward, the existing governing bodies for each water system should examine the need for a project, potential advantages and disadvantages of each alternative, and make a formal commitment to proceed with a selected alternative.

The SWRCB has requested submission of a preferred alternative and a draft Governance Term Sheet from each board by December 19, 2025. The SWRCB has expressed that fragmented or temporary governance arrangements present long-term risks to operational stability, financial integrity, and equitable service delivery, particularly for small or disadvantaged communities. The SWRCB has recommended that any governance proposal included in the draft Governance Term Sheet be a single, unified, independent special district.

1 INTRODUCTION AND PROJECT BACKGROUND

1.1 TECHNICAL ASSISTANCE

In March 2024, the State Water Resources Control Board (SWRCB), Division of Drinking Water (DDW), requested Technical Assistance (TA) through the Safe and Affordable Funding for Equity and Resilience (SAFER) Drinking Water Technical Assistance Program to evaluate the technical, governance, and financial feasibility of regional consolidation in the Northeast Tulare County (NTC) area, which includes the communities of Cutler, Orosi, East Orosi, Yettem, Seville, Monson, and Sultana. In April 2024, Provost & Pritchard Consulting Group (P&P) was assigned to provide TA to the region through preparation of this Northeast Tulare County Regional Water Supply Feasibility Study (Study).

1.1.1 TECHNICAL FEASIBILITY

The Study analyzes the technical viability of a regional water supply for the NTC area, including both groundwater and surface water options, to provide a long-term, sustainable, and affordable water supply. Evaluation of a surface water treatment plant will include a focus on the ability to deliver an adequate and safe supply of drinking water to communities in the region. The Study includes analysis of water rights, treatment plant capacity, unit process design, distribution water quality concerns, disinfection strategy, operator requirements and expertise, system hydraulics, potential for conjunctive use of groundwater and surface water, and strategy for uninterrupted service during surface water conveyance maintenance. The Study makes use of previous reports and concurrent projects through coordination with local engineering staff and SWRCB.

The technical feasibility analysis includes recommendations on areas that may require further study, and potential next steps.

1.1.2 GOVERNANCE

Governance structures with the highest likelihood of success in the region to include all seven public water systems as well as the potential for domestic well users immediately adjacent to existing or future infrastructure are identified in Section 7. P&P have engaged local leadership (Tulare County and water system boards of directors) to share information and gain perspective. The SWRCB Office of Public Engagement, Equity, and Tribal Affairs (OPEETA) has led a series of ongoing community meetings to present this Study to the communities and gather input on the path forward. The recommendations of this Study make use of the successes and shortcomings of previous efforts. Significant strengths and risks for each of the potential governance structures are discussed and the next steps outlined for the governance options considered most likely to succeed.

1.1.3 FINANCIAL ANALYSIS

A planning level operating budget for a newly formed regional entity has been prepared. This includes approximations for staffing, facilities, equipment, legal requirements, and compliance. Using the developed planning level budget, an affordability analysis has been prepared. A comprehensive rate study will be necessary once the preferred technical and governance options are selected.

1.2 BACKGROUND

The northeast portion of Tulare County (County) is home to the residents of several disadvantaged communities including Cutler, Orosi, East Orosi, Sultana, Monson, Yettem and Seville (collectively, the Communities). The Communities have had issues with the domestic water supply provided by their respective community water systems. Historic and current water quality issues have included levels of nitrate, 1,2,3-Trichloropropane (TCP) and 1,2-Dibromo-3-Chloropropane (DBCP) that have exceeded the Maximum Contaminant Levels (MCLs) for those contaminants. As a result, the Communities have expressed a desire to evaluate alternatives for a long-term sustainable water supply from potential surface and/or groundwater sources.

A year-long community engagement process between entities representing Cutler, Orosi, East Orosi, Sultana, Monson, Yettem and Seville was attempted around 2018, but a split occurred between the entities resulting in the formation of two separate Joint Powers Authorities (JPAs). CPUD and OPUD formed the Cutler Orosi Surface Water Project JPA (COSWPA) and the three entities representing the other five communities formed a JPA comprised of the County (representing Yettem and Seville), Sultana Community Services District (SCSD [representing Sultana and Monson]) and the East Orosi Community Services District (EOCSD) named the North Tulare County Regional Water Alliance JPA (NTCRWA).

The locations of the Communities and service areas are shown in Figure 1-1.

1.2.1 MEDIAN HOUSEHOLD INCOME DEMOGRAPHICS

The annual median household income (MHI) and percentage of Statewide MHI per the most recent American Community Survey (ACS) 5-Year Estimates for the communities is included in Table 1-1. Cutler, Orosi, Seville, Monson and Sultana data was obtained from the 2022: ACS 5-Year Estimates Subject Tables. The most recently available ACS 5-Year Estimates for East Orosi and Yettem are 2020 and 2021: ACS 5-Year Estimates Subject Tables, respectively. A weighted average of the seven communities is 55% of the Statewide MHI, placing the Communities as a whole in the severely disadvantaged category, with only Cutler above 60% separating the Severely Disadvantaged (MHI < 60% of Statewide MHI) and Disadvantaged categories (60%-80% of Statewide MHI).

Table 1-1 Water System Details

WATER SYSTEM NAME	WATER SYSTEM NO.	POPULATION	SERVICE CONNECTIONS	ACS 5-YEAR ESTIMATE HOUSEHOLDS	ACS 5-YEAR ESTIMATE MHI (% OF STATE MHI)
Cutler PUD	CA5410001	6,200	1,232 Residential, 2 Commercial (Unmetered)	1,125	$58,692 (61%)
Orosi PUD	CA5410008	8,300	1,480 Residential, 121 Commercial (Metered)	2,104	$52,692 (55%)
East Orosi CSD	CA5401003	423	103 Residential (Metered)	133	$33,472 (35%)
Monson Water System	CA5403212	152	31 Residential (Unmetered)	36	$49,750 (52%)
Sultana CSD	CA5400824	779	239 Residential, 10 Commercial (Unmetered)	252	$38,125 (40%)
Yettem Water System	CA5403043	350	64 Residential, 2 Commercial (Unmetered)	78	$42,500 (44%)
Seville Water System	CA5400550	691	89 Residential (Metered)	90	$39,500 (41%)
	Total	**16,895**	**3,238 Residential, 135 Commercial**	**Weighted Average**	**$52,282 (55%)**

1.3 NAMING CONVENTION

The Communities each have numbered wells, which are often the same number as another community. To differentiate the wells in each community from one another, a prefix letter has been assigned. This prefix is for use in this Study only and does not appear in the State's databases or the individual communities' system information. The prefixes are as follows:

- Cutler PUD: C
- Orosi PUD: O
- East Orosi CSD: E
- Yettem Water System: Y
- Seville Water System: SV
- Monson Water System: M
- Sultana CSD: SL

1.4 CURRENT PROJECTS AND FUNDING

A number of projects have received funding in this area, some of which are ongoing, either in planning or feasibility study stages, including engineering design, while others are reaching the end of construction. State Water Board Division of Financial Assistance (DFA) compiled a list of funding assistance for the Northeast Tulare County water systems, which is attached to this Study as Appendix A. A summary of DFA funding assistance is provided in Table 1-2.

Table 1-2 Summary of DFA Assistance for NTC Water Systems

PROGRAMS	TOTAL BUDGET
Technical Assistance / Administrator	$3,017,182
Funding Agreements	$45,145,077
Interim- Emergency Project Fund	$7,421,321
Grand Total	**$55,583,580**

Date ranges for the funding assistance listed span from 2011 to present and include both drinking water projects and wastewater projects, however notably the 2015 study funded through the California Safe Drinking Water State Revolving Fund (DWSRF) is not reflected in the summary. The summary also acknowledges that SWRCB has not been the sole source of funding for the community water and wastewater systems, identifying funding from United States Department of Agriculture (USDA) and California Department of Water Resources (DWR) that are not included in the total funded by DFA. Further funding sources can be identified from previous projects and reports referenced in this Study. For example, the Cutler Public Utility District (CPUD) Well 10 Project references funding made available by the County of Tulare through American Rescue Plan Act (ARPA). The 2007 Study commissioned by Alta Irrigation District (AID), CPUD, and Orosi Public Utility District (OPUD) does not reference a funding source, however it is understood that the Harder Pond and Traver Pond projects were funded under Proposition 50 "for the specific purpose of supporting an east-side potable water supply project."

The following sections detail ongoing projects in the region. Given that each of these projects includes, or will include, its own feasibility study, Preliminary Engineering Report (PER), construction documents and funding source, this Study assumes these projects will move forward and be completed to avoid duplicating efforts.

1.4.1 CUTLER

The SWRCB encouraged the CPUD and neighboring OPUD water systems to explore the possibility of a consolidation of the two systems to resolve CPUD's water quality issues. In May 2023, the SWRCB issued a six-month voluntary consolidation letter to CPUD and OPUD. A mandatory consolidation order may be issued if CPUD and OPUD do not work out a consolidation agreement voluntarily. A draft consolidation agreement has been prepared (Appendix D), and the SWRCB has extended the original 6-month deadline to September 1, 2025 to allow more time to arrive at a final agreement and for the development of the feasibility study to inform these efforts, referred herein as the Cutler/Orosi consolidation project.

CPUD has drilled a new Well C10 and constructed a water storage and blending tank. A project to equip the new well site is underway. Draft construction documents have been submitted to the state by the District Engineer, Dennis R. Keller Consulting Civil Engineer, Inc. (Keller), describing the Well C10 equipping project, which is further described in Section 2.1.2.

CPUD has installed meters on approximately 20 of their 1,234 service connections. The Cutler/Orosi consolidation project is expected to include installing meters on the remaining unmetered connections and preparing a rate study to establish usage related charging as a pre-requisite to consolidation.

1.4.2 EAST OROSI

The SWRCB issued a 6-month consolidation letter in 2018 requiring consolidation of the East Orosi Community Services District (EOCSD) water system with OPUD. EOCSD and OPUD continue to work voluntarily towards the consolidation of EOCSD water system to OPUD. The EOCSD and OPUD consolidation project is funded through an Expedited Drinking Water Grant (EDWG).

The East Orosi/Orosi Consolidation Project is anticipated to be complete in 2027. The 2023 supplemental PER (QK, Inc., 2023) and draft construction documents (QK, Inc., 2024) were utilized in the preparation of this Study and referenced as the "East Orosi/Orosi Consolidation Project" to differentiate from the "Cutler/Orosi Consolidation Project".

Self-Help Enterprises has assisted EOCSD and the County, which is serving as the system administrator, with project funding and project management for a new well. The anticipated East Orosi/Orosi Consolidation Project will consolidate the EOCSD drinking water customers and the Family Education Center into the OPUD drinking water system.

The proposed new well site for the East Orosi/Orosi Consolidation Project is located on a property owned by the Cutler-Orosi Joint Unified School District. It is located on the north side of Avenue 408. Adjacent to the proposed well site, the School District has offices that are served by the Family Education Center water system (PWS#5403126). It is understood that part of the (well) property sale agreement includes the condition that the Family Education Center is served by this new well (i.e., consolidated). The Family Education Center is a non-transient, non-community water system that currently serves approximately 50 people per year with its single groundwater well. QK estimated the MDD of the Family Education Center at 29 GPM.

1.4.3 MONSON & SULTANA

A Supplemental Engineering Report (Provost & Pritchard Consulting Group, Inc., 2018) for SCSD was submitted in response to comments received during the review of a Construction Financial Assistance Application through the DWSRF program. The Supplemental Engineering Report recommended installation of a new well in Sultana (Well SL4) and an interconnecting water main approximately 3 miles in length between Sultana and Monson to supplement the water supply for both Sultana and Monson. The two water systems have been hydraulically connected by the construction of the interconnection and will be integrated into a common supervisory control and data acquisition (SCADA) system. In addition, radio-read water meters are being installed on each water service connection, including an automatic meter reading (AMR) system for the operator to read the SCSD and Monson water meters.

The final Engineering Report (Provost & Pritchard Consulting Group, Inc., 2024) was completed in September 2024. The current water system improvement project is expected to resolve SCSD's water supply and water quality issues by providing a new, reliable water source, Well SL4. Once the new well is online, existing Well SL2, which has a history of DBCP and nitrate contamination, will be removed. The interconnection with Monson provides redundancy of supply to both systems.

Completion of construction is imminent at the time this Study was completed. Initial Well SL4 start-up was completed in May 2025, but it is not yet discharging to the system. Some additional troubleshooting has been done, and it is expected to be online by September 2025.

1.4.4 YETTEM & SEVILLE

The overall improvements to the Yettem-Seville water system are being constructed as a phased project. Phase I was completed in 2020, and Phase II is currently in progress with an expected completion date of mid-2027, subject to extension of the funding agreement deadline due to environmental and permitting constraints. Phase II will include construction of an interconnecting pipeline between Yettem and Seville, a new Yettem well, transmission main to the existing Yettem tank site, and meters in Yettem funded by the Drinking Water State Revolving Fund (Provost & Pritchard Consulting Group, Inc., 2013).

In the interim, an application was made for drought relief for Seville to design and construct an additional emergency well, designated as Seville Well SV3. The project remains an urgent priority for the Yettem-Seville CSD and is desired to be completed as quickly as possible. The new well at the existing Seville Tank Site near Madera Street and Road 154 ultimately did not produce sufficient water and it has been proposed to use remaining funding for the test well at the proposed Yettem Well Y3 site.

1.4.5 DOMESTIC WELL USERS

Community Water Center (CWC) received funding from the SWRCB to provide TA services to residences near but outside of the OPUD and CPUD water system service areas. CWC has identified 451 households within six sub-areas surrounding the unincorporated communities of Cutler and Orosi, which need a long-term drinking water solution due to declining groundwater levels and high levels of nitrate that are impacting the private domestic wells in the area. The Domestic Well Feasibility study is expected to be completed in the third quarter of 2025.

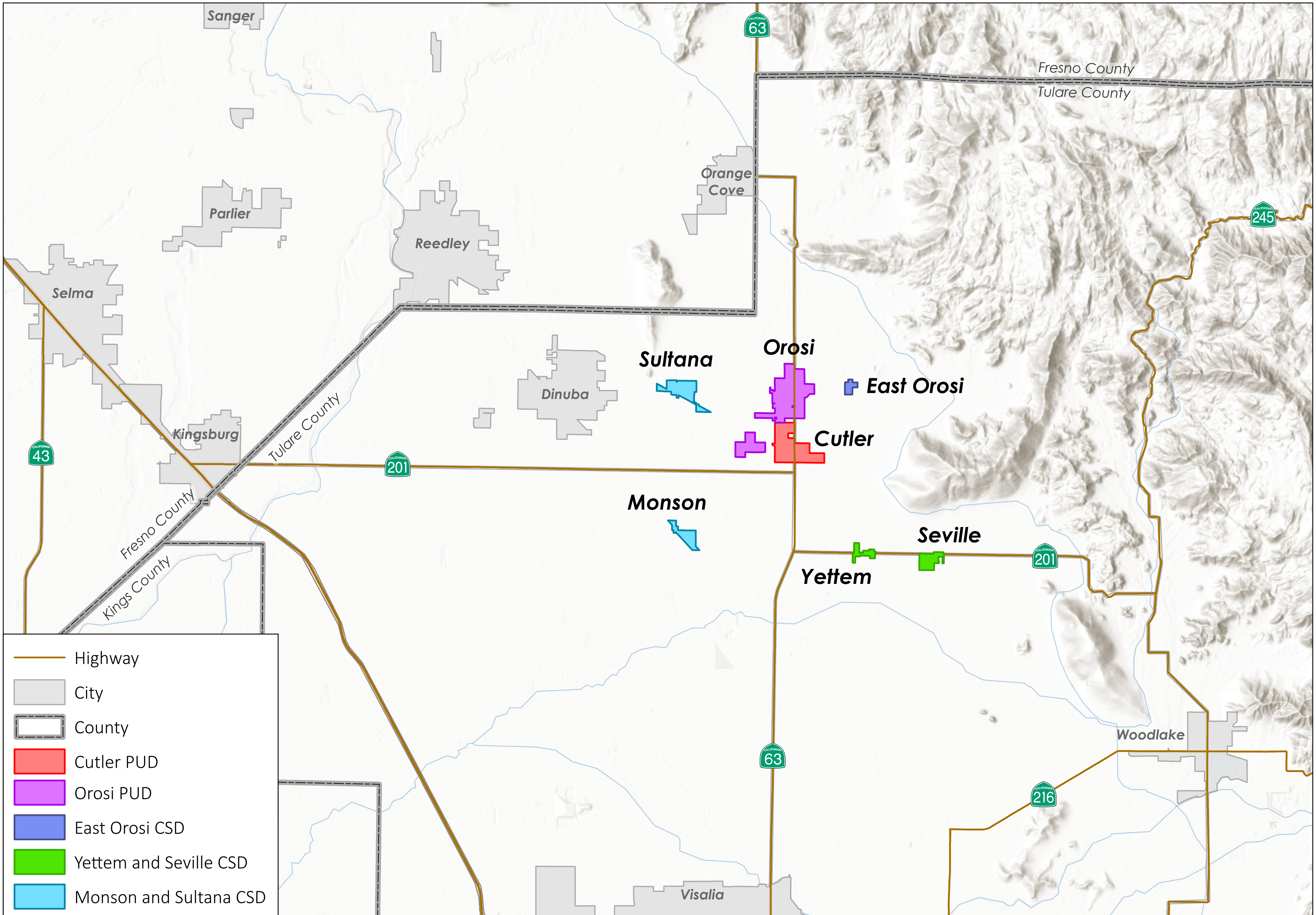

Figure 1-1: Vicinity Map

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2 EXISTING SYSTEMS

2.1 CUTLER PUBLIC UTILITY DISTRICT

2.1.1 COMMUNITY DESCRIPTION

Cutler is located approximately 15 miles north of the City of Visalia, and approximately 5 miles east of the City of Dinuba. The roads within Cutler are County maintained roads and State Route 63 (SR 63) which runs north and south through the middle portions of the community.

Cutler Public Utility District, water system number CA5410001, serves the community of Cutler with an approximate population of 6,200 through 1,234 service connections. The service connections consist of 1,232 residential service connections and 2 commercial connections. CPUD relies solely on groundwater for domestic water supply purposes and operates under Domestic Water Supply Permit 03-24-22PA-019.

2.1.2 EXISTING FACILITIES

CPUD's wells are experiencing elevated nitrate and TCP levels which are jeopardizing the long-term viability of the existing water supply.

CPUD's water system has two active wells, Wells C5 and C9, and three inactive wells, Wells C3, C4, and C6, which is offline due to nitrate and DBCP. A new well, Well C10, is under construction with a 400,000-gallon blending tank. Draft construction documents, dated October 2024, have been submitted to the State by Dennis R. Keller Consulting Civil Engineer, Inc. (Keller) describing the equipping of Well C10 with funding from DWSRF and ARPA (Keller, 2024). The Domestic Water Supply Permit Amendment and most recent Sanitary Survey are attached as Appendix B

Other CPUD wells include Well C7 which was drilled by the County without a test hole and tested positive for DBCP; it has never been connected to the system. Similarly, Well C8 was a test well that was not developed due to not meeting water quality standards. CPUD has also made inquiries about use of water from a County well located at the Cutler Park, which is understood to produce water meeting drinking water quality standards. However, that well was not constructed to municipal well standards.

2.1.2.1 WATER SUPPLY SOURCES

Well C5 was drilled to a total depth of 500 feet in 1967 with perforations between 180 and 491 feet below ground surface (bgs) and a sanitary seal extending to 50 feet bgs. Well C5 has TCP and nitrate levels exceeding the MCL. It is the subject of two compliance orders, Order No. 03-24-22R-007 issued August 26, 2022, for TCP maximum contaminant level violation and Order No. 03-24-23R-006 issued September 21, 2023, for nitrate maximum contaminant level violation, attached as Appendix C. The well remains active, producing 1,000 GPM, and quarterly and monthly testing and corresponding public notifications are ongoing for TCP and nitrate exceedances. The District Engineer (Dennis R. Keller) reports it has been swaged to repair its casing multiple times and further repairs to prolong its life would not be feasible. It is understood that Well C5 will be abandoned once the Well C10 blending project is completed, and it is therefore not included in future capacity projections for this Study.

Well C6 was drilled to a total depth of 540 feet in 1979 with perforations between 315 and 325; 340 and 365; 380 and 395; 408 and 444; and 495 and 510 feet bgs, and an annular seal extending to 72 feet bgs. Well C6 is inactive due to DBCP and nitrate levels exceeding the MCLs. When active, the well had a production capacity of 1,100 GPM. CPUD intends to blend Well C6 water with water from Well C10, which is expected to enable Well 6 to be reactivated with a reduced capacity of approximately 750 GPM, matching the anticipated capacity of Well C10.

Well C9 is active and produces 300 GPM. The well was drilled to a total depth of 515 feet in July 2007 with perforations between 320 and 420 feet bgs and a cement annular seal extending to 270 feet bgs. This is currently the only compliant well for CPUD.

Well C10 has been drilled but is not yet equipped. The well was drilled to a total depth of 455 feet in September 2016, and well casing was installed to 440 feet with perforations between 295 and 430 feet bgs. The annular seal extends to 285 feet bgs. The work to complete the equipping of Well C10 is planned to be bid by Fall 2025 and be completed in late 2026 or early 2027. The estimated capacity for Well C10 is 750 GPM, based on project specifications.

2.1.2.2 WATER STORAGE

CPUD has a 50,000-gallon elevated water storage tank located at SR 63 and Alta Drive. The tank has a common inlet/outlet configuration and receives chlorinated water from the distribution system. Water from the two active well sites flows through the distribution system to the storage tank. When the water level in the storage tank drops to approximately at half of its maximum capacity, a radio signal is sent to the well sites to start the pumps. The tank was cleaned and inspected in 2021.

A 400,000-gallon blending tank, located at the Well C10 site, was constructed in October 2019. However, the tank has not been operable because Well C10 is not yet equipped or operational. This tank will provide blending of Well C10 with Well C6 water to provide additional supply for the system.

2.1.2.3 WATER TREATMENT

Continuous chlorination using sodium hypochlorite solution is provided by injection into the discharge lines of Wells C5 and C9 prior to entering the distribution system. Chlorination equipment is located at each well site and consists of 15-gallon polyethylene chemical storage tanks and chemical metering. The chlorination equipment is enclosed inside covered, fenced structures.

2.1.2.4 WATER DISTRIBUTION SYSTEM

The distribution system contains various piping materials including polyvinyl chloride (PVC), ductile iron, cast iron, steel, and varying amounts of asbestos cement pipe. System pipe sizes range from 2-inch to 10-inch. In California, the use of asbestos cement pipe was largely discontinued in the late 1970s, indicating that those parts of the system are potentially 50 years or older. The anticipated useful life of distribution piping can be 50-70 years, depending on soil type, climate, and the aggressive nature of the water. A distribution system map is provided as Figure 2-1. System pressure is maintained between 25 and 42 pounds per square inch (PSI).

2.1.2.5 SYSTEM CAPACITY

The following summary of system capacity for CPUD assumes that Well C10 will be completed and that 750 GPM of Well C6 capacity will be utilized by blending 50/50 with Well C10, which has a projected production capacity of 750 GPM. Well C5 is excluded from the total due to inability to meet water quality requirements.

Table 2-1 CPUD Water Supply from Groundwater Wells

SOURCE	YEAR DRILLED	DEPTH (FT BGS)	TOTAL CAPACITY (GPM)	NOTES
Well C5	1962	500	~~1000~~	To be abandoned
Well C6	1979	497	750	DBCP and Nitrate*
Well C9	2007	515	300	
Well C10	2016	440	750	Planned**
		Total	1800	

*Well C6 was reported to produce 1,100 GPM but will be limited by Well C10 production, and blended 50/50
**The expected production of Well C10 is 750 GPM per Project Specifications

2.1.3 EXISTING WATER SYSTEM DEMANDS

California Code of Regulations (CCR) Title 22 describes the process for estimating the Maximum Month Average Daily Demand (MMADD) for a system with monthly water usage data, based on the month with the highest water usage during the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation. Monthly water production data for the last 5 years was provided by CPUD. The wells are the sole source of water for CPUD, and therefore, in the absence of metered usage data, the demand is assumed to equal production. The maximum month for CPUD has consistently been July. Water production during the maximum month, in million gallons (MG), over the last 5 years is presented below in Table 2-2 .

Table 2-2 CPUD Maximum Month Water Usage Data

MAXIMUM MONTH	CPUD (MG)
July 2019	32.08
July 2020	32.81
July 2021	31.85
July 2022	29.61
July 2023	30.32

2.1.3.1 MAXIMUM MONTH AVERAGE DAY DEMAND

To calculate average daily usage during the maximum month, divide the total water usage during the maximum month by the number of days in that month; the resulting MMADD for CPUD is 1.06 MG.

2.1.3.2 MAXIMUM DAY DEMAND

To calculate the MDD, multiply the MMADD by a peaking factor of 1.5; the resulting MDD for CPUD is 1.59 MG.

2.1.3.3 PEAK HOUR DEMAND

To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5; the resulting PHD for CPUD is 1,701 GPM.

2.1.3.4 FIRE-FLOW REQUIREMENTS

The minimum fire flow and improvement standards adopted by the County that apply to unincorporated areas is conformance to Appendix B of the California Fire Code. This Study assumes the minimum fire flow of 1,500 GPM for 2 hours per Table B105.1(2) will be required, matching the most stringent requirements used by the other systems in the region. This is the minimum for buildings with no automatic fire sprinklers with fire flow calculation areas of up to 22,700 square feet for Type IA and IB construction and up to 3,600 square feet for Type V-B construction, as defined in the building code.

2.1.3.5 INDUSTRIAL AND COMMERCIAL USERS

The Safe Drinking Water Information System (SDWIS) indicates that CPUD serves 2 commercial connections.

2.1.3.6 WATER SYSTEM DEMANDS SUMMARY

The maximum annual demand for CPUD was 253 MG in 2020, which equates to 112 gallons per capita per day (GPCD).

Table 2-3 Summary of CPUD Water System Demands

DEMAND TYPE	RESULT (GPM)
MMADD	756
MDD	1,134
PHD	1,701
Fire Flow	1,500

The 2023 electronic Annual Report (eAR) reports a flat rate water charge of $27.10 per connection which applies to residential, commercial, and institutional connections.

Current certification for the Cutler system operator was retrieved from (www.waterboards.ca.gov), and shown in Table 2-4.

Table 2-4 CPUD Operator Certification

OPERATOR	CERTIFICATION No.	CERTIFICATION TYPE
Dionicio Rodriguez, Jr.	21736	D3
Dionicio Rodriguez, Jr.	7930	T3

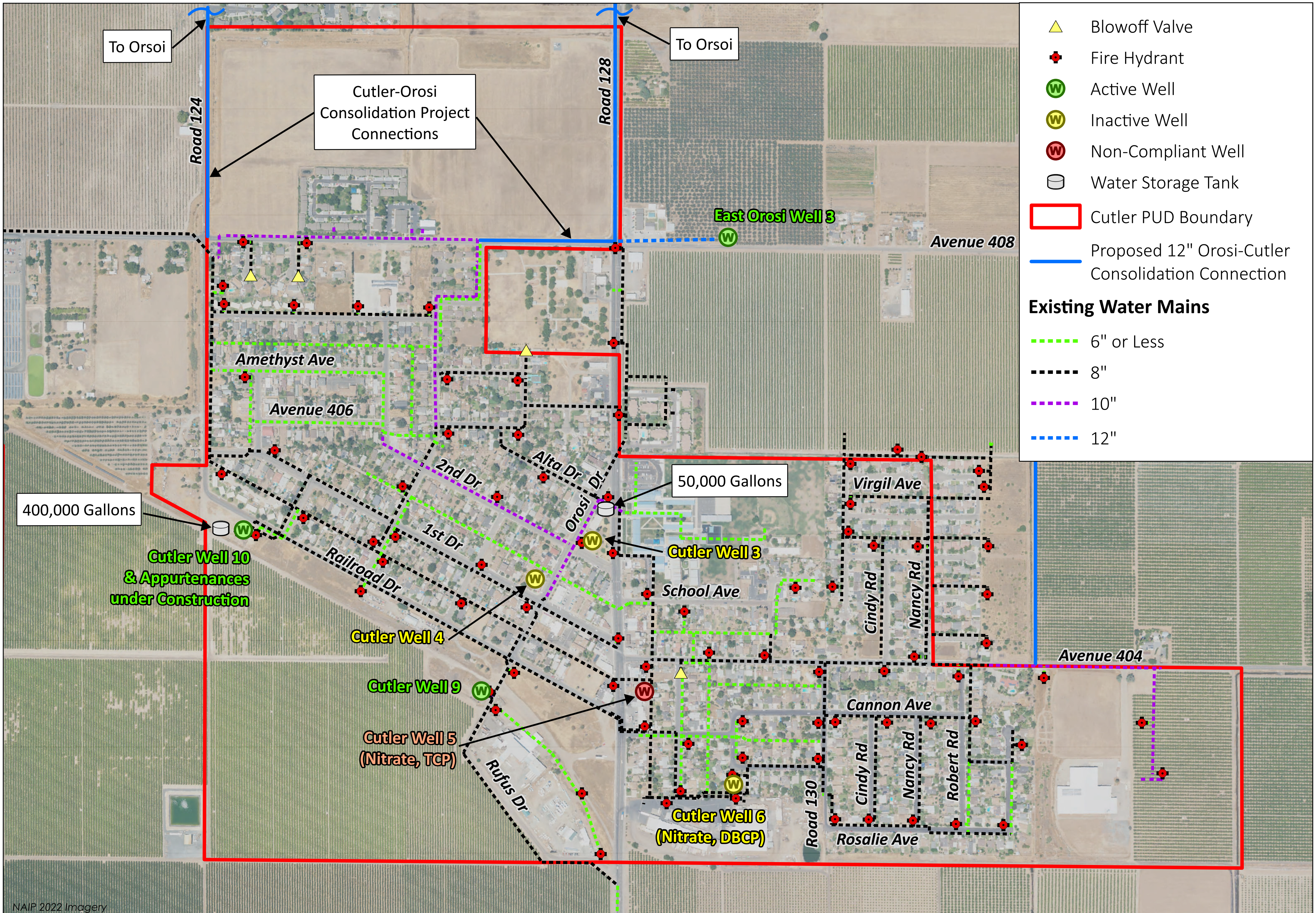

Figure 2-1: Existing Cutler Water System

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2.2 OROSI PUBLIC UTILITY DISTRICT

2.2.1 COMMUNITY DESCRIPTION

Orosi is located approximately 15 miles north of the City of Visalia, and approximately 5 miles east of the City of Dinuba. The roads within Orosi are County maintained roads and SR 63 which runs north and south through the middle portions of the community.

OPUD, water system number CA5410008, serves the community of Orosi with an approximate population of 8,300 through 1,601 service connections. The service connections consist of 1,480 residential service connections and 121 commercial connections. OPUD relies solely on groundwater for domestic water supply and operates under Domestic Water Supply Permit 03-24-21P-002.

2.2.2 EXISTING FACILITIES

OPUD has four active wells, Wells O4, O5A, O8, and O10. Wells O6, O7 and O9 are inactive and offline due to nitrate and other contaminants in the groundwater. Wells O6 and O7 have been disconnected from the system, Well O9 was a test well, but tested for nitrate in exceedance of the MCL, and was consequently never developed. The domestic water supply permit amendment and most recent sanitary survey are attached as Appendix E.

2.2.2.1 WATER SUPPLY SOURCES

Well O4 is the oldest of OPUD's active wells. Well O4 was drilled in 1966 and 12-inch casing installed to a depth of 425 feet with perforations between 180 and 425 feet, a cement annular seal is provided to a depth of 70 feet. The operator reported it had been videoed, and the casing was in poor condition.

Well O5A is located at OPUD's storage tank site and was drilled in 1990 and 12-inch casing installed to a depth of 433 feet with perforations between 200 and 433 feet, a cement annular seal is provided to a depth of 170 feet.

Well O8 was drilled in 1996 to a depth of 473 feet. The borehole contains a 14-inch diameter steel well casing to a depth of 473 feet and perforations between 190 and 473 feet, the cement annular seal was installed to a depth of 138 feet.

Well O10 is the most recently constructed well, drilled to a depth of 525 feet in 2006 and went into service in 2011. Perforations are present between 251 and 496 feet. A cement annular seal is present to a depth of 95 feet.

2.2.2.2 WATER STORAGE

OPUD has one ground level water storage tank which has a capacity of 750,000 gallons and delivers water to the system through two booster pumps located at the site of Well O5A. The welded steel water storage tank was constructed in 1995 and cleaned and inspected in 2020. There is a 10,000-gallon hydropneumatic tank at each of the active well sites. Due to the operation of a hydropneumatic tank as a pressure regulation vessel, the tank sizes are not considered for purposes of total water storage in the system.

2.2.2.3 WATER TREATMENT

The OPUD water system provides continuous chlorination treatment at each of the water system's active well sites (Wells No. O4, O5A, O8, O10). The water system uses sodium hypochlorite solution, which is fed into the distribution system by chemical metering pumps at each well site prior to entering the respective hydropneumatic pressure tank or storage tank.

2.2.2.4 WATER DISTRIBUTION SYSTEM

The distribution system includes PVC, Ductile Iron, Cast Iron, Steel, and varying amounts of asbestos cement pipe materials, similar to CPUD. System pipe sizes range from 2-inch through 16-inch. A distribution system map is provided as Figure 2-2.

2.2.2.5 SYSTEM CAPACITY

The following table summarizes OPUD groundwater supplies. Wells O6, O7 and 09 are excluded from the total as they are not connected to the system.

Table 2-5 OPUD Water Supply from Groundwater Wells

SOURCE	YEAR DRILLED	DEPTH (FT BGS)	TOTAL CAPACITY (GPM)	NOTES
Well O4	1966	425	525	
Well O5A	1990	433	525	
Well O6 (Disconnected)	1977	291	~~300~~	Nitrate
Well O7 (Disconnected)	1981	400	~~700~~	Nitrate and TCP
Well O8	1996	455	700	
Well O9 (Not Equipped)	1993	400	~~285~~	Nitrate
Well O10	2006	496	800	
		Total	**2,550**	

2.2.3 EXISTING WATER SYSTEM DEMANDS

Monthly water production data for the last 5 years was provided by OPUD. The wells are the sole source of water for OPUD. In the absence of metered usage data, the demand is assumed to equal production. Demands have been calculated, as described in Section 2.1.3. The maximum month for OPUD has consistently been July. Water production during the maximum month for OPUD over the last 5 years is presented below in Table 2-6.

Table 2-6 OPUD Maximum Month Water Usage Data

MAXIMUM MONTH	OPUD (MG)
July 2019	66.80
July 2020	41.60
July 2021	39.31
July 2022	38.80
July 2023	36.00

Review of the data supplied indicates an abnormal amount of water use in 2019. The 2019 data was therefore excluded from the calculations that follow, and July 2020 was identified as the maximum month.

2.2.3.1 MAXIMUM MONTH AVERAGE DAY DEMAND

To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; the resulting MMADD for OPUD is 1.34 MG.

2.2.3.2 MAXIMUM DAY DEMAND

To calculate the MDD, multiply the MMADD by a peaking factor of 1.5; the resulting MDD for OPUD is 2.01 MG.

2.2.3.3 PEAK HOUR DEMAND

To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5; the resulting PHD for OPUD is 2,157 GPM.

2.2.3.4 FIRE-FLOW REQUIREMENTS

This Study assumes the minimum fire flow of 1,500 GPM for 2 hours per Table B105.1(2) will be required as described in Section 2.1.3.4.

2.2.3.5 INDUSTRIAL AND COMMERCIAL USERS

SDWIS indicates that OPUD serves 121 commercial connections.

2.2.3.6 WATER SYSTEM DEMANDS SUMMARY

The maximum annual demand for OPUD was 334 MG, in 2020, which equates to 110 GPCD.

Table 2-7 Summary of OPUD Water System Demands

DEMAND TYPE	RESULT (GPM)
MMADD	959
MDD	1,438
PHD	2,157
Fire Flow	1,500

The 2023 eAR reports a base rate charge of $66.75 per residential connection. Subtracting the $34.97 wastewater service charge equates to a water base rate of $31.78. The 1-inch meter water service charge is listed as $30.28, effective July 2016. The $102.27 per commercial connection, and $371.61 per institutional connection correspond to 2-inch and 4-inch meter sizes, as does the cost per gallon unit of measure (UOM) of $0.96. It is assumed the UOM was incorrectly stated in the 2023 eAR and the correct UOM is per thousand gallons as reported in the 2022 eAR.

Current certification for the Orosi system operator was retrieved from (www.waterboards.ca.gov) and is shown in Table 2-8.

Table 2-8 OPUD Operator Certification

OPERATOR	CERTIFICATION No.	CERTIFICATION TYPE
Raul Mariscal	20378	D2
Raul Mariscal	28107	T2

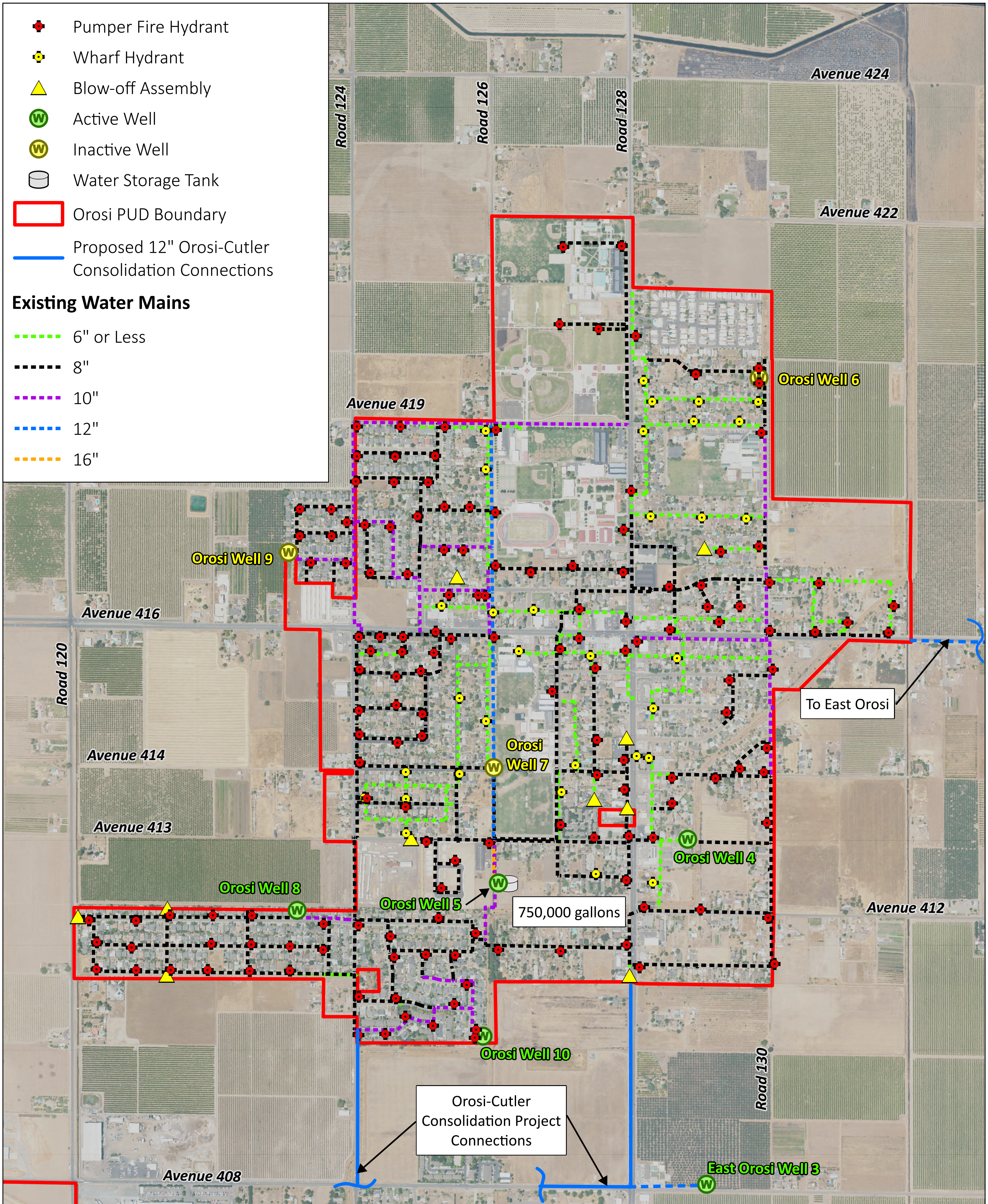

Figure 2-2: Existing Orosi Water System

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NE Tulare County Feasibility Study

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2.3 EAST OROSI COMMUNITY SERVICES DISTRICT

2.3.1 COMMUNITY DESCRIPTION

East Orosi is an unincorporated community in the County of Tulare located approximately a mile east of Orosi along Avenue 416. EOCSD, water system number CA5410003, serves the community of East Orosi with an approximate population of 423 through approximately 103 unmetered service connections consisting of residential homes and four businesses in the EOCSD service area. EOCSD relies solely on groundwater for domestic water supply purposes and operates under Domestic Water Supply Permit 03-24-19PA-023.

Residents currently receive drinking water from EOCSD; however, residents have been reliant on bottled water for over a decade due to exceedance of the nitrate MCL in both wells. The SWRCB issued a 6-month consolidation letter in 2018 requiring consolidation of EOCSD's water system with OPUD. Fresno Superior Court issued a peremptory writ of mandate on June 27, 2022, directing the SWRCB to set aside the mandatory consolidation order. EOCSD and OPUD continue to work voluntarily towards the consolidation of EOCSD's water system to OPUD. A consolidation project is being prepared and includes a new well located south of the OPUD service area on Avenue 408 which will provide water to EOCSD via a new pipeline and the OPUD distribution system.

EOCSD has had Tulare County serving as its Administrator since 2022, which was recently renewed for an additional 2-year period.

2.3.2 EXISTING FACILITIES

The EOCSD water system currently consists of two wells pumping directly to hydropneumatic pressure tanks prior to serving the distribution system. The East Orosi/Orosi Consolidation Project PER, prepared by QK, notes there are existing meters, but they are not considered accurate and have not been utilized as a basis for monthly billing. The most recent sanitary survey is attached as Appendix F.

2.3.2.1 WATER SUPPLY SOURCES

EOCSD Well E1 was drilled in 1983 to a depth of 365 feet with a sanitary seal extending to 200 feet bgs. The 10-inch casing has perforations between 220 and 360 feet. EOCSD completed a successful modification to Well E1 in 2018, which resulted in the well producing 190 GPM at a discharge pressure of 35 PSI. Due to the presence of nitrate levels exceeding the MCL in this well and the expectation it will be abandoned on completion of the consolidation with OPUD, it is not included in future capacity projections for this Study.

Well E2 was drilled in 1984 to 350 feet with a sanitary seal extending to 20 feet. The extent of perforations in the 10-inch casing is unknown. Both sources were identified as being most vulnerable to known contaminant plumes (nitrate) and septic systems. Well E2 in 2018 was reported to be producing approximately 130 GPM. Due to the presence of nitrate in this well and the expectation it will be abandoned on completion of the consolidation with, it is not included in future capacity projections for this Study.

The new supply well, Well E3, proposed by QK, is located approximately two miles southwest of East Orosi, on the north side of Avenue 408, east of the intersection with SR 63. A test well was completed in October 2016 to 550 feet, and the PER describes the expected production as being between 1,200 and 1,400 GPM. Due to this well not being complete, this Study considers only 600 GPM capacity from this well to remain conservative with supply capacity estimates.

2.3.2.2 WATER STORAGE

EOCSD system pressure is regulated by a 7,500-gallon and a 3,500-gallon hydropneumatic tank at Well E1 and Well E2, respectively. Due to the operation of the hydropneumatic tanks as pressure regulation vessels, the tank sizes are not considered for purposes of total water storage in the system. The hydropneumatic tanks are expected to be abandoned with wells E1 and E2 on completion of the East Orosi/Orosi Consolidation Project.

The East Orosi/Orosi Consolidation Project identifies the need for a storage tank for EOCSD to meet MDD and fire flow demands. Draft construction documents show the tank will have 329,600-gallons of usable storage volume located in EOCSD.

A booster pump system consisting of two pumps equipped with variable frequency drives (VFDs), each capable of providing 250 GPM at 55 PSI will draw water from the tank to the EOCSD distribution system. A 1,000 GPM high flow pump will be provided in parallel for fire flow.

2.3.2.3 WATER TREATMENT

EOCSD provides continuous chlorination of the water produced by Wells E1 and E2. The chlorination equipment is activated upon startup of the well. Sodium hypochlorite solution is injected directly into the discharge line of Wells E1 and E2 upstream of each pressure tank. The sodium hypochlorite solution is stored at the well sites in 35-gallon polyethylene tanks.

On completion of the East Orosi/Orosi Consolidation Project, chlorination will be provided at the well discharge and tank fill line by flow paced metering pumps located at the well site and at the tank site. The Draft construction documents indicate a wall mounted metering pump package and 55-gallon drum containing sodium hypochlorite to be housed in an enclosure at each site.

2.3.2.4 WATER DISTRIBUTION SYSTEM

The East Orosi/Orosi Consolidation Project report describes the distribution system as having been upgraded in 1984, to 4-inch and 6-inch PVC piping, which is now 40 years old and inadequate for fire flow. QK proposes abandoning the existing distribution system in place, to be replaced with 8-inch ductile iron piping.

The East Orosi/Orosi Consolidation Project includes metering of connections with modern remote read and recording meters compatible with OPUD's metering to facilitate either consolidation or an agreed meter maintenance/meter reading contractual service by OPUD.

2.3.2.5 SYSTEM CAPACITY

The following summary of system capacity for EOCSD assumes the new well proposed as part of the ongoing consolidation with OPUD will provide at least half the 1,200 to 1,400 GPM capacity anticipated in the East Orosi/Orosi Consolidation Project report. The two existing wells are expected to be abandoned or destroyed due to exceedance of the nitrate MCL, and are not included in the total.

Table 2-9 EOCSD Water Supply from Groundwater Wells

SOURCE	YEAR DRILLED	DEPTH (FT BGS)	TOTAL CAPACITY (GPM)	NOTES
Well E1	1983	365	~~190~~	To be Abandoned
Well E2	1984	350	~~130~~	To be Abandoned
Well E3	Anticipated in 2027	Designed for 550	600	Incomplete*
		Total	600	

*EOCSD Well 3 capacity has been estimated as 1,200 to 1,400 GPM, however the well is not yet completed. Prior to completion a conservative value of 600 GPM is used to ensure demand can be met without overreliance on this source prior to completion.

2.3.3 EXISTING WATER SYSTEM DEMANDS

Water demands were calculated based on CCR Title 22 as described for previous systems. Monthly water production data for the last 5 years was obtained from EOCSDs eARs. The two wells are currently the sole sources of water for EOCSD. In the absence of metered usage data, the demand is assumed to equal production. The data obtained is incomplete, in part due to wellhead meters being out of service from September 2021 through 2022 and into 2023. The maximum month identified for EOCSD was June 2021. Water production during the maximum month, in MG, for EOCSD over the last 5 years is presented below in Table 2-10.

Table 2-10 EOCSD Maximum Month Water Usage Data

MAXIMUM MONTH	EOCSD (MG)
August 2019	4.67
October 2020	2.95
June 2021	4.92
2022	No Data
July 2023	2.51

2.3.3.1 AVERAGE DAY DEMAND

To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; the resulting MMADD for EOCSD is 0.16 MG.

2.3.3.2 MAXIMUM DAY DEMAND

To calculate the MDD, multiply the MMADD by a peaking factor of 1.5; the resulting MDD for EOCSD is 0.24 MG.

2.3.3.3 PEAK HOUR DEMAND

To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5; the resulting PHD for EOCSD is 257 GPM.

2.3.3.4 FIRE-FLOW REQUIREMENTS

The QK Supplemental PER states “Tulare County Fire will require that 1,000 gallons per minute with a one-hour duration would be minimally satisfactory.” However, this Study assumes the minimum fire flow of 1,500 GPM for 2 hours per Table B105.1(2) will be required as previously described. The difference is due to the region being considered as one larger system for this Study.

2.3.3.5 INDUSTRIAL AND COMMERCIAL USERS

SDWIS data reflects that EOCSD serves no industrial or commercial users.

2.3.3.6 WATER SYSTEM DEMANDS SUMMARY

The maximum annual demand for EOCSD was 27 MG, in 2021, which equates to 175 GPCD.

Table 2-11 Summary of EOCSD Water System Demands

DEMAND TYPE	RESULT (GPM)
MMADD	114
MDD	171
PHD	257
Fire Flow	1,500

The 2023 eAR reports a single flat rate residential water charge of $17.15 per connection.

Current certification for both the East Orosi system operator was retrieved from (www.waterboards.ca.gov), and is shown in Table 2-12.

Table 2-12 EOCSD Operator Certification

OPERATOR	CERTIFICATION No.	CERTIFICATION TYPE
Ralph Gutierrez, Jr.	30860	D2
Ralph Gutierrez, Jr.	27334	T2

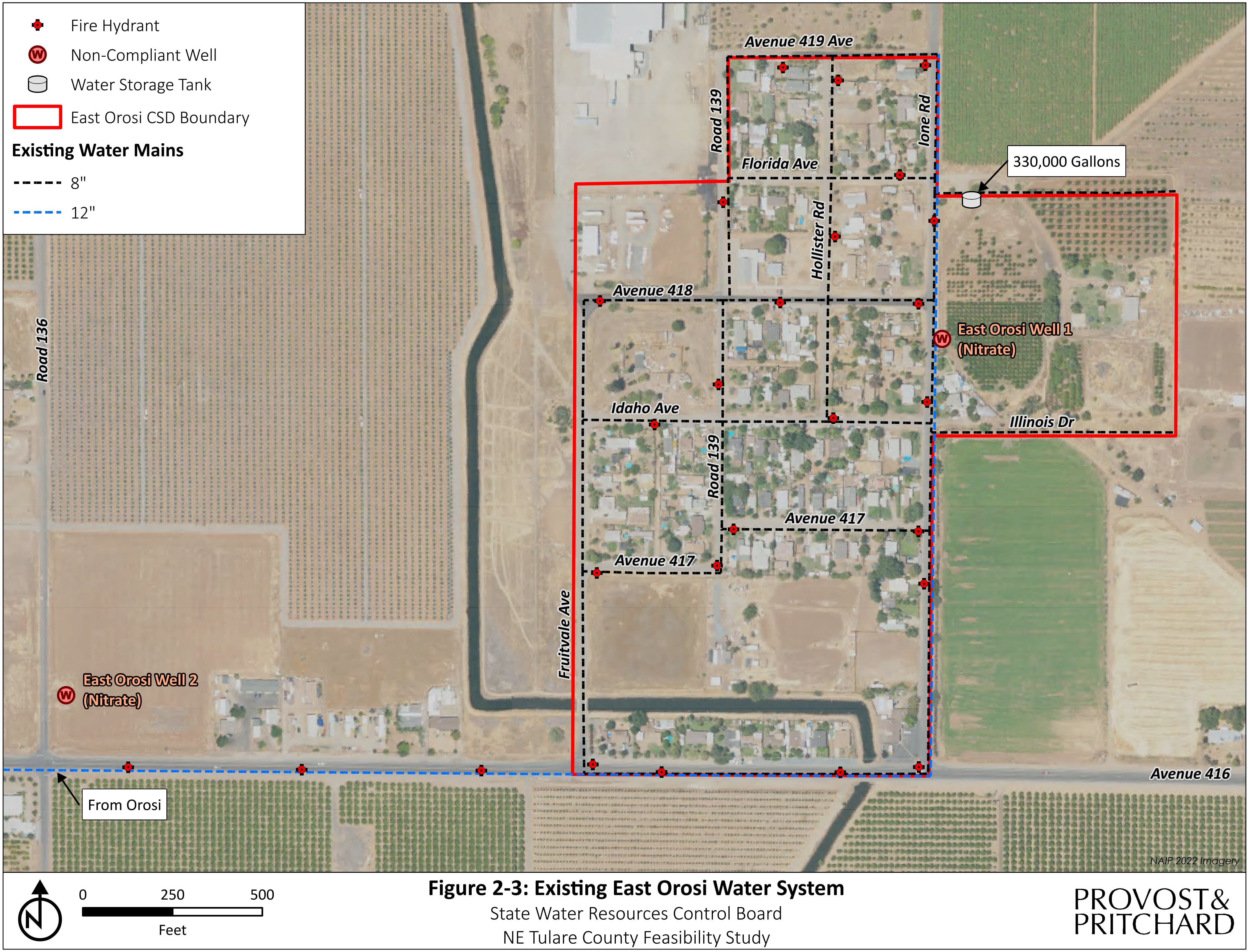

Figure 2-3: Existing East Orosi Water System

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2.4 SULTANA COMMUNITY SERVICES DISTRICT

2.4.1 COMMUNITY DESCRIPTION

2.4.1.1 SULTANA

Sultana is an unincorporated community in Tulare County, located approximately 2.5 miles east of Dinuba and 2.5 miles west of Orosi along Avenue 416. The Sultana Community Services District was formed in 1978 and provides water service to a population of approximately 779 residents through 249 metered water service connections. SCSD water system, CA5400824, consists of 239 residential connections, and ten (10) commercial connections. Not all homes within SCSD's boundaries are served water by SCSD; approximately five (5) homes rely on private groundwater wells. The most recent sanitary survey, conducted in 2024, is attached as Appendix G.

2.4.1.2 MONSON

Monson is an unincorporated community in the Tulare County, located approximately 4 miles south of Sultana along Avenue 104. The Monson water system, CA5403212, is comprised of approximately 152 residents through 31 residential service connections. In 2017, Tulare County obtained construction funding for the community of Monson to install a community well, storage tank, distribution system, and meters for the community. Tulare County also received a Legal Entity Formation Assistance (LEFA) grant to establish a governance structure that would enable SCSD to provide water through expansion of the SCSD service area boundary. Previously, the residents of Monson obtained drinking water from private wells. However, many of the wells had nitrate concentrations above standards. Also, several of the wells had gone dry due to drought. As a result, Monson faced major issues with their water supply and water quality. SCSD added Monson to their service area in 2017. The most recent domestic water supply permit 03-24-22P-012 (Revised Permit) and sanitary survey, conducted in 2022, is attached as Appendix H.

2.4.2 EXISTING FACILITIES

Water system improvements are in process (construction began in 2024) which, when completed, will result in a fully interconnected water system between the two communities and all metered connections. The two community water systems of the SCSD are connected via a 12-inch transmission main approximately 4 miles long. Both communities are completely reliant on groundwater supplies, as described below.

2.4.2.1 WATER SUPPLY SOURCES

Well SL1 was drilled in 1978, removed from service in 2005 due to nitrate contamination, and finally destroyed in 2013.

Well SL2 was drilled in the 1980s but has not been in operation since 2005 due to DBCP levels above the MCL, increasing nitrate concentrations, and poor well production. SL2 was SCSD's backup well prior to being destroyed as part of the current water system improvements.

Well SL3 was drilled in 1996 and is the primary active well. It is equipped with a 60 horsepower (hp) oil-lubricated vertical turbine pump and 5,500-gallon hydropneumatic tank. Well SL3 was drilled to a depth of 430 feet and has an annular seal to a depth of 250 feet with a 14-inch casing installed to a depth of 430 feet and perforated between 260 and 420 feet. Pump testing recorded in August of 2020 resulted in the measured flow rate of 543 GPM. SL3 is equipped with a standby engine which can provide pump power in the event of an electrical failure; however, the site does not have back up electrical power for the other systems such as the hydropneumatic tank air compressor, chlorination facilities, and controls.

Well SL4 has been constructed and start up was completed in May 2025. It is anticipated to be online by September 2025. Well SL4 is designed with 16-inch casing to a depth of 610-feet, perforations from 330 feet to 425 feet and from 485 feet to 590 feet, and an annular seal extending to 310-feet below grade. The flow rate is estimated to be 350 GPM based on pumping tests completed in November 2023.

Monson Well M1 was installed in 2017 along with the construction of a water distribution system and meters for all services. The well is equipped with a 50 hp submersible pump, a booster pump station set to pump into a 60,000-gallon bolted steel water storage tank, chlorination shed, electrical equipment, truck fill station, and storm water basin. The existing well was drilled to a depth of 1,000 feet and has an annular seal to a depth of 300 feet with a 10-inch casing installed to a depth of 990 feet perforated between 350 and 980 feet. The well produces approximately 400 GPM.

The Monson well site electrical facilities are configured to receive power from a portable generator if required during a power failure, however this requires bringing a portable generator to the site.

2.4.2.2 WATER STORAGE

The Monson system operates a 60,000-gallon water storage tank, with a booster pump station that is fed by the lone Monson supply well. The well feeds directly into the 60,000-gallon tank, while the booster pumps operate to pull water out of the tank to meet the system demands.

There is no storage within the Sultana system.

2.4.2.3 WATER TREATMENT

Sultana Well SL3 and SL4 and Monson Well M1 are actively being chlorinated at each of the well sites.

2.4.2.4 WATER DISTRIBUTION SYSTEM

SCSD has recently installed water meters to promote water conservation and apply appropriate water use charges to users within both the Monson and Sultana.

The Sultana distribution system is currently being upgraded. On completion of the current project, the system will consist of 6-inch and 8-inch PVC C900 water mains and 1-inch water services and meters. The system will include 19 fire hydrants, 2 blow-off assemblies, and approximately 4 air release valves. Figure 2-4 shows the existing distribution system for Sultana.

The Monson water system consists of 8-inch PVC C900 water mains and 1-inch water services and meters. The system includes 11 fire hydrants, and 3 blow-off assemblies. The properties that are metered are located along Monson Drive and Campbell Drive between Avenue 388 and Simpson Road. Figure 2-5 shows the existing distribution system for Monson.

A 12-inch PVC pipeline intertie between Monson and Sultana was constructed in early 2024 as part of the current project to provide a redundant water source for both the Sultana and Monson communities. This pipeline has also been equipped with a pressure-reducing valve (PRV) set to 35 PSI to prevent excess water pressure within the Monson distribution system due to the approximately 50-foot elevation difference between the communities. The pipeline is also equipped with 14 new fire hydrants, 10 air release valves, and 3 blow-off assemblies along Road 104.

2.4.2.5 SYSTEM CAPACITY

The following summary of system capacity for SCSD assumes Sultana Well SL4 meets its projected production of 350 GPM, adding this production to the existing Monson Well M1 and Sultana Well SL3.

Table 2-13 SCSD Water Supply from Groundwater Wells

COMMUNITY	SOURCE	DATE DRILLED	DEPTH	TOTAL CAPACITY
Sultana	Well SL3	1996	430	540
Sultana	Well SL4	2023	620	350
Monson	Well M1	2017	920	400
			Total	1,290

2.4.3 EXISTING WATER SYSTEM DEMANDS

The methodology for calculating water system demands was applied as described for previous systems. Monthly water production data for 2019 through 2022 was obtained from the eARs. Water production during the maximum month, in MG, over the last 5 years is presented below in Table 2-14.

Table 2-14 SCSD Maximum Month Water Usage Data

MAXIMUM MONTH	MONSON (MG)
September 2019	0.72
August 2020	0.62
August 2021	0.83
July 2022	0.81
2023	No Data

MAXIMUM MONTH	SULTANA (MG)
July 2019	6.22
July 2020	6.57
August 2021	7.50
July 2022	6.80
2023	No Data

The maximum months used below in calculating demands for Monson and Sultana were both August 2021.

2.4.3.1 AVERAGE DAY DEMAND

To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; the resulting MMADD for Monson is 0.03 MG and for Sultana is 0.24 MG.

2.4.3.2 MAXIMUM DAY DEMAND

To calculate the MDD, multiply the MMADD by a peaking factor of 1.5; the resulting MDD for Monson is 0.05 MG and for Sultana is 0.36 MG.

2.4.3.3 PEAK HOUR DEMAND

To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5; the resulting PHD for Monson and Sultana are 57 GPM and 386 GPM, respectively.

2.4.3.4 FIRE-FLOW REQUIREMENTS

This Study assumes a minimum fire flow of 1,500 GPM for 2 hours per Table B105.1(2) will be required as described previously.

2.4.3.5 INDUSTRIAL AND COMMERCIAL USERS

The 2024 Engineering Report for the distribution system project describes Sultana water system as serving 188 connections, Monson-Sultana School, and eleven (11) commercial establishments, including two (2) gas stations, four (4) supply stores, one (1) church, one (1) tire shop, one (1) hair salon, one (1) money transfer services, and one (1) motel.

The Monson Water System includes no commercial connection or industrial connections.

2.4.3.6 WATER SYSTEM DEMANDS SUMMARY

The maximum annual demand for Monson was 7MG, in 2022, which equates to 126 GPCD. Sultana's maximum annual demand was 57MG, in 2021, which equates to 200 GPCD.

Table 2-15 Summary of SCSD Water System Demands

DEMAND TYPE	MONSON (GPM)	SULTANA (GPM)
MMADD	21	171
MDD	36	257
PHD	57	386
Fire Flow	1,500	1,500

The Sultana 2023 eAR reports flat rate water charges of $45.85 per single family residential connection, $91.70 per multi family connection, $65.88 per commercial connection, and $91.72 per institutional connection. Monson is operated by SCSD and reflected the same rate structure in their 2023 eAR.

Current certification for both the SCSD system operators was retrieved from (www.waterboards.ca.gov), and is shown in Table 2-16.

Table 2-16 SCSD Operator Certification

OPERATOR	CERTIFICATION No.	CERTIFICATION TYPE
Cruz Perez	39737	D1
Jose A. Padilla	25926	T2
Jose A. Padilla	27640	D1

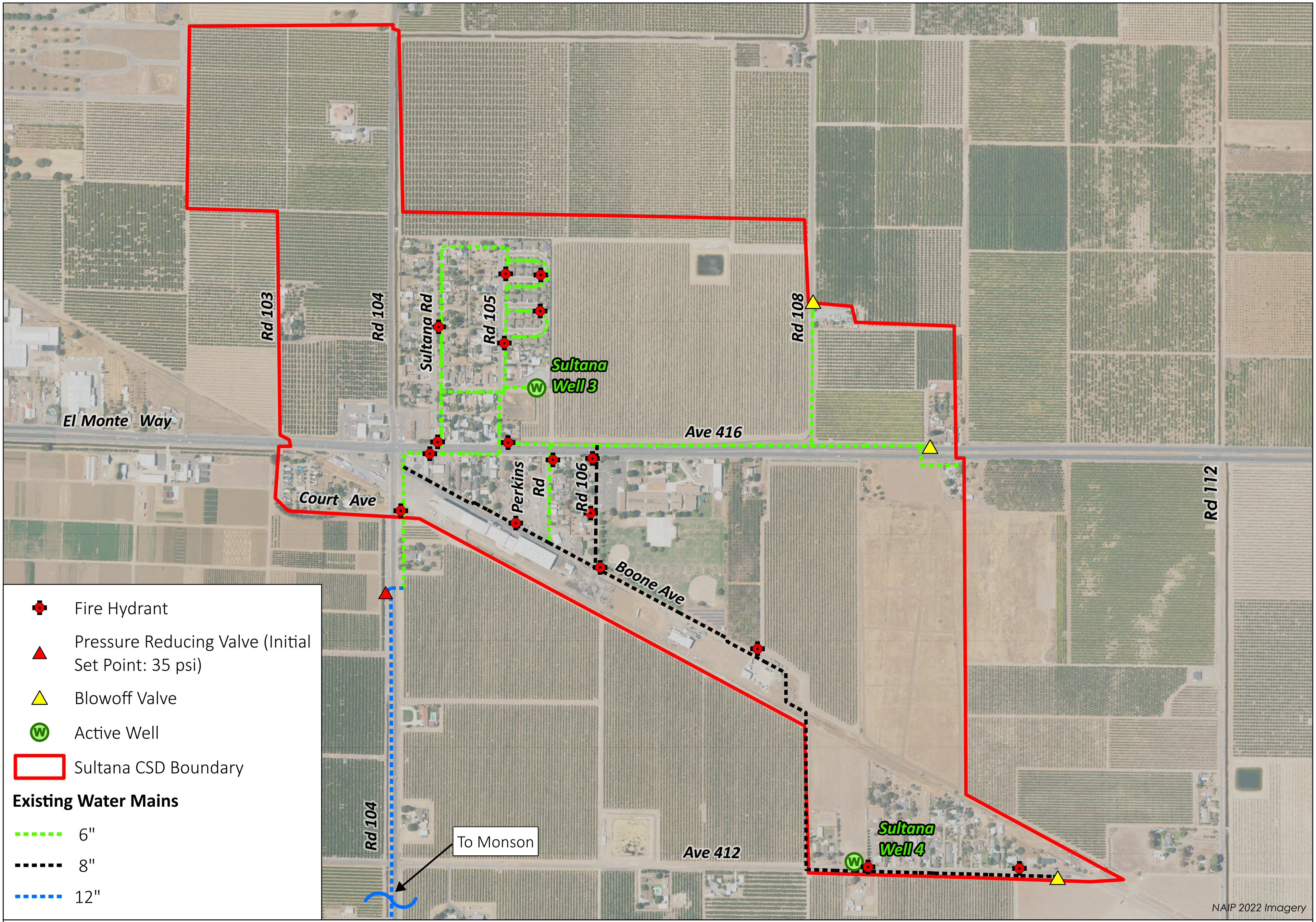

Figure 2-4: Existing Sultana Water System

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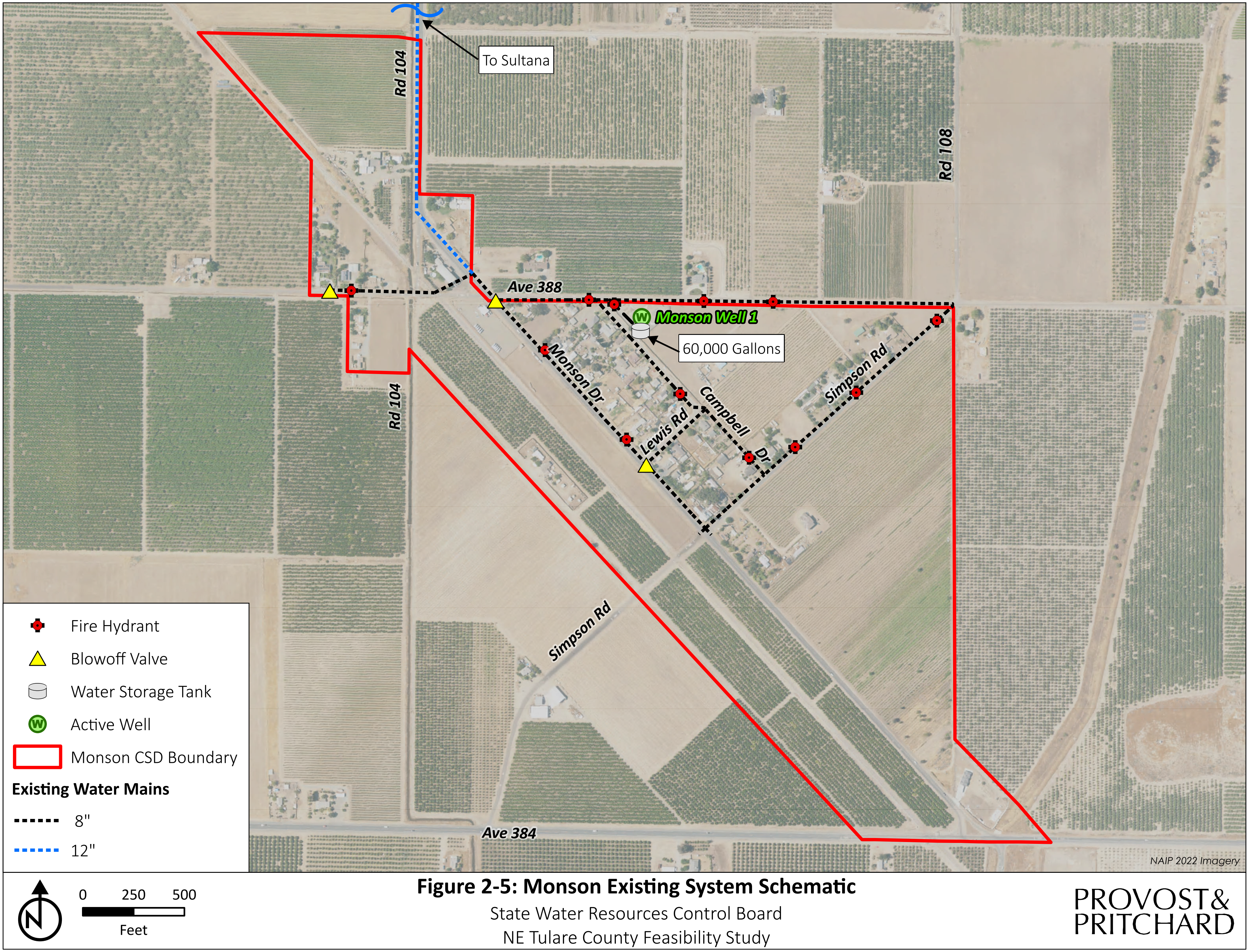

Figure 2-5: Monson Existing System Schematic

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2.5 YETTEM-SEVILLE COMMUNITY SERVICES DISTRICT

2.5.1 COMMUNITY DESCRIPTION

The communities of Yettem and Seville are located, approximately 1.5 miles apart, along Avenue 384 (SR 201). In 2009, the Seville Water Company was put into receivership, and Tulare County was named as receiver. Seville, which serves 89 residential connections, was included with Yettem, which serves 64 residential connections and 2 commercial connections, in County Service Area (CSA) #1, to be governed and administered by the County. Both communities remain part of Tulare County CSA #1, which continues to operate the wastewater collection system and lift stations. The communities recently completed the process of forming Yettem-Seville Community Services District (YSCSD) which now operates the water systems.

The Yettem and Seville water systems both face problems with nitrate levels in the source water. Additionally, the Seville water system, CA5400550, suffers water outages due to insufficient supply from the existing wells. Seville is currently receiving daily deliveries of water by trucking to supplement groundwater supplies. Approximately five (5) deliveries of 5,600 gallons each are made daily to fill the storage tank and supplement well production. An intertie with the Yettem water system, CA5403043, and new wells at both Yettem and Seville are in the planning stages. The most recent sanitary surveys, Yettem conducted in 2023, and Seville conducted in 2022, are attached as Appendix I and Appendix J.

2.5.2 EXISTING FACILITIES

The Seville water system currently consists of two wells with a booster pump array, bladder tanks, and a small, welded steel water storage tank located near the intersection of the Tulare Valley Railroad and Road 156. Water from the wells is transferred by pipeline to a larger bolted steel storage tank near the intersection of Madera Street and Road 154. A booster pump array draws water from the storage tank and pumps into the distribution system, through a hydropneumatic tank.

The Yettem water system currently consists of two wells that discharge to a bolted steel water storage tank located on the west side of Road 140. Booster pumps draw water from the storage tank and pump into the distribution system, through a hydropneumatic tank.

2.5.2.1 WATER SUPPLY SOURCES

Well SV1 was drilled to a total depth of 125 feet deep in 1960 with screenings between 60 and 80 feet bgs. Seville Well SV1 is equipped with a 7.5 hp submersible pump. The capacity was stated as 10 GPM in the 2022 Sanitary Survey, but the well is seldom used due to low production and excessive sanding.

An emergency well, Well SV2, was installed at the existing well site in 2014. This well was drilled to a total depth of 300 feet bgs with screenings between 80 and 160 feet bgs, and between 180 and 300 feet bgs. Well SV2 is equipped with a 10 hp submersible pump. Based on correspondence with County staff, this pump was replaced in 2017 and was set to a working depth of 285 feet bgs. The well capacity is described as having 100 GPM in the 2022 Sanitary Survey. However, the operator reported that the two active Seville wells only produce 15 GPM between them. The daily water deliveries supplement the well production to meet demands.

An additional emergency well, designated as Well SV3, had been designed, and was under construction in fall of 2024. Well SV3 is located at the Seville tank site and was planned to discharge directly into the 211,000-gallon bolted storage tank. Initial pump tests and water quality testing indicated low production of marginal quality in November 2024, and it was determined that a well at this site was not viable.

Well Y1 is approximately 340 feet deep and is equipped with a 5 hp vertical turbine pump. County staff indicated that the well capacity is approximately 50 GPM. There is a flowmeter on the discharge. The well is located at the Yettem tank site and the pump discharges directly into the 150,000-gallon water storage tank.

Well Y2 is approximately 330 feet deep and is equipped with a 5 hp submersible pump. County staff indicated that the well capacity is approximately 70 GPM. There is a flowmeter on the discharge. Under normal operations, Well Y2 discharges into the water storage tank located at the Well Y1 site via a 3-inch water main located off of Road 140. Existing valves and piping configuration allow for Well Y2 to discharge directly into the water system.

The Well Y2 Motor Control Center (MCC) is hardwired to the Well Y1 MCC (via buried telemetry cable running between the sites). The MCCs at each site are equipped with cell phone dialers for alarms.

A proposed Well Y3 is planned as part of Phase II of current YSCSD water system improvement project. It has been proposed that the remaining funding from Well SL3 will be used to drill a test well for Well Y3.

2.5.2.2 WATER STORAGE

Both of Seville's existing wells are located on the same site, and discharge to a 12,300-gallon water storage tank at the well site. Booster pumps transfer the water from the well site to the 211,000-gallon storage tank and booster pump array near the intersection of Madera Street and Road 154.

Two 15 hp horizontal end suction centrifugal pumps draw water from the Seville storage tank and pump to a 5,000-gallon hydropneumatic tank. A 50 hp horizontal split case centrifugal pump is also available to fill the hydropneumatic tank and is primarily used for fire flow capacity. The hydropneumatic tank pressure settings maintain a distribution system pressure of 35 to 55 PSI.

Water produced by the two existing Yettem wells is blended in a 150,000-gallon storage tank located at the Well Y1 site to maintain a water supply below the nitrate MCL of 10 mg/L.

A 10 hp vertical Inline booster pump draws water from the Yettem storage tank and pumps into a 5,000-gallon hydropneumatic tank. A 25 hp canned vertical turbine pump is available to fill the hydropneumatic tank and is primarily used for fire flow capacity. The hydropneumatic tank pressure settings maintain a distribution system pressure of 35 to 55 PSI.

2.5.2.3 WATER TREATMENT

Both systems have chlorination facilities to maintain a residual in the respective storage tanks. The Seville system automatically adds chlorine to the Well SV2 fill line into the 12,300-gallon tank at the well site. The chlorination facilities at the 211,000-gallon tank site are unused. Well SV1 is not routinely chlorinated.

The Yettem system automatically adds chlorine at the Well Y1 fill line discharging to the 150,000-gallon tank. Yettem Well Y2 is not routinely chlorinated.

Well Y3 is planned to discharge directly to the 150,000-gallon Yettem storage tank, similarly to Well Y2.

Nitrate blending treatment of water produced by the two existing Yettem wells occurs in the 150,000-gallon storage tank. The controls signal Wells Y1 and Y2 to fill the tank simultaneously when the water level in the tank reaches 19 feet. Well Y1 is signaled to turn off when the water level reaches 19.75 feet, but Well Y2 continues to fill the tank until the water level in the tank reaches 21 feet.

2.5.2.4 WATER DISTRIBUTION SYSTEM

The Yettem water system was constructed in 1995. The distribution system is constructed with 6-inch PVC water mains and 1-inch connections predominantly located in front yards. There are some residential water meters, but they have not been utilized for metered water usage charges. According to County staff, properties were initially required to connect to the water system but those having private wells were required to have a backflow prevention device installed on their water service as a precaution against cross-connection. It is not known whether private wells on these properties were ever destroyed in accordance with State requirements.

The failing distribution system in Seville was abandoned in place and replaced with new 8-inch water mains within County right-of-way (ROW) during Phase I construction in 2020. Water meters were installed at all water service connections. Fire hydrants, isolations valves, blow-offs, and sampling stations were installed throughout the system in accordance with County standards.

An interconnecting pipeline to provide redundancy for both systems is proposed as part of Phase II, the construction of which will help resolve several water issues in each community. Construction of Phase II is expected to be completed in 2027.

2.5.2.5 SYSTEM CAPACITY

The following summary of system capacity for YSCSD assumes all components of Phase II are completed, including the additional wells and interconnecting pipeline.

Table 2-17 YSCSD Water Supply from Groundwater Wells

COMMUNITY	SOURCE	DATE DRILLED	DEPTH	TOTAL CAPACITY (GPM)	NOTES
Yettem	Well Y1	1994	340	50	Blended
Yettem	Well Y2	1994	330	70	Blended
Yettem	Well Y3	Planned			
Seville	Well SV1	1960	125	0	To be abandoned
Seville	Well SV2	2014	300	15	
Seville	Well SV3	2024		0	Not developed
			Total	135	

It is planned to abandon Well SV1 upon completion of Phase II of the current improvement project. Well SV3 was under construction as an emergency well to relieve Well SV2, with the expectation they would alternate production to allow groundwater levels to recover. Long term, the Yettem wells are expected to be the primary source of water for YSCSD, with the interconnecting pipeline serving Seville from Yettem.

2.5.3 EXISTING WATER SYSTEM DEMANDS

CCR Title 22 describes the process for estimating the MMADD for a system based on the month with the highest water usage during the most recent ten years of operation or, if the system has been operating for less than ten years, during its period of operation. Monthly water production data for 2019 through 2022 was obtained from the eAR. The wells are the sole source of water for each system, in the absence of metered usage data, the demand is assumed to equal production. The maximum months for Yettem and Seville have consistently been June or July. Water production during the maximum month, over the last 5 years is presented below in Table 2-18 .

Table 2-18 YSCSD Maximum Month Water Usage Data

MAXIMUM MONTH	YETTEM (MG)
July 2019	2.04
2020	Not Used
July 2021	2.33
July 2022	2.12
2023	No Data

MAXIMUM MONTH	SEVILLE (MG)
June 2019	3.15
2020	Not Used
June 2021	2.66
July 2022	2.10
August 2023	2.06

Reporting for 2020 is inconsistent with the data received for other years. Both systems reported consistent monthly water usage a fraction of 2019 and 2021 years that did not exhibit the expected annual curve. Data from 2020 was therefore not used.

The maximum months used below in calculating demands for Yettem and Seville were July 2021 and June 2019, respectively.

2.5.3.1 AVERAGE DAY DEMAND

To calculate average daily usage during maximum month, divide the total water usage during the maximum month by the number of days in that month; the resulting MMADD for Yettem is 0.08 MG and for Seville is 0.10 MG.

2.5.3.2 MAXIMUM DAY DEMAND

To calculate the MDD, multiply the MMADD by a peaking factor of 1.5; the resulting MDD for Yettem is 0.11 MG and for Seville is 0.15 MG.

2.5.3.3 PEAK HOUR DEMAND

To calculate the PHD, determine the average hourly flow during MDD and multiply by a peaking factor that is a minimum of 1.5; the resulting PHD for Yettem and Seville are 121 GPM and 164 GPM, respectively.

2.5.3.4 FIRE-FLOW REQUIREMENTS

This Study assumes the minimum fire flow of 1,500 GPM for 2 hours per Table B105.1(2) will be required.

2.5.3.5 INDUSTRIAL AND COMMERCIAL USERS

SDWIS indicates that Yettem serves 2 commercial connections. There are no commercial connections for Seville.

2.5.3.6 WATER SYSTEM DEMANDS SUMMARY

The maximum annual demand for Yettem was 17 MG, in 2022, which equates to 133 GPCD. Seville's maximum annual demand was 25 MG, in 2023, which equates to 99 GPCD.

Table 2-19 Summary of Seville-Yettem CSD Water System Demands

DEMAND TYPE	YETTEM (GPM)	SEVILLE (GPM)
MMADD	57	71
MDD	86	107
PHD	129	164
Fire Flow	1,500	1,500

The 2023 eAR for Yettem reports a single flat rate residential water charge of $82.80 per connection. The Seville 2023 eAR reports base rate water charges of $58.90 per residential connection, $166.95 per commercial connection, and $58.90 per institutional connection with a cost per 1,000-gallon unit of measure of $1.50.

The YSCSD system is operated by the same operators as the SCSD system, and their current certification is repeated below in Table 2-20.

Table 2-20 YSCSD Operator Certification

OPERATOR	CERTIFICATION No.	CERTIFICATION TYPE
Cruz Perez	39737	D1
Jose A. Padilla	25926	T2
Jose A. Padilla	27640	D1

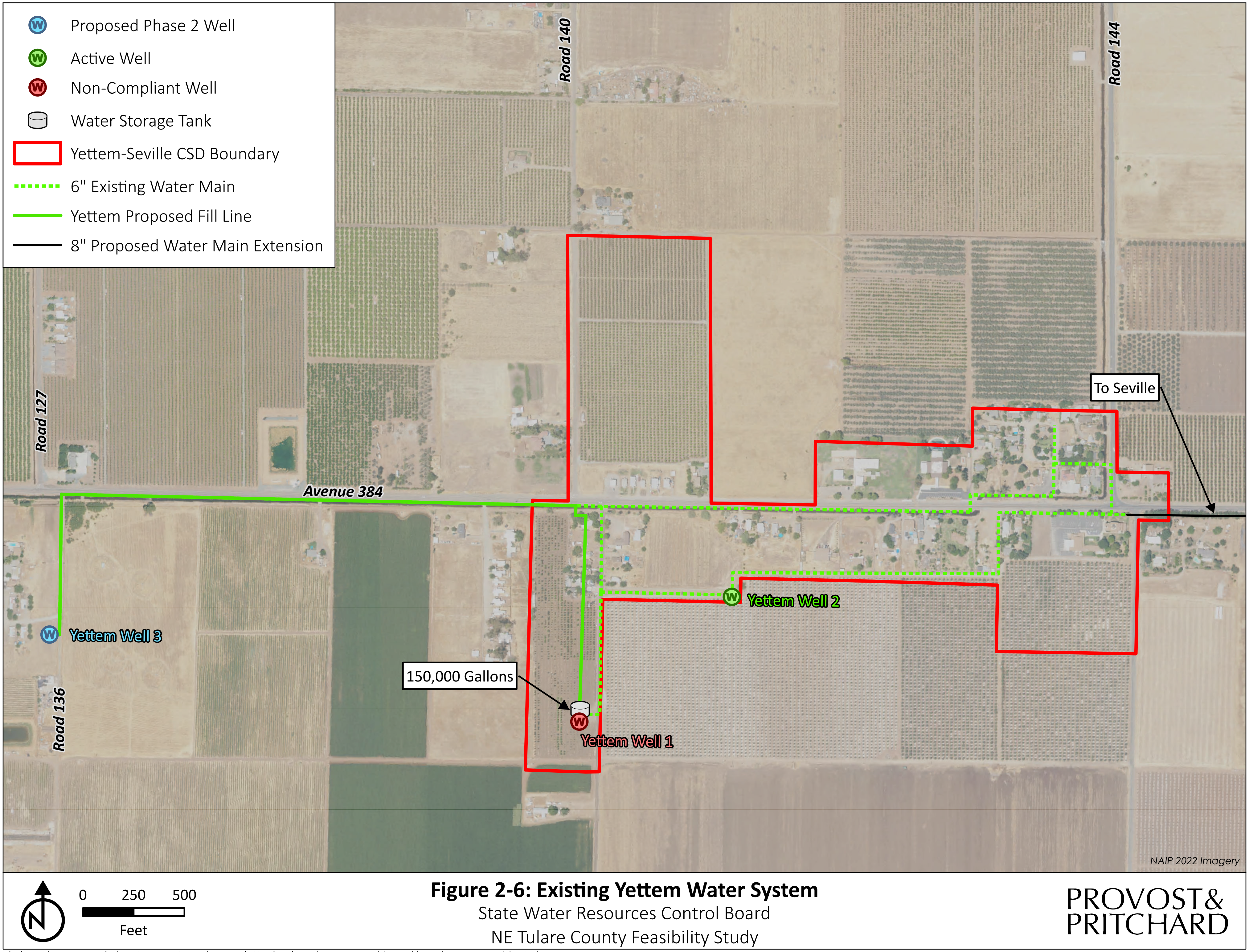

Figure 2-6: Existing Yettem Water System

State Water Resources Control Board

NE Tulare County Feasibility Study

PROVOST& PRITCHARD

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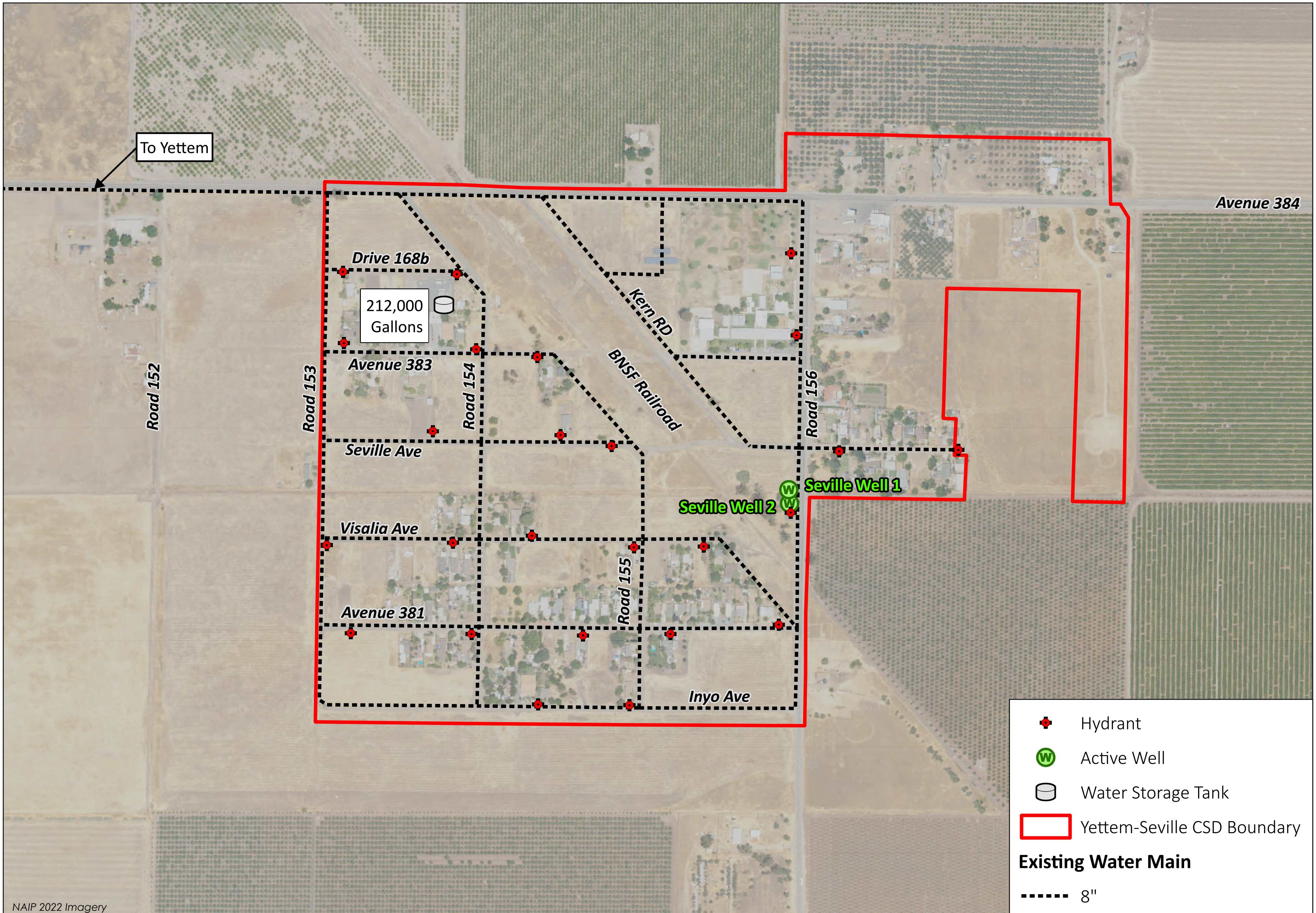

Figure 2-7: Existing Seville Water System

State Water Resources Control Board

NE Tulare County Feasibility Study

PROVOST & PRITCHARD

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3 PROBLEM DESCRIPTION

As discussed in the previous sections, this region has a long history of projects to overcome challenges of operating water systems individually. Recent and ongoing projects have provided more reliability and resiliency for the individual water systems; however, vulnerabilities remain to the long-term sustainability of the individually operated systems. This Study is intended to identify long-term reliable and sustainable water supply solutions that may be viable for a regional project, to support the water supply needs of all the communities in Northeast Tulare County.

3.1 WATER SUPPLY AND DEMAND

The following tabulation of total water supply for the Northeast Tulare County area includes active sources meeting drinking water standards. Well numbers in this table have been prefixed to identify the community system. This table excludes any wells that have existing compliance orders for MCL violations.

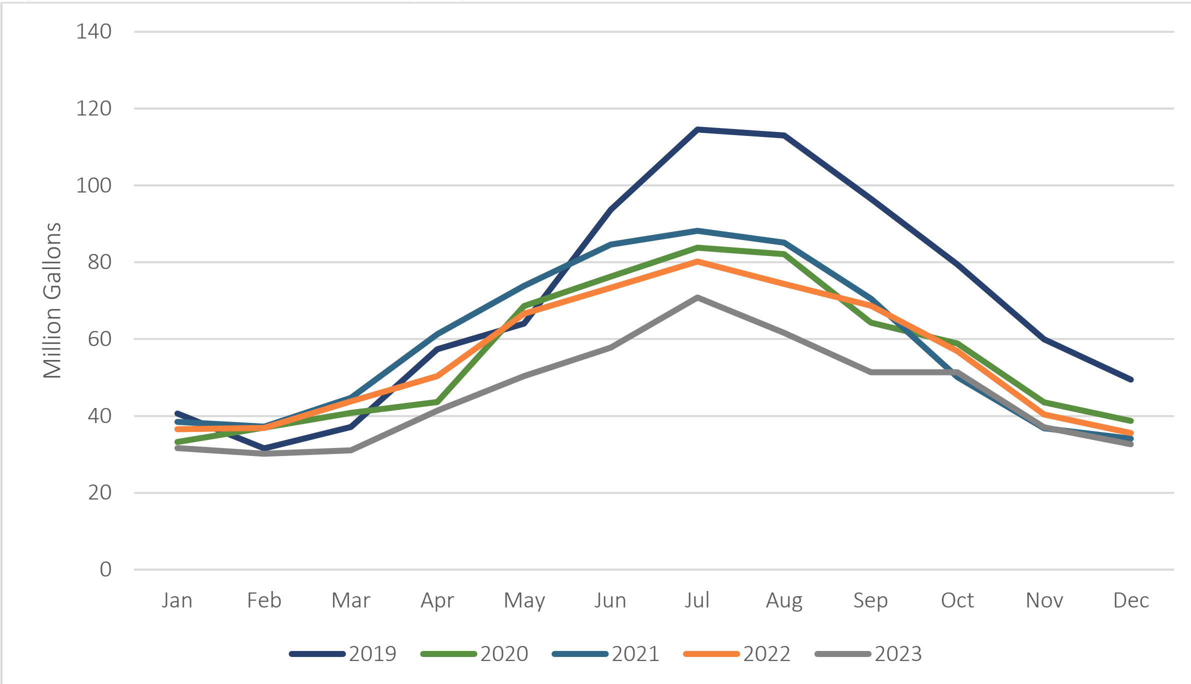
Table 3-1 Existing Regional Groundwater Supply Wells

DISTRICT/ COMMUNITY	SOURCE	DATE DRILLED	DEPTH	TOTAL CAPACITY (GPM)	NOTES
CPUD	Well C9	2007	515	300	
OPUD	Well O4	1966	425	525	
OPUD	Well O5A	1990	433	525	
OPUD	Well O8	1996	455	700	
OPUD	Well O10	2006	496	800	
Sultana	Well SL3	1996	430	540	
Sultana	Well SL4	2023	620	350	
Monson	Well M1	2017	920	400	
Yettem	Well Y1	1994	340	50	Blended
Yettem	Well Y2	1994	330	70	Blended
Seville	Well SV2	2014	300	15	
Current Total Supply Capacity				4,275	
Firm Source Capacity with largest source offline				**3,475**	

Demands calculated in the previous section rely on the process of identifying the maximum month, dividing by the number of days in that month to produce the MMADD and subsequently applying the 1.5 factors for MDD and PHD as described in Title 22 for systems with monthly usage data. It follows that the demands for the entire system could be derived by the summation of the MMADDs, MDDs, and PHDs for the individual systems, however this would result in an inflated demand as the maximum months for each system, although generally occurring in summer, occur in different years and different months.

Figure 3-1 below shows the summation of water demands used to determine the maximum month for the Northeast Tulare County area as a whole. The 2023 production data is lacking for some systems, and OPUD 2019 production data seems to have been excessive compared to subsequent years. The 2020, 2021, and 2022 production data appear consistent and produce a maximum month of 88.2 MG occurring in July of 2021.

Figure 3-1 Northeast Tulare County Region Total Demands



Dividing the maximum month of 88.2 MG by the number of days in that month to produce the MMADD and subsequently applying the 1.5 factors for MDD and PHD as described in Title 22 for systems with monthly usage data results in the region wide demands shown in Table 3-2.

Table 3-2 Summary of Regional NTC Water System Demands

DEMAND TYPE	RESULT (GPM)
MMADD	2,100
MDD	3,150
PHD	4,725
Fire Flow	1,500

The current total supply capacity of the regional wells with the largest source offline, 3,475 GPM (Table 3-1), is adequate to meet MDD of 3,150 GPM.

As required by Title 22, a system with 1,000 or more service connections shall be able to meet four hours of PHD with source capacity, storage capacity or emergency interconnections. While the PHD of 4,725 GPM cannot be met by the current firm supply of 3,475 GPM, the total water storage between all seven communities is 1.62 MG, which provides capacity to meet 4 hours of PHD. Additionally, various improvements described above in current projects would potentially increase the total groundwater supply in the region to meet the regional demand per Title 22. The East Orosi Consolidation Project will add an additional 330,000 gallons of storage.

The following sources of supply listed in Table 3-3 are either existing sources planned to be treated by blending, or planned new groundwater sources that are currently funded and under construction, and not included in the existing capacity totals shown in Table 3-1. If all projects are completed as planned, the revised firm capacity of the combined supply sources is sufficient to meet the 4-hour PHD requirements of Title 22.

Table 3-3 Planned Regional Groundwater Supply

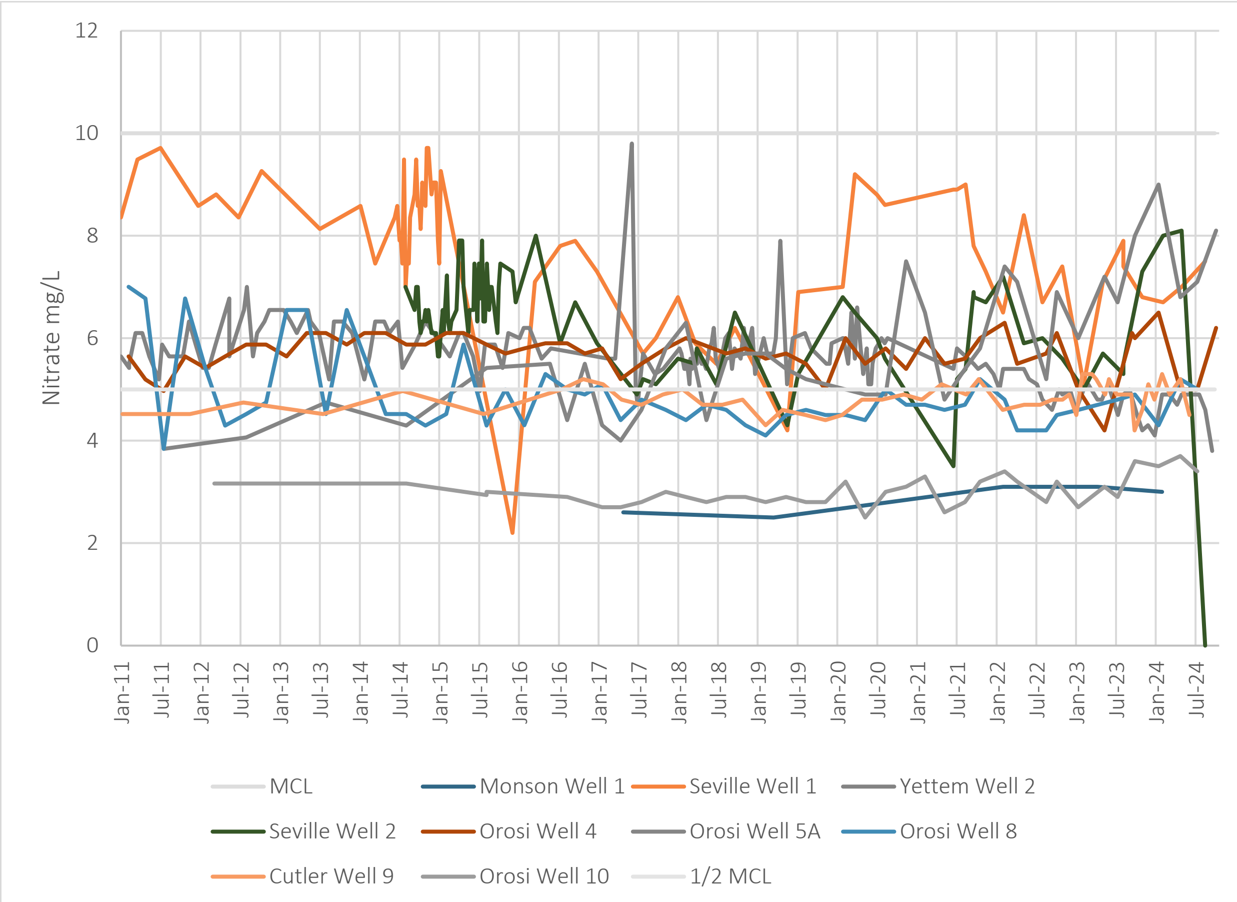
DISTRICT/ COMMUNITY	SOURCE	DATE DRILLED	DEPTH	PLANNED CAPACITY	NOTES
CPUD	Well C6	1979	497	750	Blending with C10 expected completion 2027
CPUD	Well C10	2016	440	750	Expected Completion 2027
EOCSD	Well E3	2025		1,200	Expected Completion 2027
Yettem	Well Y3	Planned		149	Expected Completion 2027
Planned Total Supply Capacity (including existing sources)				7,124	
Firm Source Capacity with largest source* offline				**5,624**	
*With Well C10 offline Well C6 cannot be blended, resulting in the combined 1,500 GPM from both wells being considered the largest source.					

3.2 WATER QUALITY

Water quality monitoring requirements for each system are described in the most recent sanitary surveys and water quality data are reported on SDWIS and Groundwater Ambient Monitoring Assessment (GAMA) Program. The water systems are required to monitor their active groundwater sources for general mineral (GM), general physical (GP), and inorganic (IO) chemical water quality every three years, except for nitrate which has a different monitoring frequency. The sanitary survey report by DDW notes East Orosi Well E1 exceeds the secondary MCLs for the following constituents: iron, manganese, and turbidity. A new East Orosi well is in the planning phase as part of the Orosi/East Orosi Consolidation Project. The remaining wells in the area show results are below the respective GM, GP and IO MCLs except Nitrate, DBCP, and TCP which are discussed further below, and are non-detect (ND) for volatile organic compounds (VOCs). Gross Alpha monitoring for radiological contaminants, are on 9- and 6-year cycles for the various wells. A summary table of groundwater quality data for each well is presented in Appendix K.

The individual water systems are required to monitor active groundwater sources for nitrate (as N) annually if monitoring data indicates nitrate concentrations of less than one-half the MCL of 10 mg/L, and quarterly if the concentrations are greater than or equal to one-half the MCL. Multiple sources within the communities produce water with nitrate concentrations greater than 5 mg/L and are on a quarterly monitoring frequency. Several sources have exceeded the nitrate MCL and are either inactive or subject to compliance orders. Nitrate levels in those active sources that remain below the MCL are shown in Figure 3-2. All but two sources, Well M1 and Well O10 are consistently at or above ½ the MCL for nitrate. Excluding all the wells that have exceeded or currently exceed the MCL for nitrate significantly restricts the available water supply. Well Y1 is currently in use through blending operations with well Y2 to lower the nitrate concentrations supplied to the distribution system. Well C6 is planned to be blended with Well C10, which is yet to be equipped.

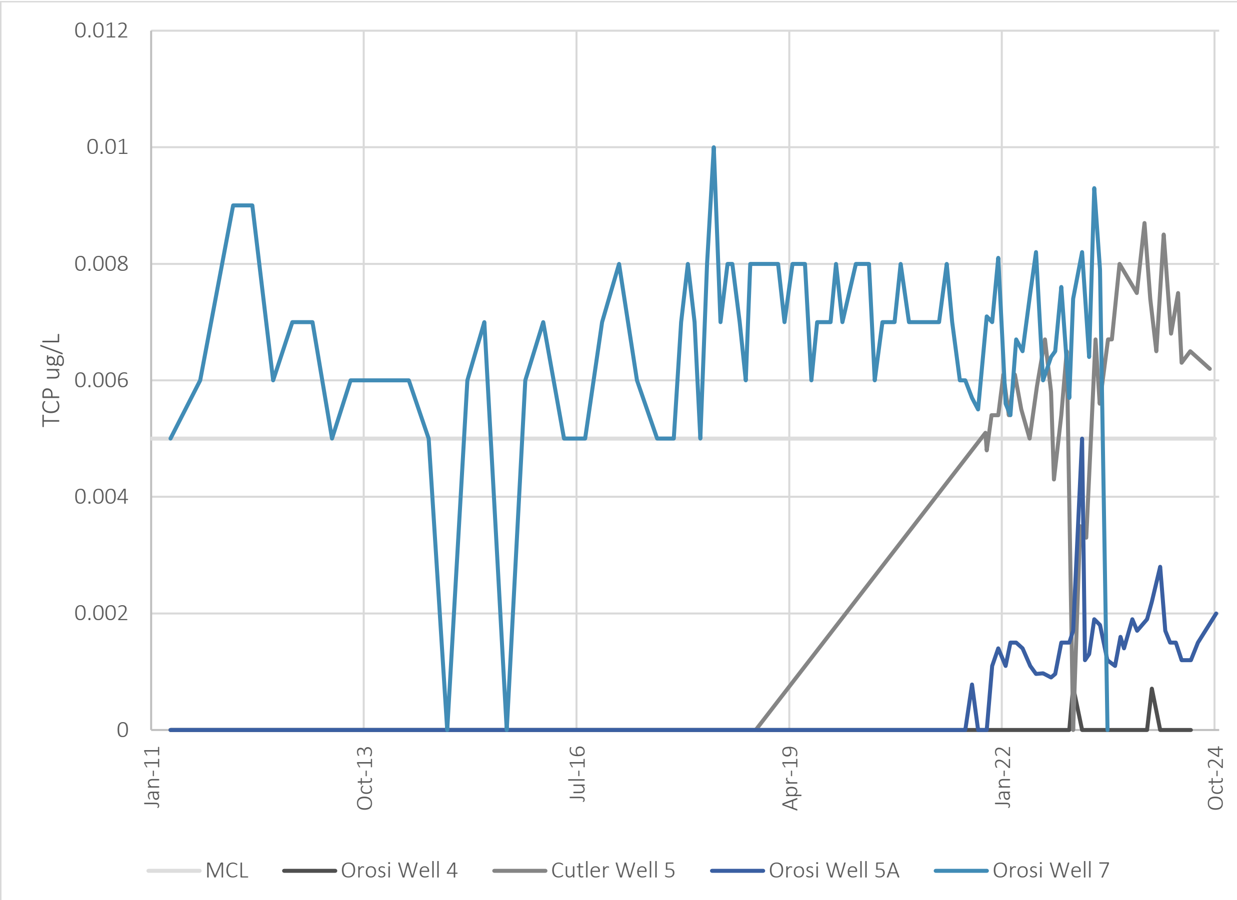
Figure 3-2 Nitrate Levels in Groundwater Sources



Wells SV1 and SV2 are consistently over half the nitrate MCL, but to date have reported no exceedances of the MCL. Groundwater levels in Well SV1 and its history of pumping sand excludes it from consideration as a viable source in the long term. The emergency Well SV3, proposed to replace Well SV1, produced poor initial testing results in terms of both production and water quality so it will be excluded from further discussion. Both Wells E1 and E2, Well SL2, Well C5, and Well O7 have a history of exceeding the MCL but no means of treatment or blending.

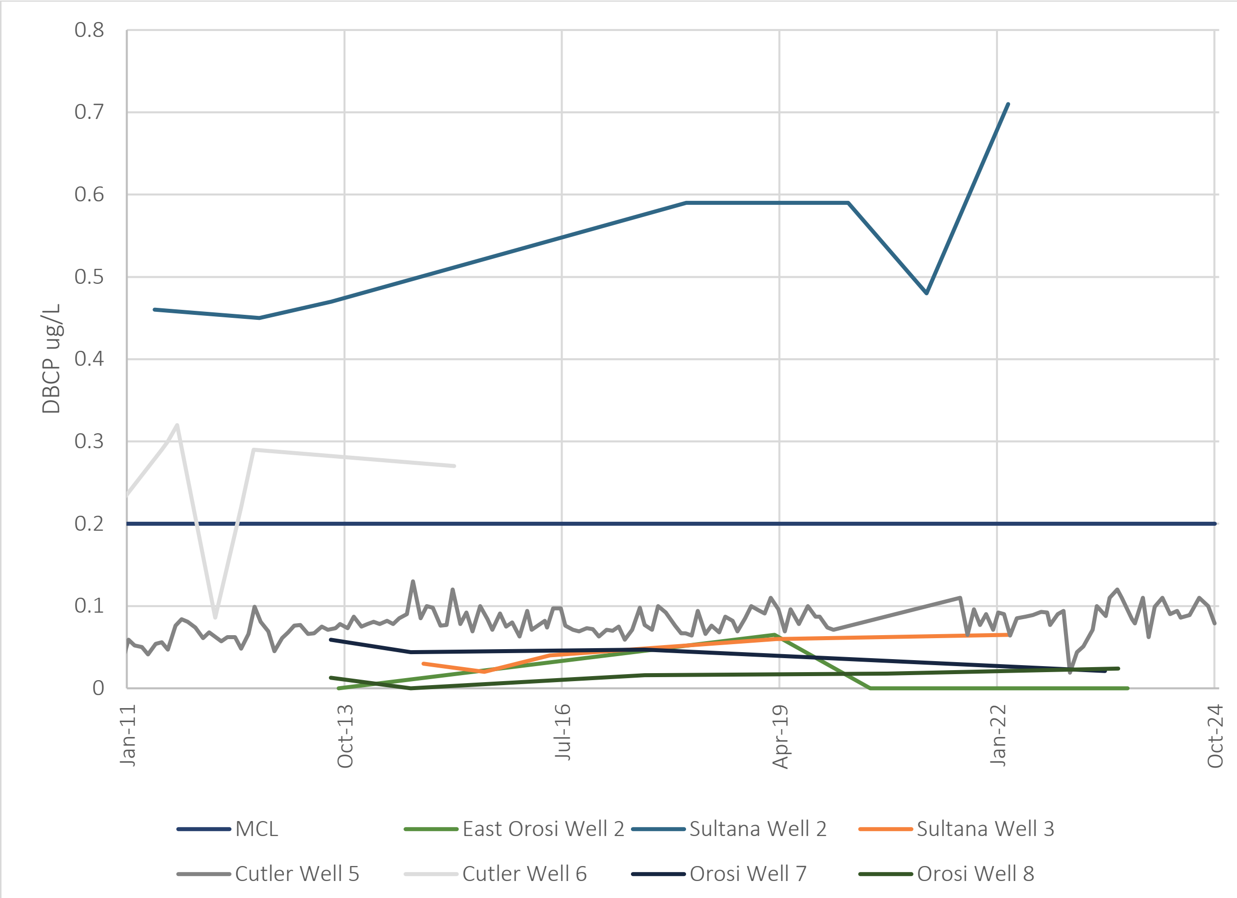
TCP has been detected in Well C5, and Wells O4, O5A and O7, which are shown below in Figure 3-3. Well O7 is offline due to both nitrate and TCP exceeding the MCL of 0.005 ug/l.

Figure 3-3 TCP Levels in Groundwater Sources



The wells shown below in Figure 3-4 have detected levels of DBCP. Well C6 and SL2 are inactive due to both sources containing DBCP at levels above the MCL of 0.2 ug/l. Well SL2 is to be destroyed on completion of the SCSD project.

Figure 3-4 DBCP Levels in Groundwater Sources



3.3 SENATE BILL 552

Senate Bill No. 552 (SB 552) was approved by the Governor of California on September 23, 2021. The bill requires certain drought resiliency measures of all "small water suppliers"[1] . The following list presents several questions that provide insight into the community's ability to meet those requirements. It should be noted that a fully consolidated single water system serving all 7 communities would no longer be a small water system as it would total 3,373 connections, exceeding the 2,999-service connection definition of a small water system.

- Is the system able to ensure continuous operations during power failures with adequate backup electrical power supply? Partially
    - CPUD: The 2022 Sanitary survey reports backup power generation is available for CPUD. Well C6 has back-up power and Well C9 does not; the new Well C10 and Blending tank facilities will include a generator.
    - OPUD: Wells O4 and Well O5A do not; Wells O8 and O10 have on-site diesel-powered emergency auxiliary power generators.
    - EOCSD: Wells E1 and Well E2 do not; and the draft construction plans for Well E3 do not include backup power generation.
    - SCSD – Sultana: Well SL3 is equipped with an LPG standby engine to provide power to the well and Well SL4 is equipped with an on-site emergency auxiliary power generator.
    - SCSD – Monson: Monson Well M1 has the means to connect a portable generator in the event of a power failure.
    - Yettem: Wells Y1 and Y2 do not; the new Yettem Well Y3 design includes a backup generator.
    - Seville: Wells SV1 and SV2 do not; backup power is available at Seville Well SV3 in the form of a portable generator.

- Does the system have at least one backup source of water supply, or a water system intertie, which meets current water quality requirements and is sufficient to meet average daily demand? Not at present, but projects are in process to fulfill this requirement.
    - The projects to interconnect CPUD – OPUD and OPUD – EOCSD provide water system interties capable of meeting MMADD. The new well drilled for EOCSD within the OPUD service area and equipping of CPUD's Well C10 blending tank provides additional supply.
    - The project to physically interconnect Monson – Sultana provides an intertie such that each is capable of meeting the other systems demands. Monson is able to store its MDD. Sultana has a standby well that does not meet water quality standards, and no storage so will rely solely on the Monson Intertie.
    - The project to physically interconnect Yettem and Seville provides an intertie such that Yettem is capable of meeting Seville's system demands. Given the Seville well production even with the emergency well is expected to be less than Seville's MMADD, the Yettem intertie should be considered Seville's sole source. Seville's backup source is primarily the 211,000-gallon tank, with some minimal production from its 2 wells.

- Has the system metered each service connection, and does it monitor for water loss due to leakages? Partially
    - OPUD and Seville water systems are metered.

[1] Pursuant to the Water Code, a "small water supplier" is defined as any community water system serving 15 to 2,999 service connections, inclusive, and that provides less than 3,000 acre-feet of water annually.

  - CPUD has installed meters on about 20 service connections and is expected to complete the remainder as a condition of the potential consolidation project with OPUD.
  - Metering of Yettem is included in phase 2 of the Yettem-Seville project.
  - Metering of Monson-Sultana is included in the Sultana CSD project.
  - The EOCSD water system is metered, but meters are reportedly not functioning and not used for billing. The EOCSD project includes replacement of the distribution system and meters.

- Does the system have source system capacity, treatment system capacity if necessary, and distribution system capacity to meet fire flow requirements?
  - The fire flow requirement for the region as a whole is assumed to be 1,500 GPM for 2 hours, based on the most restrictive requirements identified in individual Communities, although they have not been confirmed by Tulare County.
  - It is assumed that CPUD and OPUD, once connected, will be able to meet fire flow demand of 1,500 GPM for 2 hours with the combination of storage and production capacity from both CPUD and OPUD wells. Distribution system modeling has not been completed, and it would be required to confirm available fire flows with any degree of certainty.
  - The existing well production of East Orosi, Monson and Sultana and lack of storage for fire flow indicate they cannot meet the minimum 1,500 GPM for 2 hours required for unincorporated areas by County of Tulare’s adoption of the California Fire Code assumed in this Study. A lower fire flow requirement of 500 GPM at 20 PSI was used in the design and modeling of Monson and Sultana based on Tulare County requirements. Tulare County similarly provided QK a reduced fire flow requirement for EOCSD indicating 1,000 GPM at 1 hour would be “minimally acceptable”.
  - The design criteria for Yettem and Seville included 1,500 GPM fire flow for 2 hours at a residual pressure of 20 PSI. The Seville water system can also meet the 1,500 GPM for 2 hours requirement from its 211,000-gallon tank and booster station. The Yettem system is expected to meet fire flow by a combination of water from the 211,000-gallon Seville Tank and booster pumps via the interconnecting 8-inch pipeline and the 150,000-gallon Yettem tank.

3.4 AFFORDABILITY AND SUSTAINABILITY

Five of the seven systems charge flat water rates with no usage-related fees. The two systems charging a Unit of Measure (UOM) based cost on top of the base rate are Orosi and Seville, at $0.96 and $1.50 per 1,000-gallons, respectively. The majority of users are residential customers, so this section focuses primarily on the residential rates.

DDW requests each system approximate drinking water charges based on consumption of 6, 9, 12, and 24 hundred cubic feet (HCF) per month in the systems eAR. This approximates to 150, 225, 300 and 600 gallons per day (GPD) per household. The average per capita water usage in the region is 137 GPCD, which is comparable with Tulare County design standards of 150 GPCD for new developments.

Figure 3-5 Existing Residential Water Rates

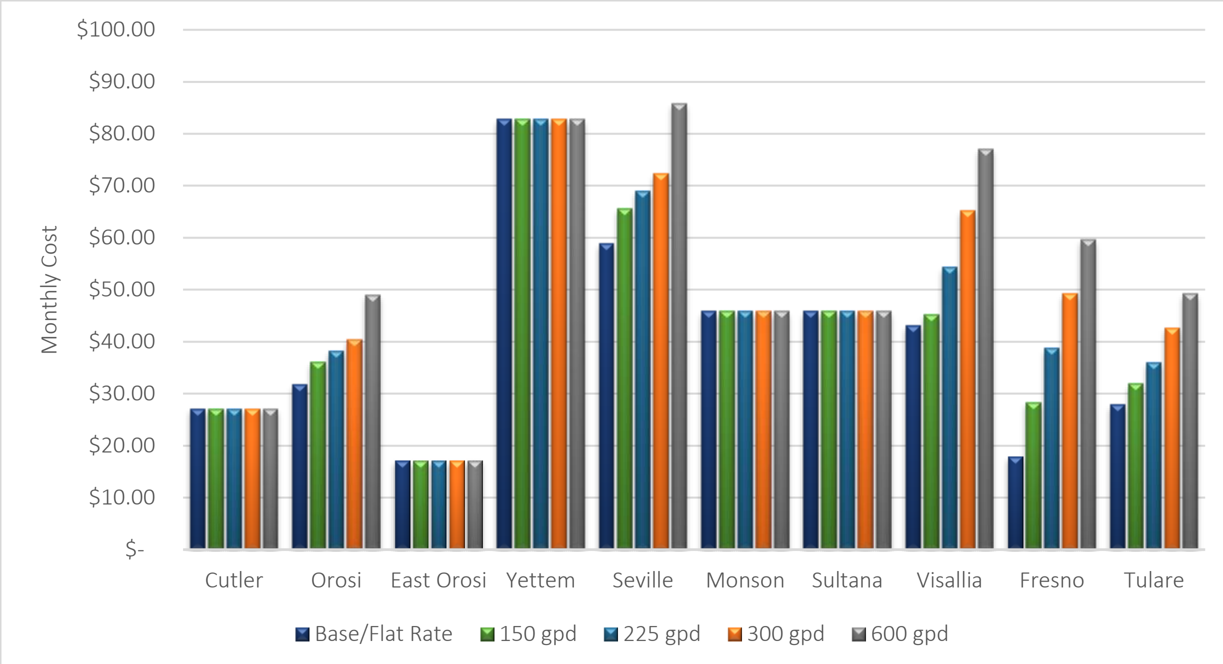


Figure 3-5 shows household water costs based on 150 GPD, 225 GPD, 300 GPD, and 600 GPD, which correspond to approximately 6, 9, 12, and 24 HCF per month. At the upper end of 600 GPD, Yettem and Seville range between $83 and $86 per month. Monson-Sultana has a newly metered system resulting from grant funded projects but have not yet established commensurate UOM rates and remain at $45.85 flat rate, approximately in line with a 600 GPD household in Orosi at $49.01. It should be noted that CPUD and EOCSD, with respective rates of $27.10 and $17.15, are both systems that are considered failing by DDW and in the process of consolidations originated by the SWRCB. The water rates for the cities of Visalia, Tulare, and Fresno, using the same usage assumptions and 1-inch meter, are provided for comparison, as larger systems with a wider base of rate payers over which to spread operational costs.

The affordability index measures the burden of costs passed from the water utility to the users. Affordability is generally considered to be 1.5% to 2% of MHI for 6 HCF (150 GPD) per month. Table 3-4 shows current rates based on 150 GPD, compared to MHI. An affordability index less than 1.5% may impact the approval of grant funding. Rates approaching 2.5% of MHI can be considered unaffordable.

Table 3-4 Existing Rate Affordability

DISTRICT/COMMUNITY	MHI	150 GPD (6HCF/MONTH)	% OF MHI
Cutler PUD	$58,692	$27.10	0.55%
Orosi PUD	$52,692	$38.24	0.87%
East Orosi Community Services District	$33,472	$17.15	0.61%
Monson Water System	$49,750	$45.85	1.11%
Sultana Community Services District	$38,125	$45.85	1.44%
Yettem Water System	$42,500	$82.80	2.34%
Seville Water Company	$39,500	$65.63	1.99%

4 PRIOR STUDIES AND REPORTS

4.1 BRIEF HISTORY

Beginning around 2014, the County, Alta Irrigation District (AID), and communities in the NTC area worked to form a JPA to pursue a regional surface water project. AID decided they did not need to be a member of the JPA and could enter into water supply agreements with the JPA, once formed.

In 2014, the County and the communities embarked on forming a JPA with assistance from Rural Community Assistance Corporation (RCAC), funded through a Legal Entity Formation Assistance grant from SWRCB. After three years of collaboration and negotiations (and many iterations and revisions) CPUD and OPUD left the effort and formed their own JPA, the Cutler-Orosi Surface Water Project Authority (COSWPA).

In 2015, an updated feasibility study was completed for the regional surface water project.

In 2017, the County (representing Monson and property owners outside of an established district), East Orosi, Sultana, Yettem, and Seville formed a JPA, the Northern Tulare County Regional Water Alliance (NTCRWA). The goal was to pursue funding for a regional surface water project which would provide water to communities in Northeastern Tulare County. In 2019, the State Board terminated the project stating it was too expensive for the number of connections potentially included. Since that time, the JPA has not been active.

In 2020, the COSWPA reached out to the County requesting participation in their effort to secure funding for the surface water treatment project. The County entered into an MOU with the COSWPA, Appendix L, on behalf of Yettem and Seville, and residents along the pipeline route outside of a district. Sultana CSD and Monson did not participate in this MOU.

Through the 2015 effort, the SWRCB had identified several pieces of the project that needed to be resolved. These are the subject of this Study, as outlined in Section 1.1 to include analysis of water rights, treatment plant capacity, unit process design, distribution water quality concerns, disinfection strategy, operator requirements and expertise, system hydraulics, potential for conjunctive use of groundwater and surface water, and strategy for uninterrupted service during canal maintenance, as well as governance and financial analysis.

4.2 PREVIOUS STUDIES

4.2.1 WATER SUPPLY STUDY CUTLER-OROSI AREA

In 2007, AID, CPUD, and OPUD commissioned the preparation of a study to evaluate options for providing potable drinking water to Cutler and Orosi (Dennis R. Keller/ James H. Wegley, 2007). The recommendations of that study were to proceed with development of a treated surface water supply to provide a long-term drinking water supply to Cutler and Orosi.

Currently, all urban water uses in the NTC area are supplied from groundwater wells. The study aimed to address a concern regarding the long-term viability of the existing groundwater supply. These concerns were a result of declining groundwater quality, including increased occurrence of nitrates and DBCP.

4.2.2 NORTH TULARE COUNTY REGIONAL SURFACE WATER TREATMENT PLANT STUDY

The North Tulare County Regional Surface Water Treatment Plant Study (NTCRSWTPS) was prepared by Keller-Wegley Engineering. A draft of the NTCRSWTPS was submitted to DDW in October 2014. The study was funded through DWSRF.

The NTCRSWTPS was intended to serve the following seven communities:

- Cutler Public Utility District
- Orosi Public Utility District
- Sultana Community Services District
- East Orosi Community Services District
- Seville (Zone of Benefit CSA No. 1)
- Yettem (Zone of Benefit CSA No. 1)
- Monson Area

A Final Report was completed in February 2015, and an addendum prepared in September 2015 (Dennis R. Keller / James H. Wegley, 2015).

DDW commented on the draft NTCRSWTPS supporting development of surface water as a drinking water source of supply but noted that there were many compliant groundwater sources in the communities and that a long-term solution is likely to include both surface water and groundwater. DDW was also concerned, based on the explanation of the firm supply, on the availability of surface water as a reliable drinking water source of supply.

Comments were also provided by Community Water Center and Self-Help Enterprises echoing the DDW comments regarding a lack of understanding of the “firm supply” and what level of commitment AID would be able to provide to supply surface water, concerns over the increased costs of purchasing and treating surface water, and lack of analysis of groundwater supplies in the greater region, outside an undefined “Cutler Orosi Area”. The most prevalent questions in both letters related to the increased O&M costs and resulting costs per connection, notably the way the allocation of costs to the smaller communities resulted in a significantly higher per connection cost than could be achieved by spreading the project cost across the region.

4.2.3 COMMUNITY WATER CENTER PUBLIC OUTREACH EFFORTS

At the meeting of the Board of Directors of the Northern Tulare County Regional Water Alliance held on April 11, 2018, CWC was approved to carry out a public scoping process for identifying alternatives to be considered by consultants for the Alternatives Analysis as the first step in planning of shared drinking water projects. The final Scoping Report was submitted to NTCRWA in August 2018.

The approved plan consisted of meetings with a “focus group” of engaged residents, followed by a first round of three community meetings, and concluding with a larger regional public meeting. The objectives of these meetings were to re-engage residents in the project, providing information on local groundwater quality conditions, an update on the formation of the NTCRWA, and discussion of the pros and cons of the project alternatives, and ways community residents could stay informed and involved in the process.

For this scoping effort, CWC conducted outreach to the seven NTC communities, as well as the cities of Orange Cove and Dinuba. At these engagements, the potential pros and cons of different water sources were discussed, including surface water, groundwater, wellhead treatment, groundwater blending, or a combination of surface and groundwater. Qualitative discussions were facilitated to explore potential interest in different solutions without conducting quantitative analysis. In 2018, Dinuba was focused on local groundwater recharge and remediation of groundwater quality and was not interested in surface water. Orange Cove expressed interest in a potential intertie with a regional system to provide groundwater as a back-up to their surface water supply.

5 WATER SUPPLY ALTERNATIVES

5.1 REGIONAL GROUNDWATER SUPPLY

This section examines the existing regional groundwater supply, discussing subsurface hydrogeologic conditions, the potential to drill new municipal wells when existing wells reach the end of their working life, and the viability of treatment options should groundwater quality in currently compliant wells fall out of compliance with drinking water standards.

5.1.1.1 SUBSURFACE HYDROGEOLOGIC CONDITIONS

Page and LeBlanc (1969) and Croft and Gordon (1968) describe the geology, hydrology, and water quality of the Fresno Area and Hanford-Visalia Area. The NTC project area, particularly Yettem-Seville at the southeast of the project area, lies on the border between the two hydrogeologic study areas. Site specific hydrogeologic evaluations have been completed by Kenneth D. Schmitt and Associates (KDSA) for multiple water systems in the area for P&P including Monson, Sultana, Yettem, and Seville, and for QK relating to the new East Orosi well and for Cutler and Orosi. Extensive work by both KDSA and P&P has been conducted developing data and analyzing the larger region as part of Kings Subbasin Sustainable Groundwater Management Act (SGMA) coordination efforts. These reports provide information on subsurface geologic conditions within the area. Groundwater condition reports, and a copy of the East Orosi Test well memo, are included in Appendix N.

The area is bounded to the east by the foothills of the Sierra Nevada, Stokes Mountain, and a significant inlier of consolidated rock, Smith Mountain, is located northwest of Sultana. Page and LeBlanc (1969) describe a basement complex consisting of consolidated rocks of pre-Tertiary age which crops out along the eastern border of the area and yield only small amounts of water to wells. Page and LeBlanc (1969) divide the overlying unconsolidated deposits into an older series of Tertiary and Quaternary age, and a younger series of Quaternary age.

The depth to the basement complex in the area increases from northeast to southwest as it is overlain by increasing depths of alluvium from the “compound alluvial fan of intermittent streams south of the Kings River” and the “Interfan area of Cottonwood Creek”, as described in Page and LeBlanc (1969). The Quaternary Older Alluvium deposits overlie the older Tertiary-Quaternary continental deposits. These Tertiary-Quaternary continental deposits which occur at greater depths are generally much finer grained than the overlying deposits, and clay layers are often present. Although not as extensive as the regional confining bed of Corcoran Clay which lies west of Highway 99 well beyond the study area, less continuous, but important, local confining beds have been identified in the region since the 1960s as wells have progressed deeper into these layers in search of water. Figure 5-1 shows the location of the Geomorphic units and Geologic deposits described as they relate to the communities and topographic features of the landscape.

The aquifer above these clay layers, which exist near the base of the Quaternary older alluvium or in the upper part of the underlying continental deposits, is generally defined as unconfined shallow groundwater in which KDSA notes concentrations of nitrate, TCP, and DBCP tend to be higher. This groundwater, above an average depth of approximately 250 feet across the Kings Sub basin, is generally indicated to be younger than about 70 years old, while water below the confining beds is less, or minimally, affected by irrigation practices.

Within the project area, several wells have been drilled in recent years by tapping deeper portions of the aquifer below these confining layers, producing water meeting drinking water quality standards. Sultana

Well SL4 was drilled in 2023 to a depth of 620 feet and has an annular seal to a depth of 310 feet with a 16-inch casing installed to a depth of 610 feet and perforated between 330 and 425 feet and between 425 and 590 feet and produces 350 GPM. Monson Well M1 was drilled in 2017 to a depth of 1,000 feet and has an annular seal to a depth of 300 feet with a 10-inch casing installed to a depth of 990 feet perforated between 350 and 980 feet and produces approximately 400 GPM. Page and LeBlanc (1969) notes that deep wells almost always had lower yield factors than shallower wells when comparisons were made using wells of similar construction and penetrating similar material.

KDSA identifies three important issues as being depth to the top of the hard rock, depth to the top of the reduced (blue green) deposits and whether salty groundwater is present at depth. The depth to base of unconfined groundwater, depth to bed rock is shown in Figure 5-2. In deeper groundwater, the most common constituents of concern are manganese, arsenic, and possibly iron. The origin of the blue green deposits is described in Page and LeBlanc (1969) and Croft and Gordon (1968). Unconsolidated deposits of Tertiary and Quaternary age and those of Quaternary age were laid down in either an oxidizing or a reducing environment. According to R. H. Meade (1967, p. C6-C7) and Davis and others (1959, p. 58-59) oxidized deposits are red, yellow, or brown, indicating subaerial deposition; and reduced deposits are blue, green, or gray, indicating they were probably deposited in a deltaic or flood-plain environment. The blue or green micaceous, fine to medium sand, silt, and clay, layers contain little or no gravel. The significance of these reduced deposits, per KDSA, is that the groundwater in them may be unusable for public water supply without treatment. The test well for the proposed East Orosi well, located between Cutler and Orosi, was completed to a depth of 590 feet, encountering the blue-green deposits between 391 and 421 feet. KDSA subsequently recommended to QK that the annular seal of a new well should be installed to a depth of 230 with casing installed to a depth of 590 feet and perforated between 255 and 390 feet and between 430 and 570 feet. Pump-efficiency tests cited by Croft and Gordon (1968) suggest that the reduced older alluvium is moderately permeable and wells less than 500 feet in depth generally yield 200 to 1,500 GPM. The Water Quality table prepared by KDSA for the East Orosi well indicates elevated EC, TDS, and manganese at 394-400 feet within the blue or gray-green deposits present from 391-421 feet and at 572 to 577 feet.

Should it be necessary in future to develop additional groundwater supply wells, the exploration of the areas west of Cutler and Orosi and south of Sultana, excluding the immediate vicinity of the existing wastewater plant, can be considered. Selection of test well locations and supply well recommendations would be prepared on a case-by-case basis working directly with a professional hydrologist and assessing the vulnerability of sites to possible contaminating activities. Figure 5-3 highlights existing well locations in the area.

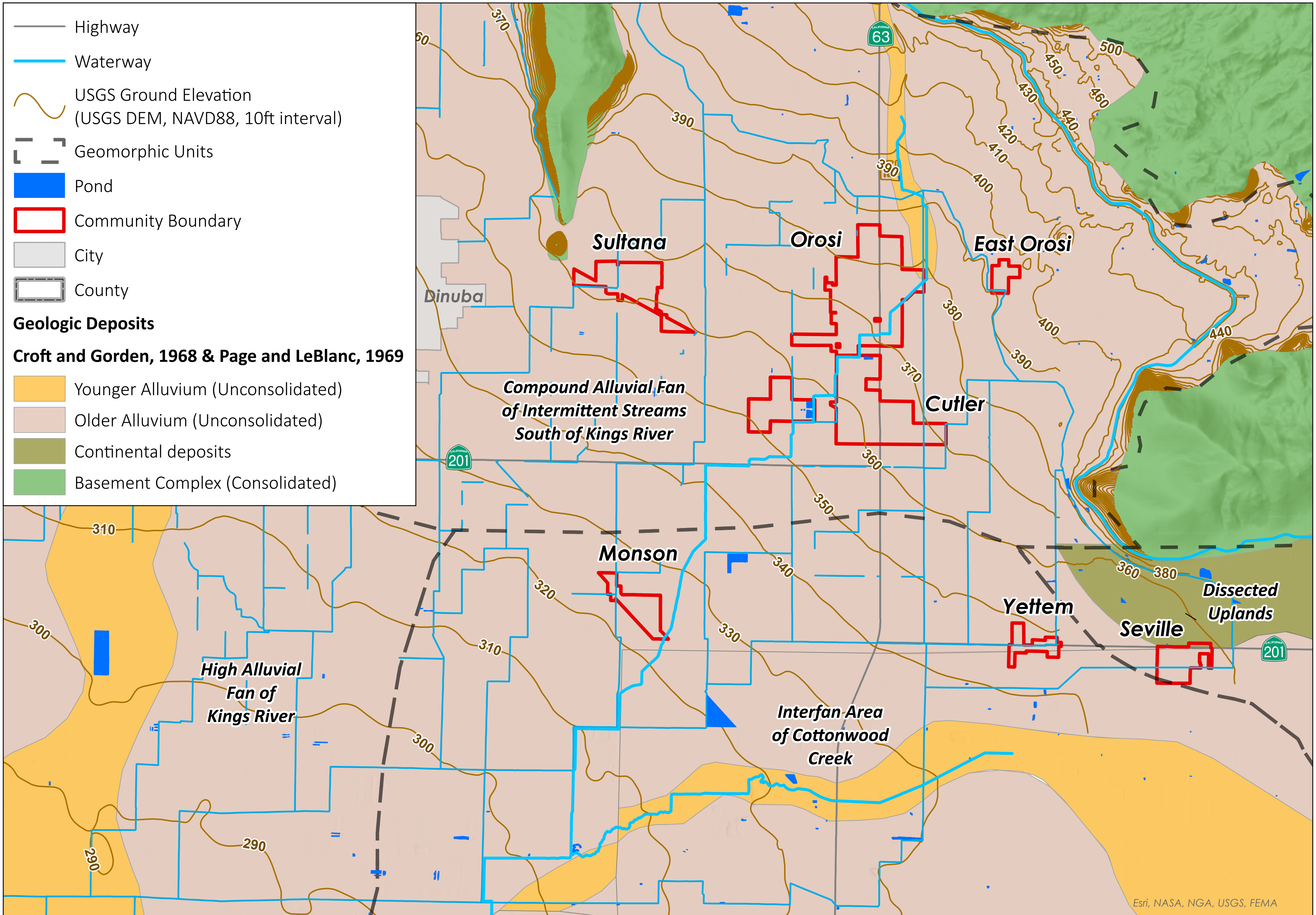


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Figure 5-1: Topography and Geology Map
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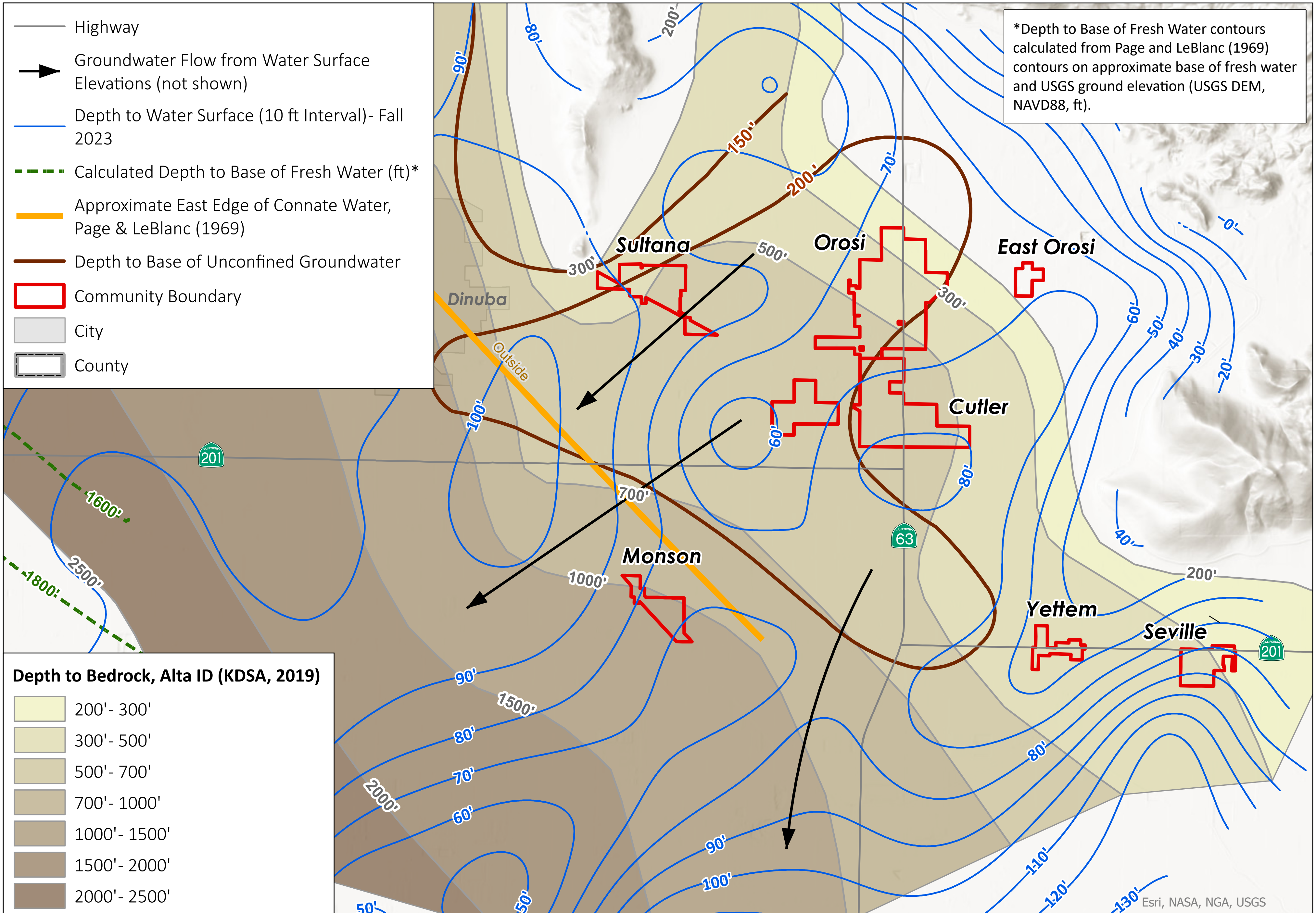

Figure 5-2: Groundwater Map

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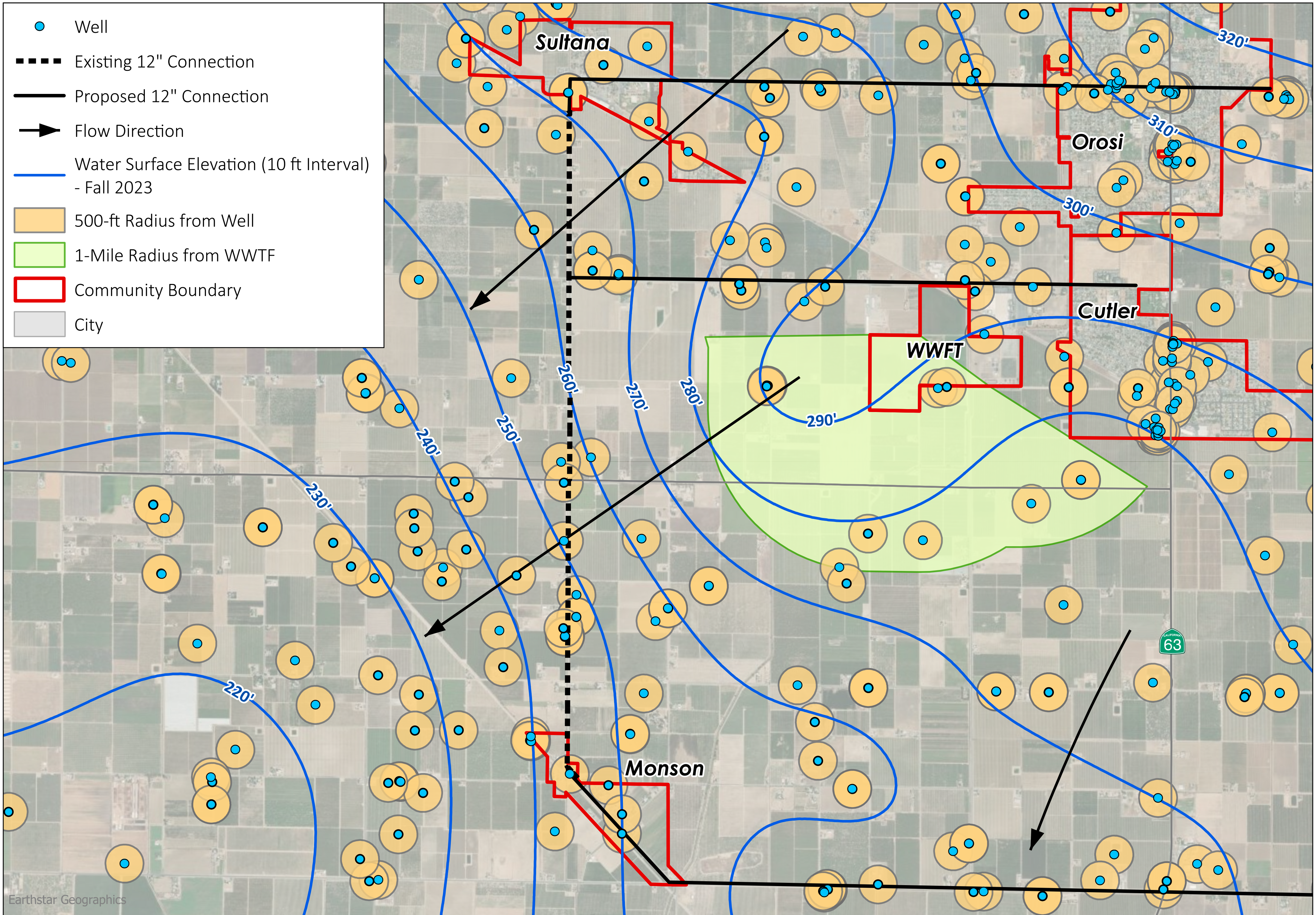

Figure 5-3: Existing Well Locations

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5.1.1.2 TREATMENT

Sealing off the upper layers of the aquifer, which are affected by agricultural practices, can be expected to limit the need for treatment. Based on the wells described above, sealing wells to approximately 300 feet and tapping the lower strata to depths ranging from 600 feet to 1,000 feet dependent on depth to bedrock, and avoiding the blue green deposits, has proven to produce reliable yields of at least 350 GPM of water meeting drinking water quality standards without treatment.

The opposite approach would be constructing wells in areas known to produce water with high nitrate concentrations and likely to also produce water containing TCP and DBCP above the MCL. This would mean installing wells to tap the shallower unconfined groundwater above 300 feet. The best available technology (BAT) for removal of TCP and DBCP is Granular Activated Carbon (GAC) and has been successfully implemented at numerous wellhead treatment projects throughout the Central Valley.

The BATs for the treatment of nitrates are ion exchange (IX) or reverse osmosis (RO). As discussed in the 2007 report by Keller/Wegley, and supported by more recent projects for nitrate removal, IX would be the appropriate treatment method for consideration. P&P prepared a PER in October 2024 for the City of Lindsay, to analyze the feasibility of treating their Well 11. The project would bring them closer to meeting their MDD with groundwater during periods that the Friant Kern Canal (FKC) is down for maintenance. The selected project would treat 630 GPM of the 1,400 GPM flow from the well. The total capital cost for that project, which included pretreatment for perchlorate, was estimated at $5,943,000, with O&M Cost of $1.89/1,000 gallons (City of Lindsay Well 11 Preliminary Engineering Report, 2024). Assuming half the MDD in the NTC study area requires treatment, the capital costs, for treatment alone, would likely exceed $18,000,000 and additional annual O&M costs to treat 865 MG/year and dispose of brine waste exceeding $1,650,000 annually.

Piping from existing active wells, which do not currently require nitrate treatment, would add further capital costs above the costs of constructing a centralized treatment site. The drilling of new wells at the treatment site to specifically target shallow groundwater with high concentrations of nitrate would likely be preferable to installing new piping for untreated water through the communities from existing aging wells. Of the two highest producing wells with known nitrate contamination, Cutler Wells C5 and C6, Well C5 is reported to be in a state of disrepair and rehabilitation unfeasible. Land requirements for evaporation ponds to concentrate the spent brine would be an additional concern which would increase the area required. The City of Lindsay PER contemplated 1.5 acres of double-lined ponds. A conservative estimate would place the requirements for the NTC region demands at 4.5 acres. Given the number of unknowns in predicting which, if any, existing wells would potentially require treatment, and what other constituents may be present, a treatment approach will not be considered further.

5.2 SURFACE WATER SUPPLY

There are two local sources of surface water that can be considered for this area. The first is from the Kings River where storage is provided by Pine Flat Dam, which was constructed by the Corps of Engineers. The second is the San Joaquin River where storage is provided by Friant Dam impounding at Millerton Lake. Friant Dam was constructed by the Bureau of Reclamation. Friant Dam and Millerton Lake are part of the Central Valley Project (CVP). Conveyance of surface water supplies south of the San Joaquin River is by the Friant-Kern Canal to the federal contractors. Both dams are federally constructed projects. Alta Irrigation District is located to the east of the Kings River and is a member of the Kings River Water Association (see Figure 5-4). AID has rights to diversion of surface water from the Kings River based upon a schedule agreed to by the association members and overseen by a Watermaster that reports to the SWRCB. The communities described previously are all within AID, apart from East Orosi which is within the Orange Cove Irrigation District, and within the place of use of the CVP. Under the license(s) with the State of California, the Kings River water can be used for irrigation and in some limited cases for incidental municipal use.

Water sourced from the Kings River would be subject to the following constraints to be overcome in the development of a source of supply for municipal use:

- AID's surface water supplies under the Kings River Licenses are for agricultural use. One license does include domestic use for a specific location.
- Conveyance by the FKC would require pumping of water from AID facilities into the FKC.
- AID delivers water during the irrigation season.
- Place of use restrictions for communities outside AID's boundaries would need to be overcome.
- Zero delivery years due to hydrology have occurred historically in 2015 and 2021.

Water sourced from the CVP (Class 1) water would be subject to the following constraints to be overcome in the development of a source of supply for municipal use:

- Place of use, primarily within AID's boundaries, is outside the areas served by Friant Water Authority (FWA) members.
- Zero delivery years for Class 1 water have occurred historically in 2014 and 2015.

To implement the construction and operation of a surface water treatment alternative there must be the ability to deliver an adequate, dependable, and safe supply of surface water. Kings River water must be diverted from existing points of diversion under the State license, and there are no diversion points within close proximity to the project area. Considering a new point of diversion from the Kings River potentially in Reedley, or west of Dinuba, and pumping raw water would significantly increase the costs of a potential project, requiring a pump station located on the river, and additional pipeline. Therefore, only existing conveyances can realistically be considered. The FKC, which is largely concrete lined in the vicinity of the project area, is within reasonable proximity to the planned project and upgradient of the communities, allowing for gravity flow from the canal to potential surface water treatment plant (SWTP) locations. The FKC runs approximately 152 miles from the town of Friant to the Kern River in Bakersfield and is located along the eastern edge of the project area. The Friant Water Authority, through contract with the United States Bureau of Reclamation (USBR), is responsible for the operation and maintenance of the FKC. The Friant Water Authority manages delivery of the San Joaquin River water supply via the FKC, on behalf of the Friant Division Contractors of the Federal Central Valley Project. To date, it is understood that conversations have been with the AID to provide the surface water supplies. Other CVP districts could also be an option.

For an agreement to be developed with AID, the restrictions identified above would need to be overcome. The most significant of these are conveyance and delivery of the supply which are thought to occur through use of the Friant-Kern Canal and ability to store water through multiple dry years. It has been presumed that a Warren Act agreement could be obtained from the USBR, but absent other deliveries in the canal all the time a small amount of surface water would enter the large canal and there are some considerations about trying to convey 3 to 5 cubic feet per second (cfs) of flow through a canal capable of 3,000 cfs.

Since the proposed SWTP would receive water from the FKC, a water supply agreement that provides for diversion from the FKC will be required. This could be accomplished by an agreement directly with an entity with an FKC supply, or an agreement with AID (or other Kings River entity) to convey Kings River water that is exchanged and diverted into the FKC. There are specific limitations and requirements for such an exchange that would require additional evaluation.

At the time the NTCRSWTPS was prepared, (Dennis R. Keller / James H. Wegley, 2015), AID had consistently diverted and delivered surface water to lands within AID. Since that report was prepared, AID has experienced two water years with no diversions. The first event occurred in 2015 and the second took place six years later in 2021. In addition, CVP allocations for Friant Class 1 water were zero in 2014 and 2015. Critical-High and Critical-Low years within the neighboring San Joaquin watershed, the source of FKC water, are identified in 1976 and 1977, 2014 and 2015, and 2021. Considering these drought years and in anticipation that water in such critically dry years could be anticipated to reach costs of upwards of $1,500 per AF. As reported by SJV Water, a nonprofit news site dedicated to covering water in the San Joaquin Valley, surface water was being sold at $970 per acre-foot in 2015 and 2016.

CVP surface water supply is not dependable during drought years as allocations of CVP Class 1 water can be significantly curtailed and can be reduced to 0%. The City of Lindsay is in the process of adding nitrate treatment to one of their wells and intends to drill three new wells to ensure demands can be met when their 2,500 AF allocation is curtailed in dry years. The City of Orange Cove inactivated all groundwater sources from 2003 to 2004, and the City's sole source of supply is surface water. Orange Cove has a water contract with USBR allocating 1,400 AF per year. To provide for future growth, Orange Cove entered a long-term FKC water transfer agreement with the Lower Tule Irrigation District for an additional 2,000 AF of water. The City of Orange Cove has local storage ponds which store only 30 days of water supply, and the City is under a compliance order related to source capacity (03 23 17R).

The 2,500 AF surface water supply cited in the 2015 Keller-Wegley report was considered to be a firm supply, developed specifically for the Cutler-Orosi Area by AID through Proposition 50 funding. The draft consolidation agreement between Cutler and Orosi says that 2,800 AF is considered firm supply and states a draft contract with COSWPA exists, to be executed in the event funding for a SWTP can be secured. P&P has requested the Proposition 50 closure report and draft contract from COSWPA and AID for review. At the Cutler and Orosi joint board meeting in August 2025, it was stated that conversations are taking place with AID to draft an agreement relating to surface water supply that will be available for review in December 2025. The District Engineer for Cutler PUD and Orosi PUD (Keller) had previously advised P&P that AID would not relinquish any portion of its pre-1914 water rights to the Communities, nor enter into a contract for delivery of water until the SWTP project moves forward. Tulare County provided a letter from AID regarding a pledge to commit to supply 2,000 to 2,300 AF/yr made in 2013, contingent on execution of a formal contract.

There are no facilities below AID's point of measurement at Frankwood Ave for the transfer of Kings River water to the FKC. Also, because AID only operates during the summer months, getting a steady flow of surface water from Cobbles Wier to any potential pumping location at the rate demanded by the communities throughout the year is not feasible. Constructing separate facilities for pumping into the FKC would still necessitate an exchange agreement with an FKC contractor to enable delivery of the whole surface water supply during AID's irrigation season as described above. Such a pump station would need to deliver the surface water supply over a 3-month period. Based on experience with prior projects we can estimate an order of magnitude cost for construction of a new pumping facility of $500,000 to $1,000,000, excluding environmental compliance, and permitting. If CVP water or use of an existing facility is negotiated, this cost would not need to be included in the project cost, so it has not been included in project cost estimates at this time.

The use of the existing pump facility between the point of diversion at Cobbles Weir and the point of measurement, would need to be negotiated. (Dennis R. Keller / James H. Wegley, 2015) proposed utilizing these existing facilities above AID's point of measurement. However, as these are not owned by AID, this would require a separate negotiation with the owner. The existing pumps are in the 100 to 150 cfs capacity range, so their use would similarly require partnering with another entity on the FKC to take that delivery of the entire water over a matter of days and regulate the supply to the communities throughout the course of the year. This would be more difficult in a dry year if there are reduced volumes in the FKC. It is understood that the existing pumps are permitted to pump flood flows; it is not known currently if the permitting allows for use outside of flood events.

5.2.1 SURFACE WATER COSTS

The actual cost of water will need to be determined by the Communities through negotiating a water exchange contract with AID, another CVP district, or a combination of both, to secure the surface water supply. In determining the costs of water for the purposes of financial analysis for the alternatives in this Study, this section compares known costs from other districts. The 2019 and 2025 South Kings Groundwater Sustainability Plans use a cost of $395 per AF in the operational cost of their recharge projects. The source of this $395 per AF cost is a contract between Consolidated Irrigation District and the South Kings Groundwater Sustainability Agency (GSA).

Comparatively, Orange Cove's transfer agreement with Lower Tule Irrigation District provides for a series of 500 AF options that require a one-time payment of $250,000 per increment, equating to $500 per AF for water. The available supply of this water can be reduced during years with low snowpack and drought conditions.

AID's Proposition 218 report used a cost of $214/AF for the development of supplies through the construction of recharge facilities (Engineer's Report for Alta Irrigation District Proposition 218 Procedures for Benefit Assessments, 2022). This cost was based on the 2019 Kings River East Groundwater Sustainability Plan (KREGSP), which is in the process of being updated for 2025, however the 2025 report remains in the draft stage.

While the consideration of delivering the water through an otherwise empty FKC during a dry year remains a challenge, it is suggested that negotiations with AID include the potential for 2 years supply of water to be retained behind the Pine Flat dam to meet the regional demands in dry years. Based on the $214/AF recharge cost this would generate a cost of $642 per AF delivered (based on 2 years storage plus current year supply at $214 per AF recharge cost), however review of annualized storage costs associated with recent projects to increase storage in the state show that this cost may be low.

- Construction of Sites Reservoir is estimated to cost $850 per AF of supply.
- Raising of San Luis Reservoir is estimated to cost $485 per AF of supply.
- Los Vaqueros reservoir expansion project is estimated to cost $1,000 per AF of supply.

Both the $395 per AF and $500 per AF figures mentioned above, are several years old and the duration and any year-on-year price escalations in those contracts is unknown. The range of costs discussed above spans from $395 to $1,000 per AF for supply with an average of $645 per AF. This is consistent with the $642 per AF determined by multiplying AID's Proposition 218 figure by 3 to account for 2 years of storage. In the absence of a negotiated cost of water from AID, $645 per AF will be utilized as the estimated cost of a drought firm supply. However, storage costs, pumping costs, wheeling charges in the FKC will elevate this cost further and are discussed below in greater detail. Finding a partner that will guarantee surface water delivery in dry years is critical to the project. The actual figure will be subject to negotiation with a surface water provider.

5.2.2 VOLUMETRIC WATER CHARGES

All water customers of AID, excluding those with parcels classified as Groundwater Only, pay a volumetric surface water surcharge (toll charge) per AF for water measured at turnouts. Customers with parcels classified as Groundwater Only pay the volumetric surcharge plus an additional charge of $3.00/AF, when water is available for them to take. Both charges are independent of an entitlement category assigned to a parcel. The toll charge was established in 2001, initially at $1.71/AF, and raised in 2022 to $10.25/AF with the subsequent four years increased for inflation up to an additional 3.5 percent per year to a current maximum of $11.76/AF. It is assumed this charge would apply to get the water from the Kings River point of diversion, Cobbles (Alta) Wier, to the pumping location for transfer into FKC.

5.2.3 FRIANT-KERN CANAL USAGE

A Warren Act contract is required to allow pumping of water into the FKC, alongside an agreement with Friant Water Users Association for the use of the conveyance facility. The published conveyance rates apply to all classes of water deliveries that are conveyed on the FKC on behalf of any non-Long-Term Contractor of the FKC. The rates are split into two categories, 215 and flood water and all other FKC conveyance fees. 215 refers to a section in the Reclamation Reform Act of 1982 relating to temporary water supplies. For the 2024 Water year the non-215/Flood water fee is expressed as a composite conveyance rate of $62.10. Additionally, any contractor wishing to discharge “non-Millerton” water into FKC must, concurrent with its application for a contract or other applicable approval from USBR, obtain a determination from FWA as to compliance with their water quality requirements. The Guidelines Surcharge was $4.58 per AF as of May 2023. Appendix O contains Conveyance Fees for Non-FKC Contractors and “Guidelines for Accepting Water into the Friant-Kern Canal”. In partnering with an FKC exchange contractor these costs would be factored into the agreement.

5.2.4 SUMMARY OF SURFACE WATER SUPPLY COSTS

The following table (Table 5-1) summarizes the total potential cost of a surface water supply. It is important to recognize this does not include treatment costs contained in the respective alternatives. It is also important to recognize the water purchase and storage costs presented in the table will be subject to selection of an alternative and negotiation of an agreement with a supplier to include pumping costs and exchange contract costs.

Table 5-1 Surface Water Supply Cost

SUMMARY	PER AF	Notes
Water (drought) regulation/storage	$645	Reference 5.2.1 Surface Water Costs
Water development (Purchase)	$214	Reference 5.2.1 Surface Water Costs
AID Water Charge (2026)	$11.76	Reference 5.2.2 Volumetric Water Charges
FKC Conveyance	$62.10	Reference 5.2.3 Friant-Kern Canal Usage
FKC Surcharge	$4.58	Reference 5.2.3 Friant-Kern Canal Usage
Total	**$937.44**	

Ultimately, the cost of water is tied directly to the security of the supply. CVP water is divided into classes, with Class 1 having a higher priority for delivery than Class 2. Both will see their respective allocations reduced in dry years with Class 2 seeing the first reductions, however as stated above even Class 1 water has been subject to 0 allocation years in the recent past. Banking of water behind a dam will entail paying for the use of that facility (i.e., Friant or Pine Flat).

5.2.4.1 AID ASSESSMENTS

Property owners within AID, including community members in the study area, are charged AID assessments, which are collected via the County tax rolls. The majority of AID revenue used toward the expenses of operating the irrigation district, and supplying water during the growing season, is generated through assessments allocated to landowners and/or water users within the district. Parcels classified as Urban/Town Groundwater Replenishment rates represent about 4.5 percent of the total AID service area and remained at $11.50 per acre in the 2022 rate adjustment. Landowners paying these assessments are able to receive supplies from AID through normal operations according to the agricultural irrigation schedule, typically May through July. AID operations are not scheduled around providing a reliable source of year-round supply suitable for municipal use. The collection of assessments in Tulare County via the County tax rolls would not be expected to change with or without the proposed project.

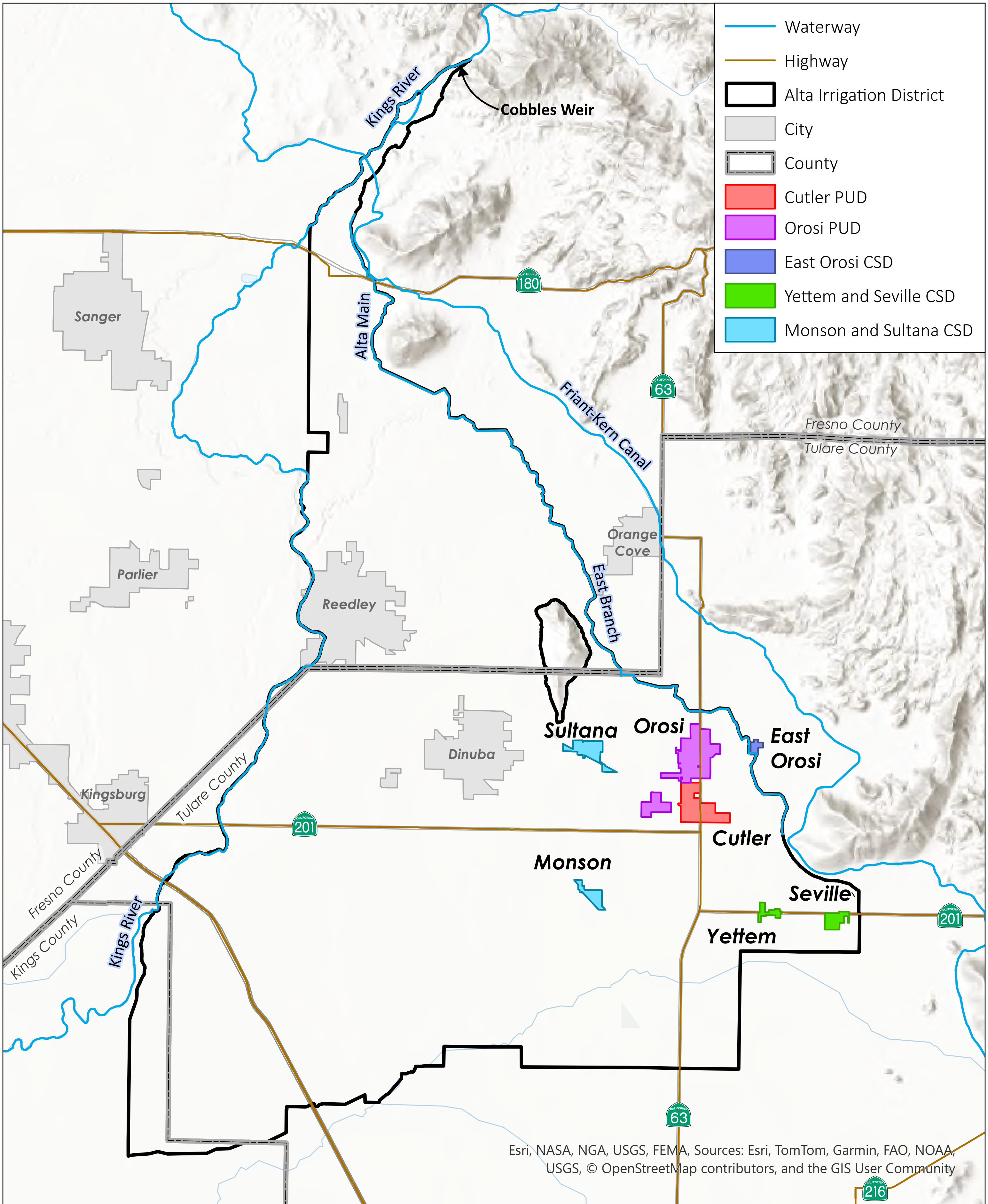

Figure 5-4: Alta Irrigation District Map

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6 INFRASTRUCTURE ALTERNATIVES

The previous sections outline that while water supply can be met by the existing and currently planned groundwater wells, including those under construction, there are underlying groundwater quality issues that affect the long-term reliability of the groundwater supply. Emerging contaminants coupled with the impacts of climate change and drought on groundwater levels present an ongoing combination of problems for water systems relying solely on groundwater. Addressing the resiliency of each system within the region in large part has been, or will have been, completed by ongoing projects in accordance with SB 552 requirements.

The addition of CPUD Well C10 and CPUD Well C6 blending, Sultana Well SL4, EOCSD Well E3, together with a planned Yettem Well Y3, should ensure an ample groundwater supply to the region, however in isolation each system has limited capacity to meet SB 552 recommendations for individual small systems which include:

- Having at least one backup source of water supply, or a water system intertie, which meets current water quality requirements and is sufficient to meet average daily demand.
- Ensuring source system capacity, treatment system capacity if necessary, and distribution system capacity to meet fire flow requirements.
- Metering each service connection.
- Providing adequate backup electrical supply to ensure continuous operations during power failures.

To ensure that either the existing groundwater supply, or a new surface water supply, can be efficiently supplied and shared between communities as part of a regionalization project, water system interties are proposed. Keller/Wegley in 2015 proposed a “tree” distribution system, originating at the SWTP to transfer water from single source branching to the most remote connections. This Study will consider a looped system, providing each system with 2 points of connection to the system, where practical. Looped systems in general are less vulnerable to water main breaks, provide lower likelihood of water quality deterioration, and can provide increased fire flow capacity.

For continuous operation during power failures, an adequate backup electrical power supply will need to be provided for each zone where the supply is dependent on power to well pumps or booster pumps associated with tanks.

Backup power generation is located at Cutler Well C6, and the planned Cutler Well C10. The new East Orosi Well being constructed as part of the consolidation project feeds directly into the Orosi system. This well does not appear to have back up power, however Orosi has backup power located at Wells O8 and O10. The East Orosi 90% plans do not show back-up power for the booster pumps feeding the East Orosi distribution system. At least a portable generator may need to be considered at the new tank site, however switch gear and a permanent generator at the East Orosi tank site would be preferred.

The physical connections between Monson and Sultana and between Yettem and Seville provide redundancy of supply. However, where that supply relies on a water storage tank and booster pumps, the ability to operate at least one well and the tank fed booster pumps in each system would be required to maintain operation, distribution system pressure, and operation of chlorination systems and communications. The Yettem tank and booster pumps do not have a generator, however Seville has a portable generator and booster pumps able to maintain pressure in both systems via the interconnecting pipeline. It is noted that the proposed generator at the Yettem Well Y3 site would serve only to feed the Yettem tank and not maintain the distribution system pressure or flows to Seville. A switch gear and generator at the Yettem tank site could be considered during the implementation of that project. The Sultana Well SL4 site is equipped with a standby generator and Well SL3 is equipped with a backup engine.

Table 6-1 demonstrates that MDD can be met for the entire system by the listed wells and tanks provided water system interties capable of distributing the supply and backup power is provided.

Table 6-1 Back Up Power Requirements

DISTRICT/ COMMUNITY	SOURCE	TOTAL CAPACITY (GPM)	STORAGE (GALLONS)	BACK UP POWER
CPUD	Well C10	750	400,000	Yes
OPUD	Well O8	700		Yes
OPUD	Well O10	800		Yes
EOCSD	Well E3	600	330,000	No
Monson	Well M1	400		Yes
Sultana	Well SL4	350		Yes
Seville			211,000	Yes
Total		**3,600**	**941,000**	

6.1 ALTERNATIVE 1 – INDIVIDUAL SYSTEM IMPROVEMENTS AND PHYSICAL CONSOLIDATION LOOP

This alternative includes water system interties extending from Yettem to Monson, Yettem to East Orosi, and Sultana to East Orosi to complete a water system loop for the region. Looping of the 4 communities adds potential sources to each which could potentially be sized to provide fire flow requirements and additionally prepares the communities with the infrastructure required to distribute treated surface water or groundwater from a regional source. This looping takes advantage of existing and proposed interties between Sultana and Monson, Yettem and Seville, Orosi and East Orosi, and Orosi and Cutler. A map of the communities and the proposed interties is provided in Figure 6-1.

This alternative assumes both Orosi and East Orosi as well as Cutler and Orosi are already physically connected and operating as a single water system. The 12-inch interconnection forming the western leg of the loop has already been constructed between Monson and Sultana. Yettem and Seville are being connected by an 8-inch interconnection enabling Seville to receive flows from Yettem, and for the Seville tank to provide storage to the system as part of the Yettem-Seville Phase II project. A second point of connection to Seville is proposed in this alternative, via railroad right-of-way.

Providing interconnecting pipelines would remove the need for the smaller communities to rely on the proliferation of small wells and large storage tanks. The MDD for the region of 3,150 GPM would be met by the wells listed in Table 6-2, producing 3,715 GPM with the largest offline and PHD of 4,725 GPM by the wells total capacity of 4,515 GPM plus the storage facilities which would need to make up the deficit of 210 GPM for 4 hours (a total of 504,000 gallons). This selection removes the older (pre-1990) wells and contaminated sources, paring down the supply closer to what is required to meet the region's demands. There is room to further evaluate other wells remaining in operation based on desire for redundancy in case a well fails in the future, however each additional well comes with operational costs which must be borne by the communities. For the purposes of this section, it is assumed wells not listed will be rendered inactive and disconnected from the system. This alternative would utilize the 9 wells, and 4 storage tanks listed in Table 6-2.

The connection of the systems into one operational water system is its own independent alternative, and it is also considered a base alternative on which the remaining alternatives would build, including shared surface water supply.

Table 6-2 Wells and Storage Utilized in Alternative 1

DISTRICT/ COMMUNITY	SOURCE	DATE CONSTRUCTED	DEPTH	TOTAL CAPACITY (GPM)	STORAGE (GALLONS)
CPUD	Well C9	2007	515	300	
CPUD	Well C10*	2016	440	750	400,000
OPUD	Well O5A	1990	433	525	750,000
OPUD	Well O8	1996	455	700	
OPUD	Well O10	2006	496	800	
EOCSD	Well E3**	2027		600	330,000
Monson	Well M1	2017	920	400	
Sultana	Well SL3	1996	430	540	
Sultana	Well SL4	2023	620	350	
Seville		2020			211,000
TOTAL	PHD (GPM)	4,725	Total Capacity	4,965	1.69 MG
	MDD (GPM)	3,150	Firm Capacity	4,165	

*The expected production of CPUD Well 10 is 750 GPM per Project Specifications.
**EOCSD Well 3 capacity has been estimated as 1,200 to 1,400 GPM, however the well is not yet completed. Prior to completion, a more conservative value of 600 GPM is used to ensure demands can be met without overreliance on this source prior to completion.

6.1.1 EFFECT ON INDIVIDUAL SYSTEM OPERATION

6.1.1.1 MONSON

Monson is the low point in the system at approximately 320 feet elevation. Monson Well M1 currently fills the 60,000-gallon water storage tank directly. Booster pumps maintain pressure in the distribution system. The existing pressure reducing valve (PRV) installed on the 12-inch line from Sultana prevents excess water pressure within the Monson distribution system due to the approximately 50-foot elevation difference between Sultana and Monson. This PRV, however, will prevent flow around the looped regional system. Relocating the PRV to the connection with the Monson distribution system will enable the loop to function effectively. The recommendation is that the loop bypass Monson and two points of connection, each with PRVs, would serve the Monson distribution system which will operate as a separate pressure zone.

At Monson's PHD of 57 GPM, the head loss in 4 miles of 12-inch piping is minimal. The MDD (36 GPM) plus Fire Flow (1,500 GPM) split between pipelines from Yettem to Monson and Sultana to Monson would require 768 GPM in each. The resulting head loss is approximately 12.5 PSI which is less than the elevation 30-foot elevation difference. Without regular flow through the loop, assuming half of MMADD originates from Sultana and half from Yettem, the travel time of water in 4 miles of 12-inch pipeline at 10 GPM each would be upwards of 8 days. Cycling the 60,000-gallon tank at 21 GPM adds upwards of 2 days to water age and breaking the pressure then requires the stored water to be pumped back into the distribution system. It may be recommended to remove the 60,000-gallon tank and instead connect the well to the loop via a hydropneumatic tank. This would also require re-bowling the well pump and upsizing the motor but would eliminate both the water age concerns and costs of operating and maintaining the tank and booster pumps. When called, the well would produce 400 GPM, of which only 21 GPM is required locally by Monson. 200 GPM in each 12-inch pipeline would produce a velocity of 0.6 ft/sec in each leg of the loop, displacing the volume of water in the pipeline over approximately 10 hours of operation.

6.1.1.2 SULTANA

Sultana is at an elevation of approximately 365 feet. Sultana's wells pump directly into the distribution system. Hydropneumatic tanks maintain pressure in the distribution system and will continue this operation with the connected regional water system loop. Sultana's wells have a combined capacity of approximately 890 GPM, so during periods when Sultana's demand is at or below MMADD of 171 GPM, their well production has the potential to supply 719 GPM to other communities. The 12-inch pipeline loop would permit transfer of water 3 miles to Orosi, or 9 miles to Yettem (via Monson). Yettem and Seville have a combined peak demand of 293 GPM. Supplying excess water from Sultana to Yettem at peak hour flows it would take approximately 16 hours to turn over the pipeline. During MDD (257 GPM) plus fire flow (1,500 GPM) demands with both Sultana wells operational only 867 GPM would be required to be made up by supply from the pipeline connections to Orosi and Yettem via Monson. In a situation where neither well was available, the MDD plus fire flow demand would be balanced between the two connected systems resulting in a demand of approximately 1,200 GPM from Orosi and 600 GPM from Monson and Yettem. The sizing of a 12-inch pipeline limits the potential head losses to 21 PSI, an upstream pressure of 55 PSI should be more than adequate to maintain a downstream residual of 20 PSI for fire flow. Peak flows at Sultana are only 389 GPM, or 433 GPM including Monson. Even in a situation where neither Sultana well was operating, system pressure could be maintained from wells in Orosi and the Monson well.

6.1.1.3 YETTEM-SEVILLE

Yettem is at an elevation of approximately 350 feet. The Yettem wells pump directly into a 150,000-gallon water storage tank. Booster pumps maintain pressure in the distribution system, and the 8-inch connection to Seville. The Yettem wells have limited capacity and water quality that requires blending. Together with the age of the tank and the operational costs of multiple wells and treatment by blending leads to the conclusion that these facilities should be abandoned in this alternative. In the event Yettem Well Y3 produces an adequate amount of good water quality it can be evaluated how best to connect it to the system to provide additional redundancy.

The Seville wells similarly provide a minimal flow, 15 GPM to the system, and would not provide enough benefit to the consolidated system to merit the ongoing operational costs of these wells. The 211,000-gallon water storage tank in Seville is intended to fill primarily from the Yettem connection during periods of low demand (high system pressure). Booster pumps at the Seville tank site maintain pressure in the distribution system. The Seville tank is required to meet Seville's fire flow demand as the 8-inch connecting pipeline from Yettem is insufficient to deliver 1,500 GPM while maintaining 20 PSI residual pressure.

Seville is approximately 5 feet higher than Yettem at about 355 feet elevation. Water age concerns with the 211,000-gallon tank can be reduced by ensuring the water delivered from Yettem is directed through the tank prior to being discharged to the Seville distribution system or returned to the loop. A pressure sustaining valve (PSV) and a check valve installed between the discharge from the hydropneumatic tank and the fill line, would enable provision of water from the storage tank to Yettem during periods of high demand but prevent water from the interconnecting pipeline bypassing the tank. Provided that the tank fill valve is closed when the booster pump is operating, Seville's tank and booster can contribute to system storage and fire flow. At 73 GPM MMADD, the 211,000-gallon tank should cycle fully over a 48-hour period. The provision of a second point of connection would provide a redundant source of supply in lieu of maintaining operating wells within Seville.

6.1.1.4 EAST OROSI

East Orosi sits at the highest elevation, approximately 400 feet, with its well located southeast of OPUD. As part of the consolidated looped regional system, the East Orosi tank will receive water from the south via the loop in addition to the supply from Orosi to the west. Booster pumps at the East Orosi tank site maintain pressure in the East Orosi distribution system. Due to the elevation gain it is impractical to expect the lower elevation systems to provide distribution system pressure at East Orosi. Similarly to Seville, the East Orosi tank and booster can contribute to system storage and fire flow by the provision of a check valve and PSV between the distribution system and loop. As with Seville, the tank fill valve should remain closed when the booster pumps are operating. At 114 GPM MMADD East Orosi's 330,000 tank should be fully cycled over a 48-hour period.

6.1.1.5 OROSI

OPUD Wells O8 and O10 pump directly into the distribution system to maintain system pressure. OPUD Well O5A pumps into a 750,000-gallon water storage tank. Booster pumps fed by the tank maintain pressure in the system. The intersection of Ave 416 and SR 63 in Orosi is approximately 380 feet elevation. The new East Orosi supply well also discharges to the OPUD system. The four wells, totaling 2,625 GPM capacity, continue to provide water to meet the Orosi, East Orosi, and Family Center MDD, with excess capacity available to supplement neighboring Cutler and other communities via the looped water main.

6.1.1.6 CUTLER

Cutler Well C9 pumps directly into the distribution system. Cutler Wells C6 and C10 will pump into the 400,000-gallon tank, once equipping of the site has been completed. Booster pumps at Well C10 will maintain distribution system pressure. The Well C10 tank site is at an elevation of approximately 360 feet. This alternative utilizes 1,050 GPM of production from Cutler Well C9 and Well C10. Additional capacity is available from Well C6 with implementation of blending, however with the 987 GPM excess from Orosi and East Orosi, the total of 2,037 GPM exceeds the Cutler MDD of 1,134 GPM. Modifications to the blending tank will be required to enable filling from the distribution system, with controls to prevent the fill valve opening while the booster pumps are operating so the pumps are not simply recirculating water.

6.1.2 DESCRIPTION

This alternative will include the following key project components:

- Connect Yettem to Monson by installation of approximately 5 miles (26,400-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Connect Sultana to Orosi by installation of approximately 3.5 miles (18,480-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Connect East Orosi to Yettem by installation of approximately 4 miles (21,120-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Second point of connection to Seville by installation of approximately 2-miles (10,560-linear feet) of 8-inch PVC water main, valves, and appurtenances.
- Replace Monson 60,000-gallon tank and booster pumps with hydropneumatic tank.

- Re-bowl Monson Well and replace motor to discharge to loop via new hydropneumatic tank.
- Monson onsite and offsite piping to discharge to loop separate from distribution system.
- Install PRVs at 2 points of connection from loop to Monson distribution system.
- Abandon Yettem and Seville existing wells.
- Demolish Yettem 150,000-gallon tank and appurtenances.
- Install switch gear and backup power generator at the East Orosi tank site.
- Install switch gear and backup power generator at the East Orosi Well E3 site.
- Install PSV and check valves between the distribution systems and the tanks at Orosi, East Orosi, Cutler, and Seville to enable tanks to fill from distribution system pressure during periods of low demand while returning water to the system during high demand periods.
- Install check valve at Seville to ensure the distribution system water passes through tank but can be returned to Yettem during peak and fire flow demands.
- Controls modifications to close fill valves when tank booster pumps are operating.

6.1.3 ENVIRONMENTAL IMPACTS

Environmental impacts related to this project would be temporary and related to construction.

- Noise will be generated during construction. Construction hours of operation will be limited to daytime in conformance with any local ordinances to minimize impacts on residents.
- Dust prevention measures will be implemented to prevent the nuisance of airborne particulates and comply with the Air Quality District requirements during construction.
- Best management practices will be employed to prevent storm water pollution during construction. Construction will comply with local requirements and statewide general construction permit (if applicable).
- Environmental compliance documents for compliance with the California Environmental Quality Act (CEQA) and federal crosscutting requirements would be necessary for this project to comply with funding program requirements that include federal funds. It is assumed that an Initial Study/ Mitigated Negative Declaration (IS/MND) would be the appropriate level of environmental document required for this project.
- Traffic control will be implemented throughout the project area to minimize impacts to neighboring properties during construction.
- A biological investigation would be conducted to identify any potential protected endangered species within the project area. Species of concern should be identified early in the process and take permits considered as the presence of Tiger Salamander and Fairy Shrimp are known to have impacted project timelines of nearby projects.
- The proposed second point of connection to Seville, via railroad ROW, is adjacent to the Stone Coral Ecological Reserve. The California Department of Fish and Wildlife will need to be consulted regarding this area, in addition to authorizing incidental take permits in other areas that are not as readily identifiable at this stage.

6.1.4 LAND REQUIREMENTS

No land acquisition is anticipated for the physical consolidation of the community water systems.
The alignment of the water mains will be in the County right-of-way. Additional encroachments permits will be required for crossings of railway, Caltrans, and irrigation district rights-of way and facilities. A longitudinal encroachment permit from Caltrans will be required for SR 201 between Yettem and the intersection with SR 63.

The second point of connection to Seville relies on utilizing railroad ROW, tentatively identified as the former Porterville-Orosi District line, purchased by Tulare Valley Railroad (TVRR) in 1992. TVRR is part of the San Joaquin Valley Railroad (SJVR) and part of the western region division of Genesee & Wyoming Inc.

(G&W). Review of G&W utility specifications indicates increased cover, wall thickness, or a casing may be required for a longitudinal carrier pipe withing their ROW, subject to approval by G&W engineering staff.

Work at existing tank and well sites will be confined to the existing sites and existing easements, and no additional land is expected to be needed.

6.1.5 CONSTRUCTION OR SITE CONSIDERATIONS

Typical construction considerations such as traffic control, dust control, and worker protection are routinely managed by construction contractors and should not be a hurdle for the project. Detours will likely be required, especially in areas where the installation will occur in built up areas where multiple conflicts with existing utilities can be expected.

Crossing of AID facilities will require maintaining required clearances below the invert of pipelines or canals and vary based on the type and condition of the AID facility. Work impacting AID facilities will generally be limited to outside of the irrigation season. Construction techniques may be open cut or require a trenchless approach such as horizontal directional drilling or bore and jack. At the feasibility study stage, the total number of crossings and specifics of each crossing have not been investigated in detail.

6.1.6 OPERATION AND MAINTENANCE COSTS

Comparison of alternatives based on life cycle costs for Alternative 1 includes the potential for savings based on eliminating sampling and operation and maintenance costs for several wells and tanks utilized by the communities which would no longer be required to operate once the Alternative is implemented.

6.1.6.1 SAMPLING

DDW requires sampling of each water source on a regular basis for various contaminants. The most common regular testing requirement is the monthly bacteriological (BAC-T) test for coliform, which also applies to any storage tanks and post treatment processes. For the NTC region, most of the groundwater wells are subject to monthly testing for nitrate, which is a similarly straightforward test with analysis of each sample costing around $35. Every 3 years, each municipal well is required to undergo sampling for the full range of potential Title 22 contaminants. Analysis depending on the selected laboratories' current rates, can be expected to be around $3,500. Another significant consideration in the NTC region is the number of wells requiring testing for TCP and DBCP. When required to be monitored, these quarterly monitoring tests can be expected to cost approximately $150 each.

Table 6-3 Budgetary Laboratory Testing Costs

SAMPLING COSTS	PER ANALYSIS	ANNUAL BUDGET
3 Year Drinking Water Matrix	$3,500	$1,167
Monthly BAC-T	$35	$420
Quarterly Nitrate	$35	$140
Quarterly TCP/DBCP	$150	$600
	Total	$2,300 per Well $420 per Tank

The resulting estimated sampling expenses are applied across each system. The 7 communities currently operate 16 wells, while Alternative 1 would supply the region with only 9 wells in operation, reducing the overall system sampling costs (see Table 6-4).

Table 6-4 Budgetary Laboratory Testing Costs per System

ANNUAL COSTS	CUTLER	OROSI	EAST OROSI	YETTEM-SEVILLE	MONSON-SULTANA	7 SEPARATE COMMUNITIES	ALTERNATIVE 1
Wells*	3	4	1	5	3	16	9
3 Year Drinking Water Matrix	$3,500	$4,667	$1,167	$5,833	$3,500	$18,667	$10,500
Monthly BAC-T	$1,260	$1,680	$420	$2,100	$1,260	$6,720	$3,780
Quarterly Nitrate	$420	$560	$140	$700	$420	$2,240	$1,260
Quarterly TCP or DBCP	$1,800	$2,400	$600	$3,000	$1,800	$9,600	$5,400
Tanks*	2	1	1	2	1	7	4
Monthly BAC-T	$840	$420	$420	$840	$420	$2,940	$1,680
Total	$7,820	$9,727	$2,747	$12,473	$7,400	$40,167	$22,620
*Number of Wells and Tanks in this table is the number expected to remain at the completion of current projects							

While it is understood that each well has unique sampling requirements based on constituent detection from prior samples, this table demonstrates how significant costs can be eliminated by removing smaller wells from service and utilizing the larger capacity wells or alternative supplies to meet the needs of all the communities. When a system pays the same sampling costs per well regardless of whether that well is producing 15 GPM or 1,500 GPM, it makes sense to eliminate smaller less productive wells where possible. In addition, the impact of a nitrate, TCP, or DBCP hit on a small system resulting in a greater testing frequency is commensurably greater with less connections over which to spread the resulting costs.

6.1.6.2 OPERATOR REQUIREMENTS

Developing a budget for staffing of the water systems assumes the operator's time requirement and costs are directly related to the number of well and tank sites required to be attended to. A contract operator was expected to cost $24,000 annually per the 2018 Yettem-Seville rate study. An assumption of 3 hours per week per site at a cost of $80 per hour generates a similar per site cost of $12,480 per site.

The resulting site-based (well or tank) operating expenses applied across each system, all 7 communities and Alternative 1, is as follows in Table 6-5.

Table 6-5 Budgetary Operator Costs per System

	CUTLER	OROSI	EAST OROSI	YETTEM-SEVILLE	MONSON-SULTANA	7 SEPARATE COMMUNITIES	ALTERNATIVE 1
Sites	5	8	2	7	4	23	13
Contract Operator $12,480 per site per year	$62,400	$99,840	$24,960	$87,360	$49,920	$287,040	$162,240

As with the sampling costs, a reduction in the number of facilities requiring operation to serve the region represents a significant potential saving for the communities.

The total population served by combining the systems would be greater than 10,000, requiring a D3 chief operator, which Cutler currently employs, and D2 shift operators, which both Orosi and East Orosi currently have operating their system. Cutler's operator is additionally T3, which exceeds the expected requirements for the current and planned blending operations, and Orosi, East Orosi operators are T2 as is the operator for YSCSD and SCSD.

6.1.7 COST ESTIMATE

A cost estimate including life cycle costs for Alternative 1 with breakdown of total capital, operation and maintenance (O&M), and capital replacement costs is provided in Table 6-6 below. A more detailed breakdown of the opinion of probable construction costs is provided in Appendix P.

Table 6-6 Alternative 1 Project Cost Summary

ITEM DESCRIPTION	ESTIMATED COST
Construction Costs	$22,490,000
Non-Construction Costs*	
Engineering Design (12%)	$3,508,000
Construction Management and Inspection (7%)	$2,047,000
Environmental, Legal, and Administration (5%)	$1,462,000
Cost Contingency (30%)	$8,852,000
Total Project Cost	**$38,359,000**
Groundwater Operational Costs	($142,350)
Annual Maintenance and Capital Replacement Costs	$787,150
Estimated Annual O&M Costs	**$644,800**
Present Value of O&M Costs**	**$9,593,000**
Total Life Cycle Cost	**$47,952,000**
*Does not include LAFCo and legal fees dependent on consolidated system governance selection **Present Value is based on 3% rate applied to Annual O&M Costs over a 20-year period	

The sampling and operational savings associated with removal of wells described represent a reduction in operational and labor costs in Table 6-6. The additional cost is 3.5%, applied to the capital cost of the interconnecting pipelines comprised of 1.0% maintenance, and 2.5% replacement reserves.

6.1.8 RECOMMENDATIONS FOR FURTHER STUDY

There is insufficient information, including lack of known pump curves, distribution system layouts, and lack of a topographic survey of the region, to create a complete and properly calibrated hydraulic model of the interactions between the 7 distribution systems. However, for the purposes of this Study, it is assumed each system is capable of maintaining at least 55 PSI at its own MDD, and by inference sufficient pressure exists to move water between systems. A model was developed using these limited criteria to gauge the effects of connecting the individual systems and to guide decision making, even if the parameters are inexact and require further study.

Figure 6-2 shows both the potential consolidation alignments and the resulting maximum and minimum pressures resulting at each point of connection based on the existing hydropneumatic tank operating ranges maintaining 35-65 PSI. Notable areas for further refinement include evaluating the potential for low pressures (<20 PSI) at the high point of the system in East Orosi and alleviating the high pressure (90 PSI) experienced at the low point of the system in Monson. Raising the low end of the operating range on the supply wells from 35 PSI to 40 PSI could be expected to alleviate the low-pressure concerns, while PRVs would regulate the system pressure at Monson.

A complete rate study should be completed to explore the effect of consolidation on water rates dependent on the selected governance in combination with the selected physical alternative.

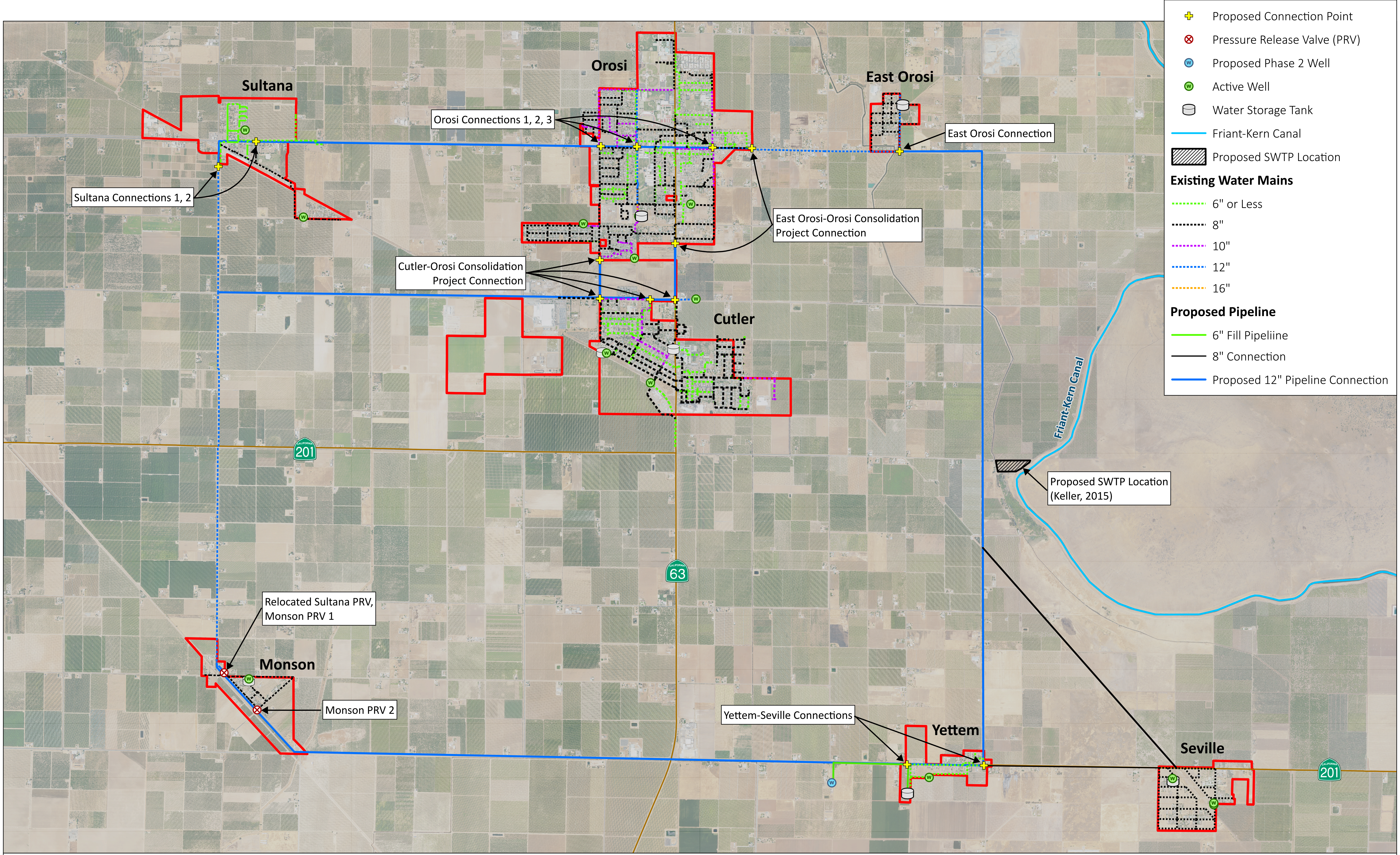

Figure 6-1: Potential Consolidation Alignments

State Water Resources Control Board

NE Tulare County Feasibility Study

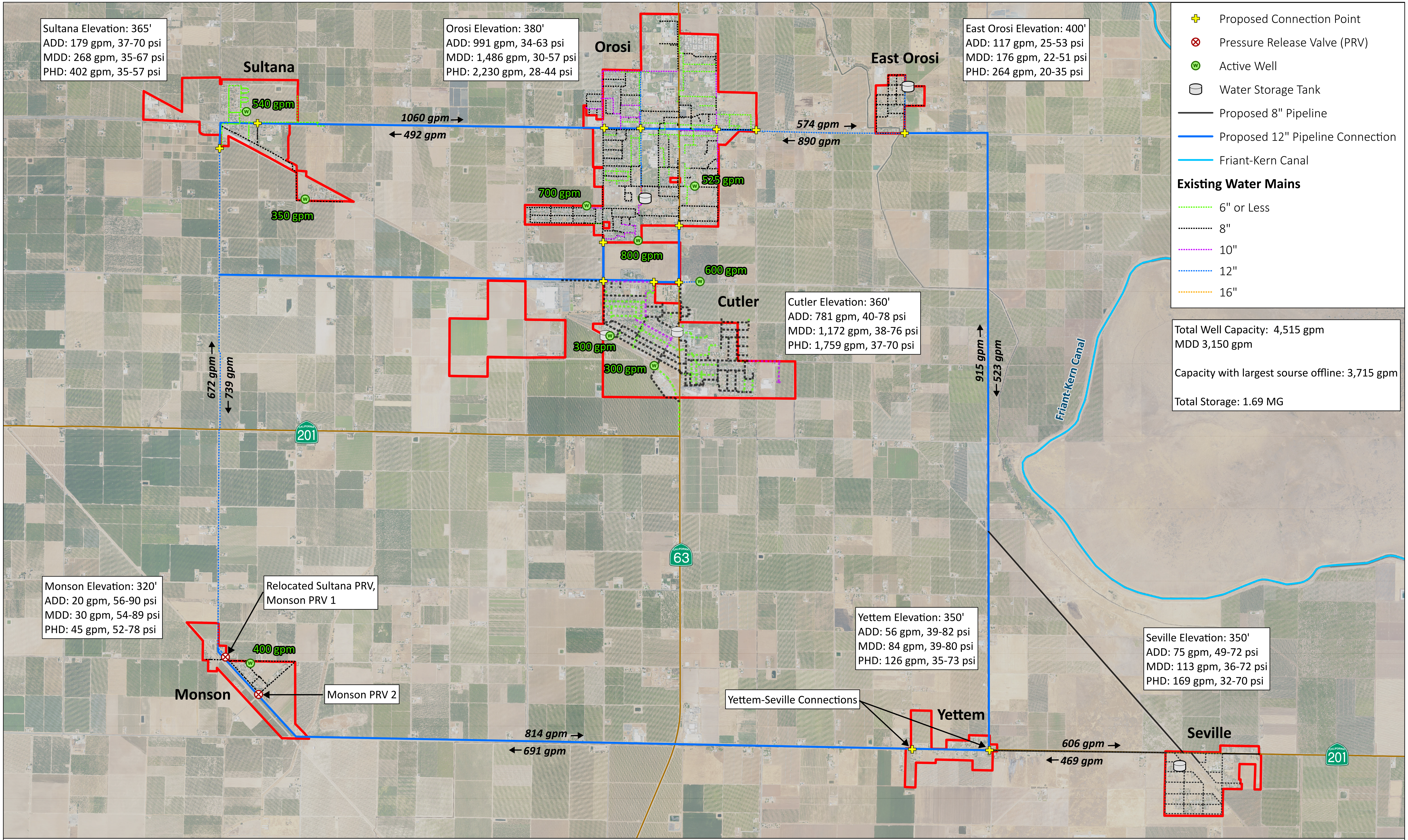

Figure 6-2: Alternative 1 Schematic

State Water Resources Control Board

NE Tulare County Feasibility Study

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6.2 ALTERNATIVE 2 – REGIONAL SURFACE WATER TREATMENT PLANT PARTIAL SUPPLY

Alternative 1 provides the physical consolidation and interconnection of the systems. This alternative adds additional infrastructure to enable supplementing the existing groundwater sources with treated surface water. By maintaining sufficient wells in operation this alternative would be less reliant on the surface water supply and have sufficient groundwater supplies to fall back on during drought years.

6.2.1 DESCRIPTION

This alternative includes the following key components, in addition to those included in Alternative 1:

- Development of an agreement for the purchase of surface water.
- Construct FKC turnout.
- Raw Water pipeline to SWTP, installation of approximately 3.5 miles (18,480-linear feet) of 18-inch PVC water main, valves, and appurtenances.
- Orosi Well O8 blending supply pipeline to SWTP, installation of approximately 3,500-linear feet of 8-inch PVC water main, valves, and appurtenances.
- Orosi Well O10 blending supply pipeline to SWTP, installation of approximately 1,400-linear feet of 8-inch PVC water main, valves, and appurtenances.
- East Orosi Well E3 blending supply pipeline to SWTP, installation of approximately 1,000-linear feet of 8-inch PVC water main, valves, and appurtenances.
- Finished Water pipeline to distribution system, installation of approximately 3,000-linear feet of 16-inch PVC water main, valves, and appurtenances.
- 2 million gallon per day (MGD) Surface Water Treatment Plant described below.

Alternative 1 improvements to groundwater supply and distribution loop.

- Connect Yettem to Monson by installation of approximately 5 miles (26,400-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Connect Sultana to Orosi by installation of approximately 3.5 miles (18,480-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Connect East Orosi to Yettem by installation of approximately 4 miles (21,120-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Second point of connection to Seville by installation of approximately 2-miles (10,560-linear feet) of 8-inch PVC water main, valves, and appurtenances.
- Replace Monson 60,000-gallon tank and booster pumps with hydropneumatic tank.
- Re-bowl Monson Well and replace motor to discharge to loop via new hydropneumatic tank.
- Monson onsite and offsite piping to discharge to loop separate from distribution system.
- Install PRVs at 2 points of connection from loop to Monson distribution system.
- Abandon Yettem and Seville existing wells (4 total).
- Demolish Yettem 150,000-gallon tank and appurtenances.
- Install switch gear and backup power generator at the East Orosi tank site.
- Install switch gear and backup power generator at the East Orosi Well E3 site.
- Install PSV and check valves between the distribution systems and the tanks at Orosi, East Orosi, Cutler, and Seville to enable tanks to fill from distribution system pressure during periods of low demand while returning water to the system during high demand periods.
- Install check valve at Seville to ensure the distribution system water passes through tank but can be returned to Yettem during peak and fire flow demands.
- Controls modifications to close fill valves when tank booster pumps are operating.

The proposed plant location and pipeline alignments are shown in Figure 6-3.

6.2.2 SYSTEM OPERATION

This alternative considers operating the SWTP as a supplement to existing groundwater supplies, reducing groundwater demand from the aquifer within the area, and benefiting both the communities and regional recharge efforts. The alternative considers a site capacity that can provide the 2,100 GPM MMADD for 8 hours per day (1 MGD) for the region. Blending is proposed to mitigate both disinfection by product (DBP) formation and general water chemistry compatibility issues.

Operating 8 hours a day, the SWTP would produce 0.67 MGD of treated surface water, blended with 0.33 MGD from existing groundwater wells, to provide 2,100 GPM while the plant is operating. The remaining groundwater supply wells would produce the remainder of the MDD to accommodate maximum days and peak hours, as well as MMADD for the remainder of the day while the SWTP is offline. Wells O8, O10, and E3 and the other remaining wells identified in Alternative 1 are also able to meet MDD while the plant is offline between shifts or due to FKC maintenance.

6.2.2.1 WATER RIGHTS

Water rights for the surface water supply are discussed Section 5.2 above. COSWPA JPA documents refer to having contracted with AID for 2,800 AF of surface water, which would be adequate for the region. This is understood to be a verbal agreement, which cannot be contracted until a SWTP is funded. If this alternative is to be developed further, the next steps would include negotiations with a surface water provider for the water supply and refining the associated costs.

Table 6-7 Water Supply Requirements

COMMUNITY	MAX YEAR (MG)	MAX YEAR (AF)
Cutler	253	777
Orosi	479	1,471
East Orosi	27	83
Monson	17	52
Sultana	25	77
Yettem	7	21
Seville	57	175
Total	**865**	**2,656**

This alternative considers operating the SWTP to supplement existing groundwater supplies and reduce overdraft of the aquifers within the basin benefiting both the communities and the region. Production of 1 MGD of blended water at a 67% surface water to 33% groundwater ratio would require purchase of only 0.67 MGD (752 AF) of surface water, as opposed to the 2,656 AF that would be needed to meet all the water demand from the communities. A benefit to this approach is that the existing wells will need to be retained for times when the FKC is down for maintenance, and therefore this takes advantage of those existing wells while also providing a surface water supply. Additionally, this would reduce the susceptibility of the communities to potential fluctuations in the cost of surface water in dry years.

6.2.2.2 TREATMENT PLANT CAPACITY

In order to provide 1 MGD of blended water daily during a single manned 8-hour shift per day, 7 days per week, the plant capacity would need to be 1,400 GPM (2 MGD) with 700 GPM (1 MGD) available for blending from Wells O8, O10, and E3.

The proposed 1,400 GPM treatment train could produce 2 MGD of treated surface water prior to addition of groundwater if it were to be operated 24 hours per day. If the treatment plant is permitted to operate unattended, then daily production capacity can be increased, dependent on surface water purchase, or the number of treatment trains reduced. This is explored further in Alternative 3.

6.2.2.3 UNIT PROCESS DESIGN

Raw water will be conveyed from an intake/diversion structure located at the Friant-Kern Canal by an 18-inch transmission pipeline to the location of the surface water treatment plant. The planned capacity of the plant and relatively low raw water turbidities makes it a good candidate for a package style water filtration system that includes an up-flow adsorption clarifier adjacent to a mixed media filter, such as the Trident system provided by Westech. Trident treatment technology has been demonstrated to satisfy the operational and performance requirements necessary to be accepted as an alternative filtration technology under the California Surface Water Treatment Rule. The basic treatment process will therefore consist of the following steps:

1. Raw water screening at the canal turnout
2. Prefilter pH adjustment and coagulant addition
3. Polymer addition
4. High-rate solids contact clarification (first stage of package filtration unit)
5. Mixed granular-media filtration (second stage of package filtration unit)
6. Sodium hypochlorite disinfection
7. Final chlorine residual, pH, and alkalinity adjustment
8. Blending with groundwater

In addition to these treatment processes, the plant will also include washwater reclaim and residuals management systems. A potential layout of the treatment plant can be seen in Figure 6-4.
Specific and notable components of the plant include the following:

- Raw water screening structure and pumping station.
- Packaged filter system consisting of one (1) 1,400 GPM unit.
- Transfer pumping station.
- 330,000-gallon tank (finished water).
- 1 MG tank (blending).
- Chemical storage building.
- High service pumping station.
- Backwash pumping station.
- 150,000-gallon washwater equalization basin.
- Reclaim pumping station.
- Washwater clarifier.
- Sludge holding tank.
- Screw press.
- Space for future GAC vessels.

The location for constructing the treatment plant has been tentatively selected along Avenue 408, between the highest demand communities of Cutler and Orosi. Dependent on availability of land, the site that is ultimately selected should be strategically located to take advantage of blending with the compliant groundwater wells that are already available to the consolidating systems to diminish the potential for disinfection byproducts in the system. As such, the plant layout shown in the figure is schematic in nature and could be shifted as needed to fit into the treatment plant parcel.

Options for discharge of sludge dewatering water that cannot be reclaimed will need to be considered. Onsite disposal will require construction of ponding basins; while permitting a discharge to Sand Creek or an AID canal would require additional permitting and environmental review by the appropriate regulatory agencies. The disposal of backwash water to the sewer system should be a last resort, however a sewer service connection will be required for facilities at the treatment plant for operators and staff.

6.2.2.4 DISTRIBUTION WATER QUALITY CONCERNS

Disinfection byproducts (DBPs) are formed when disinfectant residuals, often in the form of free chlorine, combine with naturally occurring organic matter. Surface water treatment requires both primary and secondary disinfection stages. Primary disinfection provides the log inactivation required for giardia lamblia cysts and viruses to prevent water borne illness. Primary disinfection requires a Concentration for a required Time (CT) to achieve the targeted disinfection. This disinfection process can be completed with high concentrations for less time or low concentrations for longer times but in practice, most primary disinfection processes use a free chlorine concentration of less than 2 mg/L. Some organic compounds in the water, typically represented by total organic carbon (TOC), react with chlorine to form DBPs. DBP formation is closely correlated to contact time with free chlorine, in that the longer the disinfectant remains in contact with organic matter, the more likely it is to react and form DBPs.

There are two regulated categories of DBPs, both of which are a group limit made up of multiple compounds. Total Trihalomethanes (TTHMs) include a group of 4 different disinfection byproducts that together have an MCL of 80 ug/L. The four regulated TTHMs include chloroform, bromodichloromethane, dibromochloromethane, and bromoform.

Haloacetic Acids (HAA5) are a group of 5 halogenated acids with a combined MCL of 60 ug/L. These MCLs are enforced based on a locational running annual average of each monitoring location on a quarterly basis. The five haloacetic acids included in the regulation are monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.

Each of these regulated compounds have varied characteristics, for example, chloroform is volatile enough to be removed through aeration or air stripping, while the other compounds are not as easily volatilized. Some of the haloacetic acids can be broken down through biologically active filters while the TTHMs will not. As a result, the primary method of DBP control is to prevent the formation of DBPs in the first place by increasing the removal of TOC from the filtered water.

The type and species of DBP depends on which compounds are the most prevalent in the source water TOC. The two nearest surface water systems to the potential regional plant that are also supplied by the Friant-Kern Canal (and therefore potentially the most representative of source water quality) are the City of Orange Cove (approximately 7.5 miles to the northwest) and the City of Lindsay (approximately 24 miles to the southeast). The City of Orange Cove has had several exceedances of the HAA5 MCL in the past decade, but never consistently enough to bring the quarterly running annual average above the limit. The City of Lindsay has had numerous exceedances of both the HAA5 and TTHM MCLs in the last several years that were consistent enough to bring it out of compliance for both constituents and cause the city to begin looking for solutions. The most likely cause of the consistent DBP exceedances is the city's practice of dosing chlorine at the canal turnout before any TOC has been removed by the treatment plant, in conjunction with long post-chlorination residence times in transmission and distribution piping. As a result of the water quality challenges faced by these two nearest systems utilizing the same source water, it is reasonable to expect that the source water at the regional surface water plant would be prone to DBP formation following disinfection as well, which is an especially major concern given the long expected residence times to the users on the outskirts of the system whose usages do not necessitate large flows. Estimating the type and species of the DBPs and their formation would require a comprehensive sampling regimen at the expected intake location on the Friant-Kern Canal.

In addition to potential issues with DBP formation, there are other water quality concerns associated with the introduction of surface water into legacy water distribution systems that have previously only been exposed to groundwater. The surface water in the FKC is much lower in mineral content and alkalinity than the groundwater and this will tend to result in the surface water being corrosive if pH and alkalinity are not raised as part of the water treatment process. Even with pH and alkalinity adjustment of the treated surface water, it is possible that distribution system water quality will be adversely affected for a period of time due to existing scales and biofilms adjusting to the new water quality.

As will be discussed below, the proposed blending of water from existing groundwater wells with treated surface water would be expected to partially mitigate both DBP and general water chemistry compatibility issues. In addition, such a blending approach could also be used to mitigate water quality issues associated with the existing well water.

6.2.2.5 DISINFECTION STRATEGY

The consolidated water system will be required to achieve a minimum log inactivation level of Giardia cysts, viruses, and cryptosporidium through the disinfection process at the SWTP. Log inactivation through disinfection is based on the disinfection residual multiplied by the contact time of the delivered dose. For this alternative, free chlorine will be used for disinfection and contact time will be established in the finished water storage tank.

Free chlorine is the most commonly used disinfectant due to its efficacy in inactivating harmful bacteria and viruses, while also being cost-effective and fairly straightforward to operate. The downside, as discussed in the prior section, is when chlorine combines with naturally occurring organic matter, disinfection byproducts can be formed. There are other options for primary disinfectants that could reduce the formation of TTHMs and HAA5s, including ozone, ultraviolet light, or chlorine dioxide, but use of these alternative disinfectants would complicate the operation of the treatment plant and create new regulatory challenges. Utilizing chlorine as a primary disinfectant and converting to chloramines for secondary disinfection in the distribution system is likely to reduce DBP formation, but is also known to create operational difficulties including the challenge of controlling nitrification in the water distribution and storage tanks, an issue that would also be exacerbated by the prolonged residence time expected in the system. Therefore, in cases such as this, it often makes the most sense to minimize the level of TOC present when chlorine is added as opposed to using an alternate disinfectant.

Carefully optimized clarification and filtration processes can achieve significant removal of TOC; however, most TOC is in a dissolved form and typically greater than 50% of the TOC will remain downstream of the filters. A granular activated carbon (GAC) treatment process can be placed between the filters and the point of chlorine addition to provide additional TOC removal. GAC excels at removing many dissolved organic constituents from water through the physical process of adsorption. A GAC contactor allows water to pass through a bed of GAC where the constituent molecules are captured onto the surface of numerous pores present within the granules. Backwashing does not remove the accumulated TOC and eventually the carbon media becomes exhausted and needs to be replaced. While this would likely aid in preventing the formation of DBPs, it would also have significant capital and ongoing costs, specifically for media replacement.

A third option for reducing TOC levels is to blend with water sources that have low or no levels of organic matter, like most groundwater sources. Lowering TOC levels through blending with groundwater post-treatment can greatly mitigate the formation of DBPs and effectively dilute any that have been formed to well below their respective MCLs. In this case, because of the availability of high-quality groundwater sources in the vicinity of the largest users of the system, this is likely the most practical option for preventing DBP issues. While there will be some capital costs associated with transferring the groundwater to the treatment plant/blending site and modifying well pumps in doing so, the ongoing costs of this option would be minimal compared to adding a treatment process or more complex disinfectant strategy. A target blending ratio of 67% surface water to 33% groundwater would be the initial recommendation and could be adjusted as needed. This blending operation also provides the opportunity to potentially to blend down nitrate or other contaminants in the groundwater supply down to levels below the MCL should they ever be exceeded. Additionally, there will be space saved on the treatment plant site for the installation of GAC vessels as a backup plan should the need ever arise for it.

6.2.2.6 OPERATOR REQUIREMENTS AND EXPERTISE

The surface water treatment plant would be classified as a T3 treatment facility and therefore require a minimum T3 certified chief operator and minimum T2 certified shift operator. The distribution system would likely retain the same population-based classification of D3 as determined in Alternative 1.

6.2.2.7 SYSTEM HYDRAULICS

An 18-inch pipeline from the canal turnout to the SWTP is proposed to convey raw water from the FKC to a wet well at the SWTP site. The proposed SWTP location between Orosi (370 feet elevation) and Cutler (360 feet elevation) would be approximately 365 feet elevation, well below the FKC elevation of 415 feet elevation. An 18-inch pipeline would be adequate to convey the design flows from the FKC to the raw water wet well at the SWTP by gravity.

Treated surface water would be blended with groundwater from OPUD Wells OO8 and 10 and EOCSD Well E3. These wells can produce up to combined 2,100 GPM on their own, providing up to 3,500 GPM of blended surface and groundwater to the communities to meet MDD while the plant is in operation.

While the plant is not in operation the remaining wells utilized in Alternative 1 would supply the communities. These wells are listed in Table 6-2 and supply a firm capacity of 3,715 GPM.

6.2.2.8 CONJUNCTIVE USE OF GROUNDWATER

It is the intent of this alternative that the groundwater wells remain active to supplement and provide blending with the surface water supply. Ongoing projects and Alternative 1 enable the systems to consolidate and physically interconnect their compliant groundwater wells without being reliant on surface water deliveries to meet MDD. The provision of surface water in this alternative will benefit the communities and region by reducing groundwater pumping and facilitating groundwater recharge during wet years when surface water is available.

6.2.2.9 STRATEGY FOR CANAL MAINTENANCE

The nine (9) wells listed in Alternative 1 have capacity to meet the system MDD without the use of surface water, therefore the system will remain able to meet MDD during FKC shutdowns of any duration at any time of the year.

6.2.3 ENVIRONMENTAL IMPACTS

Environmental impacts of the connecting pipelines and raw water pipelines will be largely similar to those described in Alternative 1.

An important difference with this Alternative is the required work on the FKC to install a turnout and requirements for the use of the canal for conveyance will necessitate NEPA review in addition to CEQA requirements.

Environmental review and permitting will be required for disposal of backwash water to ground, or to a conveyance, either Sand Creek, or an AID facility. Should disposal of water from solids thickening or dewatering be to a sewer system, the criteria and flow limitations may be limited by the receiving system and WWTF (OPUD or CPUD, dependent on location, and COJPWA).

6.2.4 LAND REQUIREMENTS

As with Alternative 1, no land acquisition is anticipated for the physical consolidation of the community water systems. The alignment of the water mains will be in the County and Caltrans ROW. Encroachment permits will be required for crossing of railway, Caltrans, and irrigation district rights-of way and facilities. Similarly, the raw water pipeline and pipeline connections from Well O8 and Well EO3 will be located in existing County and Caltrans ROW. The pipeline from Well O10 is proposed to exit the rear of the Well O10 site and enter the treatment site alongside the Sand Creek alignment in ROW belonging to AID.

Work at existing tank and well sites will be confined to the existing sites and easements.

Land acquisition will be required for the surface water treatment plant. The site selected in 2015 appears to remain vacant; however, a more centrally located site is recommended. Piping raw water from the canal for treatment closer to the most concentrated demands in the Cutler and Orosi area is proposed to enabling blending with groundwater prior to delivery to the distribution system to alleviate DBP and water quality concerns. The proposed layout would require a minimum of 4 acres of land.

6.2.5 CONSTRUCTION OR SITE CONSIDERATIONS

Construction considerations will be as described in Alternative 1. As the work will require construction of a turnout in the FKC, dewatering of a section of the FKC for construction will likely be required. This will need to be coordinated with the FWA and United States Bureau of Reclamation and likely need to occur during a scheduled FKC maintenance period, potentially providing a window for construction only every 3 years.

6.2.6 OPERATION AND MAINTENANCE COSTS

Comparison of alternatives based on life cycle costs for Alternative 1 included the potential for savings based on eliminating sampling and O&M costs for several wells and tanks which would no longer be required to operate should Alternative 1 be implemented. This alternative maintains the same level of groundwater supply so there is no further reduction to groundwater operational and sampling costs above what was presented in Alternative 1.

The additional operational costs associated with the SWTP will include surface water purchase costs, operator labor for running the plant 50-60 hours per week, chemicals, sampling, and power (pumping) costs, and equipment maintenance costs, as necessary.

Table 6-8 below shows the estimated frequency and laboratory costs for sampling that will be required with the addition of the SWTP into the water system, including source and treated water samples for TOC, and samples for TTHMs and HAA5s at various points throughout the distribution system.

Table 6-8 Budgetary Surface Water Laboratory Testing Costs

SAMPLING COSTS	YEARLY SAMPLES	PER ANALYSIS	ANNUAL BUDGET
3-Year Drinking Water Matrix (Source)	0.33	$3,500	$1,167
Annual GM/GP/IO	1	$350	$350
Weekly BAC-T (Source)	52	$35	$1,820
TTHM (4 per quarter)*	16	$100	$1,600
HAA5 (4 per quarter)*	16	$175	$2,800
Monthly TOC (Source and Treated)	24	$55	$1,320
Monthly Alkalinity (Source)	12	$40	$480
Total			**$9,600**
*Frequency may be reduced after one year of monitoring if levels are below 50% of MCL			

Ongoing costs for other expenses related to the operations and maintenance of the SWTP based on treating 752 AF annually can be seen in Table 6-9 below.

Table 6-9 Alternative 2 SWTP O&M Cost Summary

SWTP OPERATIONAL COSTS	ANNUAL BUDGET
Raw Water Purchase	$706,000
Chemicals	$63,000
Sampling	$10,000
Labor*	$349,000
Power	$130,000
Maintenance	$122,000
Total	**$1,380,000**
*Assumes supervised operation is required at the SWTP	

6.2.7 COST ESTIMATE

A cost estimate including life cycle costs for Alternative 2 with breakdown of total capital, O&M, and capital replacement costs, is provided in Table 6-10 below. A more detailed breakdown of the opinion of probable construction costs is provided in Appendix P.

Table 6-10 Alternative 2 Project Cost Summary

ITEM DESCRIPTION	ESTIMATED COST
Construction Costs	$47,334,000
Non-Construction Costs*	
Land Acquisition	$308,000
Engineering Design (12%)	$7,384,000
Construction Management and Inspection (7%)	$4,307,000
Environmental, Legal, and Administration (5%)	$3,077,000
Contingency (30%)	$18,723,000
Total Project Cost	**$81,133,000**
Groundwater Operational Costs	($142,350)
Surface Water Operational Costs	$1,380,000
Annual Maintenance and Capital Replacement Costs	$1,656,690
Estimated Annual O&M Costs	**$2,894,340**
Present Value of O&M Costs**	**$43,061,000**
Total Life Cycle Cost	**$124,194,000**
*Does not include LAFCo and legal fees dependent on consolidated system governance selection. **Present Value is based on 3% rate applied to Annual O&M Costs over a 20-year period	

Alternative 2 includes the same reduction in operational and labor costs as Alternative 1 and adds the additional operational costs for the SWTP determined in Table 6-9. The third component of the additional cost is 3.5%, comprised of the capital cost of the alternative comprised of 1.0% maintenance, and 2.5% replacement reserves.

6.2.8 RECOMMENDATIONS FOR FURTHER STUDY

As with Alternative 1, this alternative relies on existing wells and distribution systems for which only rudimentary modeling has been completed, and which needs to be further refined.

The cost of surface water is a significant unknown, and negotiations will need to be entered into with potential suppliers to more accurately determine the costs once an alternative is selected.

A complete rate study should be completed to explore the effect of consolidation on water rates dependent on the selected governance structure in combination with the selected physical infrastructure alternative.

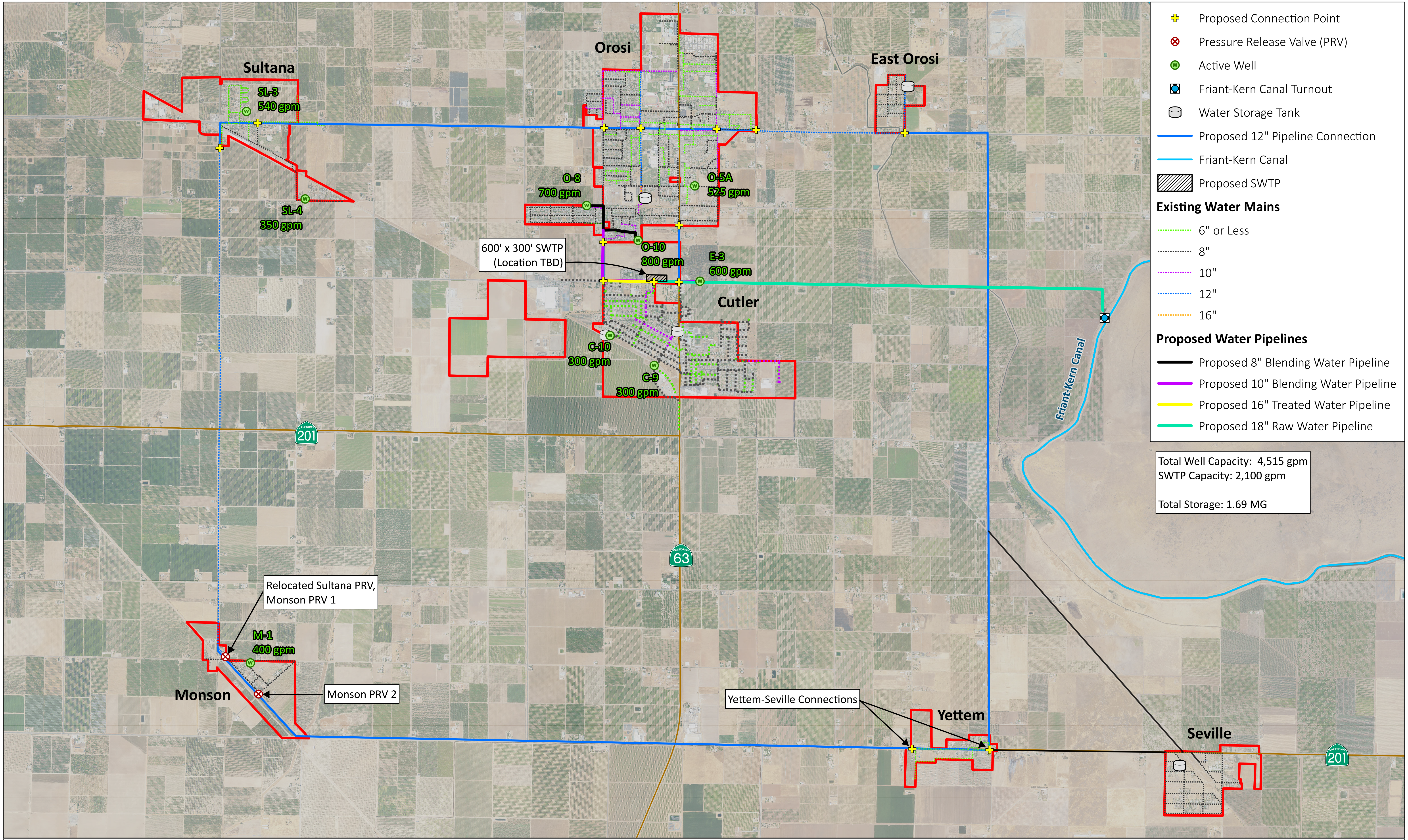

Figure 6-3: Alternative 2 Schematic

State Water Resources Control Board

NE Tulare County Feasibility Study

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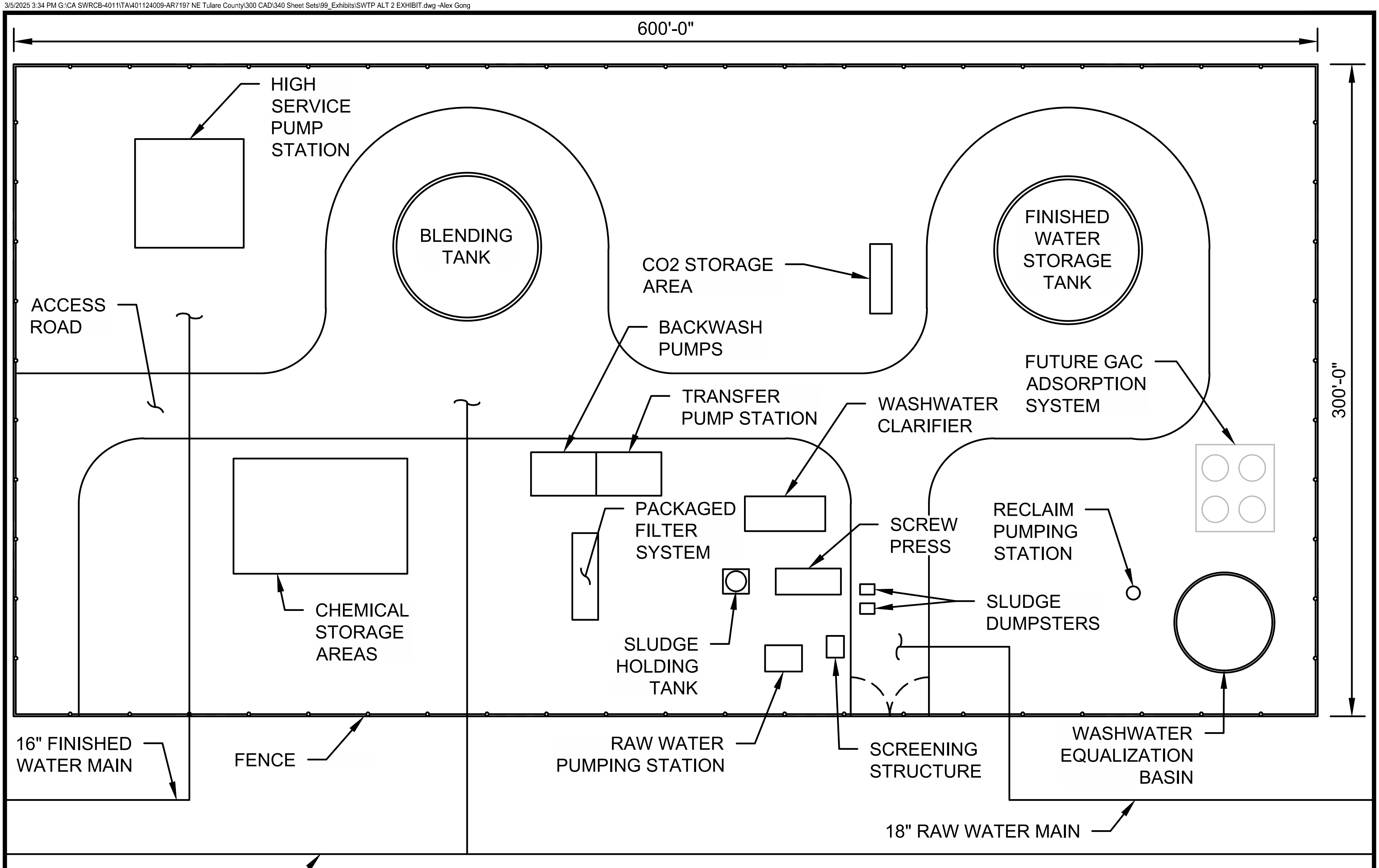

STATE WATER RESOURCES CONTROL BOARD
NE TULARE COUNTY FEASIBILITY STUDY

FIGURE 6-4: ALTERNATIVE 2 SWTP LAYOUT

6.3 ALTERNATIVE 3 – REGIONAL SURFACE WATER TREATMENT PLANT

Alternative 2 described a surface water treatment alternative limited to shift operation working in conjunction with the existing active groundwater wells described in Alternative 1. This alternative considers increasing the daily production capacity of the SWTP to provide the entire water demand without relying on groundwater wells, except blending with existing Wells O8, O10, and E3, which are retained for water quality purposes. This would require the SWTP to include the storage and pumping capacity to deliver the MDD for the complete system. It would also require securing an increased supply of surface water.

6.3.1 DESCRIPTION

Alternative 3 includes the following key components, in addition to those included in Alternative 1:

- Development of an agreement for the purchase of surface water.
- Construct FKC turnout.
- Raw Water pipeline to SWTP, installation of approximately 3.5 miles (18,480-linear feet) of 18-inch PVC water main, valves, and appurtenances.
- Orosi Well O8 blending supply pipeline to SWTP, installation of approximately 3,500-linear feet of 8-inch PVC water main, valves, and appurtenances.
- Orosi Well O10 blending supply pipeline to SWTP, installation of approximately 1,000-linear feet) of 8-inch PVC water main, valves, and appurtenances.
- East Orosi Well E3 blending supply pipeline to SWTP, installation of approximately 3,000-linear feet) of 8-inch PVC water main, valves, and appurtenances.
- 3 MGD Surface Water Treatment Plant.

Alternative 1 improvements to groundwater supply and distribution loop.

- Connect Yettem to Monson by installation of approximately 5 miles (26,400-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Connect Sultana to Orosi by installation of approximately 3.5 miles (18,480-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Connect East Orosi to Yettem by installation of approximately 4 miles (21,120-linear feet) of 12-inch PVC water main, valves, and appurtenances.
- Second point of connection to Seville by installation of approximately 2-miles (10,560-linear feet) of 8-inch PVC water main, valves, and appurtenances.
- Install PRVs at 2 points of connection from loop to Monson distribution system.
- Abandon Yettem and Seville existing wells (4 total).
- Demolish Yettem 150,000-gallon tank and appurtenances.
- Install switch gear and backup power generator at the East Orosi tank site.
- Install switch gear and backup power generator at the East Orosi Well E3 site.
- Install PSV and check valves between the distribution systems and the tanks at Orosi, East Orosi, Cutler, and Seville to enable tanks to fill from distribution system pressure during periods of low demand while returning water to the system during high demand periods.
- Install check valve at Seville to ensure the distribution system water passes through tank but can be returned to Yettem during peak and fire flow demands.
- Controls modifications to close fill valves when tank booster pumps are operating.

6.3.2 SYSTEM OPERATION

This alternative considers the SWTP operating continuously with the ability to provide the complete 3,150 GPM MDD for the region consisting of 2,100 GPM surface water blended with 1,050 GPM groundwater from Wells O8, O10, and E3, which are retained for water quality purposes.

6.3.2.1 WATER RIGHTS

Water Rights for the Surface Water Supply are discussed Section 5.2 above. COSWPA JPA documents refer to having contracted with AID for 2,800 AF of Surface Water which would be adequate for the region. If this alternative is to be developed further, next steps would include negotiations with a surface water provider for the surface water supply and refining the associated costs.

This alternative includes blending treated surface water with groundwater due to water quality concerns described below. A 67% surface water to 33% groundwater ratio would require delivery of 1,780 AF of surface water to produce the 2,656 AF required to meet the annual water demand from the communities as determined above in Table 6-7.

6.3.2.2 TREATMENT PLANT CAPACITY

It is required that the system has the capacity to provide the 3,150 GPM MDD demanded by the communities. Peak hour demands would be handled by the combination of local storage tanks and storage at the SWTP with booster pumps to provide flows to the system.

Without the ability to activate wells to accommodate fluctuations in demand, storage at the plant and through the system should be available to meet MDD, on top of existing requirements to meet 4 hours of PHD and storage of 2 hours fire flow. 1.69 MG is currently stored in the tanks retained in Alternative 1, at least 1 MG storage should be provided at the plant to accommodate 2.4 MG maximum day demand, plus Fire Flow of 180,000 gallons.

6.3.2.3 UNIT PROCESS DESIGN

The basic treatment process for Alternative 3 will be identical to those described in Alternative 2, albeit with some equipment size modifications to treat the increased capacity.

The potential layout of the treatment plant would be largely identical to that shown in Figure 6-4. Specific components listed in the previous section would also remain the same with the exception that the Packaged filter system would consist of two (2) 1,400 GPM units derated to run at 75% of total capacity (design capacity of 2,100 GPM, max capacity of 2,800 GPM) instead of the single unit considered in Alternative 2.

Similar to Alternative 2, the specific location for constructing the treatment plant has not been determined, it is assumed that the plant will be strategically located to take advantage of the compliant groundwater wells that are already available to the consolidating systems to diminish the potential for disinfection byproducts in the system. As such, the plant layout shown in the figure is schematic in nature and could be shifted as needed to fit into the treatment plant parcel.

6.3.2.4 DISTRIBUTION WATER QUALITY CONCERNS

Please refer to the same section in Alternative 2 for a discussion on distribution water quality concerns associated with introducing surface water into the consolidated system, largely pertaining to the formation of disinfection byproducts and the lengthy residence times anticipated in the distribution system (particularly to systems located the furthest from the treatment plant) and corrosion control, as the same concerns apply here. With no backup supply of groundwater available to those systems, the level of concern for DBP formation would be heightened, though the blending strategy at the treatment plant should still help to alleviate that.

6.3.2.5 DISINFECTION STRATEGY

The disinfection strategy for Alternative 3 largely revolves around the prevention of DBP formation as opposed to disinfection itself. The system will utilize chlorine as a disinfectant for log inactivation of bacteria and viruses. Chlorine contact time will be established in the finished water storage tank, followed by blending with up to three groundwater sources in a separate blending tank. A target blending ratio of 67% surface water to 33% groundwater would be the initial recommendation and could be adjusted as needed. Additionally, there will be space saved on the treatment plant site for the installation of GAC vessels as a backup plan should the need ever arise for it.

For additional discussion on the reasoning behind this strategy, please refer to the same section in Alternative 2.

6.3.2.6 OPERATOR REQUIREMENTS AND EXPERTISE

The surface water treatment plant would be classified as a T3 treatment facility and therefore require a minimum T3 certified chief operator and minimum T2 certified shift operator. The distribution system would likely retain the same population-based classification as determined in Alternatives 1 and 2.

6.3.2.7 SYSTEM HYDRAULICS

An 18-inch pipeline from the canal turnout to the SWTP is proposed to convey raw water from the FKC to a wet well at the SWTP site as described in Alternative 2.

The peak hour demand of the region is 4,725 GPM. The largest water usage is by the combined areas of Cutler and Orosi, accounting for 3,989 GPM of this demand. The 12-inch loop described in Alternative 1 relied on multiple local wells and booster pumps at tank sites distributed around the connected systems. As this alternative eliminates the groundwater sources, the total peak hour flow is required to be served from the SWTP and the local tank and booster pumps only. As with Alternative 2 a centralized location for the plant is proposed to serve the high demand areas of Cutler and Orosi with the remaining 5 communities served by the looped system.

Treated surface water would still be blended with groundwater from OPUD Wells O8 and O10 and EOCSD Well E3. These wells can produce up to 2,100 GPM for blending, or when the plant is not in operation. This alternative contemplates the plant remaining in operation 24/7 and additional wells are not required outside of FKC maintenance.

6.3.2.8 CONJUNCTIVE USE OF GROUNDWATER

It is the intent of this alternative that only the three (3) groundwater wells described above remain active and be blended with the surface water supply. The provision of surface water in this alternative will benefit the communities and region by reducing groundwater pumping and facilitating groundwater recharge during wet years when surface water is available. At least one (1) additional groundwater well will need to remain on standby to meet demands during planned FKC shutdowns, which is discussed further below.

6.3.2.9 STRATEGY FOR CANAL MAINTENANCE

With the surface water plant being the sole source of water for the system, a strategy is required to address water needs during months that the FKC is down for maintenance. There are two potential strategies that have been considered.

The first strategy was discussed by Keller/Wegley in the 2015 report considering operating groundwater wells for the 3-month period every 3 years that the FKC was expected to be out of service. As this period would be limited to winter months that report utilized the lower winter usage. As can be seen in Figure 3-1, the maximum month in the summer is 88.2 MG (2.94 MGD), while during winter months, demands are typically under 40 MG per month from November through March. The maximum month during this period from 2020 through 2023 was March 2022 at 44.69 MG. Calculation of the winter month MMADD, MDD, and PHD was completed in accordance with Title 22 and summarized in Table 6-11.

Table 6-11 Summary of Winter Water System Demands

DEMAND TYPE	NOV-MARCH (GPM)
MMADD	1,064
MDD	1,596
PHD	2,395
Fire Flow	1,500

There are a number of active wells that could be considered to meet this winter demand. With the criteria that MDD should be met with largest well offline and the centralized location of most of the demand would suggest the following wells remain online, these are larger, newer wells with the aim to minimize start up and sampling requirements. As Wells O8, O10, and E3 will be utilized for blending and reduction of DBPs only, Well SL4 will be required to start up specifically for FKC Maintenance.

Table 6-12 Wells Selected to Meet Winter Demands

DISTRICT/ COMMUNITY	SOURCE	DATE DRILLED	DEPTH	TOTAL CAPACITY (GPM)
OPUD	Well O8	1996	455	700
OPUD	Well O10	2006	496	800
EOCSD	Well E3*	2027		600
Sultana	Well SL4	2023	620	350
TOTAL	**PHD (GPM)**	**2,395**	**Total Capacity**	**2,450**
	MDD (GPM)	**1,596**	**Firm Capacity**	**1,650**
*EOCSD Well 3 capacity has been estimated as 1,200 to 1,400 GPM, however the well is not yet completed. Prior to completion a more conservative value of 600 GPM is used to ensure demands can be met without overreliance on this source prior to completion.				

An alternative strategy considered excludes utilizing groundwater wells to meet winter demand and requires developing an alternative source of water for periods when the FKC is down for maintenance. The City of Orange Cove, for example, operates storage ponds to ensure adequate supply through the winter. The City of Orange Cove has experienced problems with the capacity of their ponds and due to their ponds being unlined, allowing losses of water through percolation (Appendix M: Orange Cove Permit 03-23-20P-001). While evaporation during winter would be limited and potentially offset by precipitation, lining of the ponds to minimize losses would be required. Assuming a 3-month, (90-day) maintenance period and average month demand for the NTC area of approximately 40 MGD a minimum of 120 MG (370 AF) of storage is required. Adding contingency for a further 30 days in the event maintenance is prolonged, loses due to seepage, or evaporation loses could increase the storage requirement to 160 MG (492 AF). Sizing ponds for 5 ft depth of storage would require a relatively flat area of at least 100 Acres. The land on the east side of the canal rises sharply, making it entirely unsuitable, while the relatively flat west side of the canal is productive agricultural land, predominately established citrus orchards to the north of the 2015 plant location and cattle ranch bisected by the Sontag Ditch to the south. Neither would appear suitable for the construction of surface water storage basins. The ability to find and purchase a suitable 100-acre site in addition to the treatment plant site is a potential fatal flaw in this approach so it will not be considered further.

6.3.3 ENVIRONMENTAL IMPACTS

Environmental impacts of the connecting pipelines and raw water pipelines will be largely similar to those described in Alternative 1.

As with Alternative 2, work is required on the FKC to install a turnout and requirements for the use of the canal for conveyance will add NEPA review in addition to CEQA requirements.

Backwash disposal, other than by sewer connection, presents the same permitting and Environmental challenges described in Alternative 2.

6.3.4 LAND REQUIREMENTS

As with Alternative 1 no land acquisition is anticipated for the physical consolidation of the community water systems. The alignment of the water mains will be in the County right-of-way. Encroachments permits will be required for crossing of railway, Caltrans, and irrigation district rights-of way and facilities.

Work at existing tank and well sites will be confined to the existing sites and easements.

Land acquisition of approximately 4 acres will be required for the surface water treatment plant, matching the layout and location described in Alternative 2.

6.3.5 CONSTRUCTION OR SITE CONSIDERATIONS

Construction considerations will be as described in Alternative 1. As with Alternative 2 the construction of the turnout in the FKC will need to be coordinated with the FWA and United States Bureau of Reclamation.

6.3.6 OPERATION AND MAINTENANCE COSTS

This alternative further reduces the operational costs for the groundwater supply by reducing operational and sampling costs to only 3 wells. A fourth well, SL4, will be required to fulfill the firm capacity with the largest source offline during periods of FKC maintenance. As this well, or another well from Alternative 1 such as O5A, C9, C10, or SL3, would only be required to operate once every 3 years for 3 months the estimated costs to bring a standby well online are presented separately in Table 6-13.

Table 6-13 Alternative 3 Budgetary Groundwater Laboratory Testing Costs

ANNUAL COSTS	ALTERNATIVE 3 WELLS USED FOR BLENDING	FKC SHUTDOWN STANDBY WELL ACTIVATION
Wells	**3**	**1**
3 Year Drinking Water Matrix	$3,500	$1,167
Monthly BAC-T	$1,260	$105
Quarterly Nitrate	$420	$35
Quarterly TCP or DBCP	$1,800	$150
Tanks	**4**	
Monthly BAC-T	$1,680	
Annual Total	**$8,660**	**$1,460**

Table 6-14 Alternative 3 Budgetary Groundwater Operator Costs

ANNUAL COSTS	ALTERNATIVE 3	FKC SHUTDOWN STANDBY WELL ACTIVATION
Sites	7	1
Contract Operator $12,480 per site per year	$87,400	$3,120

As with the groundwater sampling costs, a reduction in the number of facilities requiring operation to serve the region represents a further reduction in the groundwater operational costs.

The additional operational costs associated with the SWTP will include raw water purchase costs, operator labor for running the plant 168 hours per week, chemicals, sampling, and power (pumping) costs, and equipment maintenance costs, as necessary.

Table 6-15 below shows the estimated frequency and costs of sampling that will be required with the addition of the SWTP into the water system, including source and treated water samples for TOC, and distribution system samples for TTHMs and HAA5s located at various points throughout the system.

Table 6-15 Budgetary Surface Water Sampling Costs

SAMPLING COSTS	YEARLY SAMPLES	PER ANALYSIS	ANNUAL BUDGET
3-Year Drinking Water Matrix (Source)	0.33	$3,500	$1,167
Annual GM/GP/IO	1	$350	$350
Weekly BAC-T (Source)	52	$35	$1,820
TTHM (4 per quarter)*	16	$0	$1,600
HAA5 (4 per quarter)*	16	$175	$2,800
Monthly TOC (Source and Treated)	24	$55	$1,320
Monthly Alkalinity (Source)	12	$40	$480
Total			**$9,600**
*Frequency may be reduced after one year of monitoring if levels below 50% of MCL			

Ongoing costs for other expenses related to the operations and maintenance of the SWTP based on treating 1,130 AF annually can be seen in Table 6-16 below.

Table 6-16 Alternative 3 SWTP O&M Cost Summary

SWTP OPERATIONAL COSTS	ANNUAL BUDGET
Raw Water Purchase	$1,060,000
Chemicals	$95,000
Sampling	$10,000
Labor*	$1,048,000
Power	$196,000
Maintenance	$234,000
Total	**$2,643,000**
*Assumes supervised operation is required at the SWTP	

6.3.7 COST ESTIMATE

A cost estimate including life cycle costs for Alternative 3 with breakdown of total capital, O&M, and capital replacement costs is provided in Table 6-17 below. A more detailed breakdown of the opinion of probable construction costs is provided in Appendix P.

Table 6-17 Alternative 3 Project Cost Summary

ITEM DESCRIPTION	ESTIMATED COST
Construction Costs (Includes 20% Contingency)	$48,472,000
Non-Construction Costs*	
Land Acquisition	$308,000
Engineering Design (12%)	$7,562,000
Construction Management and Inspection (7%)	$4,411,000
Environmental, Legal, and Administration (5%)	$3,151,000
Contingency (20%)	$19,172,000
Total Project Cost	**$83,076,000**
Groundwater Operational Costs	($226,610)
Surface Water Operational Costs	$2,642,000
Annual Maintenance and Capital Replacement Costs	$1,696,520
Estimated Annual O&M Costs	**$4,111,910**
Present Value of O&M Costs**	**$61,175,000**
Total Life Cycle Cost	**$144,251,000**
*Does not include LAFCo and legal fees dependent on consolidated system governance selection **Present Value is based on 3% rate applied to Annual O&M Costs over a 20-year period	

Alternative 3 increases the reduction in operational and labor costs associated with groundwater to the amounts shown in Table 6-13 and Table 6-14 and adds the additional operational costs for the SWTP determined in Table 6-9. The third component of the additional cost is 3.5%, comprised of the capital cost of the alternative comprised of 1.0% maintenance, and 2.5% replacement reserves.

6.3.8 RECOMMENDATIONS FOR FURTHER STUDY

As with Alternatives 1 and 2, this alternative relies on existing wells and distribution systems for which only rudimentary modeling has been completed, which needs to be further refined.

Negotiations will need to be entered into with potential suppliers to more accurately determine the costs and reliability of surface water supply.

A complete rate study should be completed to explore the effect of consolidation on water rates dependent on the selected governance in combination with the selected physical alternative.

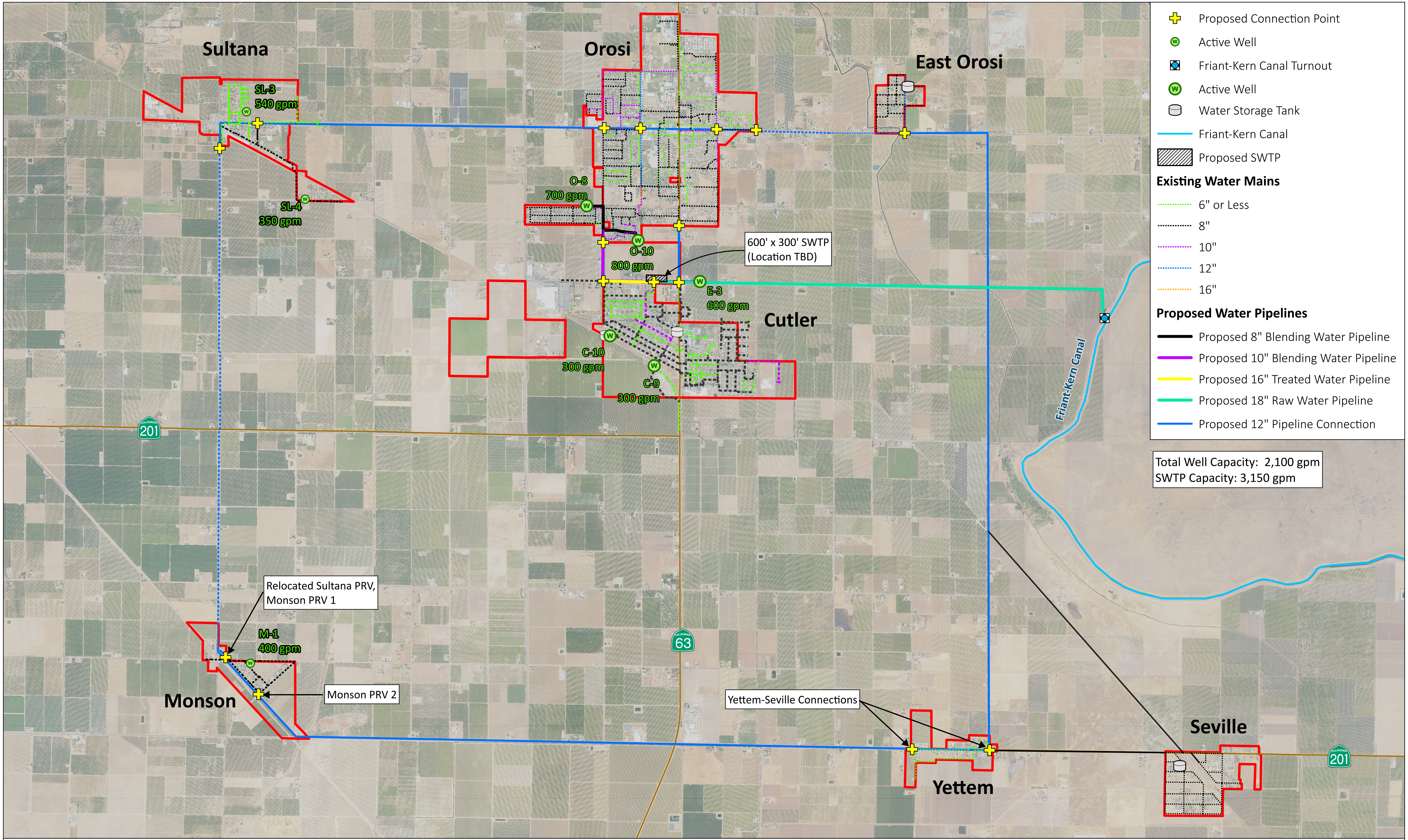

Figure 6-5: Alternative 3 Schematic

State Water Resources Control Board

NE Tulare County Feasibility Study

PROVOST& PRITCHARD

3/4/2025 G:\CA SWRCB-4011\TA\401124009-AR7197 NE Tulare County\400 GIS\Map\NE_Tulare_County_Feasibility_Study\NE_Tulare_County_Feasibility_Study.aprx

6.4 INFRASTRUCTURE ALTERNATIVES COMPARISON

The following table provides a qualitative and quantitative comparison of the alternatives presented above.

Table 6-18 Alternative Comparison

ALTERNATIVE NAME	QUALITATIVE COMPARISON	QUANTITATIVE COMPARISON
Alternative 1 – Individual System Improvements and Physical Consolidation Loop	Advantages: The construction of connections between the systems forming a looped system would provide each community with redundancy in supply. The total number of wells and tanks that would need to remain to serve the population would be reduced, leading to significant O&M savings. Combining the region into a single special district would provide additional savings to the administrative costs of running separate systems. The connection of the systems into one operational water system is considered a base alternative on which the remaining alternatives can build. Disadvantages: Should the existing PUD and CSD structures remain in place there would be little reduction in cost to administer the 7 water systems operating under 5 special districts. There would potentially be increased costs and TMF burden through participation in a JPA, tracking production and usage to allocate costs between districts, and potential for uneven allocation of costs. Dissolving the various entities to create a single CSD district with elections by division would potentially be more difficult but enable better representation and preserve autonomy. Either would require the support of both communities.	Estimated Total Project Cost: $38,359,000 Total Life Cycle Cost: $47,952,000

ALTERNATIVE NAME	QUALITATIVE COMPARISON	QUANTITATIVE COMPARISON
Alternative 2 Regional Surface Water Treatment Plant Partial Supply	Advantages: Alternative 2 builds on Alternative 1 with the addition of a treated surface water supply. A SWTP would require a significant upfront investment. The addition of a surface water supply will reduce the total amount of groundwater pumped and lower the impacts of pumping in the region. Continued operation of the wells identified in Alternative 1 will ensure demands can be met even when the surface water supply is reduced during drought years of FKC maintenance. With sufficient groundwater capacity supply available at all times the plant can be shut down or operation reduced to reduce the number of operator shifts required to attend the treatment plant. Disadvantages: Surface water will need to be procured and delivered via the FKC which will be an added cost to the communities for the raw water supply. Surface water treatment adds operational complexity and TMF requirements resulting in increased operational costs above those of Alternative 1. The reliability of surface water supplies in drought years is uncertain and dependent on releases from storage reservoirs outside the control of the communities.	Estimate Total Project Cost: $81,133,000 Total Life Cycle Cost: $124,194,000
Alternative 3 Regional Surface Water Treatment Plant Full Supply	Advantages: Alternative 3 expands the capacity of the SWTP enabling a greater reduction of groundwater pumping in favor of utilizing a larger treated surface water supply. The addition of a surface water supply will reduce the total amount of groundwater pumped and lower the impacts of pumping in the region. Further reduction of the number of operating wells will reduce the associated operational costs. Disadvantages: A full supply of surface water will need to be procured and delivered via the FKC which will be an added cost to the communities for the raw water supply. The SWTP would be a significant upfront investment for the region. Surface water treatment operational complexity and TMF requirements and the need to continuously operate the plant will impact costs due to additional operator shifts for attendance of the plant. The reliability of surface water supplies in drought years remains uncertain and dependent on releases from storage reservoirs outside the control of the communities. Further reduction of the wells identified will limit the supply of groundwater should the surface water supply is reduced in drought years or during FKC maintenance.	Estimated Total Project Cost: $83,076,000 Total Life Cycle Cost: $144,251,000

7 GOVERNANCE ALTERNATIVES

The success of the regionalization project rests with the ability to consolidate the 7 communities in a manner that results in a mutually beneficial arrangement between the communities served.

Benefits, challenges and outcomes may be impacted by both how the regionalization is structured and how the resulting entity is governed. Three generalized options for structuring the regionalization include an umbrella organization (such as a JPA), a merger where the individual entities form a new combined entity, or an acquisition where one of the existing entities takes ownership for the services of the other existing entities.

At present the communities are represented by multiple separate entities:

- Cutler PUD
- Orosi PUD
- East Orosi CSD (administered by Tulare County)
- Monson WS (served by Sultana CSD)
- Sultana CSD
- CSA #1 Seville Zone of Benefit (previously Seville Water Company)
- CSA #1 Yettem Zone of Benefit
- Yettem-Seville CSD
- Cutler Orosi Surface Water Project JPA
- Northern Tulare County Regional Water Alliance JPA
- Cutler-Orosi Joint Powers Wastewater Authority

It should be noted that two of the JPAs were created for the joint exploration of surface water treatment plant options by the communities. A JPA is an umbrella organization that derives its roles and boundaries from the pre-existing local entities, assuming certain shared roles defined at its formation. As such, JPAs are relatively easy to establish, amend and also dissolve. However, JPAs create redundancies in management, administration, and governance functions.

The status of these JPAs, and their ongoing functionality is questionable where the underlying members face critical shortcomings of Technical, Managerial, and Financial (TMF) capacity, have changed their structure, or are anticipated to merge or dissolve. For example, Yettem-Seville CSD officially assumed ownership of the two water systems from the County in June 2020. When the NTCRWA was formed in 2017 the communities were represented within that JPA by Tulare County as a Zone of Benefit within CSA#1, bringing into question the standing of Yettem-Seville CSD, and consequently the ability of the NTCRWA to function. EOCSD is under a mandatory consolidation order with OPUD, and it is anticipated that all water system operational functions of EOCSD will be transferred to OPUD, which would presumably include its seat on the NTCRWA board. It is simultaneously contemplated that CPUD's water system may consolidate with OPUD, potentially resulting in a single district under the COSWPA.

7.1 OPTIONS FOR GOVERNANCE

There is a wide range of governance options available within California for the purpose of providing water services to consumers. Key attributes and regulations under California law vary between each, however, as applicable to this project can be widely categorized as County Service Area, Special District, Private, and JPA.

The expressed preference of SWRCB when considering consolidations is the merging of small water systems into a single entity with the TMF capabilities to provide sustainable long-term operations. The formation of a single district lends itself to the formation of a special district such as a County Water District, California Water District, Community Services District, Municipal or Public Utility District. Private options include a Mutual Water Company, or investor-owned utilities, subject to CPUC approval and authorization, which has been presented as an option modeled on California Water Service Company (Cal Water) operation of the City of Visalia water system. The formation of a Zone of Benefit within Tulare County Service Area #1 is also presented below, along with the formation of a single JPA, which was attempted under previous efforts. SWRCB has requested submission of a draft joint Governance Term Sheet, developed among the water systems, by December 19, 2025 (See Appendix Q).

7.1.1 JOINT POWERS AUTHORITIES OR AGENCIES

The establishment of a new JPA does not require the consent of an oversight agency, however the previous effort resulted in proposals that were ultimately not accepted by all parties. This impasse prevents serious consideration of the restructuring of one of the existing JPAs given that the formation of the separate COSWPA and NTCRWA was the result of those disagreements. Should the parties be able to reach an agreement on a new JPA with acceptable terms, Tulare County LAFCo would need to be notified, none of the member parties' boundaries would change, and the governing body could be tailored to suit local needs. The water related functions, legal ownership, and the rights to access the distribution facilities and provide service within the respective service areas would be transferred to the JPA. However, it is important to note that a JPA, which leaves in place and derives authority from member agencies, creates redundancies and inefficiencies in management, potentially resulting in additional administrative burdens for the member agencies. For smaller systems already struggling with TMF capacity issues, adding the demands of participation in a JPA could exacerbate these issues. When 5 boards of 5 members (25 Board Members) form a JPA with 1 seat each the result is 30 board seats, examples of JPA exist where there are 2 seats each on the JPA creating 35 board seats, along with the costs of legal counsel, financial audits, and noticing of meetings the long-term viability of a JPA diminishes.

The NTCRWA was initially contemplated with a 7-member board made up of 2 members from CPUD, 2 members from OPUD, 1 from Sultana CSD (also representing Monson), 1 from Yettem-Seville, and 1 from East Orosi CSD. The fatal flaw in this arrangement is understood to have been disagreement between the communities regarding representation, revenues and cost features ultimately rendering the arrangement unaffordable to the smaller communities. NTCRWA was subsequently formed without CPUD and OPUD participation, while CPUD and OPUD separately formed COSWPA.

In the context of ongoing projects, CPUD and EOCSD will potentially no longer exist as member entities with responsibility for water services following their respective consolidations with OPUD. Meanwhile, representatives from smaller systems have stated they want "equal" representation in any governance scenario, which may be irreconcilable as it would leave the populations of the larger communities underrepresented in terms of number of connections. Representation that is fair and equitable is considered to be key to any governance structure.

SWRCB has expressed that fragmented or temporary governance arrangements present long-term risks to operational stability, financial integrity, and equitable service delivery, particularly for small or disadvantaged communities.

Table 7-1 JPA Benefits/Drawbacks

BENEFITS	DRAWBACKS
Easier implementation and less resistance as it relies on existing CSD and PUD structures and boundaries.	Reduced efficiency, increased administration, accounting, auditing, operations, and legal services costs of an additional entity
Retains local autonomy while permitting collaboration	Board members required to serve on multiple boards, meetings for both the existing agencies and JPA to be attended.
Permits flexibility in division of roles and responsibilities. Representation and decision making can be tailored to communities needs	Representation of residents is through member organization rather than direct representation

The service area boundaries of a JPA consisting of the PUDs and CSDs would remain as is, unless action is taken to change the boundaries through LAFCo. Therefore, a JPA would not be able to serve existing well owners along pipeline alignments outside of their districts without initiating a separate LAFCo process for either an extra territorial service agreement or boundary change.

7.1.2 SPECIAL DISTRICTS

There are numerous means to create any of the variety of Independent Special Districts that exist under California Law. These include California Water (California (CA) Water Code §§ 34000 – 38501), Community Services (CA Government Code §§ 61000 – 6125), County Water (CA Water Code §§ 30000 – 33901), Municipal Utility (CA Public Utilities Code §§ 11501 – 14403.5), Municipal Water (CA Water Code §§ 71000 – 73001), or Public Utility (CA Public Utilities Code §§ 15501 – 18055) districts.

Five of the communities are served by three existing Community Service Districts (Yettem Seville CSD, Sultana CSD, and East Orosi CSD) which are formed under CA Government Code §§ 61000 – 6125. The process is initiated by either petition by 25% of registered voters, or by the relevant county board of supervisors by resolution and hearing. A ballot measure, with simple majority prevailing authorizes performance of up to 32 specific services which promote public peace, health, safety, or welfare, including providing drinking water. A CSD is able to establish zones of differential service which have distinct assessments and permit the election of board members at large or by division.

The two existing Public Utility Districts serving Cutler and Orosi operate under CA Public Utilities Code §§ 15501- 18055 and can include other services such as power, heat, transportation, sewage service, and solid waste service, in addition to water. Unlike a CSD, a PUD is not able to establish zones of differential service which have distinct assessments, however, are able to compel service connection.

LAFCo permission is required for either a PUD or CSD to amend their boundaries or to provide out-of-boundary services. Annexed territory must be unincorporated. If non-contiguous, some additional considerations apply in the case of PUDs.

The formation of any new independent special district would potentially be subject to similar representation concerns as based on the populations listed in Table 1-1 Orosi contains 49% of the population, and together Cutler and Orosi represent 86% of the total population. A key consideration of any governance solution would be its ability to balance the representation of the smaller communities, without disenfranchising the larger populations. The lack of districting within a PUD structure prevents elections by division. All the listed Independent Special Districts share the direct election of their board members, with the exception of a Community Services District.

The boundaries of a new CSD would be determined at formation, and therefore additional connections by domestic well users along the alignments could be considered in the process of determining the new boundaries, as applicable. A single CSD, maintaining the district boundaries of the existing PUDs and CSDs as zones of differential service, would potentially be able to elect board members by division, while performing all the existing functions of each PUD and CSD as a single entity. Specific LAFCo approval would be required to include fire protection in the scope of a CSD's function, but otherwise the powers of Eminent Domain, Obligation to provide service, Eligibility and Voter requirements, Rate setting, etc. would remain the same as the existing PUDs. Further details of the formation and founding documents need to be considered in consultation with the communities which would need to petition and ultimately vote on the proposed formation of a new Special District.

SWRCB has recommended that any governance proposal included in the draft Governance Term Sheet be a single, unified, independent special district. Formation of a single Independent Special District to administer to the water systems of the existing entities would provide the following advantages and disadvantages.

Table 7-2 Special District Benefits/Drawbacks

BENEFITS	DRAWBACKS
Due to specialized nature, the governing board members and staff can focus their attention exclusively on drinking water service.	It is potentially difficult and costly to dissolve existing CSDs and establish a single entity due to procedural and study requirements.
Particularly compared to general purpose governments, special districts often have fewer restrictions related to the areas they can serve.	Other functions of the existing CSDs and certainly the PUDs will need to be retained resulting in multiple special districts for different purposes serving overlapping areas.
Increased efficiency, decreased administration, accounting, auditing, operations, and legal services costs of a single entity.	Could eliminate administration and operation positions and jobs tied to the consolidated system(s) which are common to multiple systems.
Voting rights unchanged from those of existing CSD or PUD. A larger pool of potential volunteer board members for fewer positions.	Board member selection is subject to popular vote may result in smaller communities being underrepresented owing to lower population and voting power.
Subject to restrictions from Proposition 218 and Prop 26 around flexibility in pricing and cannot charge above the cost-of-service provision to customers	

The following table, Table 7-3, draws heavily on information contained in Tables A1 through A5 of Designing Water System Consolidation Projects, Considerations for California Communities, (Kristin Dobbin, Justin McBride, and Gregory Pierce). It is provided to highlight differences between various special districts, forming a menu of options for consideration.

Table 7-3 Comparison of Special District Options

SELECTED INDEPENDENT SPECIAL DISTRICTS	CALIFORNIA WATER DISTRICT	COMMUNITY SERVICES DISTRICT	COUNTY WATER DISTRICT	MUNICIPAL UTILITY DISTRICT	MUNICIPAL WATER DISTRICT	PUBLIC UTILITY DISTRICT
Description	A special purpose government agency created to furnish water for beneficial uses.	A special purpose government agency created uniquely to provide services over a designated area.	A special purpose government created within a single county related to either the direct provider of water to consumers or as a coordinator of water rights.	A special purpose government created to combine multiple water utilities into a single utility.	A special purpose government agency created to provide water aimed at an urbanized area.	A special purpose government agency created to establish or operate a revenue-producing utility for unincorporated areas
Services Authorized to Provide	Produce, store, transmit, and distribute water for irrigation, industrial, domestic, or residential use.	Authorized to perform 32 specific services which promote public peace, health, safety, or welfare, including providing drinking water.	Furnish or store water, operate water works, sell water, set water rates. May also provide sanitation service or generate hydroelectric power.	Supply residents with water, light, power, heat, communication services, transportation, solid waste disposal, or wastewater treatment.	Acquire, control, distribute, store, spread, treat, purify, recycle, or recapture any water including stormwater and sewage.	Provide residents with power, heat, transportation, sewage service, solid waste service, or water.
Enabling Act	CA Water Code §§ 34000-38501	CA Government Code §§ 61000-61250	CA Water Code §§ 30000-33901	CA Public Utilities Code §§ 11501-14403.5	CA Water Code §§ 71000-73001	CA Public Utilities Code §§ 15501-18055
Water	Yes	Yes	Yes	Yes	Yes	Yes
Sewer	Yes	Yes	Yes	Yes	Yes	Yes
Street Lighting	--	Yes	--	Yes	--	Yes
Power of Eminent Domain	Yes	Yes	Yes	Yes	Yes	Yes
Ability to Compel Service Connection	Yes	Yes	Yes	Yes	Yes	Yes
Obligation to Provide Service	No	No	No	No	No	Able to exclude any territory which the district does not benefit

SELECTED INDEPENDENT SPECIAL DISTRICTS	CALIFORNIA WATER DISTRICT	COMMUNITY SERVICES DISTRICT	COUNTY WATER DISTRICT	MUNICIPAL UTILITY DISTRICT	MUNICIPAL WATER DISTRICT	PUBLIC UTILITY DISTRICT
Ability to Establish Improvement Districts	Yes	Able to establish zones of differential service which have distinct assessments	Yes	Yes	Yes	No
Ability to Provide Fire Protection	With LAFCo approval	With LAFCo approval	Yes	Yes	Yes	Yes
Means of Initiating Formation	Petition by landowners of a majority of the proposed territory. Simple majority ballot measure.	A simple majority ballot measure following either petition or resolution by board of supervisors	The County board of supervisors hearing petition may either dismiss or order simple majority ballot measure.	⅔ approval by ballot measure following petition	Board of supervisors ratified petition	Petition and ballot measure with simple majority.
Provisions for Mergers	--	Consolidation of special districts not formed pursuant to the same principal act CA Government Code §§ 56826.5	Unless merger into public agency is approved by the vote of the electorate, all funds derived from former district limited to use on that former district until debts paid in full or former electorate authorize other expenditures.	Can annex any other district within the Municipal Utility District's boundaries with the approval of the governing body of the annexed district.	LAFCo has explicit power to annex territory away from or rearrange Municipal Water Districts.	--
Provisions for Service Area Boundary Changes CA Government Code §§ 56133	LAFCo permission needed for changes and out of boundary service.	LAFCo permission needed for changes and out of boundary service.	LAFCo permission needed for changes and out of boundary service.	LAFCo permission needed for changes and out of boundary service.	LAFCo permission needed for changes and out of boundary service.	LAFCo permission needed for changes and out of boundary service.
Contiguous Boundary required?	No	No	No	No	No	No

SELECTED INDEPENDENT SPECIAL DISTRICTS	CALIFORNIA WATER DISTRICT	COMMUNITY SERVICES DISTRICT	COUNTY WATER DISTRICT	MUNICIPAL UTILITY DISTRICT	MUNICIPAL WATER DISTRICT	PUBLIC UTILITY DISTRICT
Provisions for Dissolution or Sale of Assets	--	Requires LAFCo permission to cease providing water if another public agency is picking up service.	--	--	--	--
Stipulations for Collaboration with Other Entities	Can contract with other agencies or private enterprise to fulfill its mission.	--	The district may cooperate with the Federal government under the Federal Reclamation Act for specific purposes. Can be included in Municipal Utility Districts without dissolution.	Authorized to sell surpluses or provide excess capacity to other agencies.	Can contract with other agencies or private enterprise to fulfill its mission.	Can collaborate, but only for water or wastewater treatment.
Rate Setting Limitation	Prop 218	Prop 218	Prop 218	Prop 218	Prop 218	Prop 218
Power to Levy Taxes or Assessments	Prop 26	Prop 26	Prop 26	Prop 26	Prop 26	Prop 26
Power to Place Liens	Yes	Yes	Yes	Yes	Yes	Yes
Power to issue General Obligation Bonds	Yes	Yes	Yes	Yes	Yes	Yes
Eligible for State Grants/Assistance for consolidation projects	Yes	Yes	Yes	Yes	Yes	Yes
Governing Body (may be able to increase subject to LAFCO)	5 member directly elected board	5 member directly elected board, at-large or by division	5 member directly elected board	5 member directly elected board	5 member directly elected board	Board of an odd number by division of approximately 5,000 residents. Default of 3
Eligibility to Serve on Governing Board	Must be either a landowner, or designee of a landowner	Must be a registered voter in the district	Must be a registered voter in the district	Must be a registered voter in the district	Must be a registered voter in the district	Must be a registered voter in the district

SELECTED INDEPENDENT SPECIAL DISTRICTS	CALIFORNIA WATER DISTRICT	COMMUNITY SERVICES DISTRICT	COUNTY WATER DISTRICT	MUNICIPAL UTILITY DISTRICT	MUNICIPAL WATER DISTRICT	PUBLIC UTILITY DISTRICT
Eligibility to Vote for Board Members	Landowners prorated by land value. If the district becomes majority residential, residents may petition for direct elections with simple majority prevailing.	Registered voter	Registered voter	Registered voter	Registered voter	Registered voter
Board Meeting Requirements	Subject to Brown Act.	Must meet at least every three months. Subject to Brown Act	Subject to Brown Act.	Subject to Brown Act.	Subject to Brown Act.	Subject to Brown Act.
Board Training Requirement	2-hour ethics training every 2 years	2-hour ethics training every 2 years and the district shall provide necessary training to board members.	2-hour ethics training every 2 years	2-hour ethics training every 2 years	2-hour ethics training every 2 years	2-hour ethics training every 2 years
Subject to Public Records Act?	Yes	Yes	Yes	Yes	Yes	Yes
Subject to Bilingual Services Act?	Yes	Yes	Yes	Yes	Yes	Yes

7.1.3 COUNTY SERVICE AREA

A county can provide water service as if it were a city, typically to unincorporated areas under CA Government Code §§ 25210 – 25217.4 which authorizes provision of public facilities or services that promote public peace, health, safety, or welfare.

Tulare County operates CSA #1, which encompasses most of the unincorporated areas of the county. The only other Tulare County CSA, CSA#2, consists of Wells Tract, located adjacent to the City of Woodlake and has no bearing on this Study. The County previously provided water services to the Yettem-Seville zones of benefit prior to the formation of the Yettem-Seville CSD, and the County continues to operate the sewer collection system and lift stations within the Yettem-Seville zones of benefit. East Orosi CSD has been managed by the County, having had a Tulare County Administrator since 2022, but remains a CSD and not a zone of benefit within the CSA. The County, East Orosi CSD and Sultana CSD operate sewer lift stations discharging to the Cutler-Orosi Wastewater Treatment Facility, which is operated by COJPWA. The Monson community remains on septic.

Under this CSA governance option, the water service component of each of the CSDs and PUDs would be acquired in full by the County. Each CSD and PUD would become an independent Zone of Benefit within the County CSA#1. While Tulare County is supportive of the communities, taking over operation of their water systems would not be a preferred solution.

Table 7-4 CSA Benefits/Drawbacks

BENEFITS	DRAWBACKS
Review and approval by the necessary regulator, Tulare County LAFCo may be quicker than other alternatives.	County owned and operated water systems are subject to intricate restrictions related to service area, conditions, and duration.
The County has wide-reaching legal and financial powers. The County can leverage its position as a larger organization to share resources and reduce costs.	Potential for water service to be impacted by spillover effects from unrelated political decisions, spending on maintenance may be vulnerable to deferment due to unrelated county priorities, unpopular actions such as raising rates may be deferred due to political expediency.
General purpose elected officials are often more visible and familiar to residents, potentially increasing transparency, and access to decision-making.	The Tulare County Board of Supervisors represent larger populations beyond the zones of benefit, potentially limiting representation and accountability in the eyes of the communities.
Boundaries of the CSDs/PUDs would remain unchanged and ZOB can assessed individually	Requires LAFCo approval to provide Fire Protection.

Formation of a CSA could occur either by petition of 25% of registered voters, or by landholders of 25% of land, or by county board of supervisor’s motion. The board of supervisors can veto, rendering this option moot without unequivocal support from the Tulare County Board of Supervisors to move it forward. The boundaries of a CSA would be determined at formation and therefore could consider inclusion of domestic well owners outside the existing PUD/CSD boundaries through that process.

7.1.4 INVESTOR-OWNED UTILITY OR MUTUAL WATER COMPANY

Private organizations and nonprofit organizations offer further options for providing water service. A for-profit corporation could potentially take over and manage the combined water system. A local example is the operation of the City of Visalia where California Water Service Company (Cal Water) has provided service to residents since 1926. As a corporation a private organization has potentially greater flexibility in operational decisions, while still being regulated by state law and the CPUC.

A private organization may still be eligible for state grants and assistance for consolidation projects. Rates and rate changes must be approved by CPUC. They must apply to CPUC, including a business plan, environmental impact assessment, financial conditions, owner profiles, purchase price, and any other information CPUC requires. The CPUC must approve transfer or purchase of over $5 million, even if to a public entity and authorization is required for service area extensions.

Potential disadvantages include that not all government and transparency laws apply. State or Federal funded grants or assistance could be taxable income, and eligibility to vote for board membership is limited to shareholders. Board meetings may be closed to the general public.

Mutual Water Companies are a special purpose cooperative where shareholders co-own their water system. Shareholder status is typically determined by homeownership within the water system’s service area and is not considered an applicable governance in the context of a regionalization on this scale.

8 FINANCIAL ANALYSIS

It is not the intent of this Study to include a detailed Water Rate Study for each of the affected systems. The governing boards are responsible for the system operations and maintaining sufficient revenue and reserves for the foreseeable future. Water rate studies are used periodically to review the current rate structures, analyze reserve requirements for system sustainability, and equitably allocate costs across an adequate rate structure. Water rate studies may be informational or prepared in conjunction with changes to the rate structure which, for CSDs and PUDs, requires a Proposition 218 hearing.

To adequately compare the O&M costs for the respective alternatives, it is necessary to estimate planning level operating budget requirements for each system to enable comparisons between current and proposed alternatives. The current water rates reported in the respective eARs discussed in Section 3.4, vary considerably between systems. Some of the systems are reported to be operating at a loss, while others were unable to provide audited financial reports.

The following section reviews what expenses are likely to exist after ongoing consolidations are completed and compares those to the costs of providing the current level of service to make an informed decision regarding the future of the region and communities. For example, East Orosi will only have 1 well, down from 2, while Yettem-Seville may have abandoned one well and drilled up to two more for a total of 5 in operation. Cutler will have gained a tank at the planned blending site, while replacing a well. Sultana will have also replaced a well.

8.1 PLANNING LEVEL OPERATING BUDGET

It is recognized that a regionalized system would be able to consolidate much of the operational expenditure created by duplicated efforts inherent in operating multiple separate systems. In order to elaborate further, the following section provides a planning level operating budgets developed from financial records, rate studies for representative systems, and industry knowledge. Reference is made to OPUD's 2021 Audited Financial Statements, CPUD's 2020 through 2022 Audited Financial Statements, and the Yettem-Seville Water Rate Study prepared in 2018.

Operator costs, sampling, and power costs which are more readily estimated have been included in the respective O&M costs for each Alternative.

8.1.1 BOOKKEEPING, ADMINISTRATION AND OFFICE COSTS

Bookkeeping and Administration requirements are assumed to be generated by the number of connections. Assumptions of administrative and office related costs per 50 connections are summarized in Table 8-1.

Nominal amounts can be assigned to office supplies, materials, postage which can similarly be prorated to the number of customers receiving bills, mailers, and the costs of materials and postage associated with communicating with the customer base.

Table 8-1 Administration and Office Costs

ITEM DESCRIPTION	COST PER 50 CONNECTIONS
Office Supplies	$250
Materials	$500
Postage	$250
Bookkeeping	$1,560
Administrative Assistant	$1,560

The resulting connection-based operating expenses applied across each system, all 7 communities and Alternative 1 is summarized in Table 8-2.

Table 8-2 Administration and Office Costs Per System

	CUTLER	OROSI	EAST OROSI	MONSON-SULTANA	YETTEM-SEVILLE	7 SEPARATE COMMUNITIES	ALTERNATIVE 1*
Connections	1,234	1,601	103	280	155	3,373	3,373
Office Supplies	$6,250	$8,250	$750	$1,500	$1,000	$17,750	$17,000
Materials	$12,500	$16,500	$1,500	$3,000	$2,000	$35,500	$34,000
Communications	$6,250	$8,250	$750	$1,500	$1,000	$17,750	$17,000
Bookkeeping	$39,000	$51,480	$4,680	$9,360	$6,240	$110,760	$106,080
Administrative Assistant	$39,000	$51,480	$4,680	$9,360	$6,240	$110,760	$106,080
Total	**$103,000**	**$135,960**	**$12,360**	**$24,720**	**$16,480**	**$292,520**	**$280,160**

*Applying the costs per 50 connections to the total connections served results in a modest reduction compared to the summation of the same costs applied to the individual systems, as can be expected through economies of scale however cost impact is not anticipated to be significant.

8.1.2 OTHER OPERATING EXPENSES

The remaining operating expenses can be reviewed and applied either per connection for variable costs such as office supplies, discussed above; or fixed per system costs such as election fees, dues and publications, insurance, legal fees, annual audit costs, phone and internet charges for communication. Included below are representative costs of annual account audits, legal representation, insurances, Board member stipends (assuming a 5-member board receiving a $50 stipend month), election fees, memberships and dues, phone, and internet. Office rental has been excluded due to the variances between the 7 communities, ranging from trailers to shared space with other functions of OPUD and CPUD making it impractical to come up with a comparable figure. If rented office space is required, it would be included within this expense category. It may be beneficial to consider office space for the administration staff at the SWTP if either SWTP alternative is further developed. While there may be some variance due to system size, all these costs have to be borne per system and would be significantly reduced by consolidation.

Table 8-3 Selected Operating Expenses to be Considered per Water System

PER SYSTEM	PER SYSTEM/ 1 REGION	7 SEPARATE COMMUNITIES
Audit	$8,000	$40,000
Legal Representation	$12,500	$62,500
Insurances	$8,000	$40,000
Board Member Stipends	$3,000	$15,000
Election Fees	$1,500	$7,500
Membership/Dues	$1,500	$7,500
Phone and Internet	$1,200	$6,000
Total	**$35,700**	**$178,500**

8.1.3 RESERVES

It is inevitable that any given facility will reach the end of its useful life. A new system component with a construction cost of $1 million and a service life of 50 years should in theory be setting aside $20,000 per year to fully capitalize the replacement cost of the infrastructure as it wears out. Large numbers of small systems fall into disrepair as accommodating the full cost of replacement in the water rate is unaffordable to communities, or perhaps they lack the planning to implement sufficient rate structures. The cost to replace all the components of each system is not straight forward given a wide range of installation dates, variance in construction costs, accounting for inflation, varying levels of current reserves and return on investment of those reserves. However, in broad terms using knowledge of recent projects we can assign an order of magnitude value to key components.

The well site component for Sultana CSD Well SL4 was estimated at $741,350 in 2017, while the emergency well for Seville in 2022 was $700,000 on the existing site, and $2,095,000 had a new site been required. The Seville Tank EOPCC from 2013 was $705,000, and the new Yettem Well Site estimate in 2022 was $905,000. East Orosi estimates prepared by QK in 2023 include $675,000 for drilling and equipping the new well and $900,000 for the storage tank prior to any further site or electrical considerations. These and other reference projects form the basis for an estimated order of magnitude replacement cost of $1.5 million per well or tank for reserves planning purposes, while noting this value can be significantly different depending on the size of tank/well.

In Sultana, the distribution system replacement EOPCC was $5,433,960, for 3.3 miles of 6-inch and 8-inch pipeline in 2024 serving 249 connections. This equates to a cost of $22,000 per connection for distribution system replacement. East Orosi estimates prepared by QK total approximately $1,700,000 for 101 connections, or approximately $17,000 per connection. While it is understood that replacement costs for the distribution systems will vary dramatically, particularly in urban areas congested with other utilities in the ROW, the average of $19,000 per connection derived from the Sultana and East Orosi projects has been rounded up to $20,000 to provide an order of magnitude cost for whole system replacement value to be considered in reserves planning.

Assuming 1% repair and maintenance costs and 2.5% depreciation annually, representing a useful life of 40 years is assumed for wells and tanks, and 1% representing a useful life of 100 years for pipelines making up the respective distribution systems. Although this could be broken down further in a more complete rate study to account for the variations in useful life of short-lived items such as pumps to longer-life items such as pipelines.

Table 8-4 Budgetary Capital Replacement Costs and Reserves for Existing Infrastructure

RESERVES	CUTLER	OROSI	EAST OROSI	MONSON-SULTANA	YETTEM-SEVILLE	7 SEPARATE COMMUNITIES	1 REGION*
$1,500,000 per well/tank	$7,500,000	$12,000,000	$3,000,000	$6,000,000	$10,500,000	$34,500,000	$19,500,000
$20,000 per connection	$24,680,000	$32,020,000	$2,060,000	$5,600,000	$3,140,000	$67,460,000	$67,500,000
1.00% Annual Repair and Maintenance	$75,000	$120,000	$30,000	$60,000	$105,000	$345,000	$195,000
2.50% Capital Improvement Reserves (Wells/Tanks)	$187,500	$300,000	$75,000	$150,000	$262,500	$862,500	$487,500
1.00% Capital Improvement Reserves (Pipelines)	$246,800	$320,200	$20,600	$56,000	$31,400	$674,600	$675,000
Total	**$509,300**	**$740,200**	**$125,600**	**$266,000**	**$398,900**	**$1,882,100**	**$1,357,500**

*Costs of operating as a single region are reduced through reduction in facilities necessary to operate, from 19 wells and 7 tanks to 9 wells and 4 tanks described in Alternative 1.

An important consideration for each system is the age and condition of their respective infrastructure against the current status of their reserves. Monson, Sultana, Yettem, Seville and East Orosi have, or will have at the conclusion of currently funded projects, relatively new distribution systems. Cutler and Orosi have older systems and the sufficiency of their reserves to keep up with replacement of distribution piping is unknown.

8.1.4 ESTIMATED OPERATING BUDGET

The following table sums the previous tables to produce an annual operating budget, excluding power, operator, and sampling costs, for each system.

Table 8-5 Planning Level Operating Budget

	CUTLER	OROSI	EAST OROSI	MONSON-SULTANA	YETTEM-SEVILLE	7 SEPARATE COMMUNITIES	1 REGION
Annual Total	$648,000	$754,360	$173,660	$326,420	$451,080	$2,353,520	$1,673,360
Connections	1,234	1,601	103	280	155	3,373	3,373
Annual Per Connection	$525	$471	$1,686	$1,166	$2,873	$697	$496
MHI	$58,692	$52,692	$33,472	$38,125	$39,500	$52,282	$52,282
Affordability Index	0.89%	0.89%	5.04%	3.06%	7.27%	1.33%	0.95%
Monthly Per Connection*	**$44**	**$39**	**$141**	**$97**	**$242**	**$58**	**$41**

*The Monthly Per Connection cost is the operating budget divided by the number of connections. It is not intended to be reflective of a water rate which would allocate costs to higher volume users on the basis of connection size and metered usage.

This section is intended to be illustrative of how a regionalization could bring down the respective costs of water, however a full water rate study would be a necessary component of any selected project and is recommended once an alternative is selected. The rate allocations determined by a water rate study could further reduce the costs for residential connections through applying higher base rates to commercial users and those with larger connections and higher water usage. UOM rates should also be developed to encourage conservation and ensure those users with the highest water use are fairly allocated the respective costs of meeting their higher water demands.

Table 8-6 takes the Present Value of O&M costs for each alternative and divides by the total number of connections (times 12 months) to determine the monthly per connection cost of O&M for each Alternative. Adding the planning level operating budget determined in Table 8-5 permits the calculation of the affordability index for each alternative.

Table 8-6 Affordability of Alternatives

	MONTHLY PER CONNECTION	OPERATING BUDGET	TOTAL RATE PER CONNECTION	AFFORDABILITY INDEX
Alternative 1	$16	$41	**$57**	1.31%
Alternative 2	$72	$41	**$113**	2.59%
Alternative 3	$102	$41	**$143**	3.28%

9 SUMMARY AND NEXT STEPS

Concurrently with the preparation of this Study, OPEETA hosted a series of community workshops seeking engagement and feedback from water system board members and community members. The draft report was provided to the districts and posted on the SWRCB website. Limited formal written comments were received from stakeholders.

Community Workshops were held on the following dates:

- February 26, 2025, in Sultana at Monson Sultana School
- May 7, 2025, in Yetttem-Seville CSD at Stone Coral Elementary School
- June 18, 2025, in Orosi PUD at Orosi High School
- August 27, 2025, in Cutler PUD at Cutler Elementary School

The final meeting of the current series is scheduled for December 9, 2025, in Monson at Monson Elementary School.

The initial community workshop in February occurred immediately prior to the completion of the Draft Feasibility Study. The meeting provided the boards and community members with background to the project and framed the project as an opportunity to strengthen all 7 communities with a regional water solution. SWRCB and P&P staff outlined what information and alternatives were being examined in the Study, discussed the existing groundwater supplies, considerations that would determine the feasibility of utilizing surface water, affordability considerations, and a discussion of Governance.

In general, there was a strong commitment to improving drinking water access across the region and interest in collaboration between all local water districts. There were concerns raised that a regional project could delay or affect local projects underway. Questions were raised related to funding criteria and ultimate affordability. There was a desire to continue conversations regarding how decisions would be made and governance.

Each Alternative provides benefits of increasing resiliency by linking the communities together to share the water infrastructure and resources of the region. Each would reduce operational costs by removing wells and tanks that would be surplus to requirements. Operating as an independent special district would further reduce the administrative costs of operating separate water systems and spread those costs over the combined population. The costs per connection presented are reflective of a sustainable system, including capital replacement costs over the lifespan of the infrastructure. Most of the communities appear poorly placed financially to support replacement of existing wells and pipelines that are near the end of their useful life. This is evidence by the amount of funding assistance expended in the region through DFA, which does not include other funding sources such as DWR or USDA that have also contributed to the region.

Alternatives 2 and 3 add surface water supply to the region. The primary benefits of surface water to the communities would be firstly providing a secondary source of supply and secondly reducing the pumping of groundwater permitting aquifer recharge to occur. The drawbacks to surface water is the costs both to purchase and treat the water prior to use, and potential interruption of supply in dry years. In these dry years Alternative 2 retains sufficient existing groundwater supply infrastructure to cover any shortfall due to supply or costs of water purchase.

9.1 SELECTION OF ALTERNATIVE

Through the various community meetings and Board meetings, the districts have made it clear that they want a project that will provide long-term, sustainable, and affordable water.

The May meeting presented the Alternatives to the attending members of the communities and the represented Boards. SAFER staff provided a technical overview of current challenges and ongoing projects in the region. Discussion of Alternatives led generally to a consensus that Alternative 2 was preferred as a balance between reliance on groundwater in Alternative 1 and reliance on surface water deliveries. The potential purchase costs of surface water, in addition to the treatment plant operating costs remain a concern to community members and boards. Given that the amount of surface water required by the project would be a pre-requisite to discussing purchase of surface water with either AID or an FKC contractor, along with place of use considerations determined by which communities are electing to proceed with a project, the first step is selection of an Alternative.

It was further outlined in the May meeting that a competitive funding application would address primary maximum contaminant levels, include a sustainable governance structure, and demonstrate a sustainable operations and maintenance plan, supported by an adopted water rate structure. Inclusion of small communities together with consolidation of communities to keep the cost per connection of both the capital project and water rates low on a per customer basis is likely to be essential.

To move forward the existing water systems will need to examine the need for a project, potential advantages and disadvantages of each Alternative, and make a formal commitment to proceed with a selected Alternative. The technical feasibility, financial sustainability, and long-term operational resilience of the Alternatives remain highly dependent on the participation of the whole region. A re-evaluation of the selected alternative would likely be required should agreement not be reached between the existing boards on a single preferred Alternative. SWRCB has requested submission of a preferred Alternative from each board by December 19, 2025.

9.2 SELECTION OF GOVERNANCE

The June meeting focused on Governance. It was previously outlined in the May meeting that a sustainable governance structure would be vital to a successful regionalization project. The SWRCB has requested submission of a draft Governance Term Sheet, developed jointly by all water systems, by December 19, 2025. While exit polls from the June meeting, hosted by Orosi, favored a JPA the SWRCB has expressed that fragmented or temporary governance arrangements present long-term risks to operational stability, financial integrity, and equitable service delivery, particularly for small or disadvantaged communities. SWRCB has recommended that any governance proposal included in the draft Governance Term Sheet be a single, unified, independent special district.

9.3 AFFORDABILITY AND RATE STRUCTURE

As expressed in the community workshops, affordability and rate structure remain inseparable from Alternative selection and governance structure. This Study makes use of historical data in determining the potential cost of surface water; however it is incumbent on the selected governance structure to reach an agreement with a surface water supplier and ultimately negotiate a surface water agreement.

A full water rate study would be a necessary component of any selected project along with adoption of new water rates by the governing body on completion of a Proposition 218 process. For a surface water alternative, completion of the rate study would require an agreement with a surface water supplier that includes costs of raw water deliveries to the proposed plant and a firm commitment to supply the project.

9.4 NEXT STEPS

Next steps will be community driven and guided by Alternative selection and governance decisions made early in the project selection. Each of the next steps will require community involvement and buy-in.

The newly formed governing body would need to submit a funding application to further develop the selected alternative, complete environmental impact analysis, and subsequently prepare a construction funding application.

An outline of the necessary steps through submittal of a construction funding application is provided below:

1. Infrastructure Alternative Selection
2. Governance Selection / Governance Term Sheet development
3. Creation of governance entity that will apply for funding
    - LAFCo process including boundary maps, public hearings, election of board members
4. Governance entity completion of funding application for planning
    - Surface Water Purchase Agreement
    - Preliminary Engineering Report
    - Design Development
    - Environmental Impact Analysis
    - Proposition 218 Rate Study
5. Construction Funding Application

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APPENDIX

Appendix A: DFA Summary of Funding Assistance for NE Tulare County Water Systems

Table P-1 Summary of DFA assistance for NE Tulare County water systems

PROGRAMS	TOTAL BUDGET
TA/ Administrator	$3,017,182
Funding Agreements	$45,145,077
Interim- Emergency Project Fund	$7,421,321
Grand Total	$55,583,580

ABBREVAIATIONS	
AR	Assistance Request
DW	Drinking Water
WW	Wastewater
TAP	Technical Assistance Provider
P&P	Provost & Pritchard
SHE	Self Help Enterprise
TMF	Technical, managerial and Financial
CWSRF	Clean Water State Revolving Funds
DWSRF	Drinking Water State Revolving Funds
EDWG	Expediated Drinking Water Grant
CAA	Cleanup and Abatement Account
Prop 84	Proposition 84
PWSDER	Public Water System Drought Emergency Response
CAS SB 826	California Senate Bill

Table P-2 TA & Administrator Funding

AR# OR PROJECT#	SYSTEM(S) NAME	AR TYPE (WW OR DW)	TAP	TYPE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/PROGRESS
AR 7142	Cutler PUD	DW	SHE	Feasibility Study	1/26/2024	Active	$114,008	Work plan developing feasibility to determine feasibility of Cutler PUD consolidating with Orosi PUD. Preliminary Draft Engineering Report sent to Stakeholders for comments
AR 5238	East Orosi CSD	DW	SHE	Full Planning	11/2/2016	Active	$685,226	Full planning work plan supporting consolidation of East Orosi CSD and Orosi PUD. Resulted in Expedited Drinking Water Grant 5401003-001C.
AR 6013	East Orosi (WW)	WW	SHE	Full Planning	8/23/2019	Transferred	$112,482	Transferred to SHE's D2118006 Funding Agreement as AR 7029. Final spent to Date amount from 6013 is **$112,482** The goal of this work plan was to submit a CWSRF Construction Application which would aim to eliminate individual septic tanks from the WW system. This work plan completed a draft Engineering Report prior to being transferred.
AR 7029	East Orosi (WW)	WW	SHE	Full Planning	5/1/2023	Active	$216,243	The goal of this work plan is to submit a CWSRF application which would aim to eliminate individual septic tanks from the WW system; however, the project is currently stalled until a CWSRF applicant is identified, due to EOCSD being without a quorum of directors.

AR# OR PROJECT#	SYSTEM(S) NAME	AR TYPE (WW OR DW)	TAP	TYPE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/PROGRESS
AR 5008	Seville-Yettem	DW	SHE	Outreach, TMF, Funding Administration	9/9/2016	Transferred	$116,545	Transferred to SHE's D1917012 Funding Agreement as AR 7147. The final amount from 5008 is **$116,545**. Two-Phase project consolidating Seville with Yettem. Phase 1 involved transferring ownership of the systems from County of Tulare to Yettem-Seville CSD and updating Seville's distribution system. Phase 2 will include an interconnection between Seville and Yettem. Phase 1 was completed in 2020, and Phase 2 currently has an active construction project, 5400550-002C. County of Tulare was the applicant for 5400550-002C, and this work plan had SHE support the County in completing the Construction Application and supporting implementation of the Construction Grant
AR 6797	Seville-Yettem	DW	SHE	TMF (Subvention)	8/22/2022	Complete	$14,643	Subvention task having SHE support with Drought Reporting. This was completed and continued support of Drought Reporting was included in AR 7147. Final spent to date for 6797 is $**14,642.56**

AR# OR PROJECT#	SYSTEM(S) NAME	AR TYPE (WW OR DW)	TAP	TYPE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/PROGRESS
AR 7147	Seville-Yettem	DW	SHE	Outreach and TMF Support	12/1/2023	Active	$21,085	Two-Phase project consolidating Seville with Yettem. Phase 1 involved transferring ownership of the systems from County of Tulare to Yettem-Seville CSD and updating Seville's distribution system. Phase 2 will include an interconnection between Seville and Yettem. Phase 1 was completed in 2020, and Phase 2 currently has an active construction project, 5400550-002C. This work plan aims to have SHE support the active construction project by providing outreach to the Yettem-Seville Board and the community of Yettem, as well as providing drought reporting assistance
AR 5311	Seville-Yettem	WW	SHE	Planning Application and Outreach	1/30/2017	Complete	$91,809	The goal of this work plan was to submit a CWSRF Planning Application aiming to consolidate the Seville and Yettem WW systems. The final spent to date amount is **$91,809**.
AR 5195	Sultana/Monson	DW	SHE	Construction Application Support, TMF, Well Sampling,	7/27/2018	Complete	$46,676	Work plan assisting with completing DWSRF Construction Application to Consolidate Sultana with Monson. Resulted in Construction Grant 5400824-001C. Work plan included Property Appraisal, ROE Legal Review, Domestic well Sampling, and TMF Capacity building. The final spent to date amount is **$46,676**

AR# OR PROJECT#	SYSTEM(S) NAME	AR TYPE (WW OR DW)	TAP	TYPE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/PROGRESS
AR 6877	Sultana	DW	SHE	Full Planning	2/3/2023	Active (in process of being closed out)	$312,953	Work Plan was assigned to address Sultana's aging distribution system. A PER was completed, 30% plans and specs were developed, an NOE was developed and filed, and a DWSRF application general package was uploaded to FAAST, but at that point, the project was deemed a Category F Project. Due to this determination, this work plan is being closed out.
D2118203	East Orosi CSD	DW		Administrator (The County)	9/10/2020	Active	$994,544	An Administrator was assigned to East Orosi CSD to manage the system through consolidation with East Orosi PUD.
AR7197	NE Tulare County	DW	P&P	Feasibility Study		Active	$290,968	Feasibility Study to explore regional consolidation of local water systems in northeast Tulare County.
						Total	$3,017,182	

Table P-3 Funding Agreements

PROJECT#	CONTRACT NO.	SYSTEM(S) NAME	TYPE (WW OR DW)	RECIPIENT	TYPE/ SOURCE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/ PORGRESS
5400550-002C	D21-02058	Seville & Yettem CSD	DW	County of Tulare	DWSRF	8/1/2023	Active	$11,520,975	Physical consolidation project of Seville Water Company and Yettem CSD. CSD needs to complete their 2021 audited financials prior to DFA disbursing funds under this contract. Test Well P&S should be completed in the next month or two. The County is unsure when they will move forward with Test Well given DFA is unable to disburse funds until the CSD submits their 2021 audited financials.
5400550-001C	D17-02094	Seville Water System	DW	County of Tulare	DWSRF	11/28/2018	Complete	$4,028,893	Installed a new distribution system and a 211,000-gallon storage tank in Seville.
P84C-5400550-007P	84-11C81	Seville Water Company	DW	Seville Water Company later Tulare County under receivership	Prop 84 - Chemical	11/27/2012	Complete	$691,000	Planning work for the Seville-Yettem CSD Consolidation Project Phase 1 and 2
5400550-001P	2013P118	Seville Water Company	DW	County of Tulare	DWSRF	10/11/2013	Complete	$215,108	To cover a feasibility study for the Surface Water Regional Drinking Water Project
EDWG-5401003-001C	D23-02042	East Orosi CSD	DW	East Orosi CSD (County of Tulare as administrator)	EDWG	6/4/2024	Active	$13,521,607	consolidation of the East Orosi water system with Orosi PUD project. Pending submission of pre-bid documents but P&S are complete.
P84C-5401003-003P	84-12C99	East Orosi CSD	DW	East Orosi CSD	Prop 84 - Chemical	11/16/2012	Complete	$337,911	Nitrate exceedance - remediation project. Completed only a PER and test well

PROJECT#	CONTRACT NO.	SYSTEM(S) NAME	TYPE (WW OR DW)	RECIPIENT	TYPE/ SOURCE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/ PORGRESS
P84C-5410001-001	84-11C54	Culter PUD	DW	Culter PUD	Prop 84 - Chemical	12/2/2011	Active	$2,605,318	High Nitrate and Source Capacity Construction Project. Pending completion of Phase 3 of 3
5410001-003C	3013C107	Culter PUD	DW	Culter PUD	DWSRF	1/14/2014	Complete	$1,986,996	Undersized Distribution System Replacement
5400824-001C	D19-02018	Sultana CSD	DW	Sultana CSD	DWSRF	12/3/2019	Active	$8,590,482	Near completion, with expected completion in summer 2025. The project includes a new well in Sultana and a transmission mainline to connect and consolidate Sultana and Monson.
8506-110	D19-01025	Sultana CSD	WW	Sultana CSD	CWSRF	3/18/2020	Complete	$83,188	Only a PER was produced for the consolidation of Monson with the Cutler-Orosi Wastewater Treatment Facility, but a consensus on the necessary capacity could not be reached with the Cutler-Orosi group.
	D15-11-904	Monson	DW	County of Tulare	CAA	1/19/2016	Complete	$1,215,000	The project was co-funded with $500K from USDA and $400K from DWR, for a total project cost of $2,115,000. It includes a new well and distribution system in the community of Monson.
0054002-001L	14-617-550	LEFA Project - North Tulare County Regional Surface Water Treatment Project	DW	County of Tulare	DWSRF	5/4/2015	Complete	$230,416	Governance Structure

PROJECT#	CONTRACT NO.	SYSTEM(S) NAME	TYPE (WW OR DW)	RECIPIENT	TYPE/ SOURCE OF ASSISTANCE	START DATE	STATUS (ACTIVE, COMPLETE, ETC)	BUDGET	PROJECT DESCRIPTION/ PORGRESS
0054003-001L	D15-02021	Monson	DW	County of Tulare	DWSRF	11/6/2015	Complete	$23,279	Monson system entity formation, ESA with Sultana CSD
0000541-001P	2013P115	Monson	DW	County of Tulare	DWSRF	10/18/2013	Complete	$94,905	Produced an engineering report to resolve Monson's drought struck private domestic wells
							Total	$45,145,077	

Table P-4 Interim Emergency Project Funding benefiting Seville

DATE AWARDED	FUNDING AGENCY	CONTRACT NO.	FUNDING SOURCE	AMOUNT	NOTES
12/23/2011		84-11E22	P84 Emergency	$40,367	Interim Replacement Drinking Water Program (CAA 358)
8/1/2014		PDE-13015	PWSDE	$275,000	15,000 gall storage tank, 2 booster pumps, drilling & equipping new well, well destruction. Leaks/breaks
8/21/2015	SWRCB		CAA (AB91 - $15 Million Allocation)	$100,000	CAA-emergency bottled water due to depressurization and intermittent water outages
11/4/2016	SWRCB		CAA (2016 $4 Million Set-Aside)	$50,000	CAA-emergency bottled water due to depressurization and intermittent water outages. Oral agreement
4/4/2017	SWRCB		CAS SB 826	$252,000	CAA-emergency bottled water due to depressurization and intermittent water outages Ends March 31, 2019
1/22/2019	SWRCB		CAA Urgent Drinking Water Needs	$110,000	CAA-emergency bottled Water due to depressurization and intermittent water outages April 1-2019, May 31, 2020
			Total	$827,367	

Table P-5 Interim Emergency Project Funding benefiting East Orosi

DATE AWARDED	FUNDING AGENCY	CONTRACT NO.	FUNDING SOURCE	AMOUNT ($)	NOTES
8/28/2013	SWRCB	84-13WE50	P84- Emergency	$35,071	Bottled Water
2014	SWRCB		Cleanup Abatement Account	$199,167	Bottled water
2018	SWRCB		Cleanup Abatement Account	$131,304	Bottled Water
2019	SWRCB		Cleanup Abatement Account	$398,782	WASTEWATER. replacement of two sewer lift pumps, plus installation cost of a temporary rental pump.
2023	SWRCB	D2217001	O&M	$199,631	Operation and Maintenance Funding Assistance. In Progress.
			Total	$963,955	

Table P-6 Interim Emergency Project Funding benefiting Monson

DATE AWARDED	FUNDING AGENCY	CONTRACT NO.	FUNDING SOURCE	AMOUNT	NOTES
2014-2019	SWRCB	Multiple	Cleanup Abatement Account	$5,630,000	Monson was on individual wells prior to 12/2017 residents were served by Tulare County's County Wide Bottled Water Program

Appendix B: CPUD Permit and 2022 Sanitary Survey

State Water Resources Control Board

Division of Drinking Water

August 24, 2022

Dionicio Rodriguez, Superintendent
Cutler Public Utility District – 5410001
40526 Orosi Drive
Cutler, CA 93615

DOMESTIC WATER SUPPLY PERMIT AMENDMENT NO. 03-24-22PA-019

Dear Mr. Rodriguez:

Please find the Domestic Water Supply Permit Amendment No. 03-24-22PA-019 for the Cutler Public Utility District water system (hereinafter “Water System”). The enclosed permit contains an all-inclusive list of applicable permit provisions.

After evaluation of the Water System and completion of the enclosed Sanitary Survey Report, the State Water Resources Control Board, Division of Drinking Water (Division) finds that in addition to the provisions of the enclosed Domestic Water Supply Permit, the items below are required to be addressed by the Water System.

The following items were required in the 2018 and 2019 Sanitary Survey Report issued by the Division and are still outstanding:

1. By **April 30, 2018,** the Water System must submit a Chlorine Operations Plan to the Division.

2. By **October 31, 2019**, the Water System must submit a Cross Connection Control Program to the Division for review and approval.

The following items were identified in the 2022 Sanitary Survey and require attention:

3. By **September 16, 2022,** the Water System must submit and updated ENP to the Division.

4. By **December 31, 2022**, the Water System must submit an ERP to the Division for review and approval.

If you have any questions regarding this letter or the permit, please contact the Tulare District office at (559) 447-3300 or by email at DWPDIST24@waterboards.ca.gov.

Sincerely,

Kristin Willet Digitally signed by Kristin Willet
Date: 2022.08.24 13:16:57 -07'00'

Water Boards

Kristin Willet, P.E.
Senior Water Resource Control Engineer, Tulare District
Division of Drinking Water
Southern California Field Operations Branch

cc: Tulare County Environmental Health Department

STATE OF CALIFORNIA

AMENDMENT TO THE DOMESTIC WATER SUPPLY PERMIT

Issued To

Cutler Public Utility District

For the Operation of the

Cutler Public Utility District Water System
Water System No. 5410001

By the

State Water Resources Control Board, Division of Drinking Water

PERMIT NUMBER: 03-24-22PA-019 **DATE:** August 24, 2022

WHEREAS:

1. The public water system known as the *Cutler Public Utility District* water system is located east of the City of Dinuba, whose mailing address is: 40526 Orosi Drive Cutler, CA 93615. The Cutler Public Utility District is the legal owner of the water system. Therefore, the Cutler Public Utility District is responsible for compliance with all statutory and regulatory drinking water requirements and the conditions set forth in this revised permit.

2. This revised permit is being issued to *Cutler Public Utility District* for the purpose of providing an updated permit reflecting the current operations of the *Cutler Public Utility District* water system under the regulations of the State of California Health and Safety Code.

3. The public water system for which the revised permit was written is described briefly below (a more detailed description of the permitted system is described in the attached report):

   The Cutler Public Utility District water system's source of supply is groundwater. The Water System is classified as a community water system and serves a population of approximately 6,200 people through 1,218 service connections. The Water System serves one pressure zone and consists of two active groundwater sources: Well 05 and Well 09. The source water receives continuous chlorination treatment.

And WHEREAS:

1. The Division of Drinking Water has evaluated all of the information submitted by *Cutler Public Utility District* and has conducted a physical investigation of the *Cutler Public Utility District* water system.

2. The Division of Drinking Water has the authority to issue domestic water supply permits pursuant to Health and Safety Code Section 116540.

THEREFORE: The Division of Drinking Water has determined the following:

1. The *Cutler Public Utility District* water system meets the criteria for and is hereby classified as a community water system.

2. Provided the following conditions are complied with, the *Cutler Public Utility District* water system should be capable of providing water to consumers that is pure, wholesome, and potable and in compliance with statutory and regulatory drinking water requirements at all times.

THE CUTLER PUBLIC UTILITY DISTRICT IS HEREBY ISSUED THIS REVISED DOMESTIC WATER SUPPLY PERMIT TO OPERATE THE CUTLER PUBLIC UTILITY DISTRICT WATER SYSTEM.

The Cutler Public Utility District water system shall comply with the following permit conditions:

1. The Cutler Public Utility District shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted thereunder.

2. The only approved sources of domestic water supply for use by the Cutler Public Utility District are as follows:

Source Name	Status	Primary Station Code (PS Code)
Well 05 – Raw	Active	CA5410001_003_003
Well 09 – Raw	Active	CA5410001_008_008

3. The only approved treatment for the Cutler Public Utility District is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

Source Name	Status	PS Code

Well 05 – CL2	Active	CA5410001_005_005
Well 09 – CL2	Active	CA5410001_009_009

4. No other sources or treatment (as described in Provisions No. 2 and 3 above) shall be used by the Cutler Public Utility District water system and no changes, additions, or modifications shall be made without prior receipt of an amended domestic water supply permit from the Division.

5. All personnel who operate the distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Cutler Public Utility District water system is classified as a D3 system. The Cutler Public Utility District must have a chief distribution operator who is certified, at a minimum, as a D2 distribution system operator and a shift operator who is certified as a D1 operator or higher. The only treatment provided by the Cutler Public Utility District is continuous chlorination, therefore no treatment operator is required.

6. The Cutler Public Utility District shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Cutler Public Utility District shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Cutler Public Utility District shall submit an Electronic Annual Report each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Cutler Public Utility District shall record production data from the active sources at least monthly.

9. The Cutler Public Utility District shall collect raw water samples at least monthly from all active wells for analyses of total coliform and fecal coliform or *E. coli* bacteria. The coliform test shall be performed using a density analytical method with results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10^{th} day of the following month.

10. The Cutler Public Utility District shall monitor for coliform bacteria in the distribution system monthly and in accordance with an approved Bacteriological Sample Siting Plan. The Division shall be notified immediately if either of the following occur

    a. Any distribution system or source sample shows the presence of *E. coli* bacteria.

    b. The water system exceeds the maximum contaminant level for total coliform bacteria, in which more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Cutler Public Utility District shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Cutler Public Utility District shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Cutler Public Utility District shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring annually. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Codes:

ST2 DBP Monitoring Sites	PS Codes
ST2S1-12307 Avenue 408	CA5410001_DST_900

13. The Cutler Public Utility District shall operate the water system in accordance with a Division-approved Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval.

14. The Cutler Public Utility District water system shall monitor the chlorine residual in the distribution system weekly and report the residuals to the Division monthly using the Chlorine Operational Log form. The Cutler Public Utility District water system shall submit a monthly treatment report to the Division by the 10^{th} day of the following month.

This permit supersedes all previous domestic water supply permits issued for this public water system and shall remain in effect unless and until it is amended, revised, reissued, or declared to be null and void by the Division of Drinking Water. This revised permit is non-transferable. Should the Cutler Public Utility District water system undergo a change of ownership, the new owner must apply for and receive a new domestic water supply permit.

Any change in the source of water for the water system, any addition or modification of the method of treatment as described in the sanitary survey report, or any addition of distribution system storage reservoirs shall not be made unless an application for such change is submitted to the Division of Drinking Water.

This revised permit shall be effective as of the date shown below.

FOR THE DIVISION OF DRINKING WATER

Kristin Willet Digitally signed by Kristin Willet
Date: 2022.08.24 13:19:25 -07'00'
Water Boards

Kristin Willet, P.E. Date
Tulare District Engineer

State Water Resources Control Board

DATE: August 24, 2022

FROM: Kristin Willet, P.E.
District Engineer, Tulare District

SUBJECT: Cutler Public Utility District
Sanitary Survey – 5410001

I. INTRODUCTION

1.1 PURPOSE OF REPORT

On May 19, 2022, the State Water Resource Control Board, Division of Drinking Water (Division), inspected the Cutler Public Utility District (Water System) drinking water supply system. Mr. Dionicio Rodriguez, with the Cutler Public Utility Water District assisted Ms. Willet with the sanitary survey. The purpose of this report is to document the sanitary survey of the Water System and to describe the existing water supply facilities and current operational practices. The last routine sanitary survey was conducted by the Division on August 1, 2019.

Domestic Water Supply Permit

The Water System was issued a Domestic Water Supply Permit No. 03-12-09PA-006 by the California Department of Public Health (CDPH) - Visalia District in June 2009. The Water System is still subject to the following permit provisions; included in Permit No.: 03-12-09PA-006:

1. The Cutler Public Utility District shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted thereunder.

2. The only approved sources of domestic water supply for use by the Cutler Public Utility District are listed in the table below.

Approved Sources

Source Name	Status	Primary Station Number
Well No. 5	Active	CA5410001_003_003
Well No. 6	Active	CA5410001_004_004
Well No. 9	Active	CA5410001_008_008

3. The only approved treatment facilities for the Cutler Public Utility District is disinfection provided at each well head using NSF approved 12.5% sodium hypochlorite solution.

4. No additions, changes or modifications to the sources of water supply or water treatment processes outlined in Provisions Nos. 2 and 3 can be made without prior receipt of an amended domestic water supply permit from this Department.

5. Under the operator certification regulation, the Cutler Public Utility District's water system is classified as a D2 system. The District must have a chief distribution operator who is certified, at a minimum, as a D2 distribution system operator.

6. The Cutler Public Utility District shall conduct monthly source bacteriological monitoring. If a positive total coliform bacteria sample is detected, the sample shall also be analyzed for fecal coliform or E. coliform bacteria. The results of the positive coliform bacteria tests shall be reported as a density (MPN/100 ml), and not solely for the presence of coliform bacteria.

7. The Cutler Public Utility District shall collect remaining initial water quality monitoring requirements for Well No. 9. All results shall be submitted to the Department via EDT.
   - Second quarter VOC and SOC monitoring, to be collected by July 30, 2009.
   - Second quarter of radiological monitoring, to be collected by July 30, 2009. Radiological monitoring shall continue, if required, in the fourth quarter of 2009 and the first quarter of 2010.
   - Second quarter of MTBE monitoring, to be collected by July 30, 2009, and continue in the fourth quarter of 2009 and the first quarter of 2010.
8. The Cutler PUD should implement a water conservation program to reduce water use in the District.
9. The Cutler PUD should monitor water levels of the three active wells monthly (May through September) and quarterly during the rest of the year.

The provisions included in the active permit are not all-inclusive and some do not reflect the current operations of the Water System, including the inactivation of Well 06. As a result, a permit amendment is required. The permit amendment, which accompanies this inspection report, reflects the changes in provisions and describes the current operations of the Water System.

1.2 DESCRIPTION OF SYSTEM

The Water System is classified as a community water system (CWS) which serves an approximate population of 6,200 people through 1,218 service connections. The Water System consists of two active groundwater wells, one elevated 48,000-gallon storage tank, and the associated distribution system composed of different piping sizes and materials. Continuous chlorination treatment is provided at each well site. The Water System's distribution system is operated as one pressure zone. The service area maintains distribution pressure between 25 and 42 pounds per square inch (psi) and is composed of 1,096 unmetered connections and 122 metered connections. The Water System is sewered and maintains a wastewater treatment facility for waste disposal. Appendix A contains photographs of the Water System's well sites and storage tank.

1.3 ENFORCEMENT HISTORY

Enforcement Action:	**Compliance Order No. 03-12-06O-002**
Issue Date:	February 2007
Description:	The Water System exceeds the maximum contaminant level (MCL) for dibromochloropropane (DBCP) at Well 06.
Status:	Well 06 is inactive due to inadequate water quality.

Enforcement Action:	**Compliance Order No. 03-12-12O-006**
Issue Date:	September 2012
Description:	The Water System exceeds the MCL for nitrate at Well 06.
Status:	Well 06 is inactive due to inadequate water quality.

Enforcement Action:	**Citation No. 03-24-19C-116**
Issue Date:	October 2019
Description:	The Water System exceeds the MCL for total coliform in September 2019.
Status:	The Water System returned to compliance in October 2019.

Enforcement Action:	**Compliance Order No. 03-24-22R-007**
Issue Date:	August 2022
Description:	The Water System exceeds the MCL for 1,2,3-tricholorpropane.
Status:	The Water System has issued a Tier 2 1,2,3-trichloropropane notice to customers.

1.4 AREA SERVED

The Water System is in Tulare County and is located east of the City of Dinuba. The service area consists of single and multiple family residences, commercial businesses, retail and agricultural related establishments. The Water System serves an approximate population of 6,200 people through 1,218 service connections. The Water System is operated by Mr. Dionicio (Junior) Rodriguez. The mailing address for the Water System is 40526 Orosi Drive, Cutler CA 93615. The water system is owned and operated by the Cutler PUD. A locational map is included in Appendix A.

1.5 PRODUCTION DATA

Table 1 summarizes the water production information obtained from the Electronic Annual Reports (EARs) from 2011 through 2021.

Table 1 – Production Data

Year	Population	Service Connections	Annual Production (MG)	Max. Month (MG)
2021	6,200	1,218	249	32 (Jul.)
2020	6,200	1,218	253	33 (Jul.)
2019	6,200	1,218	242	32 (Jul.)
2018	6,200	1,218	249	33 (Jul.)
2017	6,200	1,039	246	32 (Jul.)
2016	6,200	1,218	237	30 (Jul.)
2015	6,200	1,218	236	27 (Aug.)
2014	6,200	1,218	273	34 (Jul.)
2013	6,200	1,218	318	41 (Jul.)
2012	6,200	1,218	301	42 (Aug.)
2011	6,200	1,218	292	39 (Jul.)

II. INVESTIGATION AND FINDINGS

2.1 SOURCES OF SUPPLY

The domestic water supply is obtained from two active groundwater sources that are identified as Wells 05 and 09. A description for each source is provided below. Photographs of the well sites are included in Appendix A.

Source Water Assessment

A Possible Contaminating Activity (PCA) checklist and Source Water Assessment Program (SWAP) was completed for Wells 05 and 09 in February 2003 and June 2013 by Tulare County and the Water System. The SWAP indicates the sources are most vulnerable to the following contaminating activities: fertilizer/pesticide/herbicide application and automobile/gas stations.

Active Wells:

Well 05 – RAW, Active – Treated, (CA5410001_003_003)

DWR Well Completion Report:	YES
Date of Well Completion:	January 1962
Well Depth:	500 feet
Sanitary Seal Depth:	50 feet
Well Casing:	14-inch steel casing to 504 feet; perforations between 180 to 491 feet in regular intervals
Flow Meter:	YES
Pump Type:	Deep well turbine, water-lubricated
Pump Make and Model:	U.S. Motors
Pump Size:	75-hp
Well Capacity:	950 gpm
Source Discharge:	Directly to sand separator then distribution system.
Source Operation:	Radio signal from storage tank.

Well 09 – RAW, Active – Treated, (CA5410001_008_008)

DWR Well Completion Report:	YES
Date of Well Completion:	July 2007
Well Depth:	515 feet
Sanitary Seal Depth:	270 feet
Well Casing:	14-inch steel casing to 420 feet; perforations between 320 to 420 feet
Flow Meter:	YES
Pump Type:	Deep well turbine, water-lubricated

Pump Make and Model:	U.S. Motors
Pump Size:	40-hp
Well Capacity:	450 gpm
Source Discharge:	Directly to distribution system.
Source Operation:	Radio signal from storage tank.

Inactive Wells:

The Water System has one inactive well; Well 06. Historically, this well produces water that exceeds the MCL for nitrate and DBCP. A DWR Well Driller's Completion Report for Well 06 is on file with the Division. According to the completion report, Well 06 was drilled in 1979 to a depth of 540 feet. The borehole contains a 14-inch steel casing extending to 516 feet. Perforations are located between 315 and 325; 340 and 365; 380 and 395; 408 and 444; and 495 and 510 feet. There is a cement annular seal provided to 72 feet. The well is equipped with a water-lubed 75-hp DWT pump, which is estimated to produce approximately 1,100 gpm. A totalizing flow meter is present and production data is recorded monthly.

The well is secured in a fenced area. The discharge line features a check valve, air relief vent, and a non-threaded raw water sampling tap. The water pumps directly to the distribution system but has isolation valves preventing any flow to the distribution system. The Water System is currently in the process of obtaining funding for a 400,000-gallon blending tank and equipping an existing well to mix with Well 06 water in order to provide more supply for the system in the future. **The Water System must notify the Division in the event of an emergency where Well 06 needs to be used in the distribution system. Additionally, the Water System will need to provide a Tier 1 Public Notice for the chemical exceedances, if Well 06 is used in the distribution system.**

2.2 ADEQUACY OF SUPPLY

Using the data from Table 1, a peaking factor of 1.5 was used to estimate the values found in Table 2. Table 3 displays the estimated total source capacity of the Water System's active sources. It should be noted that the capacities listed in Table 3 are estimates provided by the Water System.

Table 2 - Average Day, Maximum Day & Peak Hour Demand

Year	Average Day (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
2021	474	1,075	1,613
2020	481	1,109	1,663

2019	460	1,075	1,613
2018	473	1,100	1,650
2017	467	1,068	1,602
2016	451	1,008	1,512
2015	449	907	1,361
2014	519	1,142	1,714
2013	605	1,378	2,067
2012	573	1,411	2,117
2011	556	1,310	1,966

Table 3 - Total Active Source Capacity

Source	Capacity (gpm)
Well 05	950
Well 09	450
Total Capacity	**1,400**

The Water System utilizes Wells 05 and 09 to meet system demand. The estimated capacity of the sources are 950 and 450 gallons per minute (gpm), respectively. The Water System has 48,000 gallons of storage capacity. According to the California Waterworks Standards, the highest water usage during the last ten years is used to estimate the average day demand (ADD), maximum day demand (MDD), and peak hour demand (PHD) for the system. These standards also require a system with greater than 1,000 service connections to have capacity to be able to meet four hours of PHD with source capacity, storage capacity, and/or emergency source connections. Additionally, a community water system using only groundwater shall be capable of meeting MDD with the highest- capacity source offline. The highest water usage during the last ten years for the ADD, MDD, PHD was 605 gpm, 1,378 gpm, and 2,067 gpm, respectively. As such, the Water System is incapable of meeting these requirements with their current combined source capacity and storage capacity at this time.

The Water System is currently in the process of obtaining funding for a 400,000-gallon blending tank and equipping an existing well, Well 10, to mix with Well 06 water in order to provide more supply for the system in the future. Given that the water quality at Well 10 is unknown at this time, it is unclear if the project to equip Well 10 and incorporating the blending tank will provide the Water System with the capacity required by the California Waterworks Standards. The Division highly recommends the addition of extra storage capacity and/or an additional well, or an emergency connection with an adjacent water system such as Orosi Public Utility District.

2.4 TREATMENT FACILITIES

Continuous Chlorination

The Water System provides continuous chlorination of the water produced by Wells No. 05 and 09. The chlorination equipment is located at each well site and each consists of: NSF-approved clear 15-gallon polyethylene solution tank, LMI chemical metering pumps (Well 05: max output 0.65-gph @ 110 psi; Well 09: max output 1-gph @ 110 psi), and NSF approved 12.5% Sanichlor chlorine solution. The chlorination equipment is enclosed inside a covered, fenced structure.

The chlorine solution is injected into the discharge lines of Well 05 and 09 prior to entering the distribution system. The chlorine residual must be recorded weekly during routine visits. The operator aims to have a chlorine residual of 0.2-0.4 mg/L in the distribution system. The Chlorine Operational Log should be submitted to the Division by the 10th day of the following month.

Chlorination Operations Plans

The Water System does not have an approved Chlorination Operations Plan on file with the Division. A Chlorine Operations Plan template is provided in Appendix F. **The Water System was directed in the 2018 Sanitary Survey to submit a chlorine operations log. The Water System has not addressed this directive and must do so immediately.**

2.5 STORAGE

Storage for the Water System is provided by one elevated steel storage tank, which is approximately 48,000 gallons. The tank is a common inlet/outlet configuration and receives chlorinated water from the distribution system. Water from the two well sites flows through the distribution system to the storage tank. The dimensions of the tank are unknown. When the water level in the storage tank is approximately at half of its maximum capacity, a radio signal is sent to the well sites to start the pumps. According to Mr. Rodriguez, the last cleaning of the storage tank was in 2021. The Division recommends cleaning and inspecting the storage tank every five years.

2.6 OPERATIONS AND MAINTENANCE

The responsible entity of the water system is Cutler Public Utility District. Cutler Public Utility District is operated and maintained by Dionicio (Junior) Rodriguez. Mr. Rodriguez is the chief operator of the Water System and is a certified D3 operator

(Certification Number: 21736). The operator is responsible for the maintenance and operation of the water system. The Water System's distribution system is classified as a D2 distribution facility.

Per Title 22, Section 63770, California Code of Regulations water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:

1. Install, tap, re-line, disinfect, test and connect water mains and appurtenances.

2. Shutdown, repair, disinfect and test broken water mains.

3. Oversee the flushing, cleaning, and pigging of existing water mains.

4. Pull, reset, rehabilitate, disinfect and test domestic water wells.

5. Stand-by emergency response duties for after-hours distribution system operational emergencies.

6. Drain, clean, disinfect, and maintain distribution reservoirs.

The Water System shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:

1. Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.

2. Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.

The Water System shall utilize either certified distribution operators or treatment operators to make decisions addressing the following operational activities:

1. Determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.

2. Investigate water quality problems in the distribution system.

Cross Connection Control Program

The Water System is required to maintain a Cross Connection Control Program which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

1. The conducting of surveys to identify water user premises or locations where cross connections are likely to occur,

2. The provisions of backflow protection by the water user at the user’s connection or within the user’s premises or both,

3. The provision of at least one person trained in cross connection control to carry out the cross-connection program,

4. The establishment of a procedure or system for annual testing of backflow preventers, and

5. The maintenance of records of locations, tests, and repairs of backflow preventers.

Backflow Prevention Device Testing

Regulation requires all backflow prevention devices to be tested annually. Copies of the testing records must be kept on file with the City for a minimum of three years.

A cross-connection control survey was completed on May 22, 2018. Based on the 2021 EAR, the City has 20 backflow prevention devices in the system. Regulation requires all backflow prevention devices to be tested annually. All backflow assemblies were tested during the 2021 calendar year. Copies of the testing records must be kept on file with the Water System for a minimum of three years. The Water System is required to maintain a Cross Connection Control Program which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

The Division recommends that a Cross-Connection Control survey be conducted every five years or upon the addition of new service connections or facility changes. The cross-connection control program should contain details on the frequency of surveys, when new surveys will be performed, and the name of the certified cross connection control specialist used.

The Water System indicated that all new service connections are surveyed for backflow and cross-connection hazards and all existing service connections undergo backflow testing each year. **The Water System was directed in the 2019 Sanitary**

Survey to provide a copy of the Cross-Connection Control Program. This directive has not been addressed and the Water System must do so immediately. Instructions are provided in Appendix G.

Complaint Program

The Water System must keep records of all complaints received and actions taken to correct the problems related to the complaints. Records of any complaints must be kept on file by the Water System for a minimum of three years and should be reported to the Division via the Electronic Annual Report (EAR). There were four complaints reported in the 2021 EAR related to taste and odor. All complaints were investigated by the Water System and resolved by explaining to the customers the taste and odor were attributed to chlorine in the system.

Emergency Response Plan (ERP)

On October 23, 2018, America's Water Infrastructure Act (AWIA) was signed into law. AWIA Section 2013 requires community (drinking) water systems serving more than 3,300 people to develop or update risk assessments and emergency response plans (ERPs). By June 30, 2021, the City must certify the completion of its risk and resilience assessment on the U.S. EPA site: https://www.epa.gov/waterresilience/how-certify-your-risk-and-resilience-assessment-or-emergency-response-plan. Additionally, an ERP for the City must be certified by December 31, 2021. Information for completing a risk assessment and ERP is available on the Water Boards' Water Resiliency – Prepare website: https://www.waterboards.ca.gov/drinking_water/certlic/ drinkingwater/water_ resiliency/prepare.html

By December 31, 2022, the Water System must submit an ERP to the Division for review and approval. Appendix H provides a guidance document and template that may be used for updating the Water System's ERP.

Consumer Confidence Report (CCR)

The Consumer Confidence Report (CCR) is required to be delivered to all customers within the Water System by July 1st of the following year, and a copy of the CCR and certification of publication is due to the Division by October 1st of each year. The Water System submitted the 2021 CCR and CCR certification on 24, 2022. The Water System must ensure that the CCR and certification of publication are submitted on a timely basis.

Emergency Notification Plan (ENP)

The Water System's Emergency Notification Plan (ENP), submitted in May 2019, lists Mr. Dionicio Rodriguez, Mr. Santiago Venegas, and Mr. Dennis Keller as the primary, secondary, and tertiary contacts, respectively, in the event of a water quality emergency. The Water System has specified the use of local media, posted notification, and handout distribution as the primary modes of notification in the event of a water quality emergency. This would be followed by direct notification via public notices that would be distributed by City personnel.

The Tulare District contacts have changed and required an update to the ENP template. **By September 16, 2022, the Water System must submit an updated ENP to the Division.** The updated ENP template is provided in Appendix I.

Water System Resiliency and Preparedness

The effects of climate change on community water system (CWS) facilities and operations is a concern and priority of the State Water Resources Control Board (SWRCB), which is documented by the SWRCB in its Comprehensive Climate Change Resolution No. 2017-12, adopted in March 2017. DDW is reviewing each water system's preparedness for climate change with the goal to increase awareness and familiarization to the effects of climate change to facilities and operations, encourage the use of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) or equivalent, and to document and the CWS' efforts in climate change.

As part of the 2021 EAR, CWSs were asked to identify their vulnerabilities, and rank them as either high, medium or low sensitivity, and proposed or implemented projects to prepare for the impacts from climate change. The *Cutler PUD Water System did* provide responses to these questions. The Water System identified the following potential climate change impacts that their facilities are highly vulnerable to: *drought, water quality degradation, and groundwater degradation*. The Water System has implemented, or is considering implementing, the following projects to address current identified needs and which also reduce the impacts to these vulnerabilities: *installing new and deeper drinking water wells or modify existing wells to increase pumping capacity; develop local supplemental water supply, enhanced treatment, or increased storage capacity; relocate facilities, construct or install redundant facilities; conservation measures; alternative or backup energy supply;.*

The Water System indicated that they *were not* aware of the CREAT tool developed by USEPA for identifying climate change vulnerabilities. The Water System *has not* used CREAT (or similar tool) to identify vulnerabilities to the water system sources and facilities. The SWRCB strongly encourages utilities to evaluate climate change vulnerabilities using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

Fire ---
A defensible space of 100 feet (*California Public Resources Code, 4291*) **is** maintained around all sources and structures managed by the Water System.
Well 05 is immediately adjacent to a convenience store and does not have 100 feet of defensible space. The storage tank and Well 09 both have a defensible space of 100 feet.

Flooding ---
Are any of the drinking water facilities vulnerable to flooding? **No**
The sources are not within a flood zone. The storage tank is elevated.

Backup Power ---
Is backup power available, for example, through portable or permanent power generators? **Yes**
If liquid fuel is used, is it properly contained and stored away from the source? **Yes**

Drought ---
Is the Water System prepared for drought related shortages or outages? (interties, backup supply, increased storage) **No**
If using a groundwater source: Is the Water System monitoring depth to groundwater on a routine basis? **Yes**
The Water System monitors groundwater depth on annual basis. Additionally, the Water System is in the process of obtaining funding to equip an existing well, Well 10, and incorporate a blending tank into the system.

Degrading Source Water Quality –
Has source water quality degraded over time, or specifically during the most recent drought? **No**

The Water System is composed of different types and sizes of distribution piping. The system is primarily composed of C900, ductile iron, galvanized steel, and some asbestos-cement piping. System pressure is maintained between 25 and 42 psi.

2.7 SOURCE WATER QUALITY MONITORING

A summary of the recent source water quality monitoring results and next due dates are included in Appendix B. Additionally, the current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. Instructions for accessing this information is included in Appendix D.

Bacteriological – Raw Water

The Water System is required to conduct monthly source water bacteriological sampling from all sources with continuous chlorination at a tap located prior to the chlorine injection port. These samples must be analyzed for coliform bacteria density and the results reported as Most Probable Number per 100 mL (MPN/100 mL). The results of these analyses must be reported to the Division monthly using the Monthly Source Bacteriological Monitoring Report. A summary of the source bacteriological results for the last three years is included in Appendix C.

California Ground Water Rule Monitoring

The California Ground Water Rule (GWR) requires public water systems to conduct triggered source monitoring whenever a routine distribution system sample is positive for total coliform bacteria.

General Mineral, General Physical and Inorganic Chemicals

The Water System is required to monitor its active groundwater sources for general mineral (GM), general physical (GP) and inorganic (IO) chemical water quality every three years, except for nitrate which has a different monitoring frequency. The Water System last sampled Wells 05 and 09 for GM, GP, and IO chemicals in July 2022, except for perchlorate which was last sampled for in August 2020 from Well 05 and August 2021 from Well 09. All results were below the respective MCLs. **The next round of GM, GP, and IO chemical water quality monitoring due dates for Wells 05 and 09 are provided in Appendix B.**

Nitrate

The Water System is required to monitor for nitrate (as N) from Well 05 on a monthly basis, and Well 09 quarterly basis. These sources have historically produced water with a nitrate (as N) concentration of greater than or approximately one-half of the MCL for nitrate (as N). The most recent nitrate (as N) results are provided in the table below.

Table 4 – Nitrate Monitoring Results

Source	Last Sample Date	Result (mg/L)	Next Sample Due
Well 05	7/29/2022	9.4	08/2022
Well 09	7/29/2022	4.7	10/2022

Volatile Organic Chemicals (VOC)

The Water System is required to sample Wells 05 and 09 for VOCs once every three years after initial monitoring is complete. The Water System completed the initial VOC analysis for Wells 05 and 09. The Water System last monitored Well 05 for VOCs in July 2022 with non-detect results. The VOC sampling from Well 09 was conducted on July 2021 with all results non-detect. **Well 05 is due to be monitored for VOCs again by July 2025 and Well 09 must be monitored for VOCs again by July 2024.**

Synthetic Organic Chemicals (SOC)

The Water System is required to sample Wells 05 and 09 for select SOCs (alachlor, atrazine, dibromochloropropane (DBCP), ethylene dibromide (EDB), and simazine) for two consecutive quarters every three years after initial monitoring is complete. The Water System last monitored Well 05 for alachlor, atrazine, and simazine in October 2021 with non-detect results. Well 05 was monitored for 1,2,3 – trichloropropane (1,2,3-TCP), DBCP and EDB in July 2021. The only detection was of 1,2,3-TCP at 0.007 ug/L. The Water System last monitored Well 09 for alachlor, atrazine, and simazine in August 2021 and 1,2,3 – trichloropropane (1,2,3-TCP), DBCP and EDB in July 2022, all with non-detect results.

The Water System has been monitoring Well 05 for 1,2,3-TCP on a monthly basis since October 2021 as shown in Table 5 below. As of July 2022, the running annual average (RAA) for 1,2,3-TCP from Well 05 has reached 0.00585 ug/L, exceeding the MCL for 1,2,3-TCP of 0.005 ug/L. The Water System has been issued Compliance Order No. 03-24-22R-007 on August 26, 2022, with a return to compliance date of August 2025.

Table 5: Well 05 1,2,3- TCP Running Annual Average

Well 05	Sample Date	1,2,3-TCP Result (ug/L)
1Q2022	1/14/2022	0.006
	2/9/2022	0.005
	3/9/2022	0.006
2Q2022	4/8/2022	0.006
	5/18/2022	0.005
	6/22/2022	0.006
3Q2022	7/29/2022	0.007
RAA		0.00585

Radiological

Radiological monitoring is based on the collection of four initial consecutive quarterly samples for gross alpha and radium 228. If at any time the gross alpha exceeds 5 pCi/L, analysis for uranium must be performed in that same sample. The Water System has completed initial monitoring requirements for Well 05 and Well 09. The Water System monitored Well 05 for gross alpha in August 2015, with non-detect results. The Water System monitored Well 09 for gross alpha in November 2020 with a result of 5.2 pCi/L. Subsequent radiological monitoring frequency is based on the results of the last sample analyzed. Wells 05 is currently on a nine-year monitoring frequency and Well 09 is now on a six-year monitoring frequency. The Water System must monitor Well 05 for gross alpha by August 2024. The Water System must monitor Well 09 for gross alpha again in November 2026.

3.2 DISTRIBUTION SYSTEM MONITORING

Bacteriological Water Quality

The Water System is required to collect at least seven routine bacteriological samples per month from the distribution system. The Water System submitted a Bacteriological Sample Siting Plan (BSSP) to the Division in July 2013 which indicates the locations where bacteriological routine and repeat samples will be collected.

The Water System must follow their BSSP unless alternative instructions are given by the Division. Any time a routine coliform positive sample occurs, the Water System must collect repeat samples from the locations listed in the BSSP within 24-hours. The analysis must report the results in most probable number (MPN). A summary of the distribution bacteriological sample results is included in Appendix D.

Lead and Copper Monitoring

The Water System has completed initial lead and copper distribution sampling tap monitoring and must now collect twenty samples from the distribution system on a reduced triennial frequency. The Water System last collected lead and copper samples in 2021 with results of non-detect and 0.18 mg/L, respectively. The Water System must monitor twenty sites in the distribution system for lead and copper between June 1 and September 30 in the 2022-2024 monitoring period.

All future lead and copper monitoring results must be submitted to the Division electronically via the Lab-To-State (LTS) Portal. The results may only be submitted through the LTS Portal by an Environmental Laboratory Accreditation Program (ELAP) accredited laboratory. A list of LTS registered laboratories can be found at:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/lts_portal_info.shtml.

The Water System must complete and submit a lead and copper tap sample results reporting form with all subsequent lead and copper monitoring results. A summary of the Water System's lead and copper results and a lead and copper tap sample results reporting form are included in Appendix E.

Disinfection By-Products Monitoring

Due to continuous chlorination of source water, the Water System is required to comply with the Stage 2 Disinfection Byproduct Monitoring Rule (DBPR). To comply with Stage 2 DBPR monitoring requirements, The Water System must collect a total trihalomethane (TTHM) and five haloacetic acid (HAA5) samples from a point in the distribution system w/ the maximum residence time. The Water System currently monitors for TTHM/HAA5 at ST2S1-12307 Avenue 408. The last TTHM/HAA5 sample collected was in August 2021 with results of 1.3 mg/L and non-detect, respectively. **The Water System is due to collect samples for DBPR in August 2022.**

Asbestos

Regulation requires monitoring of systems vulnerable to asbestos contamination within the distribution system at a tap served by asbestos containing pipe. Distribution system monitoring for asbestos is required if asbestos containing pipe is used and the water produced by the sources has an aggressive index of <11.5. The aggressive index is an indicator of the corrosivity, and correlates reasonably well with asbestos fibers leaching from the pipe material. The aggressive index at Wells 05 and 09 are 12, which does not indicate a potential for asbestos contamination in the distribution system.

III. APPRAISAL OF SANITARY HAZARDS & PUBLIC HEALTH SAFEGUARDS

The Cutler Public Utilities District water system relies on two wells to supply the demands of the system. The Water System also maintains one inactive source (Well 06) which is isolated from the distribution system. Storage is provided by one 48,000-gallon elevated storage tank. The Water System's combined source capacity is approximately 1,400 gpm. At this time, the Water System is incapable of meeting California Waterworks Standards requirements to meet demand with their current combined source capacity and storage capacity.

The Water System is currently in the process of obtaining funding for a 400,000-gallon blending tank and equipping an existing well, Well 10, to mix with Well 06 water in order to provide more supply for the system in the future. Given that the water quality at Well 10 is unknown at this time, it is unclear if the project to equip Well 10 and incorporating the blending tank will provide the Water System with the capacity required by the California Waterworks Standards. **The Division highly recommends the addition of extra storage capacity and/or an additional well, or an emergency connection with an adjacent water system such as Orosi Public Utility District**. The Domestic Water Supply Permit must be amended prior to placing Well 10 and the 400,000-gallon storage tank in service. The Water System must submit a permit amendment application and complete the permit process prior to the Division issuing a permit amendment.

The Water System was issued Compliance Order No. 03-24-22R-007 for exceeding the MCL for 1,2,3-TCP in the third quarter of 2022 at Well 05. The current running annual average for 1,2,3-TCP at Well 05 is 0.00585 ug/L. This well is the primary well for the Water System. The return to compliance date is set for August 2025.

All laboratory chemical analytical results must be submitted to the Division via CLIP with the correct PS Code. The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/.

IV. CONCLUSIONS AND RECOMMENDATIONS

Issuance of a Domestic Water Supply Permit Amendment by the State Water Resources Control Board, Division of Drinking Water to the Cutler Public Utilities District for the operation of the Cutler Public Utilities District water system is recommended subject to the following provisions:

1. The Cutler Public Utilities District shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted thereunder.

2. The only approved sources of domestic water supply for use by the Cutler Public Utilities District are as follows:

Source Name	Status	Primary Station Code (PS Code)
Well 05 – Raw	Active	CA5410001_003_003
Well 09 – Raw	Active	CA5410001_008_008

3. The only approved treatment for the Cutler Public Utilities District is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

Source Name	Status	PS Code
Well 05 – CL2	Active	CA5410001_005_005
Well 09 – CL2	Active	CA5410001_009_009

4. No other sources or treatment (as described in Provisions No. 2 and 3 above) shall be used by the Cutler Public Utilities District water system and no changes, additions, or modifications shall be made without prior receipt of an amended domestic water supply permit from the Division.

5. All personnel who operate the distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Cutler Public Utilities District water system is classified as a D3 system. The Cutler Public Utilities District must have a chief distribution operator who is certified, at a minimum, as a D2 distribution system operator and a shift operator who is certified as a D1 operator or higher. The only treatment provided by the Cutler Public Utilities District is continuous chlorination, therefore no treatment operator is required.

6. The Cutler Public Utilities District shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Cutler Public Utilities District shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Cutler Public Utilities District shall submit an Electronic Annual Report each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Cutler Public Utilities District shall record production data from the active sources at least monthly.

9. The Cutler Public Utilities District shall collect raw water samples at least monthly from all active wells for analyses of total coliform and fecal coliform or *E. coli* bacteria. The coliform test shall be performed using a density analytical method with results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

10. The Cutler Public Utilities District shall monitor for coliform bacteria in the distribution system monthly and in accordance with an approved Bacteriological Sample Siting Plan. The Division shall be notified immediately if either of the following occur

    a. Any distribution system or source sample shows the presence of *E. coli* bacteria.

    b. The water system exceeds the maximum contaminant level for total coliform bacteria, in which more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Cutler Public Utilities District shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Cutler Public Utilities District shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Cutler Public Utilities District shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring annually. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Codes:

ST2 DBP Monitoring Sites	PS Codes
ST2S1-12307 Avenue 408	CA5410001_DST_900

13. The Cutler Public Utilities District shall operate the water system in accordance with a Division-approved Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval.

14. The Cutler Public Utilities District water system shall monitor the chlorine residual in the distribution system weekly and report the residuals to the Division monthly using the Chlorine Operational Log form. The Cutler Public Utilities District water system shall submit a monthly treatment report to the Division by the 10th day of the following month.

In addition to the aforementioned permit amendment provision, the following items were required in the 2018 and 2019 Sanitary Survey Report issued by the Division and are still outstanding:

1. By **April 30, 2018,** the Water System must submit a Chlorine Operations Plan to the Division.

2. By **October 31, 2019**, the Water System must submit a copy of the Cross-Connection Control Program to the Division or provide a timeline for completing and submitting a cross-connection control program.

The following items were identified in this sanitary survey and must be addressed by the Water System:

1. By **September 16, 2022,** the Water System must submit an updated ENP to the Division.

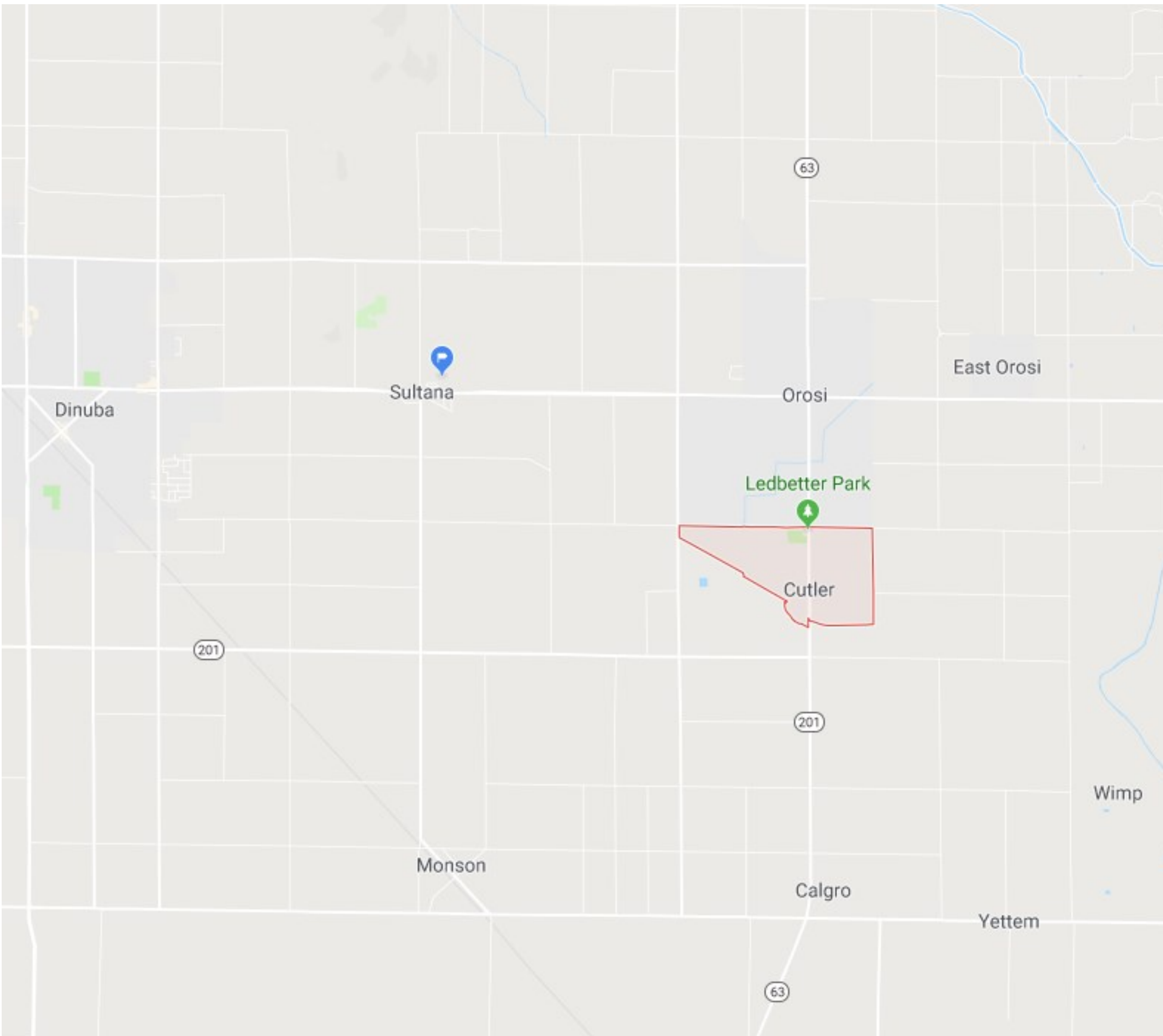
2. By **December 31, 2022**, the Water System must submit an ERP to the Division for review and approval.

Appendices:

Appendix A: Location Map and Sanitary Survey Photographs
Appendix B: Last Sample and Next Due Summary Report
Appendix C: Source and Distribution Bacteriological Monitoring Report
Appendix D: Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data
Appendix E: Lead and Copper Tap Sample Results Reporting Form
Appendix F: Chlorination Treatment Operations Plan Template
Appendix G: Cross Connection Control Program Guidance
Appendix H: Community Water System Emergency Response Plan – Template and Instructions
Appendix I: Emergency Notification Plan Template

Appendix A:
Location Map and Photographs

Appendix A
Cutler PUD: 5410001
Location Map and Photographs



Well 05: The well was drilled to a depth of 500 feet. The borehole contains a 14-inch steel casing to 504 feet. The well is sealed to 50 feet with cement. The well is equipped with a 75-hp deep well turbine (DWT) pump, which produces approximately 1,100 gpm.

Well 09: The well was drilled to a depth of 515 feet. The borehole contains a 14 -inch steel casing to 420 feet. The well is sealed to 270 feet with cement. The well is equipped with a 40-hp deep well turbine (DWT) pump, which produces approximately 450 gpm.

Appendix A
Cutler PUD: 5410001
Location Map and Photographs

Continuous Chlorination: The Water System uses LMI chemical metering pumps (Well 04: Max output 0.65-gph @ 110 psi; Well 09: max output 1-gph @ 110 psi). The Water System uses Sanichlor chlorine solution.

48,000 Gallon Elevated Storage Tank: The Water System uses an elevated storage tank to provide distribution system pressure and storage.

Appendix B:
Last Sample & Next Due Date Summary Reports

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 05 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_003_003		CUTLER PUD						WELL 05 - RAW												
	GP	SECONDARY/GP																		
		1928	ALKALINITY, BICARBONATE	220.000		3.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1919	CALCIUM	64.000		0.100		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1929	ALKALINITY, CARBONATE		<	3.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1017	CHLORIDE	39.000		1.000		MG/L	500	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1905	COLOR	5.000		5.000		UNITS	15	-----	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2120 B
		1022	COPPER, FREE		<	5.000		UG/L	1000	50	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.050		MG/L	0.5	-----	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 5540 C-00
		1915	HARDNESS, TOTAL (AS CACO3)	260.000		0.410		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2340 B
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	3.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1028	IRON		<	30.000		UG/L	300	100	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1031	MAGNESIUM	23.000		0.100		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1032	MANGANESE	14.000		10.000		UG/L	50	20	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 05 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_003_003	**GP**	**SECONDARY/GP**																		
		1920	ODOR		<	1.000		TON	3	1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2150 B
		1925	PH	7.900		0.000			------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 4500-H+B
		1050	SILVER		<	10.000		UG/L	100	10	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1052	SODIUM	36.000		1.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	670.000		1.000		US	1600	-----	7/29/2022	10	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2510 B
		1055	SULFATE	32.000		1.000		MG/L	500	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1930	TDS	450.000		5.000		MG/L	1000	-----	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2540 C
		0100	TURBIDITY	0.830		0.100		NTU	5	0.1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	SM 2130 B-01
		1095	ZINC		<	50.000		UG/L	5000	50	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
	IO	**INORGANIC**																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1074	ANTIMONY, TOTAL		<	2.000		UG/L	6	6	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1005	ARSENIC	2.100		2.000		UG/L	10	2	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 05 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_003_003	**IO**	**INORGANIC**																		
		1010	BARIUM	160.000		50.000		UG/L	1000	100	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1015	CADMIUM		<	1.000		UG/L	5	1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1020	CHROMIUM		<	10.000		UG/L	50	10	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1025	FLUORIDE	0.150		0.100		MG/L	2	0.1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1035	MERCURY		<	0.200		UG/L	2	1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1036	NICKEL		<	10.000		UG/L	100	10	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1039	PERCHLORATE		<	4.000		UG/L	6	4	8/5/2020	25	36		2023/08		5931003200805121 6I	1180	BSK ANALYTICAL LABORATORIES	
		1045	SELENIUM		<	2.000		UG/L	50	5	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
	NI	**NITRATE/NITRITE**																		
		1040	NITRATE	9.400		0.230		mg/L	10	0.4	7/29/2022	85	1	Interval	2022/08	**DUE NOW**	**AFG3534-01**	**1180**	**BSK ANALYTICAL LABORATORIES**	**EPA 300.0**
		1041	NITRITE		<	0.050		mg/L	1	0.4	7/29/2022	4	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD

COUNTY: TULARE

Sample Point: WELL 05 - RAW

CLASS: CLGA

STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_003_003	**RA**	**RADIOLOGICAL**																		
		4109	GROSS ALPHA PARTICLE ACTIVITY		<	1.500	0.191	PCI/L	15	3	8/11/2015	625	108	Interval	2024/08		5931003150811124 7R	1180	BSK ANALYTICAL LABORATORIES	
	S1	**REGULATED VOC**																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 05 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_003_003	S1	REGULATED VOC																		
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2990	BENZENE		<	0.500		UG/L	1	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2251	METHYL TERT-BUTYL ETHER		<	0.500		UG/L	13	3	7/29/2022	90	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2996	STYRENE		<	0.500		UG/L	100	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2991	TOLUENE		<	0.500		UG/L	150	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 05 - RAW CLASS: CLGA STATUS: Active

CA5410001_003_003	**S1**	2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	7/29/2022	5	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLOROPROPANE	0.007		0.001		UG/L	0.005	0.005	7/29/2022	28	1	Both	2021/11	**DUE NOW**	**AFG3534-01**	**1180**	**BSK ANALYTICAL LABORATORIES**	**SRL 524M-TCP**
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	10/22/2021	25	36		2024/10		AEJ2543-01	1180	BSK ANALYTICAL LABORATORIES	EPA 505
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	10/22/2021	25	36		2024/10		AEJ2543-01	1180	BSK ANALYTICAL LABORATORIES	EPA 505
		2931	1,2-DIBROMO-3-CHLOROPROPANE	0.093		0.010		UG/L	0.2	0.01	7/29/2022	120	1	Interval	2022/08	**DUE NOW**	**AFG3534-01**	**1180**	**BSK ANALYTICAL LABORATORIES**	**EPA 504.1**
		2946	ETHYLENE DIBROMIDE		<	0.020		UG/L	0.05	0.02	7/29/2022	119	36		2025/07		AFG3534-01	1180	BSK ANALYTICAL LABORATORIES	EPA 504.1
		2037	SIMAZINE		<	1.000		UG/L	4	1	10/22/2021	25	36		2024/10		AEJ2543-01	1180	BSK ANALYTICAL LABORATORIES	EPA 505

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 09 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_008_008		**CUTLER PUD**						**WELL 09 - RAW**												
	GP	**SECONDARY/GP**																		
		1928	ALKALINITY, BICARBONATE	150.000		3.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1919	CALCIUM	42.000		0.100		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1929	ALKALINITY, CARBONATE		<	3.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1017	CHLORIDE	20.000		1.000		MG/L	500	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1905	COLOR	5.000		5.000		UNITS	15	-----	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2120 B
		1022	COPPER, FREE		<	5.000		UG/L	1000	50	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.050		MG/L	0.5	-----	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 5540 C-00
		1915	HARDNESS, TOTAL (AS CACO3)	170.000		0.410		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2340 B
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	3.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1028	IRON		<	30.000		UG/L	300	100	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1031	MAGNESIUM	16.000		0.100		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1032	MANGANESE		<	10.000		UG/L	50	20	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 09 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_008_008	GP	SECONDARY/GP																		
		1920	ODOR		<	1.000		TON	3	1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2150 B
		1925	PH	8.000		0.000			------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 4500-H +B
		1050	SILVER		<	10.000		UG/L	100	10	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1052	SODIUM	26.000		1.000		MG/L	------	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	440.000		1.000		US	1600	-----	7/29/2022	10	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2510 B
		1055	SULFATE	12.000		1.000		MG/L	500	0.5	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1930	TDS	300.000		5.000		MG/L	1000	-----	7/29/2022	5	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2540 C
		0100	TURBIDITY	0.230		0.100		NTU	5	0.1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	SM 2130 B-01
		1095	ZINC		<	50.000		UG/L	5000	50	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
	IO	INORGANIC																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	7/29/2022	7	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1074	ANTIMONY, TOTAL		<	2.000		UG/L	6	6	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1005	ARSENIC	2.000		2.000		UG/L	10	2	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 09 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_008_008	IO	INORGANIC																		
		1010	BARIUM	97.000		50.000		UG/L	1000	100	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1015	CADMIUM		<	1.000		UG/L	5	1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1020	CHROMIUM		<	10.000		UG/L	50	10	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1025	FLUORIDE	0.150		0.100		MG/L	2	0.1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1035	MERCURY		<	0.200		UG/L	2	1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1036	NICKEL		<	10.000		UG/L	100	10	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1039	PERCHLORATE		<	2.000		UG/L	6	2	8/25/2021	25	36		2024/08		AEH2905-02	1180	BSK ANALYTICAL LABORATORIES	EPA 314.0
		1045	SELENIUM		<	2.000		UG/L	50	5	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
	NI	NITRATE/NITRITE																		
		1040	NITRATE	4.700		0.230		mg/L	10	0.4	7/29/2022	25	3	Interval	2022/10		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1041	NITRITE		<	0.050		mg/L	1	0.4	7/29/2022	4	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 09 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_008_008	**RA**	**RADIOLOGICAL**																		
		4109	GROSS ALPHA PARTICLE ACTIVITY	5.210		0.900	0.907	PCI/L	15	3	11/13/2020	64	72	Interval	2026/11		59310082011131025R	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	S1	**REGULATED VOC**																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 09 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_008_008	**S1**	**REGULATED VOC**																		
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2990	BENZENE		<	0.500		UG/L	1	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2251	METHYL TERT-BUTYL ETHER		<	0.500		UG/L	13	3	7/23/2021	100	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2996	STYRENE		<	0.500		UG/L	100	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	7/23/2021	16	36		2024/07		5931008210723120 0V	1186	BC LABORATORIES	

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System: CUTLER PUD COUNTY: TULARE

Sample Point: WELL 09 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_008_008	**S1**	2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2218	TRICHLOROFLUOROMETHANE		<	0.500		UG/L	150	5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2904	TRICHLOROTRIFLUOROETHANE		<	0.500		UG/L	1200	10	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	7/23/2021	16	36		2024/07		59310082107231200V	1186	BC LABORATORIES	
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.000		UG/L	0.005	0.005	7/23/2021	324	36		2024/07		59310082107231200S	1180	BSK ANALYTICAL LABORATORIES	
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	8/25/2021	25	36		2024/08		AEH2905-02	1180	BSK ANALYTICAL LABORATORIES	EPA 505
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	8/25/2021	25	36		2024/08		AEH2905-02	1180	BSK ANALYTICAL LABORATORIES	EPA 505
		2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.010		UG/L	0.2	0.01	7/29/2022	7	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 504.1
		2946	ETHYLENE DIBROMIDE		<	0.020		UG/L	0.05	0.02	7/29/2022	7	36		2025/07		AFG3534-02	1180	BSK ANALYTICAL LABORATORIES	EPA 504.1
		2037	SIMAZINE		<	1.000		UG/L	4	1	8/25/2021	25	36		2024/08		AEH2905-02	1180	BSK ANALYTICAL LABORATORIES	EPA 505

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD COUNTY: TULARE

Sample Point: ST2S1-12307 AVE 408 CLASS: DBPA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_DST_900		CUTLER PUD						ST2S1-12307 AVE 408												
	DBP	DISINFECTION BYPRODUCTS																		
		2943	BROMODICHLOROMETHANE		<	0.500		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2942	BROMOFORM	0.840		0.500		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2941	CHLOROFORM		<	0.500		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2454	DIBROMOACETIC ACID		<	1.000		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2944	DIBROMOCHLOROMETHANE	0.500		0.500		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2451	DICHLOROACETIC ACID		<	1.000		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2456	TOTAL HALOACETIC ACIDS (HAA5)		<	2.000		UG/L	60	-----	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2453	MONOBROMOACETIC ACID		<	1.000		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2450	MONOCHLOROACETIC ACID		<	2.000		UG/L	------	2	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2950	TTHM	1.300		0.500		UG/L	80	-----	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: CUTLER PUD COUNTY:

Sample Point: CLASS: DBPA STATUS:

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5410001_DST_900	DBP	2452	TRICHLORO ACETIC ACID		<	1.000		UG/L	------	1	8/11/2021	81	12		2022/08	DUE NOW	AEH1359-01	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3

Appendix C:
Source and Distribution Water Bacteriological Monitoring Report

Bacteriological Distribution Monitoring Report

5410001 Cutler Public Utility District

Distribution System Freq: 7/M

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
8/10/2022	2 samples	A	A			Routine	0.38-0.46				
8/2/2022	2 samples	A	A			Routine	0.48-0.54				
7/26/2022	2 samples	A	A			Routine	0.41-0.45				
7/19/2022	2 samples	A	A			Routine	0.34-0.42				
7/19/2022	Water Tower	A	A			Other	0.46				
7/12/2022	2 samples	A	A			Routine	0.41-0.43				
7/5/2022	2 samples	A	A			Routine	0.46-0.53				
6/28/2022	2 samples	A	A			Routine	0.36-0.50				
6/21/2022	2 samples	A	A			Routine	0.49-0.50				
6/21/2022	Water Tower	A	A			Other	0.56				
6/14/2022	2 samples	A	A			Routine	0.55-0.59				
6/7/2022	2 samples	A	A			Routine	0.49-0.51				
5/31/2022	12663 Amethyst Avenue	A	A			Routine	0.44				
5/31/2022	40474 Cindy Road	A	A			Routine	0.39				
5/24/2022	40612 Road 124	A	A			Routine	0.35				
5/24/2022	13091 Rosalie Avenue	A	A			Routine	0.33				
5/17/2022	2 samples	A	A			Routine	0.41-0.42				
5/17/2022	Water Tower	A	A			Other	0.50				
5/10/2022	40632 Road 124	A	A			Routine	0.3				
5/10/2022	13091 Roasalie Avenue	A	A			Routine	0.59				
5/3/2022	12663 Amethyst Avenue	A	A			Routine	0.35				
5/3/2022	40474 Cindy Road	A	A			Routine	0.35				
4/26/2022	40620 Road 124	A	A			Routine	0.4				
4/26/2022	13091 Roasalie Avenue	A	A			Routine	0.46				
4/19/2022	12663 Amethyst Avenue	A	A			Routine	0.53				
4/19/2022	40474 Cindy Road	A	A			Routine	0.47				
4/19/2022	Water Tower	A	A			Other	0.52				
4/12/2022	40620 Road 124	A	A			Routine	0.53				
4/12/2022	13091 Rosalie Avenue	A	A			Routine	0.51				
4/5/2022	12663 Amethyst Avenue	A	A			Routine	0.42				
4/5/2022	40474 Cindy Road	A	A			Routine	0.36				
3/29/2022	40620 Rd. 124	A	A			Routine	0.47				
3/29/2022	13091 Rosalie Avenue	A	A			Routine	0.4				
3/22/2022	12663 Amethyst Avenue	A	A			Routine	0.31				
3/22/2022	40474 Cindy Road	A	A			Routine	0.33				
3/15/2022	40620 Road 124	A	A			Routine	0.58				
3/15/2022	13091 Rosalie Avenue	A	A			Routine	0.45				
3/15/2022	Water Tower	A	A			Routine	0.62				
3/9/2022	12663 Amethyst avenue	A	A			Routine	0.45				
3/9/2022	40474 Cindy Road	A	A			Routine	0.39				
3/1/2022	13091 Rosalie Avenue	A	A			Routine	0.41				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
3/1/2022	40620 Road 124	A	A			Routine	0.58				
2/22/2022	12663 Amethyst Avenue	A	A			Routine	0.4				
2/22/2022	40474 Cindy Road	A	A			Routine	0.34				
2/16/2022	13091 Rosalie Avenue	A	A			Routine	0.43				
2/16/2022	40620 Road 124	A	A			Routine	0.39				
2/16/2022	Water Tower	A	A			Other	0.47				
2/8/2022	12663 Amethyst Avenue	A	A			Routine	0.43				
2/8/2022	40474 Cindy Road	A	A			Routine	0.35				
2/1/2022	13091 Rosalie Avenue	A	A			Routine	0.4				
2/1/2022	40620 Road 124	A	A			Routine	0.44				
1/25/2022	12663 Amethyst Ave	A	A			Routine	0.41				
1/25/2022	40474 Cindy Road	A	A			Routine	0.3				
1/18/2022	13091 Rosalie Avenue	A	A			Routine	0.39				
1/18/2022	40620 Road 124	A	A			Routine	0.47				
1/18/2022	Water Tower	A	A			Other	0.53				
1/11/2022	12663 Amethyst Ave	A	A			Routine	0.42				
1/11/2022	40474 Cindy Road	A	A			Routine	0.38				
1/4/2022	40620 Road 124	A	A			Routine	0.4				
1/4/2022	13091 Rosalie Avenue	A	A			Routine	0.44				
12/28/2021	12663 Amethyst Ave	A	A			Routine	0.38				
12/28/2021	40474 Cindy Road	A	A			Routine	0.42				
12/21/2021	40620 Road 124	A	A			Routine	0.38				
12/21/2021	13091 Rosalie Avenue	A	A			Routine	0.51				
12/21/2021	Water Tower	A	A			Routine	0.56				
12/14/2021	12663 Amethyst Ave	A	A			Routine	0.39				
12/14/2021	40474 Cindy Road	A	A			Routine	0.41				
12/7/2021	40620 Road 124	A	A			Routine	0.56				
12/7/2021	13091 Rosalie Ave	A	A			Routine	0.38				
11/30/2021	12663 Amethyst Avenue	A	A			Routine	0.37				
11/30/2021	40474 Cindy Road	A	A			Routine	0.33				
11/23/2021	40620 Road 124	A	A			Routine	0.53				
11/23/2021	13091 Rosalie Avenue	A	A			Routine	0.43				
11/16/2021	12663 Amethyst Avenue	A	A			Routine	0.39				
11/16/2021	40474 Cindy Road	A	A			Routine	0.43				
11/16/2021	Water Tower	A	A			Routine	0.67				
11/9/2021	40620 Rd. 124	A	A			Routine	0.43				
11/9/2021	13091 Rosalie Ave	A	A			Routine	0.36				
11/2/2021	12663 Amethyst Avenue	A	A			Routine	0.37				
11/2/2021	40474 Cindy Road	A	A			Routine	0.41				
10/26/2021	40620 Road 124	A	A			Routine	0.34				
10/26/2021	13091 Rosalie Ave	A	A			Routine	0.38				
10/19/2021	12663 Amethyst Avenue	A	A			Routine	0.37				
10/19/2021	40474 Cindy Road	A	A			Routine	0.41				
10/19/2021	Water Tower	A	A			Routine	0.48				
10/12/2021	40620 Rd 124	A	A			Routine	0.4				
10/12/2021	13091 Rosalie Ave	A	A			Routine	0.41				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
10/5/2021	12663 Amethyst Avenue	A	A			Routine	0.38				
10/5/2021	40474 Cindy Road	A	A			Routine	0.34				
9/28/2021	40620 Road 124	A	A			Routine	0.4				
9/28/2021	13091 Rosalie Avenue	A	A			Routine	0.47				
9/21/2021	12663 Amethyst Avenue	A	A				0.43				
9/21/2021	40474 Cindy Road	A	A				0.41				
9/14/2021	40620 Road 124	A	A			Routine	0.4				
9/14/2021	13091 Rosalia Ave	A	A			Routine	0.46				
9/7/2021	12663 Amethyst Ave	A	A			Routine	0.4				
9/7/2021	40474 Cindy Road	A	A			Routine	0.46				
8/31/2021	40620 Road 124	A	A			Routine	0.43				
8/31/2021	13091 Rosalie Ave	A	A			Routine	0.4				
8/25/2021	12663 Amethyst Ave	A	A			Routine	0.45				
8/25/2021	40474 Cindy Road	A	A			Routine	0.56				
8/17/2021	40620 Road 124	A	A			Routine	0.39				
8/17/2021	13091 Rosalie Avenue	A	A			Routine	0.53				
8/17/2021	Water Tower	A	A			Other	0.58				
8/10/2021	12663 Amethyst Avenue	A	A			Routine	0.28				
8/10/2021	40474 Cindy Road	A	A			Routine	0.42				
8/3/2021	2 samples	A	A			Routine	0.32-0.50				
7/27/2021	2 samples	A	A			Routine	0.30-0.36				
7/20/2021	2 samples	A	A			Routine	0.25-0.28				
7/20/2021	Water Tower	A	A			Other	0.28				
7/13/2021	2 samples	A	A			Routine	0.39-0.41				
7/6/2021	2 samples	A	A			Routine	0.32-0.35				
6/29/2021	2 samples	A	A			Routine	0.29-0.36				
6/22/2021	2 samples	A	A			Routine	0.33-0.48				
6/15/2021	2 samples	A	A			Routine	0.43-0.47				
6/15/2021	Water Tower	A	A			Other	0.50				
6/8/2021	2 samples	A	A			Routine					
6/1/2021	2 samples	A	A			Routine					
5/25/2021	2 samples	A	A			Routine					
5/18/2021	2 samples	A	A			Routine					
5/18/2021	Water Tower	A	A			Other	0.58				
5/11/2021	2 samples	A	A			Routine					
5/4/2021	2 samples	A	A			Routine					
4/27/2021	2 samples	A	A			Routine					
4/20/2021	2 samples	A	A			Routine					
4/20/2021	Water Tower	A	A			Other	0.57				
4/13/2021	2 samples	A	A			Routine					
4/6/2021	2 samples	A	A			Routine					
3/30/2021	2 samples	A	A			Routine					
3/24/2021	2 samples	A	A			Routine					
3/16/2021	2 samples	A	A			Routine					
3/16/2021	Water Tower	A	A			Other	0.71				
3/9/2021	2 samples	A	A			Routine					
3/2/2021	2 samples	A	A			Routine	0.39-0.41				
2/23/2021	2 samples	A	A			Routine					
2/16/2021	2 samples	A	A			Routine					
2/16/2021	Water Tower	A	A			Other	0.48				
2/9/2021	2 samples	A	A			Routine					

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
2/9/2021	2 samples	A	A			Routine					
2/2/2021	2 samples	A	A			Routine					
1/26/2021	2 samples	A	A			Routine					
1/19/2021	2 samples	A	A			Routine	0.35-0.43				
1/19/2021	Water Tower	A	A			Other	0.65				
1/12/2021	2 samples	A	A			Routine	0.32-0.34				
1/5/2021	2 samples	A	A			Routine					
12/29/2020	2 samples	A	A			Routine					
12/22/2020	2 samples	A	A			Routine					
12/15/2020	2 samples	A	A			Routine					
12/15/2020	Water Tower	A	A			Other	0.59				
12/8/2020	2 samples	A	A			Routine	0.39-0.43				
12/1/2020	2 samples	A	A			Routine	0.49-0.51				
11/24/2020	2 samples	A	A			Routine	0.52-0.59				
11/17/2020	2 samples	A	A			Routine	0.3-0.46				
11/17/2020	Water Tower	A	A			Other	0.58				
11/10/2020	2 samples	A	A			Routine					
11/3/2020	2 samples	A	A			Routine					
10/20/2020	2 samples	A	A			Routine					
10/20/2020	Water Tower	A	A			Routine	0.57				
10/13/2020	2 samples	A	A			Routine	0.39-0.44				
10/6/2020	2 samples	A	A			Routine	0.37-0.49				
9/29/2020	2 samples	A	A			Routine	0.31-0.42				
9/22/2020	2 samples	A	A			Routine	0.32-0.40				
9/15/2020	2 samples	A	A			Routine					
9/15/2020	Water Tower	A	A			Other	0.47				
9/8/2020	2 samples	A	A			Routine					
9/1/2020	2 samples	A	A			Routine					
8/25/2020	2 samples	A	A			Routine					
8/18/2020	2 samples	A	A			Routine	0.49				
8/18/2020	Water Tower	A	A			Other	0.58				
8/11/2020	2 samples	A	A			Routine					
8/4/2020	2 samples	A	A			Routine					
7/28/2020	2 samples	A	A			Routine					
7/21/2020	2 samples	A	A			Routine	0.37-0.54				
7/21/2020	Water Tower	A	A			Other	0.53				
7/14/2020	2 samples	A	A			Routine					
7/7/2020	2 samples	A	A			Routine					
6/30/2020	2 samples	A	A			Routine					
6/23/2020	2 samples	A	A			Routine	0.51-0.56				
6/16/2020	2 samples	A	A			Routine					
6/16/2020	Water Tower	A	A			Other	0.59				
6/9/2020	2 samples	A	A			Routine	0.52-0.56				
6/4/2020	13091 Rosalie Avenue	A	A			Repeat	0.53				
6/4/2020	13103 Rosalie Avenue	A	A			Repeat	0.5				
6/4/2020	13089 Rosalie Avenue	A	A			Repeat	0.55				
6/2/2020	40620 Rd 124	A	A			Routine	0.46				
6/2/2020	13091 Rosalie Avenue	P	A			Routine	0.33				
5/19/2020	Water Tower	A	A			Other	0.55				
5/1/2020	8 samples	A	A			Routine	0.41-0.53				
4/21/2020	Water Tower	A	A			Other	0.61				
4/1/2020	8 samples	A	A			Routine	0.34-0.48				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
3/17/2020	Water Tower	A	A			Other					
3/1/2020	10 samples	A	A			Routine	0.39-0.56				
2/18/2020	Water Tower	A	A			Other	0.44				
2/1/2020	8 samples	A	A			Routine	0.27-0.52				
1/21/2020	Water Tower	A	A			Other	0.63				
1/1/2020	8 samples	A	A			Routine	0.37-0.51				
12/17/2019	Water Tower	A	A			Other					
12/1/2019	10 samples	A	A			Routine	0.4-0.53				
11/20/2019	Water Tower	A	A			Other	0.61				
11/1/2019	8 samples	A	A			Routine	0.43-0.62				
10/15/2019	Water Tower	A	A			Other	0.65				
10/1/2019	10 samples	A	A			Routine	0.39-0.71				
9/20/2019	12663 Amethyst Ave	<1	<1			Repeat	0.60				
9/20/2019	12671 Amethyst	<1	<1			Repeat	0.38				
9/20/2019	12661 Amethyst	<1	<1			Repeat	0.45				
9/20/2019	40466 Cindy	<1	<1			Repeat	0.31				
9/20/2019	40474 Cindy Rd	<1	<1			Repeat	0.33				
9/20/2019	40484 Cindy	<1	<1			Repeat	0.29				
9/19/2019	Wells: 5,9	<1	<1			Source Repeat				Yes	GWR satisfied
9/19/2019	12663 Amthyst Ave	<1	<1			Repeat	0.5				
9/19/2019	12671 Amethyst	<1	<1			Repeat	0.41				
9/19/2019	12661 Amethyst	<1	<1			Repeat	0.45				
9/19/2019	40474 Cindy Road	<1	<1			Repeat	0.58				
9/19/2019	40466 Cindy	<1	<1			Repeat	0.41				
9/19/2019	40484 Cindy	<1	<1			Repeat	0.46				
9/17/2019	12663 Amethyst Ave	P	A			Routine	0.41				
9/17/2019	40474 Cindy Road	P	P			Routine	0.38		MCL		Cit 03-24-19C-116
9/17/2019	Water Tower	A	A			Other	0.55				
9/1/2019	6 samples	A	A			Routine	0.27-0.69				
8/29/2019	Blending Line	A	A			Other	0.14				
8/28/2019	Blending Line	A	A			Other	0.54				
8/20/2019	Water Tower	A	A			Other	0.58				
8/10/2019	System	A	A								
8/8/2019	Blending Tank	A	A			Other	0.25				
8/6/2019	8 samples	A	A			Routine	0.26-0.51				
7/16/2019	Water Tower	A	A			Other	0.41				
7/1/2019	10 samples	A	A			Routine	0.27-0.42				
6/18/2019	Water Tower	A	A			Routine	0.53				
6/1/2019	8 samples	A	A			Routine	0.29-0.47				
5/21/2019	Water Tower	A	A			Other	0.43				
5/1/2019	8 samples	A	A			Routine	0.27-0.33				
4/16/2019	Water Tower	A	A			Other	0.42				
4/1/2019	10 Samples	A	A			Routine	0.29-0.38				
3/29/2019	Topeka & First Dr	A	A			Other	0.33				
3/19/2019	Water Tower	A	A			Other	0.53				
3/1/2019	8 samples	A	A			Routine	0.29-0.49				
2/19/2019	Water Tower	A	A			Other	0.5				
2/1/2019	8 samples	A	A			Routine	0.25-0.46				
1/15/2019	Water Tower	A	A			Other					
1/1/2019	10 Samples	A	A			Routine	0.29-0.41				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

5410001 Cutler Public Utility District

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
8/10/2022	8:55	Well 9	Well	P/A	A	A				
8/2/2022	8:58	Well 5	Well	P/A	A	A				
7/12/2022	8:15	Well 9	Well	P/A	A	A				
7/5/2022	8:41	Well 5	Well	P/A	A	A				
6/14/2022	8:37	Well 9	Well	P/A	A	A				
6/7/2022	8:55	Well 5	Well	P/A	A	A				
5/10/2022	8:30	Well #9	Well	P/A	A	A				
5/3/2022	9:00	Well #5	Well	P/A	A	A				
4/12/2022	8:47	Well #9	Well	P/A	A	A				
4/12/2022	8:47	Well #9	Well	P/A	A	A				
4/5/2022	8:53	Well #5	Well	P/A	A	A				
3/9/2022	8:50	Well #9	Well	P/A	A	A				
3/1/2022	8:43	Well #5	Well	P/A	A	A				
2/8/2022	8:45	Well #9	Well	P/A	A	A				
2/1/2022	8:36	Well #5	Well	P/A	A	A				
1/11/2022	8:32	Well #9	Well	P/A	A	A				
1/4/2022	9:05	Well #5	Well	P/A	A	A				
12/21/2021	9:23	Well #9	Well	P/A	A	A				
12/14/2021	8:43	Well #9	Well	P/A	P	A				
12/7/2021	9:00	Well #5	Well	P/A	A	A				
11/9/2021	9:08	Well #9	Well	P/A	A	A				
11/2/2021	8:28	Well #5	Well	P/A	A	A				
10/12/2021	8:53	Well #9	Well	P/A	A	A				
10/5/2021	8:47	Well #5	Well	P/A	A	A				
9/21/2021	8:36	Water Tower	Water Tower	P/A	A	A				
9/14/2021	8:50	Well #9	Well	P/A	A	A				
9/7/2021	8:55	Well #5	Well	P/A	A	A				
8/10/2021	8:55	Well #9	Well	P/A	A	A				
8/3/2021	9:05	Well 5	Well	P/A	A	A				
7/13/2021	9:10	Well 9	Well	P/A	A	A				
7/6/2021	8:50	Well 5	Well	P/A	A	A				
6/8/2021	8:45	Well 5	Well	P/A	A	A				
6/1/2021	7:30	Well 9	Well	P/A	A	A				
5/11/2021	7:35	Well 9	Well	P/A	A	A				
5/4/2021	8:44	Well 5	Well	P/A	A	A				
4/13/2021	8:45	Well 9	Well	P/A	A	A				
4/6/2021	8:45	Well 5	Well	P/A	A	A				
3/9/2021	8:13	Well 9	Well	P/A	A	A				
3/2/2021	8:40	Well 5	Well	P/A	A	A				
2/9/2021	8:50	Well 9	Well	P/A	A	A				
2/9/2021	8:50	Well 9	Well	P/A	A	A				

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
2/2/2021	8:45	Well 5	Well	P/A	A	A				
1/12/2021	8:55	Well 9	Well	P/A	A	A				
1/5/2021	8:51	Well #5	Well	P/A	A	A				
12/8/2020	9:09	Well #9	Well	P/A	A	A				
12/1/2020	8:40	Well #5	Well	P/A	A	A				
11/10/2020		Well 9	Well	P/A	A	A				
11/3/2020	8:23	Well 5	Well	P/A	A	A				
10/13/2020	8:50	Well 9	Well	P/A	A	A				
10/6/2020	8:44	Well 5	Well	P/A	A	A				
9/8/2020	8:36	Well 9	Well	P/A	A	A				
9/1/2020	8:53	Well 5	Well	P/A	A	A				
8/11/2020	8:35	Well 9	Well	P/A	A	A				
8/4/2020	8:25	Well 5	Well	P/A	A	A				
7/14/2020	8:40	Well 9	Well	P/A	A	A				
7/7/2020	8:40	Well 5	Well	P/A	A	A				
6/9/2020	8:45	Well 9	Well	P/A	A	A				
6/5/2020	8:50	Well 5	Well	P/A	A	A				
6/2/2020	8:45	Well 5	Well	P/A	A	A				
5/12/2020	8:45	Well 9	Well	P/A	A	A				
5/6/2020	8:42	Well 5	Well	P/A	A	A				
4/14/2020	8:45	Well 9	Well	P/A	A	A				
3/3/2020	8:22	Well 5	Well	P/A	A	A				
2/11/2020	8:03	Well 9	Well	P/A	A	A				
2/4/2020	8:30	Well 5	Well	P/A	A	A				
1/14/2020	8:37	Well 9	Well	P/A	A	A				
1/7/2020	8:38	Well 5	Well	P/A	A	A				
12/10/2019	8:38	Well 9	Well	P/A	A	A				
12/3/2019	8:24	Well #5	Well	P/A	A	A				
11/12/2019	8:10	Well 9	Well	P/A	A	A				
11/5/2019	8:28	Well 5	Well	P/A	A	A				
10/8/2019	8:30	Well #9	Well	P/A	A	A				
10/1/2019	8:55	Well 5	Well	P/A	A	A				
9/20/2019	9:50	Well #5	GWR Well	QTray	<1	<1				*Repeat*
9/20/2019	10:00	Well #9	GWR Well	Qtray	<1	<1				*Repeat*
9/19/2019		Wells: 5,9	GWR Well	QTray	<1	<1				
9/10/2019	8:52	Well 9	Well	P/A	A	A				
9/3/2019	9:03	Well 5	Well	P/A	A	A				
8/13/2019	8:45	Well 9	Well	P/A	A	A				
8/6/2019	9:05	Well 5	Well	P/A	A	A				
7/9/2019	8:33	Well 9	Well	P/A	A	A				
7/2/2019	8:42	Well 5	Well	P/A	A	A				
6/11/2019	9:25	Well 9	Well	P/A	A	A				
6/4/2019	8:55	Well 5	Well	P/A	A	A				

5410001 Cutler Public Utility District

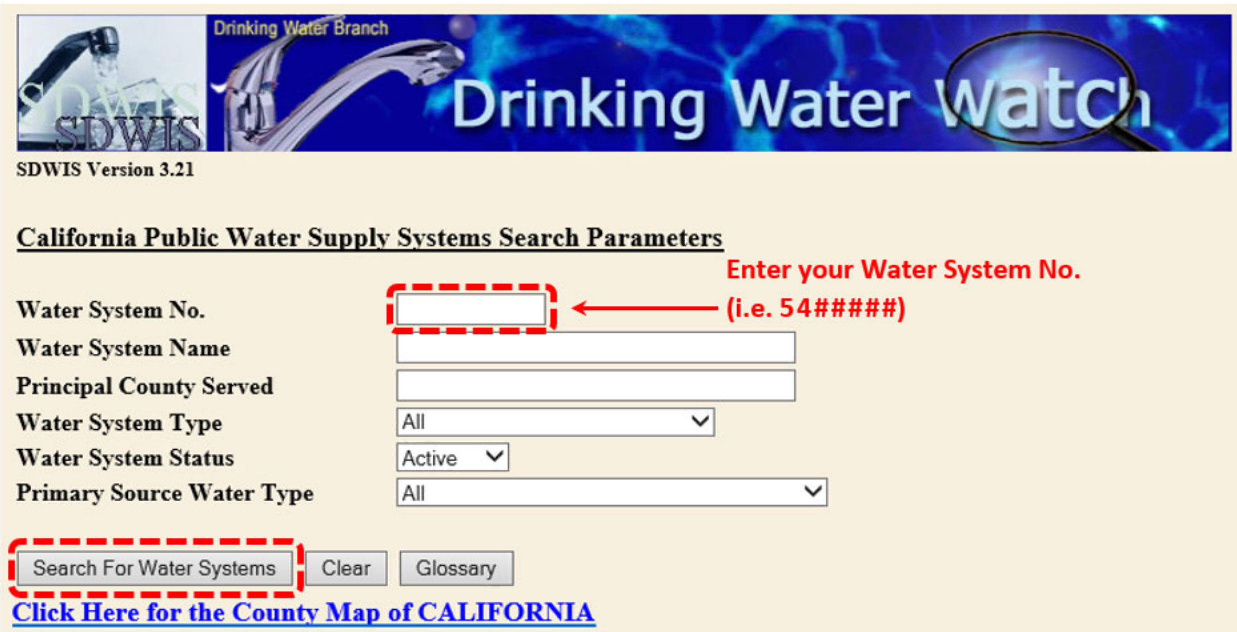
Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
5/14/2019	8:55	Well 9	Well	P/A	A	A				
5/7/2019	8:48	Well 5	Well	P/A	A	A				
4/9/2019	8:45	Well 9	Well	P/A	A	A				
4/2/2019	8:45	Well 5	Well	P/A	A	A				
3/12/2019	8:42	Well 9	Well	P/A	A	A				
3/5/2019	8:35	Well 5	Well	P/A	A	A				
2/12/2019	8:23	Well 9	Well	P/A	A	A				
2/5/2019	8:13	Well 5	Well	P/A	A	A				
1/8/2019	8:55	Well #9	Well	P/A	A	A				
1/2/2019	8:15	Well #5	Well	P/A	A	A				

Appendix D:
Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data

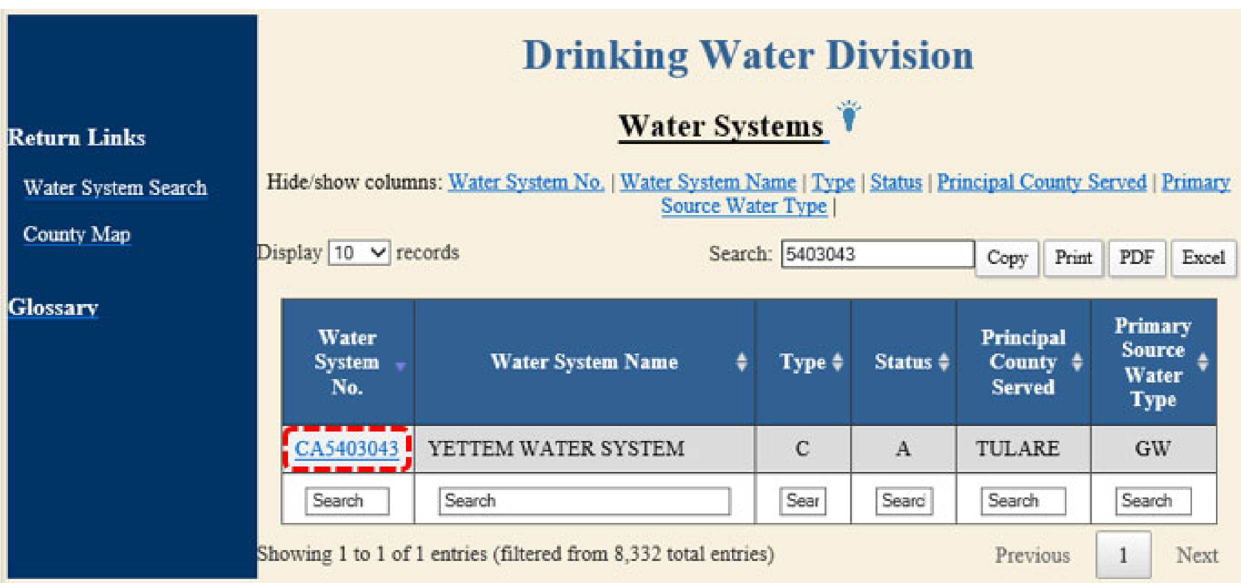
How To Access Individual System's Drinking Water Monitoring Schedule & Water Quality Data

1. Place the following link in the internet address bar: https://sdwis.waterboards.ca.gov/PDWW/

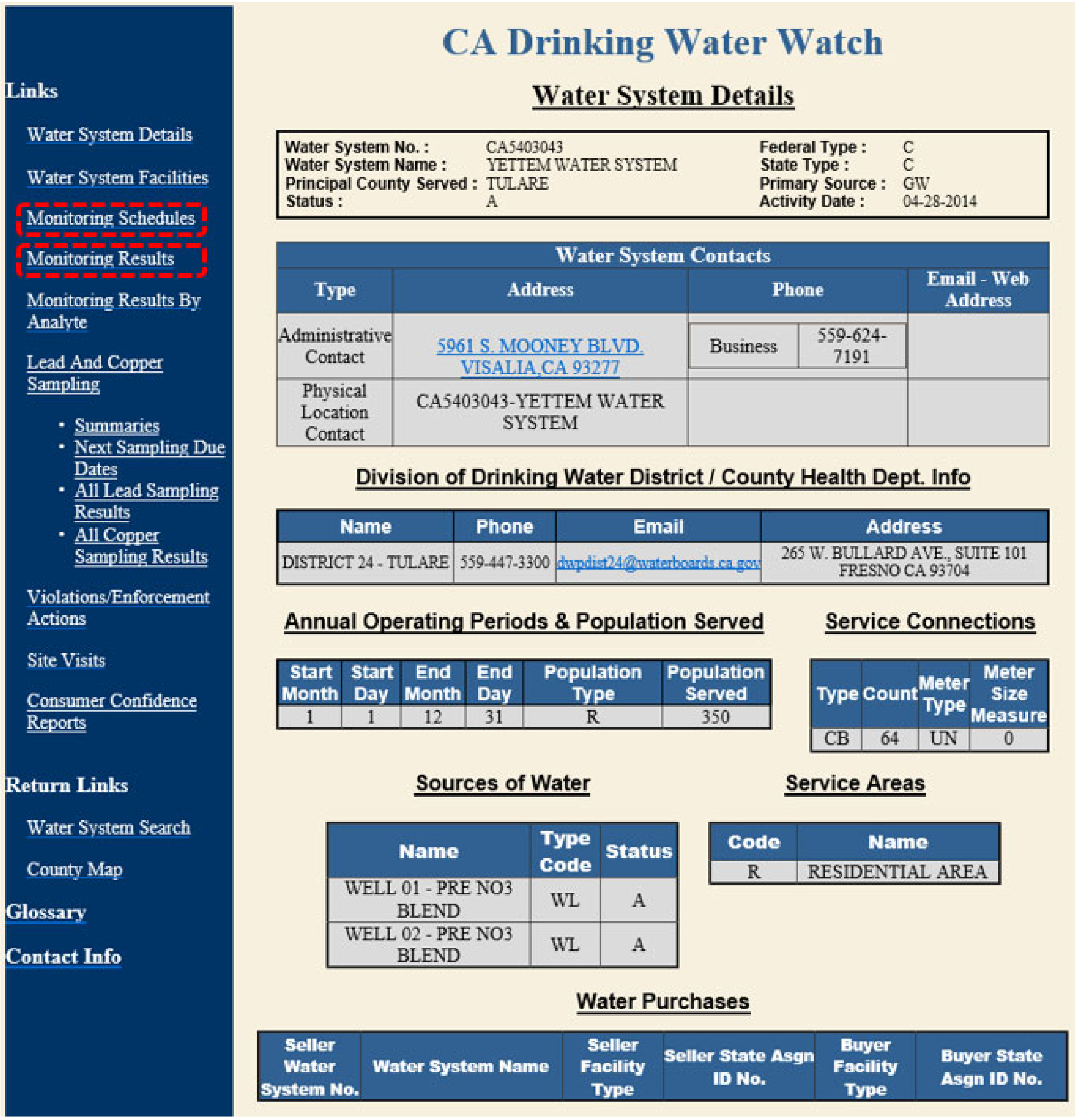
2. Enter your Water System No. and select "Search For Water Systems"



3. Click on your Water System No. (Link in blue text).



4. On the left side of the screen, select ***Monitoring Schedules*** for source monitoring schedule (last sample and next due dates) *or* ***Monitoring Results*** for water quality results.



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System Details

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Water System Contacts

Type	Address	Phone		Email - Web Address
Administrative Contact	5961 S. MOONEY BLVD. VISALIA,CA 93277	Business	559-624-7191	
Physical Location Contact	CA5403043-YETTEM WATER SYSTEM			

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 24 - TULARE	559-447-3300	dwpdist24@waterboards.ca.gov	265 W. BULLARD AVE., SUITE 101 FRESNO CA 93704

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	350

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	64	UN	0

Sources of Water

Name	Type Code	Status
WELL 01 - PRE NO3 BLEND	WL	A
WELL 02 - PRE NO3 BLEND	WL	A

Service Areas

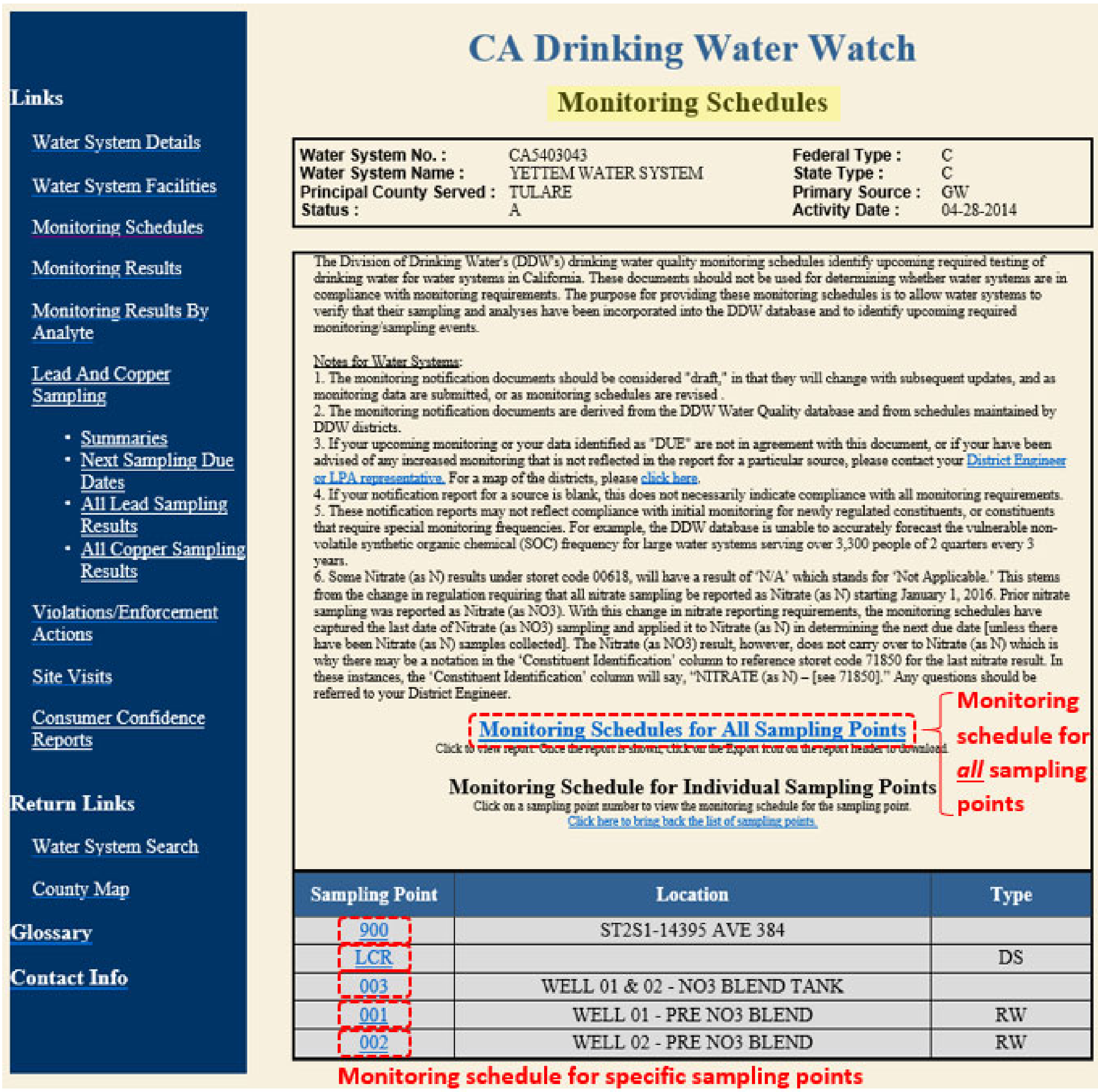
Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.

5. Select Sampling Point corresponding to the source (Link in blue text and is a number).

5A. *Monitoring Schedules*


CA Drinking Water Watch

Monitoring Schedules

Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

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- County Map

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Contact Info

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

The Division of Drinking Water's (DDW's) drinking water quality monitoring schedules identify upcoming required testing of drinking water for water systems in California. These documents should not be used for determining whether water systems are in compliance with monitoring requirements. The purpose for providing these monitoring schedules is to allow water systems to verify that their sampling and analyses have been incorporated into the DDW database and to identify upcoming required monitoring/sampling events.

Notes for Water Systems:
1. The monitoring notification documents should be considered "draft," in that they will change with subsequent updates, and as monitoring data are submitted, or as monitoring schedules are revised .
2. The monitoring notification documents are derived from the DDW Water Quality database and from schedules maintained by DDW districts.
3. If your upcoming monitoring or your data identified as "DUE" are not in agreement with this document, or if your have been advised of any increased monitoring that is not reflected in the report for a particular source, please contact your District Engineer or LPA representative. For a map of the districts, please click here.
4. If your notification report for a source is blank, this does not necessarily indicate compliance with all monitoring requirements.
5. These notification reports may not reflect compliance with initial monitoring for newly regulated constituents, or constituents that require special monitoring frequencies. For example, the DDW database is unable to accurately forecast the vulnerable non-volatile synthetic organic chemical (SOC) frequency for large water systems serving over 3,300 people of 2 quarters every 3 years.
6. Some Nitrate (as N) results under storet code 00618, will have a result of 'N/A' which stands for 'Not Applicable.' This stems from the change in regulation requiring that all nitrate sampling be reported as Nitrate (as N) starting January 1, 2016. Prior nitrate sampling was reported as Nitrate (as NO3). With this change in nitrate reporting requirements, the monitoring schedules have captured the last date of Nitrate (as NO3) sampling and applied it to Nitrate (as N) in determining the next due date [unless there have been Nitrate (as N) samples collected]. The Nitrate (as NO3) result, however, does not carry over to Nitrate (as N) which is why there may be a notation in the 'Constituent Identification' column to reference storet code 71850 for the last nitrate result. In these instances, the 'Constituent Identification' column will say, "NITRATE (as N) – [see 71850]." Any questions should be referred to your District Engineer.

Monitoring Schedules for All Sampling Points

Click to view report. Once the report is shown, click on the Export icon on the report header to download.

Monitoring Schedule for Individual Sampling Points

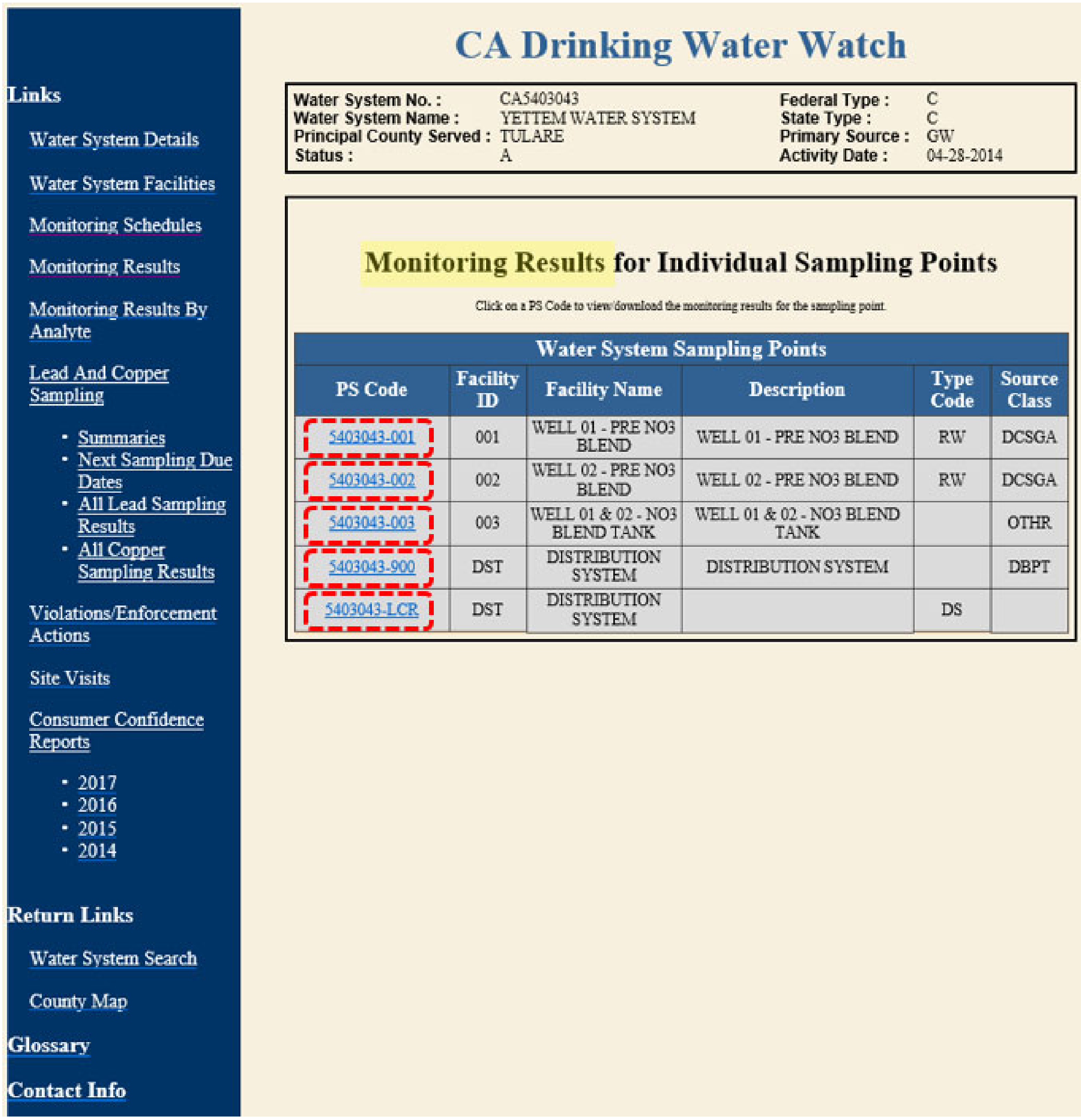
Click on a sampling point number to view the monitoring schedule for the sampling point.

Click here to bring back the list of sampling points.

Sampling Point	Location	Type
900	ST2S1-14395 AVE 384	
LCR		DS
003	WELL 01 & 02 - NO3 BLEND TANK	
001	WELL 01 - PRE NO3 BLEND	RW
002	WELL 02 - PRE NO3 BLEND	RW

NOTE: Any *past due* monitoring will have "DUE NOW" in the far-right column. **Please schedule this monitoring as soon as possible.**

5B. *Monitoring Results*



CA Drinking Water Watch

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

Monitoring Results for Individual Sampling Points

Click on a PS Code to view/download the monitoring results for the sampling point.

Water System Sampling Points

PS Code	Facility ID	Facility Name	Description	Type Code	Source Class
5403043-001	001	WELL 01 - PRE NO3 BLEND	WELL 01 - PRE NO3 BLEND	RW	DCSGA
5403043-002	002	WELL 02 - PRE NO3 BLEND	WELL 02 - PRE NO3 BLEND	RW	DCSGA
5403043-003	003	WELL 01 & 02 - NO3 BLEND TANK	WELL 01 & 02 - NO3 BLEND TANK		OTHR
5403043-900	DST	DISTRIBUTION SYSTEM	DISTRIBUTION SYSTEM		DBPT
5403043-LCR	DST	DISTRIBUTION SYSTEM		DS	

Links

- Water System Details
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  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports
  - 2017
  - 2016
  - 2015
  - 2014

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- Water System Search
- County Map

Glossary

Contact Info

6. Please contact the Tulare District Office at (559) 447-3300 or DWPDIST24@waterboards.ca.gov if you have any questions.

Appendix E:
Lead and Copper Tap Sample Results Reporting Form

CALIFORNIA Water Boards
STATE WATER RESOURCES CONTROL BOARD
REGIONAL WATER QUALITY CONTROL BOARDS

State Water Resources Control Board

Division of Drinking Water

Lead and Copper Tap Sample Results Reporting Form

This form must be submitted by the public water system to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

Report Date: (mm/dd/yyyy)	
Water System Name:	
Water System Number:	
Water System Type:	◯ Community ◯ Non-Transient, Non Community
Monitoring Frequency:	◯ 6-month ◯ Annual ◯ Triennial
# of Samples Required:	
# of Samples Reported:	
	90^{th} Percentile Level (mg/L)
Lead: *Action Level = 0.015 mg/L*	
Copper: *Action Level = 1.3 mg/L*	

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier 1, 2, 3, or R**	**Lead (mg/L)**	**Copper (mg/L)**
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Sampling Site Change

Each round of sampling should be conducted at the same sampling sites. If an original sampling site is not available, you should collect a tap sample from another site meeting the same Tier criteria as the original site.

You must complete/submit the ***Lead and Copper Tap Sampling Site Change*** form.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on ______________________________ by
(date)

☐ Direct Mail
☐ Posting in public area (NTNC systems only)
☐ Other (please specify below)
____

For general information on lead and copper tap sampling, you can refer to the ***SWRCB Lead and Copper Tap Sample Results Guidance Document***. If you have any questions or comments, please contact your regulating entity (Division of Drinking Water District or County Agency).

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

	Sample Date	Sample Site Location/Address	Tier 1, 2, 3, or R	Result	
				Lead (mg/L)	Copper (mg/L)
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					
51					
52					
53					
54					
55					
56					
57					
58					
59					
60					

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier 1, 2, 3, or R**	**Lead (mg/L)**	**Copper (mg/L)**
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
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90					
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92					
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94					
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97					
98					
99					
100					

Appendix F:
Chlorination Treatment Operations Plan Template

DISCLAIMER: This document summarizes basic operational, maintenance and monitoring guidelines for chlorination systems serving small public water systems. The guidelines are directed toward chlorination of groundwater sources not subject to significant bacteriological contamination. Nothing in this document supersedes any statutory or regulatory requirements or permit provisions for public water systems. The information below is provided for general information only.

Operation of Continuous Chlorination System

- Operator Certification/Personnel – All persons responsible for the operation of the chlorination system must be reliable, trained and possess a State water operator's certificate of appropriate grade and type (Treatment and/or Distribution Operator). More than one operator should be assigned the responsibility of knowing the routine and emergency chlorination procedures.

- Targeted free chlorine residual – The targeted free chlorine residual range for most systems should be 0.2 mg/L to 1.0 mg/L within the distribution system. At no time should the level be over 4.0 mg/L at the first service connection after the chlorination system.

- Storage of chlorine solution – To minimize the decomposition of chlorine and the formation of chlorate and perchlorate, the following operational practices should be considered:
  - The chlorine solution should be stored in a cool, dry, well-ventilated area, away from direct sunlight and heat.
  - Dilute the stored chlorine solution to eight percent strength or less. Lower chlorine solution strength should be evaluated based on chemical pump performance, feed rate and desired chlorine residual.
  - Minimize storage time for both unopened containers and diluted solutions. Water systems should maintain approximately 30 days of chlorine supply onsite and cycle through diluted solutions at least once per month.
  - Avoid exposure of the chlorine solution to metal materials that might contain iron, copper, nickel and colbalt.
  - All chemicals or products, including chlorine, added directly to the drinking water as part of a treatment process must meet ANSI/NSF Standard 60.

- Inspecting and adjusting the equipment – Equipment should be inspected often enough to ensure prompt detection of problems. Daily inspection of the equipment is recommended. The required frequency of inspecting the equipment is set on a case-by-case basis depending on the system configuration, the consequences of an undetected failure and historical system reliability.

  The inspection should consist of a visual inspection of the equipment, checking and filling the chlorine solution level, measuring the free chlorine residual, adjusting the equipment, calculating the dosage rate and writing down the results of the inspection. Any problems noted must be corrected.

- Responding to failures or interruptions – Each system should have a written procedure for responding to chlorination failures or interruptions. This procedure should include prompt repair or correction of the problem and restoration of the chlorine residual. The availability of a replacement or back-up chemical feed system should be addressed.

- Operation and inspection records – Operation and inspection records should be kept each day and should include the following as a minimum. The attached forms may be used to maintain records.
  - Date and time of inspection, name of operator.
  - Chlorine residual and location of residual measurements using the DPD method.
  - Production records.
  - Operational notes.
  - Chlorination failure log.
  - Maintenance performed (both preventative and unscheduled maintenance).

Maintenance of Continuous Chlorination Systems

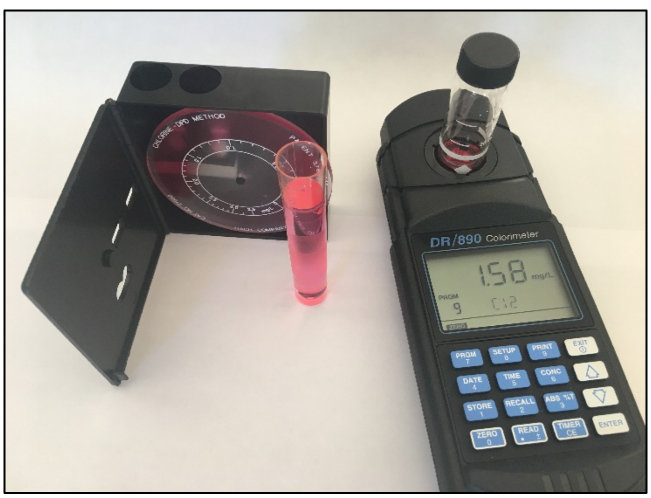
- Chlorine solution tank – The chlorine solution tank should be emptied and cleaned at least once per year. More frequent cleaning may be necessary depending upon the source water used to prepare the diluted chlorine solution.

- Chlorine feed pump – Preventative maintenance of the chlorine feed pump, such as diaphragm or peristatic pumps, should be performed in accordance with the manufacturer's specifications. All suction and discharge lines; foot valve and screen; injection valve; pump suction and discharge valves, seats and springs; and pump diaphragm should be replaced annually. Sufficient repair kits, spare parts and equipment for routine maintenance and repair should be kept on hand.

- Descaling – Injectors, diffusers and other components that come into contact with the chlorine solution should be descaled periodically by flushing with a weak acid solution.

Monitoring of Continuous Chlorination Systems

- Monitoring free chlorine residual - Free chlorine residual should be measured using the DPD method and recorded on a regular basis. Prior to sample analyses, the water system should verify that the sample vials are not stained or scratched and reagents are not expired. A pool test kit is **not** acceptable. Free chlorine residual should be measured before and/or after storage (if applicable), prior to the first service connection, and throughout the distribution system at sample sites that are representative of water served to the system. The required frequency of chlorine residual monitoring is set on a case-by-case basis depending on the system configuration. Daily measurement of the residual is recommended.



- Collecting a bacteriological sample – Whenever a bacteriological sample is collected for compliance, a chlorine residual should also be taken at the same time and location. The chlorine residual reading should be recorded on the chain of custody paperwork that comes with the water sample kit.

- Reporting – Operational records and chlorine residual results should be kept onsite for a minimum of three years and may be reviewed and/or submitted to the Division of Drinking Water upon request.

State Water Resources Control Board
Division of Drinking Water

Response to Failures and Interruptions for Chlorination Systems

System Name ___________________________________ System Number: ___________

In the event the chlorination system is found to be not operating or injecting too little chlorine solution, the following plan of action will be taken to correct the problem or situation. The plan should address the availability of a spare chlorinator, manual feeding of chlorine until the problem is resolved, more frequent chlorine residual monitoring, etc.:

<u>Short-term chlorinator interruption (i.e. less than one day):</u>

____

____

____

____

____

<u>Longer-term chlorine interruption (i.e. chlorinator cannot be repaired):</u>

____

____

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____

Prepared by: __________________________ Date: ________________

Notes: This plan to be posted at the chlorination station.
This plan to be reviewed and updated annually

State Water Resources Control Board
Division of Drinking Water

Chlorination Operational Log

Month ___________________________Year______________________

System Name ____Number__________

Were there any malfunctions of the chlorination system this month? Yes _______ No_______

If yes, list the date the malfunction occurred and action taken. Problems that cannot be promptly corrected must be reported to the Division. Bacteriological sampling must be conducted if the safety of the water is in question:
____

____

Date	Time	Operator Initials	Free Chlorine Residual	Production Meter Reading	Gallons of Water Produced	Gallons of Chlorine Solution Used	Chlorine Dosage (mg/L)	Operational Notes
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
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This form should be kept on file for review by the Division.

Appendix G:
Connection Control Program Guidance

ELEMENTS OF A CROSS-CONNECTION CONTROL PROGRAM
SWRCB
Division of Drinking Water - Tulare District

When implementing a Cross-Connection Control Program, the water supplier or health agency should follow an organized plan. The following items should be included as a minimum. The items **explain the Division of Drinking Water's policy regarding the regulations.**

7584. Responsibility and Scope of Program
The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program. The program, or any portion thereof, may be implemented directly by the water supplier or by means of a contract with the local health agency, or with another agency approved by the health agency. The water supplier's cross-connection control program shall for the purpose of addressing the requirements of Sections 7585 through 7605 include, but not limited to, the following elements:

(a) *The adoption of operating rules or ordinances to implement the cross-connection program.*

Adopting an ordinance or set of rules to implement the cross-connection control program. The ordinance or set of rules is important since it establishes the legal authority to carry out the program.

(b) *The conducting of surveys to identify places where cross-connections are likely to occur.*

Water utilities do not have any responsibility for controlling or abating cross-connections on a user's premises. All existing facilities where potential cross-connections are suspected, however, shall be listed and inspected or re-inspected on a priority basis, where feasible. All applications for new services or for enlarging existing services or changing of occupant shall be reviewed or screened for cross-connections hazards. Surveys are intended to be conducted by a person certified by AWWA or ABPA as a cross-connection specialist. A list of persons that have this certification may be obtained by contacting AWWA at (909) 481-7200, ABPA at http://www.abpa.org/, or by contacting the Tulare District office.

(c) *The provision of backflow protection at the user's connection or within the user's premises or both.*

Adequate provisions for implementation and enforcement of backflow protection where needed including the shutting off service when necessary.

(d) *The provision of at least one person trained in cross-connection control to carry out the cross-connection program.*

Specific units of the health agency and/or water supplier should be designated to organize and carry out the cross-connection control program. The personnel in those units should be trained as to the causes and hazards of unprotected cross-connections.

(e) *The establishment of a procedure or system for testing backflow preventers.*

A list of approved backflow preventers and list of certified testers should be made available to each water user required to provide backflow protection.

The list may include backflow devices approved by University of Southern California, Foundation for Cross-Connection Control and Hydraulic Research which may be found on the Division's website at the following address:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml

The list of certified cross connection specialist is available on the CA-NV American Water Works Association website:
https://ca-nv-awwa.org/canv/CNS/Professional_Certification/Cross_Connection_Specialist/CNS/Certification/CrossConnectionControlProgramSpecialists.aspx?hkey=5681f413-3a4a-4cc9-86fb-59c2cb1621a0

Backflow preventers should be tested at least yearly or more often as required by the health agency or water supplier.

(f) The maintenance of records of locations, tests and repairs of backflow preventers

Adequate records should be kept and filed for reference. These records should include, in addition to the name of the owner of the premises, the:

a) Date of inspection
b) Results of inspection
c) Required protection
d) List of all backflow preventer devices in the system
e) Test and maintenance reports
f) All correspondence between the water supplier, the local health authority, and the consumer
g) Records must be maintained for a minimum of three years

Records of inspection and testing should be evaluated to determine if:

a) Devices are frequently or sufficiently reviewed to detect failure.
b) There are unusual feature of a particular model of device or component.
c) Cause of failure can be eliminated.

A program should be established to notify the water user when his backflow preventer must be tested. A minimum of once each year is required. After installation or repair, a backflow preventer should be tested and approved before it is accepted.

7605. Testing and Maintenance of Backflow Preventers

Regulations require the following regarding testing and maintenance of backflow prevention devices:

(a) The water supplier shall assure that adequate maintenance and periodic testing are provided by the water user to ensure their proper operation.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the water supplier or health agency.

(c) Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the health agency or water supplier. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this Chapter.

(d) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required.

(e) The water supplier shall notify the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

(f) Reports of testing and maintenance shall be maintained by the water supplier for a minimum of three years.

Appendix H:
Community Water System Emergency Response Plan – Template and Instructions

Guidance for Small Community Water Systems on Risk and Resilience Assessments under America's Water Infrastructure Act

Who Should Use this Guidance?

- This guidance is intended for small community water systems (CWSs) serving greater than 3,300 but less than 50,000 people to comply with the requirements for **risk and resilience assessments** under *America's Water Infrastructure Act of 2018 (AWIA)*.
- For larger CWSs, EPA recommends the Vulnerability Self-Assessment Tool (VSAT) Web 2.0 or an alternate risk assessment method.
- CWSs serving 3,300 or fewer people are not required to conduct risk and resilience assessments under AWIA. EPA recommends, however, that very small CWSs use this or other guidance to learn how to conduct risk and resilience assessments and address threats from malevolent acts and natural hazards that threaten safe drinking water.

What is the Purpose of this Guidance?

- This guidance will help small CWSs meet the requirements for risk and resilience assessments in AWIA.
- This guidance does not address emergency response plans (ERPs), which are also required under AWIA for CWSs serving more than 3,300 people.
  - EPA has developed an Emergency Response Plan Template and Instructions for CWSs to comply with AWIA.
- Further, this guidance does not cover all aspects of water system security and resilience, such as asset management, climate change, and emergency preparedness and response. Visit EPA's Drinking Water and Wastewater Resilience page to find more information.

What are the Risk and Resilience Assessments Requirements in AWIA?

AWIA requires CWSs serving more than 3,300 people to assess the risks to and resilience of the system to malevolent acts and natural hazards. The law specifies water system assets (e.g., infrastructure) that the assessment must address. These assets are listed in Tables 1a – 10b in the *Risk and Resilience Assessment Checklist* (see fillable checklist below on page 4).

Water systems **must certify to EPA** that the system conducted the assessment not later than the following dates:

- March 31, 2020 for systems serving 100,000 or more
- December 31, 2020 for systems serving 50,000 or more but less than 100,000

- June 30, 2021 for systems serving more than 3,300 but less than 50,000

NOTE: Water systems do not submit the actual assessment to EPA. Visit EPA's informational page on How to Certify Your Risk and Resilience Assessment or ERP for instructions. Every five years, CWSs must review the risk and resilience assessment, revise it as needed, and provide` a new certification to EPA.

What are Risk and Resilience in a Water System?

- **Risk** to critical infrastructure, including water systems, is a function of **threat likelihood**, **vulnerability**, and **consequence**.
  - **Threat** can be a malevolent act, like a cyberattack or process sabotage, or a natural hazard, such as a flood or hurricane.
    - **Threat likelihood** is the probability that a malevolent act will be carried out against the water system or that a natural hazard will occur.
  - **Vulnerability** is a weakness that can be exploited by an adversary or impacted by a natural hazard. It is the probability that if a malevolent act or a natural hazard occurred, then the water system would suffer significant adverse impacts.
  - **Consequences** are the magnitude of loss that would ensue if a threat had an adverse impact against a water system. Consequences may include:
    - Economic loss to the water system from damage to utility assets;
    - Economic loss to the utility service area from a service disruption, and
    - Severe illness or deaths that could result from water system contamination, a hazardous gas release, or other hazard involving the water system.
- **Resilience** is the capability of a water system to maintain operations or recover when a malevolent act or a natural hazard occurs.
- **Countermeasures** are steps that a water system implements to reduce risk and increase resilience. They may include plans, equipment, procedures, and other measures.

How does a Community Water System Assess Risk and Resilience Under AWIA?

Tables 1a – 10b in the *Risk and Resilience Assessment Checklist* (see fillable checklist below on page 4) list the categories of water system assets that you must assess under AWIA. In all tables (i.e., for all asset categories), do the following:

1. Select only the **malevolent acts** from those listed in the table that pose a significant risk to the asset category at the CWS. You may write-in malevolent acts not listed in the table.
   a. Focus the selection of malevolent acts on those that are prevalent in the United States (e.g., cyber-attacks), can exploit vulnerabilities at the CWS (e.g., known security gaps), and have the potential for significant economic or public health consequences (e.g., contamination).

   NOTE: EPA's *Baseline Information on Malevolent Acts Relevant to Community Water Systems* assists water systems with estimating the likelihood of these malevolent acts and provides resources for additional information.

2. For each malevolent act that you identify as a significant risk, briefly describe how the malevolent act could impact the asset category at the CWS. Include major assets that might be damaged or disabled, water service restrictions or loss, and public health impacts as applicable.
3. Select only the **natural hazards** from those listed in the table that may pose a significant risk to the asset category at the CWS. You may write-in natural hazards not listed in the table.
   a. Focus the selection of natural hazards on those that are prevalent in the area where the water system is located, may affect vulnerable water system infrastructure, and have the potential for significant economic or public health consequences related to the CWS.
4. For each natural hazard that you identify as a significant risk, briefly describe or provide examples of how the hazard could impact the asset category at the CWS. Include major assets that might be damaged or disabled, water service restrictions or loss, and public health impacts as applicable.
5. **OPTIONAL Table 11 (*Risk and Resilience Assessment Checklist,* see below):** Identify **countermeasures** that the CWS could potentially implement to reduce risk from the malevolent acts and natural hazards that you selected in in this assessment.
   a. For malevolent acts, countermeasures are intended to deter, delay, detect, and respond to an attack.
   b. For natural hazards, countermeasures are intended to prepare, respond, and recover from an event.

   NOTE: A single countermeasure, such as emergency response planning or power resilience, may reduce risk across multiple malevolent acts, natural hazards and asset categories.

Complete the *Risk and Resilience Assessment Checklist* here

EPA offers the *Risk and Resilience Assessment Checklist* in two formats. A fillable PDF format is provided on the pages that follow. This format has fixed fields and may not be changed by the user. Alternatively, a Word version may be accessed by clicking on the icon below. The Word version may be changed by the user. **The content of the PDF and Word versions is the same.** To access the Word version, the file must be downloaded to your computer.

Risk and Resilience Assessment Checklist

Community Water System
Risk and Resilience Assessment

Enter Community Water System Name

Risk and Resilience Assessment

Please fill in the information below.

Facility Name (if applicable):
PWSID:
Analyst Name(s):
Date of Analysis:
Analysis Notes:

Table 1a: Physical Barriers (Malevolent Acts)[1]

Asset Category: *Physical Barriers* **Examples of Assets in this Category:** Encompasses physical security in place at the CWS. Possible examples include fencing, bollards, and perimeter walls; gates and facility entrances; intrusion detection sensors and alarms; access control systems (e.g., locks, card reader systems); and hardened doors, security grilles, and equipment cages.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Physical Barriers* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[2]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[1] In a risk assessment, physical barriers are usually treated as countermeasures, which reduce the risk of a threat to an asset, rather than being treated as assets. However, under AWIA, a CWS must assess the risks to and resilience of physical barriers.

[2] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Physical Barriers* **Examples of Assets in this Category:** Encompasses physical security in place at the CWS. Possible examples include fencing, bollards, and perimeter walls; gates and facility entrances; intrusion detection sensors and alarms; access control systems (e.g., locks, card reader systems); and hardened doors, security grilles, and equipment cages.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Physical Barriers* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[3]	
☐ Other(s), enter below:	

[3] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 1b: Physical Barriers (Natural Hazards)[4]

Asset Category: *Physical Barriers* **Examples of Assets in this Category:** Encompasses physical security in place at the CWS. Possible examples include fencing, bollards, and perimeter walls; gates and facility entrances; intrusion detection sensors and alarms; access control systems (e.g., locks, card reader systems); and hardened doors, security grilles, and equipment cages.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Physical Barriers* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

[4] In a risk assessment, physical barriers are usually treated as countermeasures, which reduce the risk of a threat to an asset, rather than analyzed as assets themselves. However, under AWIA, a CWS must assess the risks to and resilience of physical barriers.

Asset Category: *Physical Barriers* **Examples of Assets in this Category:** Encompasses physical security in place at the CWS. Possible examples include fencing, bollards, and perimeter walls; gates and facility entrances; intrusion detection sensors and alarms; access control systems (e.g., locks, card reader systems); and hardened doors, security grilles, and equipment cages.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Physical Barriers* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 2a: Source Water (Malevolent Acts)

Asset Category: *Source Water* **Examples of Assets in this Category:** Encompasses all sources that supply water to a water system. Possible examples include rivers, streams, lakes, source water reservoirs, groundwater, and purchased water.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Source Water* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[5]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[5] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Source Water* **Examples of Assets in this Category:** Encompasses all sources that supply water to a water system. Possible examples include rivers, streams, lakes, source water reservoirs, groundwater, and purchased water.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Source Water* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[6]	
☐ Other(s), enter below:	

[6] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 2b: Source Water (Natural Hazards)

Asset Category: *Source Water* **Examples of Assets in this Category:** Encompasses all sources that supply water to a water system. Possible examples include rivers, streams, lakes, source water reservoirs, groundwater, and purchased water.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Source Water* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

Asset Category: *Source Water* **Examples of Assets in this Category:** Encompasses all sources that supply water to a water system. Possible examples include rivers, streams, lakes, source water reservoirs, groundwater, and purchased water.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Source Water* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 3a: Pipes and Constructed Conveyances, Water Collection, and Intake (Malevolent Acts)

Asset Category: *Pipes and Constructed Conveyances, Water Collection, and Intake* **Examples of Assets in this Category:** Encompasses the infrastructure that collects and transports water from a source water to treatment or distribution facilities. Possible examples include holding facilities, intake structures and associated pumps and pipes, aqueducts, and other conveyances.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Pipes and Constructed Conveyances, Water Collection, and Intake* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[7]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[7] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Pipes and Constructed Conveyances, Water Collection, and Intake* **Examples of Assets in this Category:** Encompasses the infrastructure that collects and transports water from a source water to treatment or distribution facilities. Possible examples include holding facilities, intake structures and associated pumps and pipes, aqueducts, and other conveyances.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Pipes and Constructed Conveyances, Water Collection, and Intake* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[8]	
☐ Other(s), enter below:	

[8] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 3b: Pipes and Constructed Conveyances, Water Collection, and Intake (Natural Hazards)

Asset Category: *Pipes and Constructed Conveyances, Water Collection, and Intake* **Examples of Assets in this Category:** Encompasses the infrastructure that collects and transports water from a source water to treatment or distribution facilities. Possible examples include holding facilities, intake structures and associated pumps and pipes, aqueducts, and other conveyances.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Pipes and Constructed Conveyances, Water Collection, and Intake* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

Asset Category: *Pipes and Constructed Conveyances, Water Collection, and Intake* **Examples of Assets in this Category:** Encompasses the infrastructure that collects and transports water from a source water to treatment or distribution facilities. Possible examples include holding facilities, intake structures and associated pumps and pipes, aqueducts, and other conveyances.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Pipes and Constructed Conveyances, Water Collection, and Intake* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 4a: Pretreatment and Treatment (Malevolent Acts)

Asset Category: *Pretreatment and Treatment* **Examples of Assets in this Category:** Encompasses all unit processes that a water system uses to ensure water meets regulatory public health and aesthetic standards prior to distribution to customers. Possible examples include sedimentation, filtration, disinfection, and chemical treatment. For the risk assessment, individual treatment processes at a facility may be grouped together and analyzed as a single asset if they have a similar risk profile.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Pretreatment and Treatment* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[9]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[9] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Pretreatment and Treatment* **Examples of Assets in this Category:** Encompasses all unit processes that a water system uses to ensure water meets regulatory public health and aesthetic standards prior to distribution to customers. Possible examples include sedimentation, filtration, disinfection, and chemical treatment. For the risk assessment, individual treatment processes at a facility may be grouped together and analyzed as a single asset if they have a similar risk profile.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Pretreatment and Treatment* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[10]	
☐ Other(s), enter below:	

[10] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 4b: Pretreatment and Treatment (Natural Hazards)

Asset Category: *Pretreatment and Treatment* **Examples of Assets in this Category:** Encompasses all unit processes that a water system uses to ensure water meets regulatory public health and aesthetic standards prior to distribution to customers. Possible examples include sedimentation, filtration, disinfection, and chemical treatment. For the risk assessment, individual treatment processes at a facility may be grouped together and analyzed as a single asset if they have a similar risk profile.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Pretreatment and Treatment* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

Asset Category: *Pretreatment and Treatment* **Examples of Assets in this Category:** Encompasses all unit processes that a water system uses to ensure water meets regulatory public health and aesthetic standards prior to distribution to customers. Possible examples include sedimentation, filtration, disinfection, and chemical treatment. For the risk assessment, individual treatment processes at a facility may be grouped together and analyzed as a single asset if they have a similar risk profile.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Pretreatment and Treatment* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 5a: Storage and Distribution Facilities (Malevolent Acts)

Asset Category: *Storage and Distribution Facilities* **Examples of Assets in this Category:** Encompasses all infrastructure used to store water after treatment, maintain water quality, and distribute water to customers. Possible examples include residual disinfection, pumps, tanks, reservoirs, valves, pipes, and meters.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Storage and Distribution Facilities* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[11]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[11] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Storage and Distribution Facilities* **Examples of Assets in this Category:** Encompasses all infrastructure used to store water after treatment, maintain water quality, and distribute water to customers. Possible examples include residual disinfection, pumps, tanks, reservoirs, valves, pipes, and meters.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Storage and Distribution Facilities* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[12]	
☐ Other(s), enter below:	

[12] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 5b: Storage and Distribution Facilities (Natural Hazards)

Asset Category: *Storage and Distribution Facilities* **Examples of Assets in this Category:** Encompasses all infrastructure used to store water after treatment, maintain water quality, and distribute water to customers. Possible examples include residual disinfection, pumps, tanks, reservoirs, valves, pipes, and meters.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Storage and Distribution Facilities* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

Asset Category: *Storage and Distribution Facilities* **Examples of Assets in this Category:** Encompasses all infrastructure used to store water after treatment, maintain water quality, and distribute water to customers. Possible examples include residual disinfection, pumps, tanks, reservoirs, valves, pipes, and meters.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Storage and Distribution Facilities* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 6a: Electronic, Computer, or Other Automated Systems (including the security of such systems) (Malevolent Acts)

Asset Category: *Electronic, Computer, or Other Automated Systems (including the security of such systems)* **Examples of Assets in this Category:** Encompasses all treatment and distribution process control systems, business enterprise information technology (IT) and communications systems (other than financial), and the processes used to secure such systems. Possible examples include the sensors, controls, monitors and other interfaces, plus related IT hardware and software and communications, used to control water collection, treatment, and distribution. Also includes IT hardware, software, and communications used in business enterprise operations. The assessment must account for the security of these systems (e.g., cybersecurity, information security).	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Electronic, Computer, or Other Automated Systems (including the security of such systems)* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[13]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[13] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Electronic, Computer, or Other Automated Systems (including the security of such systems)* **Examples of Assets in this Category:** Encompasses all treatment and distribution process control systems, business enterprise information technology (IT) and communications systems (other than financial), and the processes used to secure such systems. Possible examples include the sensors, controls, monitors and other interfaces, plus related IT hardware and software and communications, used to control water collection, treatment, and distribution. Also includes IT hardware, software, and communications used in business enterprise operations. The assessment must account for the security of these systems (e.g., cybersecurity, information security).	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Electronic, Computer, or Other Automated Systems (including the security of such systems)* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[14]	
☐ Other(s), enter below:	

[14] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 6b: Electronic, Computer, or Other Automated Systems (including the security of such systems) (Natural Hazards)

Asset Category: *Electronic, Computer, or Other Automated Systems (including the security of such systems)* **Examples of Assets in this Category:** Encompasses all treatment and distribution process control systems, business enterprise information technology (IT) and communications systems (other than financial), and the processes used to secure such systems. Possible examples include the sensors, controls, monitors and other interfaces, plus related IT hardware and software and communications, used to control water collection, treatment, and distribution. Also includes IT hardware, software, and communications used in business enterprise operations. The assessment must account for the security of these systems (e.g., cybersecurity, information security).	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Electronic, Computer, or Other Automated Systems (including the security of such systems)* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	

Asset Category: *Electronic, Computer, or Other Automated Systems (including the security of such systems)* **Examples of Assets in this Category:** Encompasses all treatment and distribution process control systems, business enterprise information technology (IT) and communications systems (other than financial), and the processes used to secure such systems. Possible examples include the sensors, controls, monitors and other interfaces, plus related IT hardware and software and communications, used to control water collection, treatment, and distribution. Also includes IT hardware, software, and communications used in business enterprise operations. The assessment must account for the security of these systems (e.g., cybersecurity, information security).	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Electronic, Computer, or Other Automated Systems (including the security of such systems)* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Fire	
☐ Other(s), enter below:	

Table 7a: Monitoring Practices (Malevolent Acts)[15]

Asset Category: *Monitoring Practices* **Examples of Assets in this Category:** Encompasses the processes and practices used to monitor source water and finished water quality, along with any monitoring systems not captured in other asset categories. Possible examples include sensors, laboratory resources, sampling capabilities, and data management equipment and systems. Examples are contamination warning systems for the source water or distribution system.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Monitoring Practices* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[16]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[15] Monitoring associated with physical security should be addressed under *Physical Barriers*; monitoring associated with process controls and cybersecurity should be addressed under *Electronic, Computer or Other Automated Systems*; monitoring associated with financial systems should be addressed under *Financial Infrastructure*.

[16] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Monitoring Practices* **Examples of Assets in this Category:** Encompasses the processes and practices used to monitor source water and finished water quality, along with any monitoring systems not captured in other asset categories. Possible examples include sensors, laboratory resources, sampling capabilities, and data management equipment and systems. Examples are contamination warning systems for the source water or distribution system.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Monitoring Practices* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[17]	
☐ Other(s), enter below:	

[17] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 7b: Monitoring Practices (Natural Hazards)[18]

Asset Category: *Monitoring Practices* **Examples of Assets in this Category:** Encompasses the processes and practices used to monitor source water and finished water quality, along with any monitoring systems not captured in other asset categories. Possible examples include sensors, laboratory resources, sampling capabilities, and data management equipment and systems. Examples are contamination warning systems for the source water or distribution system.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Monitoring Practices* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	

[18] Monitoring associated with physical security should be addressed under *Physical Barriers*; monitoring associated with process controls and cybersecurity should be addressed under *Electronic, Computer or Other Automated Systems*; monitoring associated with financial systems should be addressed under *Financial Infrastructure*.

Asset Category: *Monitoring Practices* **Examples of Assets in this Category:** Encompasses the processes and practices used to monitor source water and finished water quality, along with any monitoring systems not captured in other asset categories. Possible examples include sensors, laboratory resources, sampling capabilities, and data management equipment and systems. Examples are contamination warning systems for the source water or distribution system.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Monitoring Practices* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Fire	
☐ Other(s), enter below:	

Table 8a: Financial Infrastructure (Malevolent Acts)

<table>
<tr><td colspan="2">Asset Category: Financial Infrastructure
Examples of Assets in this Category: Encompasses equipment and systems used to operate and manage utility finances. Possible examples include billing, payment, and accounting systems, along with third parties used for these services. This asset category is not intended to address the financial “health” of the water utility (e.g., credit rating, debt-to-equity ratios).</td></tr>
<tr><td>Malevolent Acts
Select the malevolent acts in the left column that pose a <u>significant risk</u> to this asset category at the CWS.</td><td>Brief Description of Impacts
If you select a malevolent act in the left column as a significant risk to the Financial Infrastructure asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.</td></tr>
<tr><td>☐ Assault on Utility – Physical</td><td></td></tr>
<tr><td>☐ Contamination of Finished Water – Intentional</td><td></td></tr>
<tr><td>☐ Contamination of Finished Water – Accidental[19]</td><td></td></tr>
<tr><td>☐ Theft or Diversion – Physical</td><td></td></tr>
<tr><td>☐ Cyberattack on Business Enterprise Systems</td><td></td></tr>
</table>

[19] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *Financial Infrastructure* **Examples of Assets in this Category:** Encompasses equipment and systems used to operate and manage utility finances. Possible examples include billing, payment, and accounting systems, along with third parties used for these services. This asset category is not intended to address the financial "health" of the water utility (e.g., credit rating, debt-to-equity ratios).	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *Financial Infrastructure* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[20]	
☐ Other(s), enter below:	

[20] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 8b: Financial Infrastructure (Natural Hazards)

Asset Category: *Financial Infrastructure* **Examples of Assets in this Category:** Encompasses equipment and systems used to operate and manage utility finances. Possible examples include billing, payment, and accounting systems, along with third parties used for these services. This asset category is not intended to address the financial "health" of the water utility (e.g., credit rating, debt-to-equity ratios).	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Financial Infrastructure* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

Asset Category: *Financial Infrastructure* **Examples of Assets in this Category:** Encompasses equipment and systems used to operate and manage utility finances. Possible examples include billing, payment, and accounting systems, along with third parties used for these services. This asset category is not intended to address the financial "health" of the water utility (e.g., credit rating, debt-to-equity ratios).	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *Financial Infrastructure* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 9a: The Use, Storage, or Handing of Chemicals (Malevolent Acts)

<table>
<tr><td colspan="2">Asset Category: The Use, Storage, or Handling of Chemicals
Examples of Assets in this Category: Encompasses the chemicals and associated storage facilities and handling practices used for chemical disinfection and treatment. Assessments under this asset category should focus on the risk of uncontrolled release of a potentially dangerous chemical like chlorine where applicable.</td></tr>
<tr><td>Malevolent Acts
Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.</td><td>Brief Description of Impacts
If you select a malevolent act in the left column as a significant risk to the The Use, Storage, or Handling of Chemicals asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.</td></tr>
<tr><td>☐ Assault on Utility – Physical</td><td></td></tr>
<tr><td>☐ Contamination of Finished Water – Intentional</td><td></td></tr>
<tr><td>☐ Contamination of Finished Water – Accidental[21]</td><td></td></tr>
<tr><td>☐ Theft or Diversion – Physical</td><td></td></tr>
<tr><td>☐ Cyberattack on Business Enterprise Systems</td><td></td></tr>
</table>

[21] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *The Use, Storage, or Handling of Chemicals* **Examples of Assets in this Category:** Encompasses the chemicals and associated storage facilities and handling practices used for chemical disinfection and treatment. Assessments under this asset category should focus on the risk of uncontrolled release of a potentially dangerous chemical like chlorine where applicable.	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *The Use, Storage, or Handling of Chemicals* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[22]	
☐ Other(s), enter below:	

[22] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 9b: The Use, Storage, or Handing of Chemicals (Natural Hazards)

Asset Category: *The Use, Storage, or Handling of Chemicals* **Examples of Assets in this Category:** Encompasses the chemicals and associated storage facilities and handling practices used for chemical disinfection and treatment. Assessments under this asset category should focus on the risk of uncontrolled release of a potentially dangerous chemical like chlorine where applicable.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *The Use, Storage, or Handling of Chemicals* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Hurricane	
☐ Flood	
☐ Earthquake	
☐ Tornado	
☐ Ice storm	
☐ Fire	

Asset Category: *The Use, Storage, or Handling of Chemicals* **Examples of Assets in this Category:** Encompasses the chemicals and associated storage facilities and handling practices used for chemical disinfection and treatment. Assessments under this asset category should focus on the risk of uncontrolled release of a potentially dangerous chemical like chlorine where applicable.	
Natural Hazards Select the natural hazards in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a natural hazard in the left column as a significant risk to the *The Use, Storage, or Handling of Chemicals* asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Other(s), enter below:	

Table 10a: The Operation and Maintenance of the System (Malevolent Acts)

Asset Category: *The Operation and Maintenance of the System* **Examples of Assets in this Category:** Encompasses critical processes required for operation and maintenance of the water system that are not captured under other asset categories. Possible examples include equipment, supplies, and key personnel. Assessments may focus on the risk to operations associated with dependency threats like loss of utilities (e.g., power outage), loss of suppliers (e.g., interruption in chemical delivery), and loss of key employees (e.g., disease outbreak or employee displacement).	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *The Operation and Maintenance of the System* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Assault on Utility – Physical	
☐ Contamination of Finished Water – Intentional	
☐ Contamination of Finished Water – Accidental[23]	
☐ Theft or Diversion – Physical	
☐ Cyberattack on Business Enterprise Systems	

[23] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Asset Category: *The Operation and Maintenance of the System* **Examples of Assets in this Category:** Encompasses critical processes required for operation and maintenance of the water system that are not captured under other asset categories. Possible examples include equipment, supplies, and key personnel. Assessments may focus on the risk to operations associated with dependency threats like loss of utilities (e.g., power outage), loss of suppliers (e.g., interruption in chemical delivery), and loss of key employees (e.g., disease outbreak or employee displacement).	
Malevolent Acts Select the malevolent acts in the left column that pose a significant risk to this asset category at the CWS.	**Brief Description of Impacts** If you select a malevolent act in the left column as a significant risk to the *The Operation and Maintenance of the System* asset category, briefly describe in the right column how the malevolent act could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.
☐ Cyberattack on Process Control Systems	
☐ Sabotage – Physical	
☐ Contamination of Source Water – Intentional	
☐ Contamination of Source Water – Accidental[24]	
☐ Other(s), enter below:	

[24] Accidental contamination is not a malevolent act. It is included here due to similar potential consequences and because whether a contamination incident is intentional or accidental may not be known during initial response.

Table 10b: The Operation and Maintenance of the System (Natural Hazards)

<table>
<tr><td colspan="2">Asset Category: The Operation and Maintenance of the System
Examples of Assets in this Category: Encompasses critical processes required for operation and maintenance of the water system that are not captured under other asset categories. Possible examples include equipment, supplies, and key personnel. Assessments may focus on the risk to operations associated with dependency threats like loss of utilities (e.g., power outage), loss of suppliers (e.g., interruption in chemical delivery), and loss of key employees (e.g., disease outbreak or employee displacement).</td></tr>
<tr><td>Natural Hazards
Select the natural hazards in the left column that pose a <u>significant risk</u> to this asset category at the CWS.</td><td>Brief Description of Impacts
If you select a natural hazard in the left column as a significant risk to the The Operation and Maintenance of the System asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.</td></tr>
<tr><td>☐ Hurricane</td><td></td></tr>
<tr><td>☐ Flood</td><td></td></tr>
<tr><td>☐ Earthquake</td><td></td></tr>
<tr><td>☐ Tornado</td><td></td></tr>
<tr><td>☐ Ice storm</td><td></td></tr>
<tr><td>☐ Fire</td><td></td></tr>
</table>

<table>
<tr><td colspan="2">Asset Category: The Operation and Maintenance of the System
Examples of Assets in this Category: Encompasses critical processes required for operation and maintenance of the water system that are not captured under other asset categories. Possible examples include equipment, supplies, and key personnel. Assessments may focus on the risk to operations associated with dependency threats like loss of utilities (e.g., power outage), loss of suppliers (e.g., interruption in chemical delivery), and loss of key employees (e.g., disease outbreak or employee displacement).</td></tr>
<tr><td>Natural Hazards
Select the natural hazards in the left column that pose a <u>significant risk</u> to this asset category at the CWS.</td><td>Brief Description of Impacts
If you select a natural hazard in the left column as a significant risk to the The Operation and Maintenance of the System asset category, briefly describe in the right column how the natural hazard could impact this asset category at the CWS. Include effects on major assets, water service, and public health as applicable.</td></tr>
<tr><td>☐ Other(s), enter below:</td><td></td></tr>
</table>

Table 11: Countermeasures (Optional)[25]

Countermeasures (optional) List countermeasures in the left column the CWS could potentially implement to reduce risk from the malevolent acts and natural hazards that were selected.	**Brief Description of Risk Reduction or Increased Resilience** For each countermeasure, in the right column, describe how the countermeasure could reduce risk or increase resilience for CWS assets from malevolent acts or natural hazards that were selected in the analysis. A countermeasure may reduce risk across multiple malevolent acts, natural hazards and asset categories.
1.	
2.	
3.	
4.	
5.	

[25] IMPORTANT NOTE: The assessment does not require a specific number of countermeasures. You may have fewer than five countermeasures or add more countermeasures and describe them in a separate document.

Change History

Please describe the changes made to this risk and resilience assessment since its original development, who made the changes, and on what date the changes were incorporated.

Name/Title:	Date:	Description of Change:

Appendix I:
Emergency Notification Plan Template

California Water Boards

Gavin Newsom
Governor

Jared Blumenfeld
Secretary for Environmental Protection

State Water Resources Control Board

System No. ____________________

DIVISION OF DRINKING WATER – TULARE DISTRICT
WATER QUALITY EMERGENCY NOTIFICATION PLAN

Water System Name: ____________________

Physical Location Address: ____________________

The following persons have been designated to implement the Plan upon notification by the Division of Drinking Water that an imminent danger to the health of the water users exists:

	Contact Name & Title	Email Address	Home/Office	Cell
1.				
2.				
3.				

The implementation of the plan will be carried out with the following Division of Drinking Water and County Health personnel:

	Contact Name & Title	Email Address	Office	Cell
1.	Kristin Willet, Tulare District Engineer Division of Drinking Water	kristin.willet@waterboards.ca.gov	(559) 447-3300	(559) 280-6363
2.	Tricia Wathen, Supervising Sanitary Engineer Division of Drinking Water	tricia.wathen@waterboards.ca.gov	(559) 447-3300	(559) 696-8506
3.	Nilsa Gonzalez, Director Tulare County Environmental Health Division Manager	ngonzale@tularehhsa.org	(559) 624-7400	(559) 285-2440

4. If the above personnel cannot be reached, contact:

Office of Emergency Services (24 Hrs.) (800) 852-7550 or (916) 845-8911
Ask for "Division of Drinking of Drinking Water, Duty Officer"

NOTIFICATION PLAN

Community and Nontransient Noncommunity
(Must identify three methods)
☐ Door to Door Delivery ☐ Posted Notification
☐ Social Media ☐ Reverse 911/Telephone
☐ News Media (TV, Radio, Newspaper) ☐ Email
☐ Other: personal phone call

Transient Noncommunity
☐ Water system must post notification. Hand delivered notification must be provided to any residential/overnight customers.

***SYSTEMS SERVING MORE THAN 200 SERVICE CONNECTIONS MUST PROVIDE A CUSTOM PLAN.**

APPROXIMATE TIME TO ISSUE NOTICE:_______ HRS

Report prepared by:

Signature and Title ____________________ Date ____________________

Appendix C: CPUD Compliance Orders

State Water Resources Control Board

Division of Drinking Water

August 26, 2022

System No. 5410001

Dionicio Rodriguez, Superintendent
Cutler Public Utility District
40526 Orosi Drive
Cutler, CA 93615

COMPLIANCE ORDER NO. 03-24-22R-007
1,2,3-TRICHLOROPROPANE (1,2,3-TCP) MAXIMUM CONTAMINANT LEVEL VIOLATION

Enclosed is Compliance Order No. 03-24-22R-007 (hereinafter "Order") issued to the Cutler Public Utility District (hereinafter "Water System") public water system. **Please note there are legally enforceable deadlines associated with this Order starting on page 4 of the Order.**

The Water System will be billed at the State Water Resources Control Board's (hereinafter "State Water Board") hourly rate for the time spent on issuing this Order. California Health and Safety Code (hereinafter "CHSC"), Section 116577, provides that a public water system must reimburse the State Water Board for actual costs incurred by the State Water Board for specified enforcement actions, including but not limited to, preparing, issuing and monitoring compliance with an order. At this time, the State Water Board has spent approximately 1.0 hour on enforcement activities associated with this violation.

The Water System will receive a bill sent from the State Water Board in August of the next fiscal year. This bill will contain fees for any enforcement time spent on the Water System for the current fiscal year.

Any person who is aggrieved by a citation, order or decision issued under authority delegated to an officer or employee of the state board under Article 8 (commencing with CHSC, Section 116625) or Article 9 (commencing with CHSC, Section 116650), of the Safe Drinking Water Act (CHSC, Division 104, Part 12, Chapter 4), may file a petition with the State Water Board for reconsideration of the citation, order or decision.

Petitions must be received by the State Water Board within 30 days of the issuance of the citation, order or decision by the officer or employee of the state board. The date of issuance is the date when the Division of Drinking Water mails a copy of the citation, order or decision.

Information regarding filing petitions may be found at:

http://www.waterboards.ca.gov/drinking_water/programs/petitions/index.shtml

If you have any questions regarding this matter, please contact Tulare District staff at (559) 447-3300 or by email at dwpdist24@waterboards.ca.gov.

Sincerely,

Kristin Willet Digitally signed by Kristin Willet
Date: 2022.08.25 08:27:48 -07'00'

Kristin Willet, P.E.
Senior Water Resources Control Engineer, Tulare District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

Certified Mail No. 7022 0410 0002 3469 5380

cc: Tulare County Environmental Health Department
Nilsa Gonzalez
NGonzale@tularecounty.ca.gov

03_24_22R_007_5410001

Compliance Order No. 03-24-22R-007

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF DRINKING WATER

Name of Public Water System: Cutler Public Utility District

Water System No: 5410001

Attention: Dionicio Rodriguez, Superintendent
Cutler Public Utility District
40526 Orosi Drive
Cutler, CA 93615

Issued: August 26, 2022

COMPLIANCE ORDER FOR NONCOMPLIANCE

1,2,3-TCP MAXIMUM CONTAMINANT LEVEL VIOLATION

CALIFORNIA CODE OF REGULATIONS, TITLE 22, SECTION 64444

3rd Quarter 2022

The California Health and Safety Code (hereinafter "CHSC"), Section 116655 authorizes the State Water Resources Control Board (hereinafter "State Water Board") to issue a compliance order to a public water system when the State Water Board determines that the public water system has violated or is violating the California Safe Drinking Water Act (hereinafter "California SDWA"), (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit, or order issued or adopted thereunder.

The State Water Board, acting by and through its Division of Drinking Water (hereinafter “Division”) and the Deputy Director for the Division, hereby issues Compliance Order No. 03-24-22R-007 (hereinafter “Order”) pursuant to Section 116655 of the CHSC to the Cutler Public Utility District (hereinafter “Water System”) for violation of CHSC, Section 116555(a)(1) and California Code of Regulations (hereinafter “CCR”), Title 22, Section 64444 Maximum Contaminant Levels (hereinafter “MCL”) – Organic Chemicals.

STATEMENT OF FACTS

The Water System is classified as a community public water system with a population of 6,200 persons served through 1,218 service connections. The Cutler Public Utility District operates under Domestic Water Supply Permit Amendment No. 03-12-09PA-006 issued by the State Water Board on June 30, 2009.

CHSC, Section 116555(a)(1) requires all public water systems to comply with primary drinking water standards as defined in CHSC, Section 116275(c). Primary drinking water standards include maximum levels of contaminants and the monitoring and reporting requirements as specified in regulations adopted by the State Water Board that pertain to maximum contaminant levels.

The State Water Board received 7 laboratory results for 1,2,3-TCP samples from Well 05 collected between January 2022 and July 2022. The running annual average 1,2,3-TCP level of the samples from Well 05 is 0.0000055 mg/L. A summary of the Water System’s 1,2,3-TCP monitoring results from Well 05 is presented in Table 1 below:

Table 1. Well 05 1,2,3-TCP Sample Results (mg/L)

(1,2,3-TCP MCL is 0.000005 mg/L)		
Compliance Period	**Sample Date**	**Result**
1st Quarter 2022	1/14/2022	0.000006
1st Quarter 2022	2/9/2022	0.000005
1st Quarter 2022	3/9/2022	0.000006
2nd Quarter 2022	4/8/2022	0.000006
2nd Quarter 2022	5/18/2022	0.000005
2nd Quarter 2022	6/22/2022	0.000006
3rd Quarter 2022	7/29/2022	0.000007
Running Annual Average (RAA)		0.00000585

* If any one sample or average of samples would cause the four quarter average (annual average) to exceed the MCL, the water system is immediately in violation.

DETERMINATION

CCR, Title 22, Section 64444, Maximum Contaminant Levels – Organic Chemicals states that public water systems shall comply with the primary MCLs established in table 64444-A. The MCL for 1,2,3-TCP is 0.000005 mg/L.

CCR, Title 22, Section 64445.1(c)(5)(C) Repeat Monitoring and Compliance – Organic Chemicals states that if any sample would cause the running annual average to exceed the MCL, the water system is immediately in violation. If a system takes more than one sample in a quarter, the average of all the results for that quarter shall be used when calculating the running annual average. If a system fails to complete four consecutive quarters of monitoring, the running annual average shall be based on an average of the available data.

The 1,2,3-TCP RAA from Well 05 is 0.000006 mg/L. Therefore, the State Water Board has determined that the Water System has failed to comply with primary drinking water standards pursuant to CHSC, Section 116555(a)(1) and the 1,2,3-TCP MCL pursuant to CCR, Title 22, Section 64444 during the 3rd Quarter 2022.

DIRECTIVES

To ensure that the water supplied by the Water System is at all times safe, wholesome, healthful, and potable, the Water System is hereby directed to take the following actions:

1. On or before **August 29, 2025**, comply with CCR, Title 22, Section 64444.

2. Quarterly sampling for 1,2,3-TCP from Well 05 shall continue with the **4th Quarter 2022** and shall continue every three months thereafter. The Water System shall ensure that the laboratory, which conducts the analysis, submits the analytical results electronically by State Water Board approved method no later than the 10th day following the month in which the analysis was completed.

3. By **October 10, 2022**, public notification to the customers of the Water System shall be conducted and shall continue every three months until the State Water Board determines that the 1,2,3-TCP contamination is resolved. Public Notification shall be conducted in conformance with CCR, Title 22, Sections 64463.4 and 64465. Appendix 1: Notification Template shall be used to fulfill this directive, unless otherwise approved by the State Water Board.

4. Complete Appendix 2: Certification of Completion of Notification Form. Submit it together with a copy of the public notification conducted in compliance with the

public notification requirement listed above to the State Water Board within 10 days following each notification.

5. Prepare for State Water Board approval, a Corrective Action Plan, identifying improvements to the water system designed to correct the water quality problems identified as an exceedance of the 1,2,3-TCP MCL and ensure that the Water System delivers water to consumers that meets primary drinking water standards. The plan shall include a time schedule for completion of each of the phases of the project such as design, construction, and startup, and a date as of which the Water System will be in compliance with the 1,2,3-TCP MCL, which date shall be no later than **August 29, 2025**.

6. On or before **November 1, 2022**, present in person or via a virtual meeting the Corrective Action Plan required under Directive No. 5 above, to the State Water Board's office located at:

SWRCB – Division of Drinking Water
265 W. Bullard Ave, Suite 101
Fresno, CA 93704

7. Perform the State Water Board approved Corrective Action Plan, and each and every element of said plan, according to the time schedule set forth therein.

8. On or before **January 10, 2023**, and every three months thereafter, submit a report to the State Water Board in the form provided as Appendix 3 showing actions taken during the previous quarter (calendar three months) to comply with the Corrective Action Plan.

9. Not later than ten (10) days following **August 29, 2025**, demonstrate to the State Water Board that the water delivered by the Water System complies with the 1,2,3-TCP MCL.

10. Notify the State Water Board in writing no later than five (5) days prior to the deadline for performance of any Directive set forth herein if the Water System anticipates it will not timely meet such performance deadline.

11. By **September 30, 2022**, complete and return to the State Water Board the "Notification of Receipt" form attached to this Order as Appendix 4. Completion of this form confirms that the Water System has received this Order and understands that it contains legally enforceable directives with due dates.

All submittals, with exception of analytical results, required by this Order shall be electronically submitted to the State Water Board at the following address. The subject line for all electronic submittals corresponding to this Order shall include the following information: Water System name and number, compliance order number and title of the document being submitted.

Kristin Willet, P.E.
dwpdist24@waterboards.ca.gov

The State Water Board reserves the right to make modifications to this Order as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Order and shall be effective upon issuance.

Nothing in this Order relieves the Water System of its obligation to meet the requirements of the California SDWA (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit or order issued or adopted thereunder.

PARTIES BOUND

This Order shall apply to and be binding upon the Water System, its owners, shareholders, officers, directors, agents, employees, contractors, successors, and assignees.

SEVERABILITY

The directives of this Order are severable, and the Water System shall comply with each and every provision thereof notwithstanding the effectiveness of any provision.

FURTHER ENFORCEMENT ACTION

The California SDWA authorizes the State Water Board to: issue a citation or order with assessment of administrative penalties to a public water system for violation or continued violation of the requirements of the California SDWA or any regulation, permit, standard, citation, or order issued or adopted thereunder including, but not limited to, failure to correct a violation identified in a citation or compliance order. The California SDWA also authorizes the State Water Board to take action to suspend or revoke a permit that has been issued to a public water system if the public water system has violated applicable law or regulations or has failed to comply with an order of the State Water Board, and to petition the superior court to take various enforcement measures against a public water system that has failed to comply with an order of the State Water Board. The State Water Board does not waive any further enforcement action by issuance of this Order.

Tricia A. Wathen Digitally signed by Tricia A. Wathen
Date: 2022.08.24 16:53:52 -07'00'

Tricia Wathen, P.E., Chief — Date
Central California Section
State Water Resources Control Board
Division of Drinking Water

Appendices (4):
1. Notification Template
2. Certification of Completion of Public Notification
3. Quarterly Progress Report
4. Notification of Receipt

Certified Mail No. 7022 0410 0002 3469 5380

APPENDIX 1. NOTIFICATION TEMPLATE

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Este informe contiene información muy importante sobre su agua potable.
Por favor hable con alguien que lo pueda tradúcir.

Cutler Public Utility District Has levels of 1,2,3-TCP
Above Drinking Water Standards

Our water system recently failed a drinking water standard. Although this is not an emergency, as our customers, you have a right to know what you should do, what happened, and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Testing results we received on ____________________[Insert date(s) or month, year] show that our system exceeds the standard, or maximum contaminant level (MCL), for 1,2,3-trichloropropane (1,2,3-TCP). The standard for 1,2,3-TCP is 0.005 ug/L (micrograms per liter). The average level of 1,2,3-TCP over the last year was __________ *ug/L*.

What should I do?

- **You <u>do not</u> need to use an alternative (e.g. , bottled) water supply.**
- This is not an immediate risk. If it had been, you would have been notified immediately. However, s*ome people who drink water containing 1,2,3-trichloropropane in excess of the MCL over many years may have an increased risk of getting cancer*.
- If you have other health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? What is being done?

What happened? What is being done?

____

[Describe corrective action]

____

We anticipate resolving the problem within [estimated time frame] ________________________.

For more information, please contact:

[Name of Contact] ____
[Phone Number] or ____
[Mailing Address] ____

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mail.

Secondary Notification Requirements

Upon receipt of notification from a person operating a public water system, the following notification must be given within 10 days [Health and Safety Code Section 116450(g)]:

- SCHOOLS: Must notify school employees, students, and parents (if the students are minors).

- RESIDENTIAL RENTAL PROPERTY OWNERS OR MANAGERS (including nursing homes and care facilities): Must notify tenants.
- BUSINESS PROPERTY OWNERS, MANAGERS, OR OPERATORS: Must notify employees of businesses located on the property.

This notice is being sent to you by Cutler Public Utility District in compliance with the California Domestic Water Quality and Monitoring Regulations as a means of keeping the public informed.

State Water System ID: 5410001. Date distributed: __________________

APPENDIX 2.
CERTIFICATION OF COMPLETION OF PUBLIC NOTIFICATION

Compliance Order Number: 03-24-22R-007

Name of Water System: Cutler Public Utility District

System Number: 5410001
Attach a copy of the public notice distributed to the water system's customers.

This form, when completed and sent to dwpdist24@waterboards.ca.gov for the Division of Drinking Water, Tulare District, 265 W. Bullard Avenue, Suite 101, Fresno, CA 93704 serves as certification that public notification to water users was completed as required by Title 22, California Code of Regulations, Sections 64463-64465.

Public notification for failure to comply with the **1,2,3-TCP MCL** was conducted on:

Notification was made on ____ (date).

For the ______________________________[Insert month or quarter and year].

To summarize report delivery used and good-faith efforts taken, please check all items below that apply and fill-in where appropriate:

For Community and non-transient non-community public water systems

☐ The notice was distributed by mail or direct delivery to each customer on: ________________

One or more of the following methods were used to reach persons not likely to be reached by a mailing or direct delivery or persons served by a transient public water system (renters, nursing home patients, prison inmates, etc.):

☐ Posted the notice at the following conspicuous locations served by the water system. (If needed, please attach a list of locations). ____________________________________

☐ Publication of the notice in a local newspaper or newsletter of general circulation (attach a copy of the published notice, including name of newspaper and date published).

☐ Posted the notice on the Internet at www.________________________________

☐ Other method used to notify customers. ________________________________

I hereby certify that the above information is factual.

Certified by: Printed Name ______________________________Title_________________

Signature ____

Date ____

Disclosure: Be advised that the California Health and Safety Code, Sections 116725 and 116730 state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the Safe Drinking Water Act may be liable for, respectively, a civil penalty not to exceed five thousand dollars ($5,000) for each separate violation or, for continuing violations, for each day that violation continues, or be punished by a fine of not more than $25,000 for each day of violation, or by imprisonment in the county jail not to exceed one year, or by both the fine and imprisonment

APPENDIX 3. QUARTERLY PROGRESS REPORT

Water System: Cutler Public Utility District	Water System No: 5410001
Compliance Order No: 03-24-22R-007	Violation: 1,2,3-TCP MCL
Calendar Quarter:	Date:

This form should be prepared and signed by Water System personnel with appropriate authority to implement the directives of the Compliance Order and the Corrective Action Plan. Please attach additional sheets as necessary. The quarterly progress report must be submitted by the 10th day of each subsequent quarter, to the Division of Drinking Water, Tulare District Office to the following email address: dwpdist24@waterboards.ca.gov titled appropriately.

Summary of Compliance Plan:

Tasks completed in the reporting quarter:

Tasks remaining to complete:

Anticipated compliance date:

Printed Name **Signature**

Title **Date**

APPENDIX 4. NOTIFICATION OF RECEIPT

Compliance Order Number: 03-24-22R-007

Name of Water System: Cutler Public Utility District

System Number: 5410001

Certification

I certify that I am an authorized representative of the Cutler Public Utility District and that Compliance Order No. **03-24-22R-007** was received on ___________________. Further I certify that the Order has been reviewed by the appropriate management staff of the Cutler Public Utility District and it is clearly understood that Compliance Order No. **03-24-22R-007** contains legally enforceable directives with specific due dates.

____________________________________ ___________________

Signature of Water System Representative Date

THIS FORM MUST BE COMPLETED AND RETURNED TO THE STATE WATER BOARD, DIVISION OF DRINKING WATER, NO LATER THAN SEPTEMBER 30, 2022.

Disclosure: Be advised that the California Health and Safety Code, Sections 116725 and 116730 state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the Safe Drinking Water Act may be liable for, respectively, a civil penalty not to exceed five thousand dollars ($5,000) for each separate violation or, for continuing violations, for each day that violation continues, or be punished by a fine of not more than $25,000 for each day of violation, or by imprisonment in the county jail not to exceed one year, or by both the fine and imprisonment.

State Water Resources Control Board
Division of Drinking Water

September 21, 2023

System No. CA5410001

Dionicio Rodriguez, Superintendent
Cutler Public Utility District
40526 Orosi Drive
Cutler, CA 93615

COMPLIANCE ORDER NO. 03-24-23R-006
NITRATE MAXIMUM CONTAMINANT LEVEL VIOLATION
FOR THIRD QUARTER 2023

Enclosed is Compliance Order No. 03-24-23R-006 (hereinafter "Order"), issued to the Cutler Public Utility District (hereinafter "Water System") public water system. Please note that there are legally enforceable deadlines associated with this Order.

The Water System will be billed at the State Water Resources Control Board's (hereinafter "State Water Board") hourly rate for the time spent on issuing this Order. California Health and Safety Code (hereinafter "CHSC") Section 116577 provides that a public water system must reimburse the State Water Board for actual costs incurred by the State Water Board for specified enforcement actions, including preparing, issuing and monitoring compliance with an order. The Water System will receive a bill sent from the State Water Board in August of the next fiscal year. This bill will contain fees for any enforcement time spent on the Water System for the current fiscal year.

A process exists by which a public water system can petition the State Water Board for reconsideration of this compliance order. Petitions sent to the State Water Board "shall include the name and address of the petitioner, a copy of the order or decision for which the petitioner seeks reconsideration, identification of the reason the petitioner alleges the issuance of the order or decision was inappropriate or improper, the specific action the petitioner requests, and other information as the state board may prescribe. The petition shall be accompanied by a statement of points and authorities of the legal issues raised by the petition." (Health & Saf. Code, § 116701, subd. (b).)

Petitions must be received by the State Water Board within 30 days of the issuance of this compliance order by the State Water Board. If the 30th day falls on a Saturday, Sunday, or state holiday, the petition is due the following business day by 5:00 p.m. Information regarding filing petitions may be found at:

Drinking Water Petitions for Reconsideration
https://www.waterboards.ca.gov/drinking_water/programs/petitions/instructions.html

If you have any questions regarding this matter, please contact Tulare District staff at (559) 447-3300 or by email at dwpdist24@waterboards.ca.gov.

Sincerely,

Kristin Willet Digitally signed by Kristin Willet
Date: 2023.09.21 11:18:31 -07'00'
Water Boards

Kristin Willet, P.E.
Senior Water Resource Control Engineer, Tulare District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

Enclosures

Certified Mail No. 7022-0410-0002-3469-6578

cc: [all email only]

Tulare County Environmental Health Division
NGonzale@tularecounty.ca.gov
SCarranz@tularecounty.ca.gov

Dennis Keller
kelweg1@aol.com

03_24_23R_006_5410001_01

Compliance Order No. 03-24-23R-006

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF DRINKING WATER

Name of Public Water System: Cutler Public Utility District

Water System No: CA5410001

Attention: Dionicio Rodriguez, Superintendent
40526 Orosi Drive
Cutler, CA 93615

Issued: September 21, 2023

COMPLIANCE ORDER FOR NONCOMPLIANCE
CALIFORNIA HEALTH AND SAFETY CODE, SECTION 116555 AND
CALIFORNIA CODE OF REGULATIONS, TITLE 22, SECTION 64431

NITRATE MAXIMUM CONTAMINANT LEVEL VIOLATION
THIRD QUARTER 2023

The California Health and Safety Code (hereinafter “CHSC”), Section 116655 authorizes the State Water Resources Control Board (hereinafter “State Water Board”), to issue a Compliance Order to a public water system when the State Water Board determines that the public water system has violated or is violating the California Safe

Drinking Water Act (hereinafter “California SDWA”) (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit, or order issued or adopted thereunder.

The State Water Board, acting by and through its Division of Drinking Water (hereinafter “Division”), and the Deputy Director for the Division, hereby issues Compliance Order No. 03-24-23R-006 (hereinafter “Order”), pursuant to Section 116655 of the CHSC to the Cutler Public Utility District (hereinafter “Water System”), for violation of CHSC, Section 116555, subdivision (a)(1) and California Code of Regulations (hereinafter “CCR”), Title 22, Section 64431 Maximum Contaminant Levels (hereinafter “MCL”) – Inorganic Chemicals.

STATEMENT OF FACTS

The Water System is classified as a community public water system with a population of 6,200, serving 1,234 connections. The Water System operates under Domestic Water Supply Permit Amendment No. 03-24-22PA-019 issued by the State Water Board on August 24, 2022. The Water System is using groundwater sources to supply potable water to the distribution system.

CHSC, Section 116555, subdivision (a)(1) requires all public water systems to comply with primary drinking water standards as defined in CHSC, Section 116275, subdivision (c). Primary drinking water standards include maximum levels of contaminants, specific treatment standards, and monitoring and reporting requirements as specified in regulations adopted by the State Water Board.

CCR, Title 22, Section 64431 Maximum Contaminant Levels – Inorganic Chemicals states that public water systems shall comply with the primary MCLs established in table 64431-A. The MCL for Nitrate (as Nitrogen) is 10. milligrams per liter (hereinafter "mg/L").

The State Water Board received laboratory results for two nitrate samples collected on August 04, 2023, and August 08, 2023, from Well 05. The average nitrate concentration from the two samples was 10.5 mg/L. A summary of the Water System's nitrate monitoring results are presented in Table 1 below:

Table 1 – Well 05 Nitrate Sample Results

Sample Date	Result (mg/L)	Type of Sample
8/4/2023	11	Initial
8/8/2023	10	Confirmation

Additionally, nitrate results for Well 05 have fluctuated from 8.1 mg/L to 11 mg/L in the last year. Results are summarized in Table 2 below:

Table 2 – Well 05 Nitrate Sample Results

Sample Date	Result (mg/L)
8/09/2023	9.5
7/14/2023	10
6/14/2023	9.5
6/13/2023	8.9
6/09/2023	11
5/22/2023	9.3
4/12/2023	10
3/24/2023	9
2/08/2023	8.6
1/11/2023	8.1

Sample Date	Result (mg/L)
12/09/2022	9.2
11/09/2022	10
10/14/2022	9.4
9/09/2022	9.6
8/26/2022	9.6

DETERMINATION

The State Water Board has determined that the Water System has failed to comply with primary drinking water standards pursuant to CHSC, Section 116555 and the nitrate MCL pursuant to CCR, Title 22, Section 64431.

DIRECTIVES

The Water System is hereby directed to take the following actions:

1. By **September 21, 2026,** comply with CCR, Title 22, Section 64431.

2. Continue monthly sampling for nitrate from Well 05. The analytical results of the samples must be submitted electronically to the State Water Board, by the laboratory, that conducts the analysis, no later than the tenth day of the month following completion of the analyses.

   - Monthly public notification to the customers of the Water System must begin by **October 1, 2023** and continue monthly until the State Water Board determines that the nitrate contamination is resolved. Public Notification shall be conducted in conformance with CCR, Title 22, Sections 64463.1 and

64465. Appendix 1: Notification Template shall be used to fulfill this Directive, unless otherwise approved by the State Water Board.

- By mail or direct delivery of the Public Notification to each customer served by the water system and;
- By one of the following secondary methods to reach persons not likely to be reached by mail or direct delivery;
    - ➢ By publication in a local newspaper, by delivery to community organizations or by posting in conspicuous public places served by the water system or on the internet. If the water system opts to issue the notice via internet website, the public notice must remain posted for a minimum of seven (7) consecutive days.

- Public notification for new customers must be conducted in conformance with CCR, Title 22, Section 64463(e) where the Water System shall give new customers a copy of the most recent public notice prior to or at any time service begins.

- Monthly public notification must be provided every month even when a nitrate result shows a concentration below the nitrate MCL. The notice must be updated to include the following wording:

  “Although the nitrate level(s) during the most recent monitoring period showed results below the MCL, nitrate levels in the water tend to fluctuate and it is possible that the nitrate level may increase at any time between sampling events. Public notification will continue until the nitrate problem is resolved.”

3. Complete Appendix 2: Certification of Completion of Notification Form. Submit it together with a copy of the public notification required by Directive 3 to the State Water Board within 10 days following each public notification. The first certification of completion of public notification form is due by **November 10, 2023.**

5. Prepare for State Water Board approval, a Corrective Action Plan, identifying improvements to the water system designed to correct the water quality problems identified as an exceedance of the nitrate MCL and ensure that the Water System delivers water to consumers that meets primary drinking water standards. The plan must include a time schedule for completion of each of the phases of the project such as design, construction, and startup, and a date that shows when the Water System will be in compliance with the nitrate MCL. The date must be no later than **September 21, 2026.**

6. On or before **December 11, 2023,** electronically submit and present via a virtual meeting the Corrective Action Plan required under Directive No. 5 above, to the State Water Board's office located at:

   Dwpdist24@waterboards.ca.gov

7. Perform the State Water Board approved Corrective Action Plan, and each and every element of said plan, according to the time schedule set forth therein.

8. By **January 10, 2023,** and every three months thereafter, submit a report to the State Water Board in the form provided as Appendix 3 showing actions taken

during the previous quarter (calendar three months) to comply with the Corrective Action Plan.

9. By **September 21, 2026**, demonstrate to the State Water Board that the water delivered by the Waer System complies with the Nitrate MCL.

10. Notify the State Water Board in writing no later than five (5) days prior to the deadline for performance of any directive set forth herein if the Water System anticipates it will not meet the deadline.

All submittals required by this Order, unless otherwise specified in the directives above, must be electronically submitted to the State Water Board at the following address. The subject line for all electronic submittals corresponding to this Order must include the following information: Water System name and number, compliance order number, and title of the document being submitted.

Kristin Willet, P.E.
dwpdist24@waterboards.ca.gov

The State Water Board reserves the right to make modifications to this Order as it may deem necessary to protect public health and safety. Such modifications may be issued as amendments to this Order and shall be effective upon issuance.

Nothing in this Order relieves the Water System of its obligation to meet the requirements of the California SDWA (CHSC, Division 104, Part 12, Chapter 4, commencing with Section 116270), or any regulation, standard, permit, or order issued or adopted thereunder.

PARTIES BOUND

This Order shall apply to and be binding upon the Water System, its owners, shareholders, officers, directors, agents, employees, contractors, successors, and assignees.

SEVERABILITY

The directives of this Order are severable, and the Water System shall comply with each and every provision thereof notwithstanding the effectiveness of any provision.

FURTHER ENFORCEMENT ACTION

The California SDWA authorizes the State Water Board to issue a citation or order with assessment of administrative penalties to a public water system for violation or continued violation of the requirements of the California SDWA or any regulation, permit, standard, citation, or order issued or adopted thereunder including, but not limited to, failure to correct a violation identified in a citation or compliance order. The California SDWA also authorizes the State Water Board to take action to suspend or revoke a permit that has been issued to a public water system if the public water system has violated applicable law or regulations or has failed to comply with an order of the State Water Board, and to petition the superior court to take various enforcement measures against a public water system that has failed to comply with an order of the State Water Board. The State Water Board does not waive any further enforcement action by issuance of this Order.

Tricia A. Wathen Digitally signed by Tricia A. Wathen
Date: 2023.09.21 11:05:22 -07'00'
Water Boards

Tricia A. Wathen, P.E. Date
Chief, Central California Section
State Water Resources Control Board

Division of Drinking Water
Southern CA Drinking Water Field Operations Branch

Appendices:

1. Notification Template
2. Certification of Completion of Public Notification
3. Quarterly Progress Report Template

Certified Mail No. 7022-0410-0002-3469-6578

APPENDIX 1. NOTIFICATION TEMPLATE

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

Este informe contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

DRINKING WATER WARNING

Cutler Public Utility District water has high levels of nitrate

DO NOT GIVE THE WATER TO
INFANTS UNDER 6 MONTHS OLD OR PREGNANT WOMEN
OR USE IT TO MAKE INFANT FORMULA

Water sample results received [date] showed nitrate levels of [level and units]. This is above the nitrate standard, or maximum contaminant level (MCL), of 10 milligrams per liter. Nitrate in drinking water is a serious health concern for infants less than six months old.

What should I do?

- **DO NOT GIVE THE WATER TO INFANTS.** *Infants below the age of six months who drink water containing nitrate in excess of the MCL may quickly become seriously ill and, if untreated, may die because high nitrate levels can interfere with the capacity of the infant's blood to carry oxygen. Symptoms include shortness of breath and blueness of the skin.* Symptoms in infants can develop rapidly, with health deteriorating over a period of days. If symptoms occur, seek medical attention immediately.

- **PREGNANT WOMEN SHOULD NOT CONSUME THE WATER.** *High nitrate levels may also affect the oxygen-carrying ability of the blood of pregnant women.*

- Water, juice, and formula for children under six months of age should not be prepared with tap water. Bottled water or other water low in nitrates should be used for infants until further notice.

- **DO NOT BOIL THE WATER.** Boiling, freezing, filtering, or letting water stand does not reduce the nitrate level. Excessive boiling can make the nitrates more concentrated, because nitrates remain behind when the water evaporates.

- If you have other health issues concerning the consumption of this water, you may wish to consult your doctor.

What happened? What is being done?

Nitrate in drinking water can come from natural, industrial, or agricultural sources (including septic systems, storm water run-off, and fertilizers). Levels of nitrate in drinking water can vary throughout the year. We will let you know if the amount of nitrate is again below the limit.

[Describe corrective action, seasonal fluctuations, and when system expects to return to compliance.]

For more information, please contact [name of contact] at [phone number] or [mailing address].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this public notice in a public place or distributing copies by hand or mail.

Secondary Notification Requirements

Upon receipt of notification from a person operating a public water system, the following notification must be given within 10 days [Health and Safety Code Section 116450(g)]:

- SCHOOLS: Must notify school employees, students, and parents (if the students are minors).
- RESIDENTIAL RENTAL PROPERTY OWNERS OR MANAGERS (including nursing homes and care facilities): Must notify tenants.
- BUSINESS PROPERTY OWNERS, MANAGERS, OR OPERATORS: Must notify employees of businesses located on the property.

This notice is being sent to you by Cutler Public Utility District

State Water System ID#: CA5410001

Date distributed: MM/DD/YYYY

INFORMACIÓN IMPORTANTE SOBRE SU AGUA POTABLE

Este aviso contiene información muy importante sobre su agua potable.
Tradúzcalo o hable con alguien que lo entienda bien.

ADVERTENCIA SOBRE EL AGUA POTABLE

El agua de Cutler Public Utility District tiene altos niveles de nitratos

NO DE ÉSTA AGUA A BEBÉS MENORES DE 6 MESES O A MUJERES EMBARAZADAS. TAMPOCO USE ÉSTA AGUA PARA PREPAPAR FORMULA INFANTIL

Los resultados de las pruebas del agua recibidas el [date] mostraron niveles de nitrato de [level and units]. Estos niveles exceden el estándar o nivel máximo de contaminante (MCL) de 10 milígramos por litro. Los nitratos en el agua potable son una preocupación seria en bebés menores de seis meses.

¿Qué debe hacer?

- **NO DE ÉSTA AGUA A BEBÉS MENORES DE 6 MESES.** *Los bebés menores de 6 meses que toman agua con nitrato en exceso del nivel máximo de contaminante (MCL), se pueden enfermar seriamente y rápidamente. Y si los bebés no reciben atención médica, pueden morir debido a que los altos niveles de nitratos pueden interferir con la capacidad de la sangre de los bebés para transportar oxígeno. Los síntomas incluyen falta de aire y coloración azulada de la piel.* Los síntomas en los bebés se pueden desarrollar rápidamente y la salud se deteriora en cuestión de días. Si hay síntomas de intoxicación por altos niveles de nitratos, busque atención médica de inmediato.

- **LAS MUJERES EMBARAZADAS NO DEBEN CONSUMIR AGUA CON ALTOS NIVELES DE NITRATOS.** *Los altos niveles de nitrato también pueden afectar la capacidad de la sangre de mujeres embarazadas para transportar oxígeno.*

- No use agua de la llave para preparar jugo, agua, y formula para bebés menores de 6 meses. Use agua embotellada u otra agua baja en nitratos para los bebés menores de 6 meses hasta nuevo aviso.

- **NO HIERVA EL AGUA.** Hervir, congelar, filtrar, o dejar reposar el agua, no reduce el nivel de nitratos. Hervir el agua en exceso puede causar que los nitratos se concentren más, porque los nitratos se quedan cuando el agua se evapora.

- Si tiene otros problemas de salud por el consumo de ésta agua, usted debería consultar con su doctor.

¿Qué sucedió? ¿Qué se está haciendo al respecto?

El nitrato en el agua potable puede originar de fuentes naturales, industriales, o agriculturales (incluyendo sistemas sépticos, escorrentía de agua de lluvia, y fertilizantes). Los niveles de nitrato en el agua potable pueden variar a través del año. Le informaremos si el nivel de nitratos vuelve a estar debajo del límite.

[Describe corrective action, seasonal fluctuations, and when system expects to return to compliance.]

Para más información, por favor contacte a [name of contact] al [phone number] o [mailing address]

Por favor comparta esta información con todas las demás personas que tomen de esta agua, especialmente aquellos que no hayan recibido éste aviso directamente (por ejemplo, las personas en apartamentos, asilos, escuelas, y negocios). Puede hacerlo poniendo este aviso en un lugar público o distribuyendo copias en persona o por correo.

Requisitos de Notificación Secundaria
Al recibir la notificación de alguien que opere un sistema de agua público, se debe dar la siguiente notificación dentro de 10 días conforme a la Sección 116450(g) del Código de Salud y Seguridad:

- ESCUELAS: Deben notificar a los empleados de la escuela, estudiantes, y a los padres (si los estudiantes son menores).
- DUEÑOS O GERENTES DE PROPIEDAD PARA ALQUILER RESIDENCIAL (incluyendo asilos e instituciones de cuidado): Deben notificar a sus inquilinos.
- DUEÑOS DE PROPIEDAD DE NEGOCIOS, GERENTES, U OPERADORES: Deben notificar a los empleados de los negocios situados en la propiedad.

Este aviso es enviado por Cutler Public Utility District

Núm. de Identificación del Sistema Estatal de Agua: CA5410001

Fecha de distribución: MM/DD/YYY

APPENDIX 2
CERTIFICATION OF COMPLETION OF PUBLIC NOTIFICATION

Compliance Order Number: 03-24-23R-006

Name of Water System: Cutler Public Utility District

System Number: CA5410001

Attach a copy of the public notice distributed to the water system's customers.

This form, when completed and sent to dwpdist24@waterboards.ca.gov for the Division of Drinking Water, Tulare District at 265 W. Bullard Ave., Ste 101, Fresno, CA 93704, serves as certification that public notification to water users was completed as required by Title 22, California Code of Regulations, Sections 64463-64465.

Public notification for failure to comply with the **Nitrate MCL** was conducted on:

Notification was made on ____ (date).

For the month, year of ____________________________, ___________.

To summarize report delivery used and good-faith efforts taken, please check all items below that apply and fill-in where appropriate:

For Community and non-transient non-community public water systems

☐ The notice was distributed by mail or direct delivery to each customer on: _______________

One or more of the following methods were used to reach persons not likely to be reached by a mailing or direct delivery or persons served by a transient public water system (renters, nursing home patients, prison inmates, etc.):

☐ Posted the notice at the following conspicuous locations served by the water system. (If needed, please attach a list of locations). ____

☐ Publication of the notice in a local newspaper or newsletter of general circulation (attach a copy of the published notice, including name of newspaper and date published).

☐ Posted the notice on the Internet at www.______________________________________

☐ Other method used to notify customers. ______________________________________

I hereby certify that the above information is factual.

Certified by: Printed Name _____________________________Title____________________

Signature ____

Date ____

Disclosure: Be advised that the California Health and Safety Code, Sections 116725 and 116730 state that any person who knowingly makes any false statement on any report or document submitted for the purpose of compliance with the Safe Drinking Water Act may be liable for, respectively, a civil penalty not to exceed five thousand dollars ($5,000) for each separate violation or, for continuing violations, for each day that violation continues, or be punished by a fine of not more than $25,000 for each day of violation, or by imprisonment in the county jail not to exceed one year, or by both the fine and imprisonment.

APPENDIX 3: QUARTERLY PROGRESS REPORT

Water System: Cutler Public Utility District	Water System No: CA5410001
Compliance Order No: 03-24-23R-006	Violation: **Nitrate MCL**
Calendar Quarter:	Date:

This form should be prepared and signed by Cutler Public Utility District personnel with appropriate authority to implement the directives of the Compliance Order and the Corrective Action Plan. Please attach additional sheets as necessary. The quarterly progress report must be submitted by the 10th day of each subsequent quarter, to the Division of Drinking Water, Tulare District Office to the following email address: dwpdist24@waterboards.ca.gov.titled appropriately.

Summary of Compliance Plan:

Tasks completed in the reporting quarter:

Tasks remaining to complete:

Anticipated compliance date:

Printed Name **Signature**

Title **Date**

Appendix D: CPUD Revised Consolidation Agreement and Extension Letter

State Water Resources Control Board
Division of Drinking Water

June 12, 2024

Martha Lowery
Cutler PUD Officer Manager
40526 Orosi Drive
Cutler, CA 93615

Dear Cutler PUD,

The State Water Resources Control Board's (State Water Board) sent letters, dated May 8, 2023 and January 9, 2024, to both Cutler PUD and Orosi PUD establishing and then extending the voluntary consolidation negotiation period. The most recent letter establishes a negotiation period ending on June 30, 2024.

Based on productive collaboration, the voluntary consolidation negotiation period is now further extended to September 1, 2025. The extension provides the necessary time to complete two efforts critical for project success: 1) A study and report which will detail the needs for consolidation of Cutler PUD and Orosi PUD and 2) A regional level study and report, building on prior efforts, which details the technical, managerial and financial viability of a regional water system and accompanying governance structures.

The additional time should ensure that participants can conduct a thorough and comprehensive assessment, ultimately leading to a successful and sustainable consolidation project.

Should the State Water Board determine that consolidation negotiations have slowed to a point where progress is no longer being made and/or that Cutler PUD or Orosi PUD is no longer responsive in the consolidation effort, the State Water Board may take action pursuant to Health and Safety Code section 116682, subdivision (a) for consolidation of the Cutler PUD and Orosi PUD water systems.

We appreciate your continued support and cooperation as you work together towards consolidation. If you have any questions, please contact Bryan Potter at bryan.potter@waterboards.ca.gov.

Sincerely,

Andrew Altevogt

Andrew Altevogt, P.E.
Assistant Deputy Director
State Water Resources Control Board, Division of Drinking Water

cc:
Maria Elena Vidana
OPUD District Manager
orosipud@sbcglobal.net

J. Patrick Sullivan
Sullivan and Sullivan Law Corporation
505 North West Street
Visalia, Ca 93291

Dennis Keller
District Engineer
kelweg1@aol.com

Eddie Valero
Tulare County Supervisor
evalero@tularecounty.ca.gov

Ben Giuliani
Tulare County LAFCO
bgiuliani@tularecounty.ca.gov

Kristin Willet, P.E., District Engineer
SWRCB, Division of Drinking Water
kristin.willet@waterboards.ca.gov

David Rice, Legal Counsel
SWRCB, Division of Drinking Water
david.rice@waterboards.ca.gov

CUTLER PUBLIC UTILITY DISTRICT
40526 Orosi Drive
Cutler, California 93615
559-528-3859
Cutlerpud@sbcglobal.net

Andrew Altevogt, P.E., Assistant Deputy Director
STATE WATER RESOURCES CONTROL BOARD
1001 I Street
Post Office Box 100
Sacramento, California 95812-0100

March 29, 2024
Via U.S. and fax:
916-341-5199

RE: 2nd Report on Negotiation Period for Voluntary Consolidation; Water System No. 5410008.

Dear Mr. Altevogt:

The Cutler Public Utility District ("**CPUD**") and the Orosi Public Utility District ("**OPUD**"), collectively the "**parties**", hereby acknowledge receipt of a **January 9, 2024** letter from you and the State Water Resources Control Board ("**SWRCB**" or "**State Water Board**"), wherein the SWRCB granted an extension for the CPUD to "…**submit a revised draft consolidation agreement by March 31, 2024, and a final consolidation agreement by June 30, 2024.**" Enclosed herewith is a revised draft of the voluntary consolidation agreement which the CPUD and the OPUD boards authorized for submission to the SWRCB for proceeding with a voluntary consolidation.

Since the receipt of your **January 9, 2024** letter, the legislative bodies of both special districts jointly met numerous times to continue to work out the terms of a voluntary consolidation agreement and related issues, including joint meetings on January 23, January 30, February 27 and March 26, 2024. Among others, Mr. Chad Fischer, P.E., and Hon. Laurel Firestone of the SWRCB attended the **January 30, 2024** joint meeting and provided information about the consolidation process and financing options for a consolidated surface water treatment plant project, which the parties desire to pursue.

As previously noted, the parties believe that with approximately 2,800 acre-feet of new surface water guaranteed to them, they have found a consolidation solution, which is laid out in their proposed voluntary consolidation agreement. The comments in your January 9, 2024 letter have been addressed in the attached draft. The Surface Water Plant Authority (the "**Authority**") was already formed years ago as a perpetual public agency duly registered with the California Secretary of State, and under the attached draft neither the CPUD nor the OPUD would be operating any public water system because the CPUD and the OPUD would be transferring their water systems to the Authority who would be solely responsible to manage and operate them as a single water **system**, under a single water **system permit** issued by the SWRCB. Under the attached draft agreement, the CPUD and the OPUD would not be water systems, and both would not have any water system permit from the SWRCB. Only one water system would exist, the Authority. Please also note that the CPUD and OPUD also manage and operate street lighting and sewer systems for the residents within their territorial boundaries and therefore they cannot cease to exist as special **districts**, because they need to continue those non-water-related functions.

During virtual conferences between representatives of the SWRCB and the parties, various aspects of a consolidation were discussed, including on **March 9, 2024** when it was discussed that **EXHIBIT E** (improvements) of the draft consolidation agreement cannot be finalized until it is known which capital improvements are desired and acceptable by the SWRCB for this consolidation project, and SWRCB representatives indicated that the SWRCB would follow up on that issue to better define the scope of the project. At the follow up virtual conference held on **March 22, 2024**, the parties were informed that such follow up is still in progress. Obviously, a future draft of the consolidation agreement can be updated with this pending information.

The CPUD and the OPUD respectfully request your consideration and feedback on the latest draft of their voluntary consolidation agreement before it is signed and finalized, so that they can qualify for "**Consolidation Incentives**" funding under the SWRCB's programs, including but not limited to those in the SWRCB's FY2023-24 Intended Use Plan. Therefore, in order to assure that the agreement is satisfactory to the SWRCB, the OPUD and the CPUD boards kindly request written comments and feedback from the SWRCB as to any revisions which the SWRCB believes are necessary in order for the proposed agreement to qualify for and be approved for Consolidation Incentives funding.

The SWRCB's comments will enable the CPUD and the OPUD to schedule further and productive joint legislative body meetings under the Ralph M. Brown Act, for the purpose of considering any necessary revisions identified by the SWRCB, or further language which the SWRCB may request for inclusion in the voluntary consolidation agreement. As you may recall, the legislative bodies of both the CPUD and the OPUD are locally elected officials who are **not** full-time members of their respective legislative bodies, and generally carry on full-time employment in most cases. Therefore, scheduling special joint meetings is often a significant task because of differences in each member's schedule and availability. Accordingly, the CPUD and the OPUD thank you in advance for the SWRCB's written feedback which will enable the parties' meetings to be productive and enable the parties to squarely address all language and issues identified by the SWRCB, to meet the June 30, 2024 deadline set by the SWRCB. The CPUD and the OPUD will assume that any aspects of the enclosed draft of the consolidation agreement which do not receive any comments or requested revisions from the SWRCB are acceptable to the SWRCB.

The CPUD and the OPUD thank you for your consideration of the enclosed voluntary consolidation agreement and your comments which will serve to avoid the need for a compulsory consolidation Compliance Order from the SWRCB. We look forward to hearing from you so that the voluntary consolidation agreement can be finalized and signed by the parties. Thank you very much.

Sincerely,

Martha Lowrey, CPUD Office Manager

Maria Elena Vidaña, OPUD District Manager

Enclosures: UPDATED DRAFT of CONSOLIDATION AGREEMENT OF CUTLER PUBLIC UTILITY DISTRICT AND OROSI PUBLIC UTILITY DISTRICT. v5b

CC: CPUD General Counsel, via fax only: 559-741-2864; and
OPUD General Counsel, via fax only: 559-900-3555.

CONSOLIDATION AGREEMENT

OF

CUTLER PUBLIC UTILITY DISTRICT

AND

OROSI PUBLIC UTILITY DISTRICT

DRAFT

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I. INTRODUCTION

This consolidation agreement ("**Agreement**") is made by and between OROSI PUBLIC UTILITY DISTRICT ("**OROSI**") a public utility district, CUTLER PUBLIC UTILITY DISTRICT ("**CUTLER**"), a public utility district, and CUTLER-OROSI SURFACE WATER PLANT AUTHORITY ("**Authority**" or "**COSWPA**") a joint powers authority. This Agreement is dated **November 1, 2023** for reference purposes.

II. RECITALS

A. WHEREAS, both OROSI and CUTLER (collectively "**Districts**" or the "**Parties**", singularly a "**Party**" or "**District**") are each public utility districts organized under the Public Utility District Act, Chapter 560 of the Acts of the Regular Session of the 44th Legislature (now codified at Public Utilities Code §§ 15501 *et seq.*).

B. WHEREAS, pursuant to Public Utilities Code §§ 16880, 16881 each district is authorized to contract with any public agency for the joint acquisition or construction or use of any water works or other facilities for supplying water to the public utility district or such other public agency; and a contract may provide for the construction and maintenance of water works or other facilities and for the payment by or for the parties to the contract of such proportionate part of the cost of the acquisition, construction, or maintenance of such water works or other facilities as may be stated in the contract.

C. WHEREAS, pursuant to Public Utilities Code § 16431, each district may lease or dispose of, real and personal property of every kind within or without the district, when in the judgment of its governing board it is in the best interests of the district so to do.

D. WHEREAS, pursuant to Public Utilities Code § 16462, each district may also purchase any water and other commodities or services from any other utility district, municipality, person, or private company, and re-distribute them.

E. WHEREAS, under the provisions of the Joint Exercise of Powers Act (Government Code §§ 6500 et seq.), the parties hereto may jointly exercise the powers common to each.

F. WHEREAS, each of the Parties hereto currently own, operate and maintain certain facilities for the collection, treatment, conveyance and distribution of drinking water within their respective jurisdictional boundaries.

G. WHEREAS, the Alta Irrigation District ("**Alta**") has developed a source of surface water, which has proven to be reliable for over a decade, as a groundwater water recharge project which offers such surface water at cost to public drinking water systems within Alta's territorial boundaries, and has contracted with the Authority to guaranty delivery of no less than 2,800 acre-feet ("**AF**") of such surface water each year to the Authority.

H. WHEREAS, the contracted supply of 2,800 AF of surface water from the Authority is sufficient to satisfy all of the drinking water capacity demands of both of the Parties, all year around.

I. WHEREAS, the California Legislature has authorized the People to democratically organize and hold an election and form political subdivisions of the State with political boundaries chosen by such People. [Public Utilities Code § 15702.]

J. WHEREAS, the State Water Resources Control Board (**SWRCB** or **SWB**) is an executive branch of State government with jurisdiction over water rights and water quality, including the regulation of drinking water systems through a permitting process. [Water Code §§ 13100; 186.]

K. WHEREAS, the California Legislature through the Cortese–Knox–Hertzberg Local Government Reorganization Act of 2000 ("**Reorganization Act**"), created a local agency formation commission (**LAFCo**) within each California county and such LAFCo has exclusive jurisdiction to consolidate the political boundaries two or more local government entities in a "change of organization" proceeding. [Gov. Code §§ 56000, 56325, 56021(j) and 56100(a).]

L. WHEREAS, representatives from the SWRCB met with representatives of the CUTLER and OROSI and requested that CUTLER and OROSI become a single political subdivision of the State, and as such to operate a single combined drinking water system under a single permit issued by the SWRCB, and to invite other special districts within the same larger region to also combined their political boundaries and water systems under such single political subdivision and water system permit, and to allow for expansion of the governing body of the new single political subdivision for.

M. WHEREAS, the Parties are open to the SWRCB's request only if the SWRCB awards and fully pays to the receiving water system permit holder the maximum voluntary consolidation incentives authorized in the 2020 version of the SWRCB's Intended Use Plan ("**Incentive Funds**") for construction and debt service for a new surface water treatment plant. Each of the Parties would only be obligated to consent to and initiate LAFCo political boundary consolidation after all of the Incentive Funds are deposited into a trust account held solely by receiving water system permit holder for the benefit of the participating residents of the special districts. If all of the Incentive Funds are not awarded and timely paid, then consolidation of political boundaries shall not be required of any of the Parties.

N. WHEREAS, LAFCo proceedings for consolidation of the political boundaries of the various special districts to form a single combined political subdivision will require, in part, annexation of territory which requires signatures from not less than 25 percent of the registered voters within the affected territory. [Government Code § 56864(a)(1).]

O. WHEREAS, because completion of LAFCo proceedings for a full political boundary consolidation are time-consuming and cannot be completed without satisfaction of certain prerequisites which require substantial time and effort which cannot be avoided, such proceedings would necessarily need to occur as a later stage of the overall consolidation project. In the interim the Parties shall proceed with this project through a joint powers entity which shall be responsible for the Parties' combined water system (including the Parties' combined water supply, treatment, storage and distribution facilities) and shall operate the same under a single water system permit with the SWRCB.

P. WHEREAS, the Parties now desire to promptly proceed to provide for the joint acquisition, construction and/or use of water works and/or other consolidated facilities for treating and supplying drinking water to each of the Parties to distribute to the inhabitants within their jurisdictional boundaries; and furthermore to lease such consolidated facilities to the Cutler-Orosi Surface Water Plant Authority ("**Authority**" or "**COSWPA**"), and to contract with the Authority for the ongoing consolidated operation and maintenance ("**O&M**") of a surface water treatment plant ("**SWTP**") on behalf of the Parties, including procurement from Alta no less than 2,800 AF of surface water which the Authority shall treat, make potable and then deliver to each of the Parties for distribution to their customers.

Q. WHEREAS, by approval of this Agreement, the legislative bodies of the Parties find and determine that is in the best interest and advantage of both of the Parties to authorize and provide for the construction and consolidated operation of a surface water treatment plant, for treatment of surface water and for its delivery to the customers of each of the Parties in an efficient manner, and also to provide for the financing of the same through payments and charges under the terms of this Agreement.

R. WHEREAS, CUTLER and OROSI shall each own a separate fifty percent (50%) interest in the real property and improvements which shall constitute the SWTP and its auxiliary facilities necessary for the consolidated treatment and delivery of surface water.

S. WHEREAS, a purpose of this consolidation Agreement is to jointly finance, acquire, construct, maintain, operate and utilize consolidated water works and facilities under Health and Safety Code § 116275(h)(3) as needed for procurement, treatment, reclamation and/or delivery or disposal of drinking water for the benefit of the inhabitants within the boundaries of the Parties' respective districts, under a single water system permit to be held by the Authority, thereby eliminating the need for the Parties themselves to hold any SWRCB water system permit.

T. WHEREAS, the Parties by way of this Agreement intend to provide for the consolidated procurement, treatment and delivery of drinking water to the Parties and for the joint ownership and use of capacity rights in a consolidated water system which includes the SWTP to be operated and maintained by the Authority for the benefit of the Parties, and to address proportionate share of its operational costs through payment and compensation from the Parties.

U. WHEREAS, the Parties hereto understand and agree to their obligation to cooperate with one another to the extent necessary to maintain the consolidated SWTP. Therefore, the Parties hereby recognize their obligation to continue communication with one another about the physical matters or events occurring within or to their respective distribution systems which may directly or indirectly effect their receipt of treated surface water from the consolidated SWTP.

ACCORDINGLY, IT IS AGREED:

III. <u>TERM AND DEFINITIONS</u>

1. <u>Term</u>: This Agreement shall become effective as of the date of signing by all parties hereto and shall not expire but shall continue in perpetuity unless otherwise provided by law.

2. <u>Definitions</u>. Unless the contract otherwise requires, the terms defined in this Section shall, for all purposes of this Agreement and for any agreement supplemental hereto and to any other documents herein mentioned, have the meaning herein specified, to be equally applied to both the singular and the plural forms of any of the terms herein defined.

(a) "**Capacity**" refers to the quantity of surface water which can be successfully treated by the consolidated SWTP and distributed as potable drinking water which satisfies all applicable State and federal drinking water standards.

(b) "**CUTLER**" refers to the Cutler Public Utility District.

(c) "**Cost**" is an amount of money and other equivalent financial resources associated with a specific item or purpose. Costs may be calculated amounts (such as depreciation) or actually incurred or accrued expenses.

(d) **"GPD"** and **"gpd"** is the abbreviation for gallons per day.

(e) **"OROSI"** refers to the Orosi Public Utility District.

(f) **"O&M"** refers to operation and maintenance.

III. CONSOLIDATION AND ADMINISTRATION, OPERATION AND MAINTENANCE

3. Consolidation: The Parties agree to consolidate their water systems into one physically and operationally consolidated water system consisting of a surface water supply collection and treatment plant, all of the Parties' existing groundwater wells and the Parties' existing water distribution systems, as a single consolidated public water system as defined in Health and Safety Code § 116275(h), according to and contingent upon all of the terms and conditions, time schedule, and milestones described within this Agreement. Such consolidated water system, which shall be operated and maintained under a single water system permit held by the Authority as the responsible public entity, will source, treat and physically deliver potable drinking water to the customers of each of the Parties.

4. Timing of Implementation:

(a) The Parties shall make every reasonable effort to complete the consolidation and related tasks as quickly as possible while ensuring that OROSI's and CUTLER's current customers are not negatively impacted and that the consolidated water system is reliable and sustainable.

(b) Subject to provision **4(a)** and **4(c)**, the consolidation and all associated improvements and tasks, shall be completed according to the time schedule and milestones described in **EXHIBIT C**, contingent on the timing and availability of State grant funding to cover the costs of consolidation.

(c) To the extent that any portion of the consolidation project or associated improvements or tasks are delayed despite the diligent and good faith effort of the Parties, the Parties agree to complete the remaining tasks promptly without undue delay.

(d) The physical consolidation is complete when both of the following are complete: **(i)** the contingency set forth in the following **Section 5** is fully satisfied; and **(ii)** the construction of the consolidated SWTP and a physical interconnection between the consolidated SWTP and the existing water distribution systems of both CUTLER and OROSI, with all improvements listed in **EXHIBIT D**.

5. Contingent Upon Funding: The obligations of each of the Parties to this Agreement to consolidate the Parties' water systems shall be contingent upon the award of State and/or federal financing package(s) which benefits both OROSI and CUTLER, including receipt of Incentive Funds for each of the Parties and such other for a voluntary consolidation, as provided in the SWB's Drinking Water State Revolving Fund (**DWSRF**) Intended Use Plan (**IUP**) in effect as of the date this Agreement is fully signed. The financing package must, at a minimum, satisfy all of the requirements of California Health and Safety Code § 116682(e) and provide grant funding for the projects, and improvements identified in **EXHIBIT D**, including all associated soft costs (e.g., associated costs for consultants and fees) to complete the projects and improvements, at no cost to OROSI and CUTLER residents and ratepayers, and eliminate and reimburse all financial impact on OROSI resources.

6. Regular Communication: The Parties agree to regularly meet and communicate together and with other involved third parties, including but not limited to the State Water Resources Control Board (**SWRCB** or **SWB**) and any consultants and contractors, at agreeable intervals to ensure that the consolidation project and all related improvements and tasks are completed promptly without undue delay.

7. The consolidated water system shall be overseen and operated by the Authority, which is a separate public entity from the Parties to this Agreement. This Agreement shall not in any way affect or otherwise impair or impinge upon the Parties' authority to continue to provide public street light and sanitary sewer services to their residents.

8. Manner of Exercising Powers. In exercising the powers granted under this Agreement to the Authority, and in the conduct of all business of the Authority, the Authority shall be subject to the restrictions upon the manner of exercising such powers, which applies to public utility districts under California law.

9. Ratepayer Payments. Each of the Parties are entitled to and must charge and collect all rates and capacity, connection and other fees, charges and assessments from each ratepayer within their respective boundaries. Each of the Parties shall be responsible for compliance with all applicable laws pertaining the adjustment of rates, fees, charges and assessments to be collected from the ratepayers within their respective boundaries. The Authority shall not have authority to initiate or otherwise undertake any rate increase, fee or special assessment proceedings or measures within the boundaries of any of the Parties without such Party's express written consent.

10. In order to provide adequate facilities to adequately treat and utilize surface water as drinking water, it is contemplated that new construction within the territory in which the consolidated SWTP is located will be required from time to time. Whenever such new construction is required, the Authority shall make a determination of the following facts:

(a) Which of the Parties or entity(ies), if any, is the source of the need for additional construction;
(b) How much capacity shall be added to the consolidated SWTP;
(c) Whether the financial capability of the Party or entity requiring the increase in capacity of the consolidated SWTP will enable such Party or entity to pay the costs of said expansion of capacity, or whether the state of finances of said Party or entity will require them to stop further growth within their respective boundaries, and refrain from increasing its capacity demand upon the consolidated SWTP.

11. Each of the Parties shall also retain the power to contract for the construction of additional plant and/or treatment capacity.

12. The Authority shall have the power to prevent each or both Parties from permitting additional connections which add capacity demand originating from within the respective boundaries of said Parties into the new consolidated water system, if sufficient capacity does not exist to accommodate said additional water capacity demand. Additional connections with subsequent parties must be approved only by written agreement with the Parties to this Agreement, which may only occur either by amendment to this Agreement or extraterritorial service agreement duly approved by the governing body of the Authority.

13. Water Distribution System. The Authority shall acquire, construct, hold title to, operate and maintain all water distribution works within the Parties' jurisdictional boundaries and such water distribution works as are necessary to convey treated surface water from consolidated SWTP to customers within the Parties' respective territorial boundaries.

14. Connections to District Water Distribution System.
Each of the Parties agrees that each must protect the consolidated water sytem in entering into any contract and enacting any ordinance pertaining to connections to the water distribution system within such Parties' territorial boundaries, including but not limited to, by authorizing the Authority and each Party to engage in enforcement of relevant connection standards and requirements.

15. Treatment and Storage Facilities. The Authority shall maintain, manage and operate the consolidated treatment and storage facilities consistent with applicable provisions and requirements of this Agreement, if any.

16. Authority Treatment and Transfer of Surface Water.
The Authority shall accept, treat and then transfer the surface water to the Parties so long as said transfers are in compliance with all applicable State and federal laws, rules and regulations.

17. Injunctive Relief. The Authority shall also have the right to take whatever appropriate legal action is necessary in order to compel each of the Parties' compliance with the connection requirements and the use and capacity limits outlined in this Agreement including, but not limited to, enjoining each of the Parties from using the consolidated SWTP.

IV. SERVICE REGULATIONS

18. Limitations on Water Use.
The Parties agree that all water provided by the Authority shall only be used for household purposes and such existing commercial purposes which are currently approved by each of the Parties, but all agricultural use or any use which is deemed wasteful shall not be permitted.

19. The Parties agree to enact specific limitations, prohibitions and actions as follows:

See **EXHIBIT B.**

20. [Reserved].

V. FINANCIAL PROVISIONS

21. Annual Budget.
The Treasurer of the Authority must cause to be prepared and must submit to the Parties, in sufficient time for revision and adoption prior to June 1 of each year, an annual budget of the Authority for the next succeeding fiscal year. All expenditures of funds must be approved by the governing body of the Authority. Amendments to the annual budget cannot be approved through the Authority's governing body consent calendar or consent agenda and must be approved as separate action items.

22. Accountability for Funds. All funds from the Parties which are received by the Authority shall be placed in the custody of the Authority's Treasurer or designee who shall hold such funds in a fiduciary capacity. The Treasurer (or designee) of the Authority must receive, have custody of and disburse Authority funds as nearly as possible in accordance with generally accepted accounting practices applicable to local government agencies within the State of California. These funds must be given object accounts, and the receipt, transfer or disbursement of such funds during the term of this Agreement must be accounted for by the Treasurer or designee in accordance with generally accepted accounting practices applicable to local government agencies within the State of California. There shall be strict accountability of all funds by the Treasurer and designee(s). All revenues and expenditures must be reported by the Treasurer or designee to the Parties at least on a monthly basis, unless more frequent reporting is required by the Parties.

23. Approval of Expenditures. All expenditures must be consistent with the approved budget and must be made upon the review and approval of the General Manager of the Authority in accordance with the rules, policies and procedures adopted by the governing body of the Authority and all such rules, policies and procedures must be consistent with this Agreement and all applicable laws.

24. Unbudgeted But Necessary Expenditures. Notwithstanding any other provision of this Agreement, the Authority must not expend or make any payment which is inconsistent with the Authority's approved budget. Unanticipated and unbudgeted but necessary expenses must be presented to the Parties who may choose to authorize funding them only after amendment of the Authority's annual budget.

25. Annual Audit. Pursuant to the provisions of the Government Code of the State of California, the Authority must cause all accounts, books and other financial records of the Authority to be kept in accordance with generally accepted accounting practices applicable to local government agencies within the State of California. The Authority must cause an annual audit to be performed on its books and records, by an independent Certified Public Accountant, which satisfies the Minimum Audit Requirements and Reporting Guidelines prescribed by State Controller's Office for special districts. A copy of said audit report must be forwarded to each of the Parties. The expense of said audit and report and all bookkeeping and accounting costs must be treated as a required cost of the consolidated SWTP. The annual audit report must be submitted to the Authority's governing body when completed.

26. (a) Records. The Authority shall also cause to be kept accurate and correct books of account, showing in detail the costs and expenses of any new construction, extra construction or reconstruction and the maintenance and operation of the consolidated SWTP and all parts thereof, and all financial transactions of the Authority, which books of account must correctly show each and all receipts and also any costs, expenses or charges to be paid by the Authority, and also metering records of the water delivered to each of the Parties and other entities, together with the daily peak capacity demand of each of the Parties. The books and records must also correctly show each and all receipts and any costs, expenses or charges paid to, or to be paid by, the Parties.

(b) Inspection of Records. All books of account and all financial records and memoranda, whether final or in draft form, must be open to inspection during all normal business hours to: any member of the board of directors of OROSI or CUTLER; any accountant or other person authorized by CUTLER or OROSI's board of directors; and to the general manager or office manager of the Parties. This obligation is separate and independent of the Authority's obligation to comply with the California Public Records Act (Government Code §§ 7920.000 et seq.). The individuals in charge of maintaining books and financial records must be employees of the Authority or qualified independent contractors. Any independent contractor in possession of records of the Authority which are requested by either of the Parties must comply with the request of any of the Parties within five (5) business days.

(c) Treasurer's Initiation of Annual Audit. The Authority's Treasurer, within one hundred twenty (120) days after the close of each fiscal year, must ensure that all financial activities for such fiscal year have been accurately recorded and must ensure that the annual audit has been commenced and is proceeding without undue delay, unless the governing bodies of both CUTLER and OROSI have expressly authorized otherwise for that particular fiscal year which recently closed.

27. Contributions. The Parties may in the appropriate circumstance when required hereunder: (a) make contributions from their treasuries for the purposes set forth herein; (b) make payments of public funds to defray the cost of such purposes; (c) make advances of public funds for such purposes, such advances to be repaid as provided herein; and/or (d) if specifically authorized by the Parties in writing, and for a particular purpose, use their respective personnel, equipment or property in lieu of other contributions or advances. Under no circumstances will the Parties be obligated to make contributions or payments to the Authority or the Authority's contractors for any expenses for the consolidated SWTP if such expenses are not included in the Authority's approved annual budget.

28. Credit to the Parties. All accounts or funds created and established pursuant to any instrument or agreement to which the Authority is a party, and any interest earned or accrued thereon, shall inure only to the benefit of the Parties to this Agreement in the respective proportions to their ownership interest in all of the real property and improvements of the consolidated water system, insofar as that Party's required payments or contributions to the Authority under this Agreement are not past due.

29. (a) Imposition and Administration of Fees and Costs. The Authority shall have the right to impose upon and collect from each of the Parties, based upon a monthly billing period, the total cost properly determined by the Authority for that Party's actual proportional share of operation and maintenance of the consolidated water system, but only to the extent such operation and maintenance costs are within the Authority's approved budget, as amended from time to time. The Parties shall be charged and must pay the budgeted operation and maintenance charges in direct proportion to the metered amount of water delivered to each such Party receiving treated water from the consolidated water system. The Authority shall also charge and collect the budgeted operation and maintenance charges from the public entities receiving water service from the Authority as identified in **EXHIBIT A** and all other third-party users in direct proportion to their metered use or otherwise as duly allocated to each such person/entity. The foregoing amounts shall be subject to post-fiscal year true-up.

(b) Maintenance and Operation. The term "**maintenance and operation**" as used herein shall mean the repair and upkeep made necessary by ordinary use and operation of the of the consolidated water system, within the Authority's approved budget. Actual annual operational and maintenance costs shall be defined as including all: labor costs, such as salaries and wages, including overtime and premium pay, health and welfare, and all fringe benefits; all general operating expenses; education and travel allowances; buildings, grounds and equipment maintenance; capital outlay expenses; accounting expenses; collections, enforcement and other legal expenses; and incidental expenses for insurance and special charges. In addition, such costs shall include the pro-rata share of direct and indirect charges for overhead representing actual costs of service.

(c) Under no circumstances will the Parties be obligated to make contributions or payments to the Authority or the Authority's contractors for any expenses for the consolidated water system if such expense(s) is not included in the Authority's approved annual budget, as amended from time to time.

(d) Pro-Rata or Proportionate Share. By default, the Parties' pro-rata and proportionate share shall be determined by the proportion of metered water received by the customers of each Party, after subtracting each and all payments or service charges allocated of all users who are not a Party to this Agreement, if any.

30. Changes in Number of Connections. The Parties hereby agree to advise the Authority and each other by the 25th day of each month of any changes in the number of water accounts for connections to the water distribution system within their boundaries. In addition, by July 1st and January 1st of each year the Parties must provide to the Authority a certified summary of billing units by category of use. This monthly reporting must include changes in the number of water accounts as a result of any extraterritorial service agreement with any customer outside of its normal service area, but invoiced by a Party whose share of capacity is utilized for such account.

31. Surface Water Authority Capital Reserve Fund. The Parties hereby agree to incorporate into their respective rate structure appropriate provisions for depreciation as required by federal and State revenue program guidelines or as required by the Authority should federal and State revenue program guidelines eliminate the requirements for a depreciation set aside fund. Said fund shall include each entity's pro-rata share of the consolidated water system and each entity shall accumulate and utilize such funds in accordance with the aforementioned guidelines. Funds accumulated by each Party in their respective Surface Water Authority Capital Reserve Fund shall be retained by such Party until such times as said funds may be required for major repair and capital improvements expenses as outlined in this Agreement. Each Party must not use said funds for any other purpose other than as outlined in this Agreement and must not borrow against said funds.

32. Major Repairs and Capital Improvement Expenses. Each Party hereby agrees to pay its half (i.e. 50/50 split) and share of major repairs and capital improvement expenses, as specified in the Authority's approved budget, based upon design parameters of the consolidated SWTP, and one hundred percent for each and all groundwater wells and water distribution facilities which are physically located within such Party's territorial boundaries.

In the event that major repair and capital improvement expenses are included in a preliminary budget as prepared by the Authority, then sufficient advance notice by the Authority to the Parties must be provided in order for the Parties to include their pro-rata share in their respective budgets. Where such expenses may be defrayed from accumulated depreciation funds collected in a Party's Surface Water Authority Capital Reserve Fund, then such Party must make payments upon thirty (30) days notice by the Authority of its award of a contract for such work or completion thereof by forced account. In the event that a Party is unable to defray such expenses from accumulated depreciation funds in its Surface Water Authority Capital Reserve Fund, then such Party must make such arrangements for payments of its pro-rata share as are satisfactory to the Authority.

33. <u>Procedure for Collection and Charges Imposed for Facility Use</u>.
Each Party shall, based upon the charges set by the Authority, impose and collect said charges and remit them to the Authority on a monthly basis. The amount set by the Authority must be based upon the total volumetric use of each of the Parties and their users, as determined through metering figures. Payments must be remitted to the Authority within thirty (30) days following the end of the service month for which the charge is billed.

34. <u>Net Contract</u>. It is understood and agreed that this Agreement, including the Parties' obligation to pay all fees, costs and charges described herein, shall be deemed and construed to be a "net contract", except that the Authority may not immediately invoice the Parties for expenses of consultants and contractors that are not yet included in the approved annual budget, but may invoice the Parties after said expenses have been added by amendment to the Authority's annual budget. The Parties agree that such payments shall be an absolute net return to the Authority, free and clear of any expenses, charges or setoffs each of Parties may claim against the Authority or any third party including each of the Parties' customers.

VI. LIABILITY AND INDEMNIFICATION

35. <u>Authority As Tenant of Facility</u>: The Authority shall take full possession of the consolidated waster system, and the improvements and fixtures thereon, and shall be fully responsible for the O&M thereof, and for any contractual and/or tort liability arising from the use or operation thereof and premises upon which the consolidated water system is located.

36. <u>Limitation on Parties' Liability</u>. The Parties shall not be liable at any time for any loss, damage or injury to property or any person whomsoever, arising out of any acts or omissions by the Authority in carrying out its management, operation and maintenance of the consolidated water system. This section shall not limit the Authority's ability to seek an injunction or other equitable or legal remedies against any Party or person so as to prevent the unauthorized use of surface water treated at the consolidated SWTP.

37. Obligations of the Authority; Indemnification from Debt Liabilities. The debts, liabilities and obligations of the Authority shall be the debts, liabilities and obligations of the Authority alone and shall not be binding upon, the Parties. Should any debt, liability or obligation of the Authority not be waived or allowed payable through assets of the Authority, the Parties shall each not be liable therefore. The Authority shall protect, indemnify and hold each of the Parties safe and harmless from any and all debts or liabilities whatsoever arising out of or in connection with the Authority's operation, management and maintenance of the consolidated water system or any of the Authority's day to day activities.

38. Authority's Indemnification of Parties for Tort Liability. Notwithstanding anything to the contrary in this Agreement, and irrespective of any insurance carried by the Authority, the Authority shall protect, defend, indemnify and hold safe and harmless each of the Parties, their respective elected and appointed officials, officers and employees from and against any and all liabilities, damages, loss, cost, claims, expenses, actions or proceedings of any kind or nature caused by officers of or staff employed by the Authority including, without limitation, injury or death of any person, injury or damage to any property, including consequential damages and attorneys' fees and costs, resulting or arising out of or in any way connected with the alleged willful or negligent acts or alleged failure to act in the course and scope of carrying out their responsibilities in the performance of their duties to the Authority.

39. Insurance. The Authority shall obtain liability insurance containing limits of liability no less than such amount as the Parties jointly agree to be necessary to cover the risk of liability incurred by the activities of the Authority. Each Party and its elected and appointed officials, officers and employees shall be named as an additional insured for said liability insurance. Whenever the Authority has employees, the Authority must cover all its employees with workers' compensation insurance.

40. Mutual Indemnification Between the Parties. In lieu of and notwithstanding the pro-rata risk allocation which might otherwise be imposed between the Parties pursuant to Government Code § 895.6, the Parties agree that all losses or liabilities incurred by any of the Parties shall not be shared pro-rata, but instead the Parties agree that pursuant to Government Code § 895.4, each of the Parties hereto shall fully indemnify, hold harmless and defend the other Party, its officers, governing body members, employees and agents, from and against any claim, expense, cost, damage or liability occurring by reason of the negligent acts or omissions or willful misconduct of the indemnifying Party, its officers, governing body members, employees or agents, arising out of or in connection with any work, activity, authority or jurisdiction under the scope of this Agreement. No Party, nor any officer, governing body member, employee or agent thereof shall be responsible for any damage or liability occurring by reason of the negligent acts or omissions or willful misconduct of any other Party hereto, its officers, governing body members, employees or agents.

41. Limitation on Authority's Liability for Parties' Distribution Systems. The Authority shall not be liable at any time for any loss, damage or injury to the property or person whomsoever or to any fines or punitive actions at any time occasioned by or arising out of any acts or omissions by any of the Parties in the distribution of water obtained from the consolidated SWTP, or in the ownership, management, operation and maintenance of the distribution system within the jurisdiction of any of the other Party. Notwithstanding anything to the contrary in this Agreement, and irrespective of any insurance carried by any of the Parties, each of the Parties hereby agree to protect, indemnify and hold the Authority harmless from any and all damages and liabilities whatsoever arising in connection with their receipt of water from the consolidated SWTP or their ownership, maintenance, management and operation of their respective distribution systems within their respective boundaries. Each of the Parties must take all reasonable steps to include the Authority and its officers and employees as additional insureds on all insurance policies held by each of the Parties.

42. Privileges and Immunities from Liability. The provisions of Government Code § 6513 are hereby incorporated into this Agreement by reference.

43. Fines and Penalties Arising From Parties' Breach. In the event that any Party violates any of the terms of this Agreement, and as a result of said violation, the Authority violates its regulatory requirements and is fined or receives any penalties from any State or federal regulatory entity having jurisdiction over the consolidated water system and its operations, then said Party hereby agrees to protect, indemnify and hold the Authority safe and harmless from all such fines and penalties.

44. All indemnification obligations in this Agreement shall continue beyond the term or expiration of this Agreement as to any acts or omissions occurring under this Agreement or any extension of this Agreement.

VII. OWNERSHIP INTERESTS

45. Unless otherwise agreed in a writing signed by each Party, each Party shall separately own a fifty percent (50%) interest in all of the real property and improvements of the consolidated SWTP, including all of the fixtures and equipment used to operate the consolidated SWTP. Such ownership necessarily includes each and all fixtures subsequently added by the Authority. Each Party hereto shall own a one-hundred percent (100%) interest in each groundwater well which it transfers possession of to the Authority. Such ownership necessarily includes each and all fixtures subsequently added by the Authority.

46. All plant capacity in the consolidated SWTP shall be separately vested as follows: fifty percent (50%) in CUTLER; and fifty percent (50%) in OROSI.

47. All personal property, including any valuable byproducts produced, owned or held by the Authority shall be deemed to be held solely in trust by the Authority for the sole benefit of the Parties, in the same proportions specified in this Agreement for the Parties' ownership of fixtures and equipment used to operate the consolidated SWTP.

48. The Authority shall not be authorized to acquire any beneficial fee ownership in the real property or personal and intellectual property held or utilized by the consolidated water system, and the title to each and all portions real property held by the Authority, if any, shall be deemed to be held solely in trust by the Authority for the sole benefit of the CUTLER and OROSI, in the proportions specified in this Agreement for real property and improvements of the consolidated water system. Title to any and all real property acquired by the Authority by means of eminent domain must promptly be conveyed to the Parties who shall hold it as tenants in common (in the same proportions specified in this Agreement for the Parties' ownership of fixtures and equipment used to operate the consolidated SWTP) and until it is conveyed the Authority's holding of title thereto shall be solely in trust for the Parties.

VIII. TERMINATION AND DISPOSITION OF PROPERTY

49. This Agreement shall remain in full force and effect until such earlier time as a court of law or one or more Parties hereof terminate this Agreement according to the terms therefor. Unless otherwise expressly agreed, termination of this Agreement shall not alter the accrued rights, benefits and obligations of the Parties existing at that time. Existing joint operations shall be terminated or amended in an orderly manner as soon as practicable or upon terms mutually agreed upon by the Parties.

50. Distribution of Assets Owned Only By Authority. Upon termination of this Agreement, any assets beneficially owned by the Authority after payment of all liabilities, costs, expenses and charges incurred under this Agreement shall be distributed to whichever public entity or entities shall assume responsibility for collection, treatment, reclamation and/or disposal of sanitary surface water and similar surface waters within the Parties' boundaries, to be used solely for such purposes, or if none, to the Parties hereto in the ownership proportions specified by this Agreement.

51. Disposition of Assets Not Owned by Authority. Upon termination of this Agreement, all property not beneficially owned by the Authority, both real and personal, shall be divided among the Parties hereto in proportion to their ownership interest in the consolidated SWTP.

52. This Agreement shall automatically become void and terminate if either: (a) the SWRCB issues a mandatory consolidation order directed to CUTLER and OROSI under authority codified in the Health and Safety Code; or (b) the Parties are unable to secure adequate funding, either by grant, loan and/or bond, which is sufficient to fully finance the

construction of the SWTP; and notice of the same is confirmed in writing by any Party hereto.

IX. GENERAL TERMS

53. Compliance With Law: The Authority shall provide services in accordance with applicable federal, State, and local laws, regulations and directives. With respect to the Authority's employees, the Authority must comply with all laws and regulations pertaining to wages and hours, State and federal income tax, unemployment insurance, Social Security, disability insurance, workers' compensation insurance, and discrimination in employment.

54. Governing Law: This Agreement shall be interpreted and governed under the laws of the State of California without reference to California conflicts of law principles. The Parties agree that this contract is made in and shall be performed in the County of Tulare, State of California.

55. Notices:

(a) Except as may be otherwise required by law, any notice to be given shall be written and shall be either personally delivered, sent by facsimile transmission or sent by first class mail, postage prepaid and addressed as follows:

OROSI:	**With A Copy To:**
Maria Elena Vidaña, District Manager **OROSI PUBLIC UTILITY DISTRICT** 12488 Avenue 416 Orosi, California 93647 559-528-4262 559-528-2770 – Fax	Moses Diaz, District Counsel **PUBLIC INTEREST LAW FIRM** A Professional Corporation 2924 West Main Street Visalia, California 93291 559-900-3500 559-900-3555 – Fax
CUTLER:	
General Manager **CUTLER PUBLIC UTILITY DISTRICT** 40526 Orosi Drive Cutler, California 93615 559-528-3859 559-528-1919 – Fax	J. Patrick Sullivan, District Counsel **SULLIVAN & SULLIVAN PLC** 505 North West Street Visalia, California 93291 559-741-2860 559-741-2864 – Fax

(b) Notice personally delivered is effective when delivered. Notice sent by facsimile transmission is deemed to be received upon successful transmission, only if accompanied by a legible fax transmission report. Notice sent by first class mail shall be deemed received on the **fifth** day after the date of mailing. Either party may change the above address by giving written notice pursuant to this paragraph.

56. Dispute Resolution: If a dispute arises out of or relating to this Agreement, or the breach thereof, and if said dispute cannot be settled through negotiation, the Parties agree first to try in good faith to settle the dispute by non-binding mediation before resorting to litigation or some other dispute resolution procedure, unless the Parties mutually agree otherwise. The mediator shall be mutually selected by the Parties, but in case of disagreement, the mediator shall be selected by lot from among two nominations provided by each Party. All costs and fees required by the mediator shall be split equally by the Parties, otherwise each Party shall bear its own costs of mediation. If mediation fails to resolve the dispute within thirty (30) days, either Party may pursue required claims and then litigation to resolve the dispute.

57. Construction: This Agreement reflects the contributions of all undersigned Parties and accordingly the provisions of Civil Code section 1654 shall not apply to address and interpret any alleged uncertainty or ambiguity.

58. Headings: Section headings are provided for organizational purposes only and do not in any manner affect the scope, meaning or intent of the provisions under the headings.

59. No Third-Party Beneficiaries Intended: Unless specifically set forth, the Parties to this Agreement do not intend to provide any other person or entity with any benefit or enforceable legal or equitable right or remedy, except to the extent that the Authority is expressly authorized to pursue an equitable remedy.

60. Waivers: The failure of either Party to insist on strict compliance with any provision of this Agreement shall not be considered a waiver of any right to do so, whether for that breach or any subsequent breach. The acceptance by either Party of either performance or payment shall not be considered to be a waiver of any preceding breach of the Agreement by the other Party.

61. Exhibits And Recitals: The recitals and the exhibits to this Agreement are fully incorporated into and are integral parts of this Agreement.

62. Conflict With Laws or Regulations/Severability: This Agreement is subject to all applicable laws and regulations. If any provision of this Agreement is found by any court or other legal authority, or is agreed by the Parties to be, in conflict with any code or regulation governing its subject matter, only the conflicting provision shall be considered null and void. If the effect of nullifying any conflicting provision is such that a material benefit of the Agreement to either Party is lost, the Agreement may be terminated at the option of the

affected Party. In all other cases the remainder of the Agreement shall continue in full force and effect.

63. Entire Agreement Represented: This Agreement represents the entire agreement between the Parties as to its subject matter and no prior oral or written understanding shall be of any force or effect. No part of this Agreement may be modified without the written consent of both Parties.

64. Amendments: This Agreement may be amended or supplemented by an agreement in writing and executed by the authorized representatives of the parties hereto as authorized by resolution of the legislative bodies of the respective parties hereto.

65. Further Assurances: Each party will execute any additional documents and perform any further acts which may be reasonably required to effect the purposes of this Agreement.

66. Successors. This Agreement shall be binding upon and shall inure to the benefit of the successors of the Parties, respectively. No Party may assign any right or obligation hereunder without the written consent of all of the other Party.

THE PARTIES, having read and considered the above provisions, indicate their agreement by their authorized signatures below.

[SIGNATURES ON NEXT PAGE]

//

CUTLER PUBLIC UTILITY DISTRICT

Bernardino Lopez, Board President (date)	Martha Lowery, Secretary (date)

As to form:

J. Patrick Sullivan, Esq. (date)

OROSI PUBLIC UTILITY DISTRICT

Alex Marroquin, Board President (date)	Maria Elena Vidana, Board Secretary (date)

As to form:

Moses Diaz, Esq. (date)

CUTLER-OROSI SURFACE WATER PLANT AUTHORITY

______________, Board President (date)	________________, Board Secretary (date)

As to form:

James Koontz, Esq. (date)

OPUD-CPUD - DRAFT of consolidation agreement-v5b.doc

EXHIBIT A
(Specifications)

TOTAL CAPACITY: _____ gallons per day

CAPACITY ALLOCATIONS (as of January 1, 2024)**

Orosi PUD:

Cutler PUD:

**May change on the 25th of each month, based upon reported AF of each of the Parties or other participating entities.

EXHIBIT B

(minimum requirements of water ordinance)

1. Payment of capacity fees;
2. Inventory and inspection of all installed water fixtures;
3. Backflow prevention device installation and testing;
4. No increase in fixture unit demand without written application and approval;
5. No agricultural use.

EXHIBIT C
(milestones)

1. 2024 – Approval of application for funding to SWRCB for project design;
2. 2024 - 30% plans and specifications;
3. 2024 – 60% plans and specifications;
4. 2025 – 100% plans and specifications; and
5. 2025 - Construction and Notice of Completion.

EXHIBIT D
(improvements)

1. Storage tanks for treatment process;

2. Pumps;

3. Master meters;

4. Distribution lines to Cutler, East Orosi and Orosi;

5. Pneumatic tanks for pressurizing;

6. Office and mechanical shop;

7. Emergency back-up generators for entire plant; and

8. Outdoor lighting system.

Appendix E: OPUD Permit and 2021 Sanitary Survey

October 26, 2021

Raul Mariscal
Orosi Public Utility District– 5410008
12488 Avenue 416
Orosi, CA 93647

DOMESTIC WATER SUPPLY PERMIT NO. 03-24-21P-002 (REVISIONS)

Dear Mr. Mariscal:

On February 12, 2021, the State Water Resources Control Board Division of Drinking Water (Division) staff conducted an inspection of the Orosi Public Utility District water system (hereinafter "Water System") with the assistance of Mr. Raul Mariscal.

After evaluation of the Water System and completion of the enclosed Sanitary Survey Report, the State Water Resources Control Board, Division of Drinking Water (Division) finds that in addition to the provisions of the enclosed Domestic Water Supply Permit, the items below are required to be addressed by the Water System.

The items which require attention are:

1. By **December 31, 2021**, an ERP for the Water System must be certified and submit a copy to the Division.

2. By **December 31, 2021**, the Water System must begin monitoring Wells 04 and 05A for nitrate on a quarterly basis.

3. By **November 30, 2021**, the Water System must submit an updated Bacteriological Sample Siting Plan to the Division.

4. By **November 30, 2021**, the Water System must declare the activity status of Well 07 (standby or inactive) and inform the Division of their decision.

If you have any questions regarding the information contained in the sanitary survey, please contact Kristin Willet at 559-447-3300 or email DWPDIST24@waterboards.ca.gov.

Sincerely,

Bryan Potter Digitally signed by Bryan Potter
Date: 2021.10.26 13:31:58
-07'00'

Bryan Potter, P.E.
Senior WRCE, Tulare District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

BP/KW
Enclosures

cc: Tulare County Environmental Health Department

STATE OF *CALIFORNIA*

DOMESTIC WATER SUPPLY PERMIT

Issued To

Orosi Public Utility District

For the Operation of the

Orosi Public Utility District Water System
Water System No. 5410008

By the

State Water Resources Control Board, Division of Drinking Water

PERMIT NUMBER: 03-24-21P-002 **DATE:** October 26, 2021

WHEREAS:

1. The public water system known as the *Orosi Public Utility District* water system is located north of the City of Visalia, whose mailing address is: 1288 Avenue 416, Orosi, CA. 93647. The Orosi Public Utility District is the legal owner of the water system. Therefore, the Orosi Public Utility District is responsible for compliance with all statutory and regulatory drinking water requirements and the conditions set forth in this revised permit.

2. This revised permit is being issued to *Orosi Public Utility District* for the purpose of providing an updated permit reflecting the current operations of the *Orosi Public Utility District* water system under the regulations of the State of California Health and Safety Code.

3. The public water system for which the revised permit was written is described briefly below (a more detailed description of the permitted system is described in the attached report):

   The Orosi Public Utility District's source of supply is groundwater. The water system is classified as a community water system and serves a population of approximately 8,770 through 1,578 service connections. The water supply system serves one pressure zone and consists of five (5) active groundwater sources: Well Nos. 4, 5A, 7, 8, and 10.

And WHEREAS:

1. The Division of Drinking Water has evaluated all the information submitted by *Orosi Public Utility District* and has conducted a physical investigation of the *Orosi Public Utility District* water system.

2. The Division of Drinking Water has the authority to issue domestic water supply permits pursuant to Health and Safety Code Section 116540.

THEREFORE: The Division of Drinking Water has determined the following:

1. The *Orosi Public Utility District* water system meets the criteria for and is hereby classified as a community water system.

2. Provided the following conditions are complied with, the *Orosi Public Utility District* water system should be capable of providing water to consumers that is pure, wholesome, and potable and in compliance with statutory and regulatory drinking water requirements at all times.

THE OROSI PUBLIC UTILITY DISTRICT IS HEREBY ISSUED THIS REVISED DOMESTIC WATER SUPPLY PERMIT TO OPERATE THE OROSI PUBLIC UTILITY DISTRICT WATER SYSTEM.

The Orosi Public Utility District water system shall comply with the following permit conditions:

1. The Orosi Public Utility District shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted thereunder.

2. The only approved sources of domestic water supply for use by the Orosi Public Utility District are as follows:

Source Name	Status	Primary Station Code (PS Code)
Well No. 4	Active	CA5410008_003_003
Well No. 5A	Active	CA5410008_007_007
Well No. 7	Standby	CA5410008_006_006
Well No. 8	Active	CA5410008_008_008
Well No. 10	Active	CA5410008_014_014

3. The only approved treatment for the Orosi Public Utility District is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

Source Name	Status	PS Code
Well No. 4	Active	CA5410008_010_010
Well No. 5A	Active	CA5410008_011_011
Well No. 7	Active	CA5410008_012_012
Well No. 8	Active	CA5410008_013_013
Well No. 10	Active	CA5410008_015_015

4. No other sources or treatment (as described in Provisions No. 2 and 3 above) shall be used by the Orosi Public Utility District water system and no changes, additions, or modifications shall be made without prior receipt of an amended domestic water supply permit from the Division.

5. All personnel who operate the distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Orosi Public Utility District water system is classified as a D3 system. The Orosi Public Utility District must have a chief distribution operator who is certified, at a minimum, as a D2 distribution system operator and a shift operator who is certified as a D1 operator or higher. The only treatment provided by the Orosi Public Utility District is continuous chlorination, therefore no treatment operator is required.

6. The Orosi Public Utility District shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Orosi Public Utility District shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Orosi Public Utility District shall submit an Electronic Annual Report each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Orosi Public Utility District shall record production data from the active sources at least monthly.

9. The Orosi Public Utility District shall collect raw water samples at least monthly from all active wells for analyses of total coliform and fecal coliform or *E. coli* bacteria. The coliform test shall be performed using a density analytical method with results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

10. The Orosi Public Utility District shall monitor for coliform bacteria in the distribution system monthly and in accordance with an approved Bacteriological Sample Siting Plan. The Division shall be notified immediately if either of the following occur:

    a. Any distribution system or source sample shows the presence of *E. coli* bacteria.

    b. The water system exceeds the maximum contaminant level for total coliform bacteria, in which more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Orosi Public Utility District shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Orosi Public Utility District shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Orosi Public Utility District shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring annually. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Codes:

ST2 DBP Monitoring Sites	PS Codes
ST2S1-12910 Walnut Ave.	5410008-900

13. The Orosi Public Utility District shall operate the water system in accordance with a Division-approved Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval.

14. The Orosi Public Utility District water system shall monitor the chlorine residual in the distribution system weekly and report the residuals to the Division monthly using the Chlorine Operational Log form. The Orosi Public Utility District water system shall submit a monthly treatment report to the Division by the 10th day of the following month.

This permit supersedes all previous domestic water supply permits issued for this public water system and shall remain in effect unless and until it is amended, revised, reissued, or declared to be null and void by the Division of Drinking Water. This revised permit is non-transferable. Should the Orosi Public Utility District water system undergo a change of ownership, the new owner must apply for and receive a new domestic water supply permit.

Any change in the source of water for the water system, any addition or modification of the method of treatment as described in the sanitary survey report, or any addition of distribution system storage reservoirs shall not be made unless an application for such change is submitted to the Division of Drinking Water.

This revised permit shall be effective as of the date shown below.

FOR THE DIVISION OF DRINKING WATER

Bryan Potter Digitally signed by Bryan Potter
Date: 2021.10.26 13:32:20 -07'00'

Water Boards

Bryan Potter, P.E.
Tulare District Engineer

Date

CALIFORNIA Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

DATE: October 26, 2021

TO: Bryan G. Potter, P.E.
Senior Water Resource Control Engineer, Tulare District

FROM: Kristin Willet, P.E.
Water Resource Control Engineer, Tulare District

SUBJECT: Orosi Public Utility District (PUD)
Sanitary Survey – 5410008

I. INTRODUCTION

1.1 PURPOSE OF REPORT

On February 12, 2021, Ms. Kristin Willet with the State Water Resources Control Board, Division of Drinking Water (Division) inspected the Orosi Public Utility District's water system (Water System) with the assistance of Mr. Raul Mariscal, foreman, who oversees water system operations. The purpose of this report is to document the sanitary survey and to describe the existing water supply facilities and current operational practices. The last sanitary survey was conducted by Mr. Andrew Forbes, with the Division, on November 15, 2018.

Domestic Water Supply Permit

The Water System operates under a Domestic Water Supply Permit No. 03-12-12P-008, issued by the Division's Visalia District in July 2012. The purpose of this Sanitary Survey report is to provide and updated inventory of the Water System's facilities, operations, sampling and compliance. The Water System is still subject to the following permit provisions included in Permit No. 03-12-12P-008, listed below:

1. The District shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted thereunder.

2. The only approved sources of domestic water supply for use by the District are listed in the table below.

Approved Sources

Source Name	Status	Primary Station Number
Well No. 4	Active	5410008-003
Well No. 5A	Active	5410008-007
Well No. 7	Active	5410008-006
Well No. 8	Active	5410008-008
Well No. 10	Active	5410008-014

3. The District must provide continuous chlorination of the distribution system.

4. No additions, changes or modifications to the sources of water supply or water treatment processes outlined in Provision No. 2 and 3 can be made without prior receipt of an amended domestic water supply permit from this Department.

5. Under the operator certification regulation, the Orosi Public Utility District's water system is classified as a D2 system. The Orosi Public Utility District must have a chief distribution operator who is certified, at a minimum, as a D2 distribution system operator.

6. The Orosi Public Utility District shall collect raw water samples at least monthly from each active well for analyses of total coliform, fecal coliform or *E. Coli* bacteria. The coliform tests shall be performed using a density analytical method and the results reported in units of MPN/100ml. The results shall be submitted to the Department by the 10th day of the following month.

7. The City of Farmersville shall collect remaining initial water quality monitoring requirements for Well No. 8A. All results shall be submitted to the Department via EDT.

8. Wells No. 6 and 9 are inactive sources and are not approved sources of supply. They shall be locked out or physically disconnected or otherwise isolated from the system so that they open by an intentional act by an operator, and no automatic response, can place the source in service. Inactive wells can be upgraded to standby status if all monitoring is updated to meet standby requirements and the change in status is approved in writing by the Department. Inactive sources can only be used as a last resort in extreme emergencies after all other active sources of supply have been utilized. Any use of an inactive source is subject to the following restrictions.

a. Emergency notification to the consumers that the water is unsafe for domestic use must be given immediately preceding, and on a continuing basis, during the emergency use of the source.
b. Initiation of the use of an inactive source must be the result of an intentional manual action by the system operator.
c. The use of an inactive source shall not be initiated without the knowledge and approval of the Department.
d. All monitoring as deemed appropriate by the Department shall be required during or immediately following any emergency use of an inactive source.

The provisions included in the active permit are not all-inclusive and some do not reflect the current operations of the District. As a result, a revised permit is required. The revised permit, which accompanies this inspection report, reflects the changes in provisions and describes the current operations of the District.

1.2 DESCRIPTION OF SYSTEM

The Water System serves the census-designated place of Orosi in Tulare County. The Water System is classified as a community water system and serves a permanent resident population of approximately 8,770 people through 1,578 service connections. The Water System consists of four active wells, one standby well, a 750,000-gallon steel storage tank, four 10,000-gallon hydropneumatics pressure tanks, an 8,000-gallon hydropneumatic tank, two 20-hp booster pumps, and the associated distribution system. The Water System is sewered and sewage disposal is provided by the Cutler/Orosi Wastewater Treatment Plant.

1.3 ENFORCEMENT HISTORY

Notice of Violation No. 03-24-21N-002, issued February 11, 2021
The Water System failed to comply with directives of Compliance Order No. 03-24-20R-002.

Compliance Order No. 03-24-20R-002, issued October 2020
The Water System was directed to mandatory consolidate East Orosi Community Services District.

1.4 AREA SERVED

The Water System serves the community of Orosi located in Tulare County. The mailing address for the Water System is 12488 Avenue 416, Orosi, CA, 93647. The Water System serves 1,578 metered service connections and approximately 8,770 people. A locational map is included in Appendix A.

1.5 PRODUCTION DATA

Table 2 summarizes the water production information obtained from the Electronic Annual Reports (EARs) from 2010 through 2020.

Table 2: Water Production Data for the Water System (2010-2020)

Year	Population	Service Connections	Annual Production (MG)	Maximum Month (MG)
2020	8,770	1,579	333.52	41.6 (July)
2019	8,770	1,578	309.45	38.3 (August)
2018	8,770	1,578	312.4	39.2 (July)
2017	8,770	1,578	305.8	37.2 (July)
2016	8,770	1,578	277.8	33.4 (August)
2015	8,770	1,628	305.5	34.24 (August)
2014	8,770	1,628	341	40.2 (July)
2013	8,770	1,624	362.5	44.6 (July)
2012	8,770	1,624	360.6	45.1 (July)
2011	8,770	1,624	346.8	43.6 (July)

II. INVESTIGATION AND FINDINGS

2.1 SOURCES OF SUPPLY

Source Water Assessments

The Source Water Assessment Program (SWAPs) for Wells No. 4, 5A, 7 and 8 were completed in 2003. A SWAP for Well No. 10 was completed in May 2012. The sources are considered vulnerable to low density septic systems, sewer collection systems, agricultural wells, gas stations, and confirmed leaking underground storage tanks. Copies of the SWAPs are on file at the Tulare District Office.

Active Wells:

Well 04, Active – Treated, (CA5410008_003_003)

A DWR Well Completion Report is on file for Well 04. Well 04 was drilled in 1966 to a depth of 425 feet. The borehole contains a 12-inch diameter steel conductor casing to a depth of 425 feet and perforations between 180 and 425 feet. A cement annular seal is provided to a depth of 70 feet. The well is equipped with a 40-hp oil-lubricated deep well turbine (DWT) pump, which can produce approximately 525 gallons per minute (gpm). The oil used for lubrication is a food grade oil. Well 04 discharges directly to a 10,000-gallon hydropneumatics tank and operates based on system pressure. The well is secured in a fenced area and appurtenances include an air-relief vent, and a non-threaded downturned raw water sampling tap on the discharge line of the well.

Well 05A, Active – Treated, (CA5410008_007_007)

A DWR Well Completion Report is on file for Well 05A. Well 05A was drilled in 1990 to a depth of 433 feet. The borehole contains a 12-inch diameter steel conductor casing to a depth of 433 feet and perforations between 200 and 433 feet. A cement annular seal is provided to a depth of 170 feet. The well is equipped with a 50-hp oil-lubricated deep well turbine (DWT) pump, which can produce approximately 525 gallons per minute (gpm). The oil used for lubrication is a food grade oil. Well 05A discharges directly to a 750,000-gallon welded steel storage tank and operates based on the water level in the tank. From the storage tank, the flow passes through booster pumps to the 10,000-gallon hydropneumatic tank and then to the distribution system. The hydropneumatics tank calls the booster pumps to pull water from the storage tank when the pressure in the hydropneumatics tank drops to 47 psi and turns off at 65 psi. The well is secured in a fenced area and appurtenances include an air-relief vent, and a non-threaded downturned raw water sampling tap on the discharge line of the well.

Well 08, Active – Treated, (5410008_008_008)

A DWR Well Completion Report is on file for Well 08. Well 08 was drilled in 1996 to a depth of 473 feet. The borehole contains a 14-inch diameter steel conductor casing to a depth of 473 feet and perforations between 190 and 473 feet. A cement annular seal is provided to a depth of 138 feet. The well is equipped with a 60-hp water-lubricated deep well turbine (DWT) pump, which can produce approximately 750 gallons per minute (gpm). Well 07 discharges directly to a 10,000-gallon hydropneumatic tank and operates based on system pressure. The well is secured in a fenced area and appurtenances include an air-relief vent, and a non-threaded downturned raw water sampling tap on the discharge line of the well. The well has an on-site emergency auxiliary power generator to provide power to the well in the event of a power outage. The generator requires diesel to function, and the Water System exercises the generator weekly.

Well 10, Active – Treated, (CA5410008_014_014)

A DWR Well Completion Report is on file for Well 10. Well 10 was drilled in 2006 to a depth of 496 feet. The borehole contains a 14-inch diameter steel casing to a depth of 496 feet. Perforations are present between 251 and 496 feet. A cement annular seal is present to a depth of 95 feet. The well is equipped with a 60-hp water-lubricated deep well turbine (DWT) pump, which can produce approximately 800 gallons per minute (gpm). Well 10 discharges directly to a 8,000-gallon hydropneumatic tank and operates based on system pressure. The well is secured in a fenced area and appurtenances include an air-relief vent, and a non-threaded downturned raw water sampling tap on the discharge line of the well. The well has an on-site emergency auxiliary power generator to provide power to the well in the event of a power outage. The generator requires diesel to function, and the Water System exercises the generator weekly.

Standby Source:

Well 07, Standby – Treated, (CA_5410008_006_006)

A DWR Well Completion Report is on file for Well 07. Well 07 was drilled in 1981 to a depth of 390 feet. The borehole contains a 14-inch diameter steel conductor casing to a depth of 390 feet and perforations between 192 and 390 feet. A cement annular seal is provided to a depth of 50 feet. The well is equipped with a 60-hp water-lubricated deep well turbine (DWT) pump, which can produce approximately 750 gallons per minute (gpm). Well 07 discharges directly to a 10,000-gallon storage tank and operates based on system pressure. The well is physically valved off from the distribution system and has to be manually operated as is produces water with 1,2,3-trichloropropane (TCP) and nitrate over the MCL. The well is secured in a fenced area and appurtenances include an air-relief vent, and a non-threaded downturned raw water sampling tap on the discharge line of the well. The well has an on-site emergency auxiliary power generator to provide power to the well in the event of a power outage. The generator requires gas to function, and the Water System exercises the generator weekly.

2.2 ADEQUACY OF SUPPLY

Production data, as reported by the Water System, and peaking factors established in the California Waterworks Standards were used to determine the Water System's Average Day (ADD), Maximum Day (MDD), and Peak Hour Demands (PHD). The adequacy of supply is determined by comparing the Water System's demands with its total source capacity which includes active and standby sources, storage capacity, and emergency interconnections with other water systems. The Water System's ADD, MDD, and PHD for the most recent ten years are provided in Table 3, below.

Table 4 displays the estimated total source capacity of the Water System's active sources. It should be noted that the capacities listed in Table 4 are estimates provided by the Water System.

Table 3: Average Day, Maximum Day and Peak Hour Demand

Year	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)
2020	635	1,100	1,650
2019	589	1,287	1,930
2018	594	1,317	1,976
2017	582	1,250	1,875
2016	529	1,122	1,684
2015	581	1,149	1,724
2014	649	1,351	2,026
2013	690	1,499	2,248
2012	686	1,516	2,273
2011	660	1,465	2,198
2010	673	3,182	4,773

Table 4: Total Active Source Capacity

Source	Capacity (gpm)
Well 04	525
Well 05A	525
Well 07*	750
Well 08	750
Well 10	800
Total Capacity	**2,600**

*Well 07 was omitted from the total source capacity calculation based on it having multiple contaminants.

The total active source capacity of the Water System is approximately 2,600 gpm. The Water System currently relies on Well 04 as the primary source of supply and Well 08 as the backup source.

According to California Waterworks Standards, systems serving 1,000 service connections or more should maintain enough capacity including active and standby sources, storage and any emergency connections to provide at least 4-hours PHD. The total source capacity for the Water System is 2,600 gpm and total storage volume is 750,000 gallons. The Water System has sufficient capacity to meet the Water System's maximum day demand (MDD) and estimated peak hour demand (PHD).

2.3 TREATMENT

Continuous Chlorination

The Water System provides continuous chlorination treatment at each of the Water System's active well sites (Wells No. 04, 05A, 08, 10) prior to entering their respective hydropneumatic pressure tank or storage tank. The operator aims to maintain a distribution system free chlorine residual of approximately 0.3 to 0.7-mg/L. The Water System uses 12.5% solution strength ChemChlor sodium hypochlorite solution, which is fed neat into the distribution system. The Water System utilizes a LMI Roytronic Pump (Model #:751-920HI) on Well No. 04, which operates at a maximum condition of 0.65-gallons per hour (gph) at 110-pounds per square inch (psi) and is set at a speed of 25 and stroke at 55. Wells No. 05A, 08, and 10 utilize a Stenner (Model #: 45MHP10) chemical metering pump which has a maximum operating condition of 10-gallons per day (gpd) at 100-psi; with the speeds at each well site set to 5.

2.4 STORAGE

Storage for the Water System is provided primarily by one storage tank, which is approximately 750,000-gallons. The storage tank was installed and approved by the Division in 1995. The tank is in excellent condition and is composed of welded steel. The tank appears to be coated with paint to prevent erosion of the surfaces. The Water System indicated that the storage tank was cleaned and inspected in 2020. The Division recommends that storage tanks be inspected internally at least once every five years to verify the integrity of the tank coating, check the condition of the inside surface of the tank walls, and to clean the tanks as needed.

In addition to the storage tank, the Water System also has a total of four 10,000-gallon hydropneumatic pressure tanks accompanying each well site. The 750,000-gallon steel storage tank is located at the site of Well No. 5A. The low level in the storage tank is 11 feet, at which point Well 05A is called on to fill the storage tank to the high level at 32 feet. Wells No. 04, 05A, 07, and 08 are accompanied by 10,000-gallon hydropneumatic pressure tanks. Well No. 10 is accompanied by an 8,000-gallon hydropneumatic pressure tank. The operation of Well 05A is controlled by a float gauge in the tank. The remaining wells (04, 08, 10) are controlled by distribution system pressure in the service areas. Well 07 is physically valved off from the distribution system and is operated manually due to 1,2,3-TCP and nitrate exceedance.

2.5 DISTRIBUTION SYSTEM

Water Mains

The distribution system consists of 6-inch to 12-inch diameter cast iron, asbestos cement, PVC, and ductile iron lines. Previous inspection reports indicate that the Water System has five dead-ends and the operator indicated they are flushed quarterly. The Water System has approximately 440 valves which range from 4 to 12-inch in size.

System Repairs

The Water System must follow American Water Works Association (AWWA) standards when there are any repairs, changes, or additions made to the distribution system.

2.6 OPERATION AND MAINTENANCE

The responsible entity of the water system is Orosi Public Utilities District (PUD). Orosi PUD is operated and maintained by Mr. Raul Mariscal. Mr. Mariscal is a certified D2 distribution and T2 treatment operator (Certification Numbers: 20378 and 28107). The operator is responsible for the maintenance and operation of the water system. The Water System’s distribution system is classified as a D2 distribution facility.

Cross Connection Control Program

The Water System is required to maintain a Cross Connection Control Program which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

1. The conducting of surveys to identify water user premises or locations where cross connections are likely to occur,
2. The provisions of backflow protection by the water user at the user’s connection or within the user’s premises or both,
3. The provision of at least one person trained in cross connection control to carry out the cross-connection program,
4. The establishment of a procedure or system for annual testing of backflow preventers, and

5. The maintenance of records of locations, tests, and repairs of backflow preventers.

Backflow Prevention Device Testing

Regulation requires all backflow prevention devices to be tested annually. Copies of the testing records must be kept on file with the Water System for a minimum of three years.

The last cross-connection control survey of the Water System's distribution system was performed in May 2020 by Michael McKeever, Cross Connection Specialist (AWWA #02183 and ABPA #S05-00202). The survey noted 11 specific backflow devices that needed repair and 18 that needed to be upgraded. The Water System is in the process of addressing these backflow devices.

According to the 2020 EAR, there are 161 backflow prevention assemblies in the distribution system, of which 1 were repaired or replaced in 2020. The EAR reports that 161 backflow prevention devices were tested in 2020 and 1 of them failed.

Complaint program

The Water System must keep records of all complaints received and actions taken to correct the problems related to the complaints. According to the 2020 EAR, the Water System did not receive any complaints in 2020.

Emergency Response Plan (ERP)

On October 23, 2018, America's Water Infrastructure Act (AWIA) was signed into law. AWIA Section 2013 requires community (drinking) water systems serving more than 3,300 people to develop or update risk assessments and emergency response plans (ERPs). **By June 30, 2021, the Water System was required to certify the completion of its risk and resilience assessment on the U.S. EPA site**: https://www.epa.gov/waterresilience/how-certify-your-risk-and-resilience-assessment-or-emergency-response-plan. As of the date of this report, Orosi PUD had not certified the completion of its risk and resilience assessment. **Additionally, an ERP for the Water System must be certified and submit a copy to the Division by December 31, 2021.** According to the 2019 EAR, the ERP was last exercised with a tabletop on June 17, 2020. Information for completing a risk assessment and ERP is available on the Water Boards' Water Resiliency – Prepare website: https://www.waterboards.ca.gov/drinking_water/certlic/ drinkingwater/water_ resiliency/prepare.html

Consumer Confidence Report (CCR)

The Consumer Confidence Report (CCR) is required to be delivered to all customers within the water system by July 1st of the following year, and a copy of the CCR and certification of publication is due to the Division by October 1st of each year. The Water System submitted the 2019 CCR and the certification form to the Division on June 12, 2020. The Water System must ensure that the CCR and certification of publication are submitted on a timely basis.

Emergency Notification Plan (ENP)

The Water System's Emergency Notification Plan (ENP), submitted in July 2019, lists Mr. Raul Mariscal, Ms. Elena Vidana, and Mr. Dennis Keller as the primary, secondary, and tertiary contacts, respectively, in the event of a water quality emergency. The Water System has specified the use of local media, door to door delivery, and posted notification as the primary modes of notification in the event of a water quality emergency. This would be followed by direct notification via public notices that would be distributed by Water System personnel.

Water System Resiliency and Preparedness

The effects of climate change on community water system (CWS) facilities and operations is a concern and priority of the State Water Resources Control Board (SWRCB), which is documented by the SWRCB in its Comprehensive Climate Change Resolution No. 2017-12, adopted in March 2017. The Division is reviewing each water system's preparedness for climate change with the goal to increase awareness and familiarization to the effects of climate change to facilities and operations, encourage the use of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) or equivalent, and to document and the CWS' efforts in climate change.

As part of the 2019 EAR, community water systems were asked to identify their vulnerabilities, and rank them as either high or already experiencing, medium, or low sensitivity, and proposed or implemented projects to prepare for the impacts from climate change. The Water System provided responses to these questions indicating that there were none or low sensitivity for all potential vulnerabilities.

The Water System indicated that they were aware of the CREAT tool developed by USEPA for identifying climate change vulnerabilities. The Water System has not used CREAT (or similar tool) to identify vulnerabilities to the water system sources and facilities. The SWRCB strongly encourages utilities to evaluate climate change vulnerabilities using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

2.7 SOURCE WATER QUALITY MONITORING

The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. Instructions for accessing this information is included in Appendix D.

Bacteriological – Raw Water

Due to the implementation of continuous chlorination, raw water bacteriological samples are required to be collected monthly from each active source. The analysis must report the results as a coliform density in MPN/100mL. The Water System has been conducting the required raw water bacteriological monitoring. A summary of the Water System's raw water source monitoring is provided in Appendix C**.**

California Ground Water Rule Monitoring

The California Ground Water Rule (GWR) requires public water systems to conduct triggered source monitoring whenever a routine distribution system sample is positive for total coliform bacteria.

General Mineral and General Physical

The Water System is required to sample each active well for general mineral and general physical chemicals once every three years. The Water System last conducted general mineral and general physical monitoring from Wells 04 and 05A in August 2019, and Wells 08 and 10 in August 2021. The results for all active wells were below the respective MCLs. Well 07 is on standby and does not require continuous monitoring of general minerals or physical constituents. The next round of general mineral and general physical monitoring is due from Wells 04 and 05A in August 2022, and Wells 08 and 10 in August 2024.

Inorganic Chemicals

The Water System is required to sample each active well for inorganic chemicals every three years, except for nitrate which has a different monitoring frequency as described below. The Water System last conducted inorganic chemical water quality monitoring from all active sources from Wells

04 and 05A in August 2019, and Wells 08 and 10 in August 2021 and the results were all below the respective MCLs. The Water System last conducted inorganic chemical water quality monitoring from Well 07 in August 2016 and all results were below the respective MCLs. The next round of inorganic chemical water quality monitoring is due from Wells 04 and 05A in August 2022, Wells 08 and 10 in August 2024 and Well 07 in 2025.

Nitrate

The Water System is required to monitor active groundwater sources for nitrate (as N) annually if monitoring data indicate nitrate concentrations less than 5 mg/L as N (one-half the MCL of 10 mg/L) and quarterly if the concentrations are greater or equal to 5 mg/L as N (one-half the MCL). The table below shows the most recent results from wells. The next sample due dates are also provided in the table below. **Wells 04 and 05A produced nitrate levels greater than half of the MCL and must begin monitoring for nitrate at these wells on a quarterly basis. Well 07 produced results that exceeded the MCL and must begin monitoring for nitrate quarterly.**

Well No.	Sample Date	Nitrate Result (mg/L)	Nitrate Monitoring Frequency	Nitrate Due Date
04	8/20/2021	5.6	**Quarterly**	**11/2021**
05A	8/20/2021	5.4	**Quarterly**	**11/2021**
08	8/20/2021	4.7	Annual	08/2022
10	8/20/2021	2.8	Annual	08/2022
07	8/20/2021	12	**Quarterly**	**11/2021**

Volatile Organic Chemicals (VOCs)

The Water System is required to conduct volatile organic chemical (VOC) monitoring once every three years for active sources. The Water System last sampled for VOCs from Wells 04, 05A, and 08 in August 2019, and Well 10 in August 2021 and the results were non-detect. Well 07 was sampled for VOCs last in August 2016 and all results were non-detect. The next round of VOC monitoring is due from Wells 04, 05A, and 08 in August 2022, and Well 10 in August 2024, and Well 07 in August 2028.

Synthetic Organic Chemicals (SOCs)

All large community water systems (>3,300 population) are required to conduct two consecutive quarters of synthetic organic chemical (SOC) monitoring (1,2,3-trichloropropane (1,2,3-TCP), alachlor, atrazine, dibromochloropropane (DBCP), ethylene dibromide (EDB), and simazine) once every three years.

The Water System's active wells were last sampled for all SOCs, except 1,2,3-trichlorophropane, in August 2020 and the results were non-detect, except for Well 08 DBCP with a result of 0.018 μg/L, which is below the MCL of 0.2 μg/L. Well 07 was last sampled for SOCs in August 2017 and all results were non-detect, except for DBCP 0.047 μg/L. The Water System has failed to collect the second consecutive quarterly sample set for SOCs. Well 7 is on a 9-year monitoring frequency for SOCs. **The Water System must conduct *two* consecutive quarters of SOCs, excluding 1,2,3-TCP, monitoring from the active wells in 2023 and every three years thereafter.**

1,2,3–Trichloropropane (1,2,3-TCP)

The Water System last sampled all active wells for 1,2,3-TCP in February 2021and the results were non-detect. The Water System has placed Well 07 on standby due to the 1,2,3-TCP contamination. Well 07 is next due for 1,2,3-TCP monitoring in 2030. **The next round of 1,2,3-TCP monitoring for active wells is due in 2024 for *two* consecutive quarters of 1,2,3-TCP monitoring and every three years thereafter.**

Radiological

The initial radiological monitoring is based on the collection of four consecutive quarterly samples for gross alpha and radium-228. If the results from the first two quarters of initial monitoring are below the DLR, the final two quarters of initial monitoring may be waived. After initial monitoring is complete, no additional monitoring is required for radium-228. Subsequent monitoring frequencies for gross alpha is based on the results of the last sample collected.

The Water System has fulfilled the initial radiological monitoring requirements for all sources. As such, monitoring for radium-228 is no longer required. A gross alpha summary of the last sample result and date, monitoring frequency, and next due dates are outlined in Table 5 below**. By December 31, 2021, the Water System must sample Wells 04, 05A, and 10 for gross alpha. If triggered, analyses for uranium and total radium are required from the same sample as noted below.**

Triggered Monitoring:

Uranium:

If the GA + (0.84 * CE) for any single sample is greater than 5 pCi/L, analysis for U in that same sample, is required.

Total Radium:
If the GA + (0.84 * CE) - U is greater than 5 pCi/L, analysis for total radium in that same sample, is required.

Triggered monitoring needs to be communicated to the laboratory on the chain of custody at the time the sample is submitted.

Table 5 – Gross Alpha Monitoring Data

Source	Last Sample Result (pCi/L)	Last Sample Date	Frequency	Next Due Date
Well 04	ND	08/20/2021	Every 9 years	08/2030
Well 05A	ND	08/20/2021	Every 9 years	08/2030
Well 07	5.06	05/20/2020	Every 9 years	2029
Well 08	2.39	05/20/2020	Every 9 years	05/2029
Well 10	ND	08/20/2021	Every 9 years	08/2030

2.8 DISTRIBUTION SYSTEM MONITORING

Bacteriological Water Quality

The Water System is required to collect three bacteriological samples per week, in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Water System must follow the approved BSSP unless alternative instructions are given by the Division. The Water System indicated that one of the routine sample sites is no longer available. **By November 30, 2021, the Water System must submit an updated BSSP to the Division**. Any time a routine coliform positive sample occurs, the Water System must collect repeat samples from the locations listed in the BSSP within 24-hours. The Water System must notify the Division of any changes or variances to the BSSP. A summary of the Water System's distribution system monitoring since 2018 is provided in Appendix C.

Lead and Copper Rule Monitoring

The Water System completed the initial monitoring requirements and is now allowed to collect the reduced number of 20 triennial samples. The Water System's 90th percentile lead and copper concentrations in the tap water samples should be below the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively. The Water System last conducted lead and copper tap monitoring from the distribution system on July 15, 2020 and the 90th

percentile lead and copper results were non-detect (ND) and 0.12 mg/L, respectively. **The next set of 20 lead and copper tap samples are due to be collected between June 1 and September 30, 2023.**

All future lead and copper monitoring results must be submitted to the Division electronically via the Lab-To-State (LTS) Portal. The Water System must complete and submit a Lead and Copper Tap Sample Results Reporting Form with all subsequent lead and copper monitoring results. A Lead and Copper Tap Sample Results Reporting Form is included in Appendix E.

Lead Service Line Inventory and Replacement

New lead service line replacement regulations became effective September 2016 that require all public water systems to prepare an inventory of known partial or total lead service lines in use in its distribution system. HSC Section 116885 requires the completion of an inventory of the lead service lines by a July 1, 2018, deadline followed by a proposed schedule for replacement of the identified lead service lines by a July 1, 2020, deadline. The legislation is only applicable to community water systems.

The Water System completed a lead service line inventory in June 2020. The total number of service lines inventoried was 1,447, none of which were lead or unknown material.

Disinfection by-Products Rule (DBPR)

Due to the implementation of continuous chlorination, the Water System is required to comply with the Disinfection Byproduct Monitoring Rule (DBPR). To comply with Stage 2 DBPR monitoring requirements, the Water System is required to collect two DBP samples from the distribution system annually during a month of the warmest water temperature. The samples are required to be analyzed for total trihalomethanes (TTHMs) and haloacetic acids (HAA5s). The Water System last monitored for DBPs in August 2021 and all results were non-detect. **The next set of DBPs samples are due to be collected between June 1 and September 30, 2022.**

The results of Stage 2 DBP monitoring are required to be sent to the Division electronically to the Division’s electronic database using the PS Code listed in Table 6 below:

Table 6 – Stage 2 DBPs PS Code

ST2 Monitoring Site	PS Code
ST2S1-12910 Walnut Ave.	5410008-900

Asbestos Monitoring

Regulation requires monitoring of systems vulnerable to asbestos contamination within the distribution system at a tap served by asbestos containing pipe. Distribution system monitoring for asbestos is required if asbestos containing pipe is used and the water produced by the sources has an aggressive index of <11.5. The Water System monitored for asbestos in May 2017 from the asbestos-cement piping and results were non-detect. **The next asbestos sample to be collected from the asbestos-cement piping is due in 2026.**

III. APPRAISAL OF SANITARY HAZARD & PUBLIC HEALTH SAFEGUARDS

The Orosi PUD water system is in good overall condition and is capable of supplying safe and potable water to all customers. The Water System presently has four active wells, Wells 04, 05A, 08 and 10, and one standby well, Well 07. The Water System has approximately 750,000-gallons of storage via a steel storage tank.

Well 07 is a standby source and exceeds the 1,2,3-TCP and nitrate MCLs. Well 07 is valved off from the distribution system and is operated manually for sampling. Sources with nitrate contamination cannot remain a standby source. **By November 30, 2021, the Water System must declare the activity status of Well 07 (standby or inactive) and inform the Division of their decision.** Should the Water System decide to keep Well 07 as a standby source, the Water System will be issued a compliance order for the nitrate MCL violation.

In the case of an emergency that requires the use of Well 07, the Water System must contact the Division immediately. If it is normal business hours, the Water System must follow the Emergency Notification Plan.

The Water System records production information and has enough capacity to meet MDD and PHD requirements. If the Water System experiences a power outage, the water system could rely on the storage tank for approximately 6.3 hours until power is restored under peak hour conditions.

Competent supervision is provided over the operation and maintenance practices of the Water System. System operations and reporting practices are adequate.

All laboratory chemical analytical results must be submitted to the Division via EDT with the correct PS Codes The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/.

IV. CONCLUSIONS AND RECOMMENDATIONS

Issuance of a Revised Domestic Water Supply Permit by the State Water Resources Control Board, Division of Drinking Water to Orosi Public Utility District for the operation of the Orosi Public Utility District water system is recommended subject to the following provisions:

1. The Orosi Public Utility District shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted thereunder.

2. The only approved sources of domestic water supply for use by the Orosi Public Utility District are as follows:

Source Name	Status	Primary Station Code (PS Code)
Well No. 4	Active	CA5410008_003_003
Well No. 5A	Active	CA5410008_007_007
Well No. 7	Standby	CA5410008_006_006
Well No. 8	Active	CA5410008_008_008
Well No. 10	Active	CA5410008_014_014

3. The only approved treatment for the Orosi Public Utility District is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

Source Name	Status	PS Code
Well No. 4	Active	CA5410008_010_010
Well No. 5A	Active	CA5410008_011_011
Well No. 7	Active	CA5410008_012_012
Well No. 8	Active	CA5410008_013_013
Well No. 10	Active	CA5410008_015_015

4. No other sources or treatment (as described in Provisions No. 2 and 3 above) shall be used by the Orosi Public Utility District water system and no

changes, additions, or modifications shall be made without prior receipt of an amended domestic water supply permit from the Division.

5. All personnel who operate the distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Orosi Public Utility District water system is classified as a D3 system. The Orosi Public Utility District must have a chief distribution operator who is certified, at a minimum, as a D2 distribution system operator and a shift operator who is certified as a D1 operator or higher. The only treatment provided by the Orosi Public Utility District is continuous chlorination, therefore no treatment operator is required.

6. The Orosi Public Utility District shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Orosi Public Utility District shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Orosi Public Utility District shall submit an Electronic Annual Report each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Orosi Public Utility District shall record production data from the active sources at least monthly.

9. The Orosi Public Utility District shall collect raw water samples at least monthly from all active wells for analyses of total coliform and fecal coliform or *E. coli* bacteria. The coliform test shall be performed using a density analytical method with results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

10. The Orosi Public Utility District shall monitor for coliform bacteria in the distribution system monthly and in accordance with an approved Bacteriological Sample Siting Plan. The Division shall be notified immediately if either of the following occur:

    a. Any distribution system or source sample shows the presence of *E. coli* bacteria.

    b. The water system exceeds the maximum contaminant level for total coliform bacteria, in which more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Orosi Public Utility District shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Orosi Public Utility District shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Orosi Public Utility District shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring annually. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Codes:

ST2 DBP Monitoring Sites	PS Codes
ST2S1-12910 Walnut Ave.	5410008-900

13. The Orosi Public Utility District shall operate the water system in accordance with a Division-approved Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval.

14. The Orosi Public Utility District water system shall monitor the chlorine residual in the distribution system weekly and report the residuals to the Division monthly using the Chlorine Operational Log form. The Orosi Public Utility District water system shall submit a monthly treatment report to the Division by the 10th day of the following month.

The Water System needs to address the following issues that were noted during the inspection and a subsequent file review:

1. By **December 31, 2021**, an ERP for the Water System must be certified and submit a copy to the Division.

2. By **December 31, 2021**, the Water System must begin monitoring Wells 04 and 05A for nitrate on a quarterly basis.

3. By **November 30, 2021**, the Water System must submit an updated Bacteriological Sampling Siting Plan to the Division.

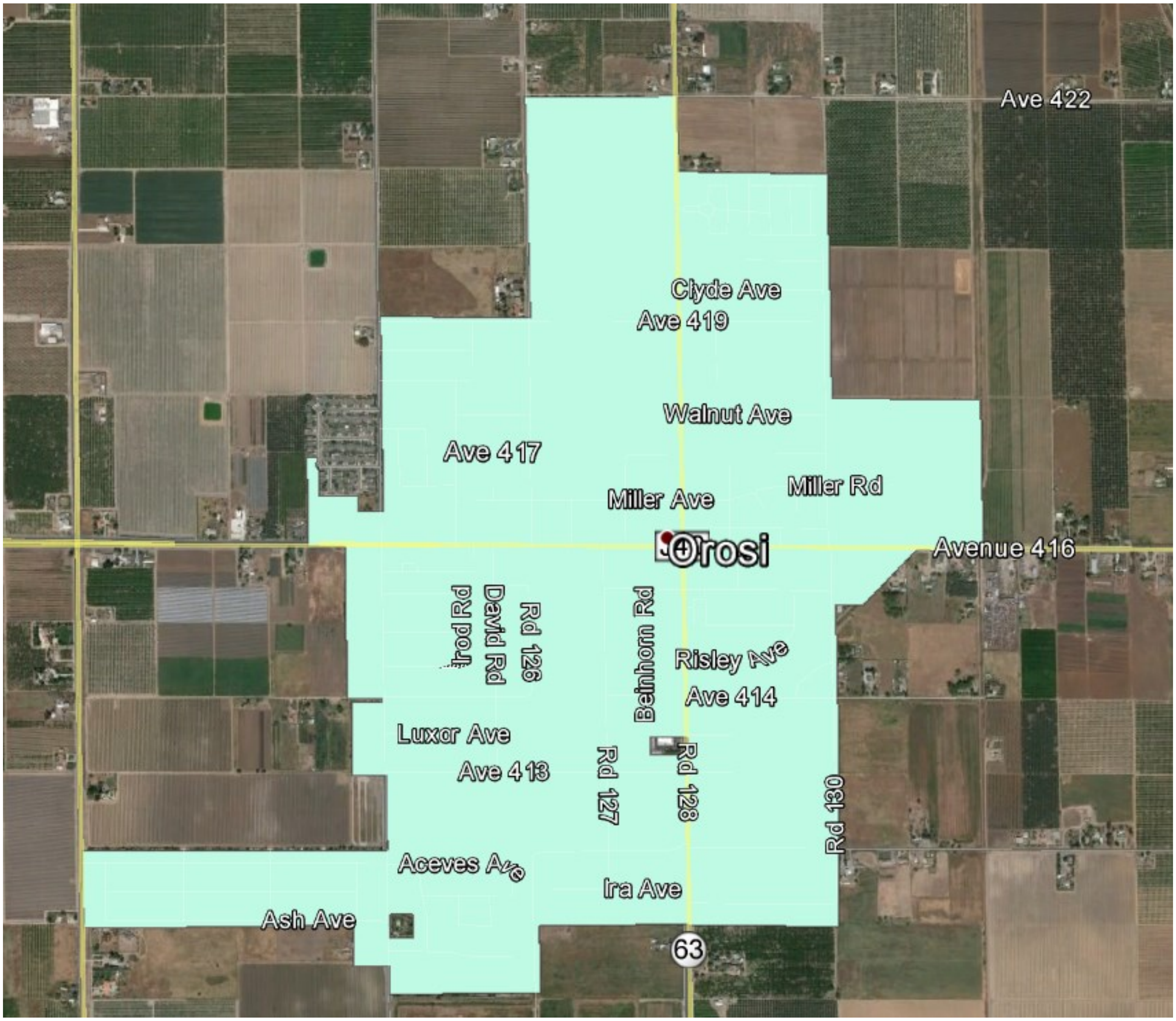
4. By **November 30, 2021**, the Water System must declare the activity status of Well 07 (standby or inactive) and inform the Division of their decision.

Appendices:

Appendix A: Location Map and Photo Index
Appendix B: Last Sample Date and Monitoring Schedule
Appendix C: Source and Distribution System Bacteriological Monitoring Report
Appendix D: Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data
Appendix E: Lead and Copper Tap Sample Results Reporting Form

Appendix A:
Location Map & Photo Index

Appendix A
Orosi Public Utility District Water System: 5410008



Appendix A
Orosi Public Utility District Water System: 5410008

Well 04: Well 04 was drilled in 1966 to a depth of 425 feet. The borehole contains a 12-inch casing that is perforated between 180 to 425 feet. The well is equipped with a 40-hp deep well turbine (DWT).

Well 05A: Well No. 05A was drilled in 1990 to a depth of 433 feet. The well is equipped with a 50-hp water lubricated DWT. The borehole contains a 12-inch casing that is perforated between 200 and 433-feet.

Well 7: Well No. 7 was drilled in 1981 to a depth of 390 feet. The well is equipped with a 60-hp water-lubricated DWT. The borehole contains a 14-inch casing that is perforated between 192 and 390 feet. The well is equipped with emergency auxiliary power generator to provide power to the well during the outage. The generator is gas powered and is exercised weekly.

Appendix A
Orosi Public Utility District Water System: 5410008

Well 8: Well No. 8 was drilled in 1996 to a depth of 473 feet. The well is equipped with a 60-hp water-lubricated DWT. The borehole contains a 14-inch diameter casing that is perforated between 190 and 473 feet.

Well 10: Well No. 10 was drilled in 2006 to a depth of 496 feet. The well is equipped with a 60-hp water-lubricated DWT. The borehole contains a 14-inch casing perforated between 251 and 496 feet.

Continuous Chlorination Treatment:
Each well site features continuous chlorination equipment which consists of a 30-gallon polyethylene solution tank, either a Stenner peristaltic chemical pump or LMI Roytronic Pump, and NSF certified 12.5% liquid sodium hypochlorite. The solution is injected neat into the system. Chlorine residuals range between 0.3 and 0.7 mg/L.

Appendix A
Orosi Public Utility District Water System: 5410008

Hydropneumatic pressure tanks: The Utility District uses 10,000-gallon hydro-pneumatic pressure tanks at each well site to regulate the operation of the well and regulate system pressure. Pressure settings are 40 psi (on) and 60 psi (off). System pressure is typically about 55 psi.

750,000 Gallon Steel Storage Tank: The Utility District uses a 750,000 gallon steel storage tank that is supplied by Well 5A. The tank calls water from the well.

Appendix B:
Last Sample Date & Monitoring Schedule

LAST AND NEXT SAMPLE REPORT

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 04-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_003_003		**OROSI PUBLIC UTILITY DISTRICT**						**WELL 04-RAW**								
	GP	**SECONDARY/GP**														
		1928	ALKALINITY, BICARBONATE		0.000	190.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1919	CALCIUM		0.000	46.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1929	ALKALINITY, CARBONATE	<	0.000	0.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1017	CHLORIDE		0.000	18.000	0.000	MG/L	500	-----	8/23/2019	3	36		2022/08	
		1905	COLOR	<	0.000	0.000	0.000	UNITS	15	-----	8/23/2019	3	36		2022/08	
		1022	COPPER, FREE	<	50.000	0.000	0.000	UG/L	1000	50	8/23/2019	3	36		2022/08	
		2905	FOAMING AGENTS (SURFACTANTS)	<	0.000	0.000	0.000	MG/L	0.5	-----	8/23/2019	3	36		2022/08	
		1915	HARDNESS, TOTAL (AS CACO3)		0.000	190.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1021	HYDROXIDE AS CALCIUM CARBONATE	<	0.000	0.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1028	IRON	<	100.000	0.000	0.000	UG/L	300	100	8/23/2019	3	36		2022/08	
		1031	MAGNESIUM		0.000	17.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1032	MANGANESE	<	20.000	0.000	0.000	UG/L	50	20	8/23/2019	3	36		2022/08	
		1920	ODOR	<	1.000	0.000	0.000	TON	3	1	8/23/2019	3	36		2022/08	
		1925	PH		0.000	8.000	0.000		------	-----	8/23/2019	3	36		2022/08	
		1050	SILVER	<	10.000	0.000	0.000	UG/L	100	10	8/23/2019	3	36		2022/08	
		1052	SODIUM		0.000	23.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM		0.000	460.000	0.000	US	1600	-----	8/23/2019	7	36		2022/08	
		1055	SULFATE		0.500	13.000	0.000	MG/L	500	0.5	8/23/2019	3	36		2022/08	
		1930	TDS		0.000	310.000	0.000	MG/L	1000	-----	8/23/2019	3	36		2022/08	
		1095	ZINC	<	50.000	0.000	0.000	UG/L	5000	50	8/23/2019	3	36		2022/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 04-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_003_003	IO	INORGANIC														
		1002	ALUMINUM	<	50.000	0.000	0.000	UG/L	1000	50	8/23/2019	3	36		2022/08	
		1074	ANTIMONY, TOTAL	<	6.000	0.000	0.000	UG/L	6	6	8/23/2019	3	36		2022/08	
		1005	ARSENIC		2.000	2.200	0.000	UG/L	10	2	8/23/2019	3	36		2022/08	
		1010	BARIUM	<	100.000	0.000	0.000	UG/L	1000	100	8/23/2019	3	36		2022/08	
		1075	BERYLLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	4	1	8/23/2019	3	36		2022/08	
		1015	CADMIUM	<	1.000	0.000	0.000	UG/L	5	1	8/23/2019	3	36		2022/08	
		1020	CHROMIUM	<	10.000	0.000	0.000	UG/L	50	10	8/23/2019	3	36		2022/08	
		1025	FLUORIDE		0.100	0.130	0.000	MG/L	2	0.1	8/23/2019	3	36		2022/08	
		1035	MERCURY	<	1.000	0.000	0.000	UG/L	2	1	8/23/2019	3	36		2022/08	
		1036	NICKEL	<	10.000	0.000	0.000	UG/L	100	10	8/23/2019	3	36		2022/08	
		1039	PERCHLORATE	<	4.000	0.000	0.000	UG/L	6	4	8/24/2018	4	36		2021/08	**DUE NOW**
		1045	SELENIUM	<	5.000	0.000	0.000	UG/L	50	5	8/23/2019	3	36		2022/08	
		1085	THALLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	2	1	8/23/2019	3	36		2022/08	
	NI	NITRATE/NITRITE														
		1040	NITRATE		0.230	5.600	0.000	mg/L	10	0.4	8/20/2021	23	3	Interval	2021/11	
		1041	NITRITE	<	0.400	0.000	0.000	mg/L	1	0.4	8/23/2019	3	36		2022/08	
	RA	RADIOLOGICAL														
		4109	GROSS ALPHA PARTICLE ACTIVITY	<	1.390	0.000	1.060	PCI/L	15	3	8/20/2021	18	108	Interval	2030/08	
	S1	REGULATED VOC														
		2981	1,1,1-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	200	0.5	8/23/2019	3	36		2022/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 04-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_003_003	S1	REGULATED VOC														
		2988	1,1,2,2-TETRACHLOROETHANE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2019	3	36		2022/08	
		2985	1,1,2-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2978	1,1-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2977	1,1-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/23/2019	3	36		2022/08	
		2378	1,2,4-TRICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2968	O-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	600	0.5	8/23/2019	3	36		2022/08	
		2980	1,2-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2983	1,2-DICHLOROPROPANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2413	1,3-DICHLOROPROPENE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2969	P-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2990	BENZENE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2019	3	36		2022/08	
		2982	CARBON TETRACHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2380	CIS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/23/2019	3	36		2022/08	
		2964	DICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2992	ETHYLBENZENE	<	0.500	0.000	0.000	UG/L	300	0.5	8/23/2019	3	36		2022/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 04-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_003_003	**S1**	2251	METHYL TERT-BUTYL ETHER	<	3.000	0.000	0.000	UG/L	13	3	8/23/2019	3	36		2022/08	
		2989	CHLOROBENZENE	<	0.500	0.000	0.000	UG/L	70	0.5	8/23/2019	3	36		2022/08	
		2996	STYRENE	<	0.500	0.000	0.000	UG/L	100	0.5	8/23/2019	3	36		2022/08	
		2987	TETRACHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2991	TOLUENE	<	0.500	0.000	0.000	UG/L	150	0.5	8/23/2019	3	36		2022/08	
		2979	TRANS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	10	0.5	8/23/2019	3	36		2022/08	
		2984	TRICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2218	TRICHLOROFLUOROMETHANE	<	5.000	0.000	0.000	UG/L	150	5	8/23/2019	3	36		2022/08	
		2904	TRICHLOROTRIFLUOROETHANE	<	10.000	0.000	0.000	UG/L	1200	10	8/23/2019	3	36		2022/08	
		2976	VINYL CHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2955	XYLENES, TOTAL	<	0.500	0.000	0.000	UG/L	1750	0.5	8/23/2019	3	36		2022/08	
	S2	**REGULATED SOC**														
		2414	1,2,3-TRICHLOROPROPANE	<	0.001	0.000	0.000	UG/L	0.005	0.005	9/17/2021	66	36		2024/09	
		2051	LASSO (ALACHLOR)	<	1.000	0.000	0.000	UG/L	2	1	8/21/2020	5	36		2023/08	
		2050	ATRAZINE	<	0.500	0.000	0.000	UG/L	1	0.5	8/21/2020	5	36		2023/08	
		2931	1,2-DIBROMO-3-CHLOROPROPANE	<	0.000	0.000	0.000	UG/L	0.2	0.01	8/21/2020	4	36		2023/08	
		2946	ETHYLENE DIBROMIDE	<	0.000	0.000	0.000	UG/L	0.05	0.02	8/21/2020	4	36		2023/08	
		2037	SIMAZINE	<	1.000	0.000	0.000	UG/L	4	1	8/21/2020	5	36		2023/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 07-STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_006_006		**OROSI PUBLIC UTILITY DISTRICT**						**WELL 07-STBY**								
	IO	**INORGANIC**														
		1002	ALUMINUM	<	50.000	0.000	0.000	UG/L	1000	50	8/26/2016	2	108		2025/08	
		1074	ANTIMONY, TOTAL	<	6.000	0.000	0.000	UG/L	6	6	8/26/2016	2	108		2025/08	
		1005	ARSENIC	<	2.000	0.000	0.000	UG/L	10	2	8/26/2016	2	108		2025/08	
		1010	BARIUM		100.000	110.000	0.000	UG/L	1000	100	8/26/2016	2	108		2025/08	
		1075	BERYLLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	4	1	8/26/2016	2	108		2025/08	
		1015	CADMIUM	<	1.000	0.000	0.000	UG/L	5	1	8/26/2016	2	108		2025/08	
		1020	CHROMIUM	<	10.000	0.000	0.000	UG/L	50	10	8/26/2016	2	108		2025/08	
		1025	FLUORIDE		0.100	0.130	0.000	MG/L	2	0.1	8/26/2016	2	108		2025/08	
		1035	MERCURY	<	1.000	0.000	0.000	UG/L	2	1	8/26/2016	2	108		2025/08	
		1036	NICKEL	<	10.000	0.000	0.000	UG/L	100	10	8/26/2016	2	108		2025/08	
		1039	PERCHLORATE	<	4.000	0.000	0.000	UG/L	6	4	8/24/2018	4	108		2027/08	
		1045	SELENIUM	<	5.000	0.000	0.000	UG/L	50	5	8/26/2016	2	108		2025/08	
		1085	THALLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	2	1	8/26/2016	2	108		2025/08	
	NI	**NITRATE/NITRITE**														
		1040	NITRATE		0.230	12.000	0.000	mg/L	10	0.4	9/17/2021	25	3	Interval	2021/12	
		1041	NITRITE	<	0.400	0.000	0.000	mg/L	1	0.4	8/26/2016	2	108		2025/08	
	RA	**RADIOLOGICAL**														
		4109	GROSS ALPHA PARTICLE ACTIVITY		3.000	3.130	0.000	PCI/L	15	3	5/20/2020	16	108		2029/05	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 07-STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_006_006	**S1**	**REGULATED VOC**														
		2981	1,1,1-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	200	0.5	8/26/2016	2	108		2025/08	
		2988	1,1,2,2-TETRACHLOROETHANE	<	0.500	0.000	0.000	UG/L	1	0.5	8/26/2016	2	108		2025/08	
		2985	1,1,2-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2978	1,1-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2977	1,1-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/26/2016	2	108		2025/08	
		2378	1,2,4-TRICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2968	O-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	600	0.5	8/26/2016	2	108		2025/08	
		2980	1,2-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/26/2016	2	108		2025/08	
		2983	1,2-DICHLOROPROPANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2413	1,3-DICHLOROPROPENE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/26/2016	2	108		2025/08	
		2969	P-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2990	BENZENE	<	0.500	0.000	0.000	UG/L	1	0.5	8/26/2016	2	108		2025/08	
		2982	CARBON TETRACHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/26/2016	2	108		2025/08	
		2380	CIS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/26/2016	2	108		2025/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 07-STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_006_006	**S1**	2964	DICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2992	ETHYLBENZENE	<	0.500	0.000	0.000	UG/L	300	0.5	8/26/2016	2	108		2025/08	
		2251	METHYL TERT-BUTYL ETHER	<	3.000	0.000	0.000	UG/L	13	3	8/26/2016	2	108		2025/08	
		2989	CHLOROBENZENE	<	0.500	0.000	0.000	UG/L	70	0.5	8/26/2016	2	108		2025/08	
		2996	STYRENE	<	0.500	0.000	0.000	UG/L	100	0.5	8/26/2016	2	108		2025/08	
		2987	TETRACHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2991	TOLUENE	<	0.500	0.000	0.000	UG/L	150	0.5	8/26/2016	2	108		2025/08	
		2979	TRANS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	10	0.5	8/26/2016	2	108		2025/08	
		2984	TRICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/26/2016	2	108		2025/08	
		2218	TRICHLOROFLUOROMETHANE	<	5.000	0.000	0.000	UG/L	150	5	8/26/2016	2	108		2025/08	
		2904	TRICHLOROTRIFLUOROETHANE	<	10.000	0.000	0.000	UG/L	1200	10	8/26/2016	2	108		2025/08	
		2976	VINYL CHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/26/2016	2	108		2025/08	
		2955	XYLENES, TOTAL	<	0.500	0.000	0.000	UG/L	1750	0.5	8/26/2016	2	108		2025/08	
	S2	**REGULATED SOC**														
		2414	1,2,3-TRICHLOROPROPANE		0.001	0.006	0.000	UG/L	0.005	0.005	9/17/2021	71	108		2030/09	
		2051	LASSO (ALACHLOR)	<	1.000	0.000	0.000	UG/L	2	1	8/23/2017	4	108		2026/08	
		2050	ATRAZINE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2017	4	108		2026/08	
		2931	1,2-DIBROMO-3-CHLOROPROPANE		0.000	0.047	0.000	UG/L	0.2	0.01	8/1/2017	3	108		2026/08	
		2946	ETHYLENE DIBROMIDE	<	0.000	0.000	0.000	UG/L	0.05	0.02	8/1/2017	3	108		2026/08	
		2037	SIMAZINE	<	1.000	0.000	0.000	UG/L	4	1	8/23/2017	4	108		2026/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 05A-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_007_007		**OROSI PUBLIC UTILITY DISTRICT**						**WELL 05A-RAW**								
	GP	**SECONDARY/GP**														
		1928	ALKALINITY, BICARBONATE		0.000	180.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1919	CALCIUM		0.000	39.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1929	ALKALINITY, CARBONATE	<	0.000	0.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1017	CHLORIDE		0.000	13.000	0.000	MG/L	500	-----	8/23/2019	3	36		2022/08	
		1905	COLOR	<	0.000	0.000	0.000	UNITS	15	-----	8/23/2019	3	36		2022/08	
		1022	COPPER, FREE	<	50.000	0.000	0.000	UG/L	1000	50	8/23/2019	3	36		2022/08	
		2905	FOAMING AGENTS (SURFACTANTS)	<	0.000	0.000	0.000	MG/L	0.5	-----	8/23/2019	3	36		2022/08	
		1915	HARDNESS, TOTAL (AS CACO3)		0.000	160.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1021	HYDROXIDE AS CALCIUM CARBONATE	<	0.000	0.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1028	IRON	<	100.000	0.000	0.000	UG/L	300	100	8/23/2019	3	36		2022/08	
		1031	MAGNESIUM		0.000	14.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1032	MANGANESE	<	20.000	0.000	0.000	UG/L	50	20	8/23/2019	3	36		2022/08	
		1920	ODOR	<	1.000	0.000	0.000	TON	3	1	8/23/2019	3	36		2022/08	
		1925	PH		0.000	8.000	0.000		------	-----	8/23/2019	3	36		2022/08	
		1050	SILVER	<	10.000	0.000	0.000	UG/L	100	10	8/23/2019	3	36		2022/08	
		1052	SODIUM		0.000	20.000	0.000	MG/L	------	-----	8/23/2019	3	36		2022/08	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM		1.000	360.000	0.000	US	1600	-----	8/20/2021	8	36		2024/08	
		1055	SULFATE		0.500	8.100	0.000	MG/L	500	0.5	8/23/2019	3	36		2022/08	
		1930	TDS		0.000	290.000	0.000	MG/L	1000	-----	8/23/2019	3	36		2022/08	
		1095	ZINC	<	50.000	0.000	0.000	UG/L	5000	50	8/23/2019	3	36		2022/08	

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System: OROSI PUBLIC UTILITY DISTRICT   COUNTY: TULARE

Sample Point: WELL 05A-RAW   CLASS: CLGA   STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_007_007	IO	**INORGANIC**														
		1002	ALUMINUM	<	50.000	0.000	0.000	UG/L	1000	50	8/23/2019	3	36		2022/08	
		1074	ANTIMONY, TOTAL	<	6.000	0.000	0.000	UG/L	6	6	8/23/2019	3	36		2022/08	
		1005	ARSENIC		2.000	3.400	0.000	UG/L	10	2	8/23/2019	3	36		2022/08	
		1010	BARIUM	<	100.000	0.000	0.000	UG/L	1000	100	8/23/2019	3	36		2022/08	
		1075	BERYLLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	4	1	8/23/2019	3	36		2022/08	
		1015	CADMIUM	<	1.000	0.000	0.000	UG/L	5	1	8/23/2019	3	36		2022/08	
		1020	CHROMIUM	<	10.000	0.000	0.000	UG/L	50	10	8/23/2019	3	36		2022/08	
		1025	FLUORIDE		0.100	0.120	0.000	MG/L	2	0.1	8/23/2019	3	36		2022/08	
		1035	MERCURY	<	1.000	0.000	0.000	UG/L	2	1	8/23/2019	3	36		2022/08	
		1036	NICKEL	<	10.000	0.000	0.000	UG/L	100	10	8/23/2019	3	36		2022/08	
		1039	PERCHLORATE	<	2.000	0.000	0.000	UG/L	6	2	8/20/2021	5	36		2024/08	
		1045	SELENIUM	<	5.000	0.000	0.000	UG/L	50	5	8/23/2019	3	36		2022/08	
		1085	THALLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	2	1	8/23/2019	3	36		2022/08	
	NI	**NITRATE/NITRITE**														
		1040	NITRATE		0.230	5.400	0.000	mg/L	10	0.4	8/20/2021	20	3	Interval	2021/11	
		1041	NITRITE	<	0.400	0.000	0.000	mg/L	1	0.4	8/23/2019	3	36		2022/08	
	RA	**RADIOLOGICAL**														
		4109	GROSS ALPHA PARTICLE ACTIVITY	<	1.200	0.000	0.847	PCI/L	15	3	8/20/2021	18	108	Interval	2030/08	
	S1	**REGULATED VOC**														
		2981	1,1,1-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	200	0.5	8/23/2019	3	36		2022/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT

COUNTY: TULARE

Sample Point: WELL 05A-RAW

CLASS: CLGA

STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_007_007	**S1**	**REGULATED VOC**														
		2988	1,1,2,2-TETRACHLOROETHANE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2019	3	36		2022/08	
		2985	1,1,2-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2978	1,1-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2977	1,1-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/23/2019	3	36		2022/08	
		2378	1,2,4-TRICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2968	O-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	600	0.5	8/23/2019	3	36		2022/08	
		2980	1,2-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2983	1,2-DICHLOROPROPANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2413	1,3-DICHLOROPROPENE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2969	P-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2990	BENZENE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2019	3	36		2022/08	
		2982	CARBON TETRACHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2380	CIS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/23/2019	3	36		2022/08	
		2964	DICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2992	ETHYLBENZENE	<	0.500	0.000	0.000	UG/L	300	0.5	8/23/2019	3	36		2022/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 05A-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_007_007	**S1**	2251	METHYL TERT-BUTYL ETHER	<	3.000	0.000	0.000	UG/L	13	3	8/23/2019	3	36		2022/08	
		2989	CHLOROBENZENE	<	0.500	0.000	0.000	UG/L	70	0.5	8/23/2019	3	36		2022/08	
		2996	STYRENE	<	0.500	0.000	0.000	UG/L	100	0.5	8/23/2019	3	36		2022/08	
		2987	TETRACHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2991	TOLUENE	<	0.500	0.000	0.000	UG/L	150	0.5	8/23/2019	3	36		2022/08	
		2979	TRANS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	10	0.5	8/23/2019	3	36		2022/08	
		2984	TRICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2218	TRICHLOROFLUOROMETHANE	<	5.000	0.000	0.000	UG/L	150	5	8/23/2019	3	36		2022/08	
		2904	TRICHLOROTRIFLUOROETHANE	<	10.000	0.000	0.000	UG/L	1200	10	8/23/2019	3	36		2022/08	
		2976	VINYL CHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2955	XYLENES, TOTAL	<	0.500	0.000	0.000	UG/L	1750	0.5	8/23/2019	3	36		2022/08	
	S2	**REGULATED SOC**														
		2414	1,2,3-TRICHLOROPROPANE	<	0.001	0.000	0.000	UG/L	0.005	0.005	9/17/2021	63	36		2024/09	
		2051	LASSO (ALACHLOR)	<	1.000	0.000	0.000	UG/L	2	1	8/21/2020	4	36		2023/08	
		2050	ATRAZINE	<	0.500	0.000	0.000	UG/L	1	0.5	8/21/2020	4	36		2023/08	
		2931	1,2-DIBROMO-3-CHLOROPROPANE	<	0.000	0.000	0.000	UG/L	0.2	0.01	8/21/2020	4	36		2023/08	
		2946	ETHYLENE DIBROMIDE	<	0.000	0.000	0.000	UG/L	0.05	0.02	8/21/2020	4	36		2023/08	
		2037	SIMAZINE	<	1.000	0.000	0.000	UG/L	4	1	8/21/2020	4	36		2023/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 08-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_008_008		OROSI PUBLIC UTILITY DISTRICT						WELL 08-RAW								
	GP	SECONDARY/GP														
		1928	ALKALINITY, BICARBONATE		3.000	140.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1919	CALCIUM		0.100	38.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1929	ALKALINITY, CARBONATE	<	3.000	0.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1017	CHLORIDE		1.000	19.000	0.000	MG/L	500	-----	8/20/2021	4	36		2024/08	
		1905	COLOR	<	5.000	0.000	0.000	UNITS	15	-----	8/20/2021	4	36		2024/08	
		1022	COPPER, FREE	<	5.000	0.000	0.000	UG/L	1000	50	8/20/2021	4	36		2024/08	
		2905	FOAMING AGENTS (SURFACTANTS)	<	0.050	0.000	0.000	MG/L	0.5	-----	8/20/2021	4	36		2024/08	
		1915	HARDNESS, TOTAL (AS CACO3)		0.410	150.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1021	HYDROXIDE AS CALCIUM CARBONATE	<	3.000	0.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1028	IRON	<	30.000	0.000	0.000	UG/L	300	100	8/20/2021	4	36		2024/08	
		1031	MAGNESIUM		0.100	13.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1032	MANGANESE	<	10.000	0.000	0.000	UG/L	50	20	8/20/2021	4	36		2024/08	
		1920	ODOR	<	1.000	0.000	0.000	TON	3	1	8/20/2021	4	36		2024/08	
		1925	PH		0.000	8.000	0.000		------	-----	8/20/2021	4	36		2024/08	
		1050	SILVER	<	10.000	0.000	0.000	UG/L	100	10	8/20/2021	4	36		2024/08	
		1052	SODIUM		1.000	20.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM		1.000	380.000	0.000	US	1600	-----	8/20/2021	5	36		2024/08	
		1055	SULFATE		1.000	10.000	0.000	MG/L	500	0.5	8/20/2021	4	36		2024/08	
		1930	TDS		5.000	280.000	0.000	MG/L	1000	-----	8/20/2021	4	36		2024/08	
		1095	ZINC	<	50.000	0.000	0.000	UG/L	5000	50	8/20/2021	4	36		2024/08	

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System: OROSI PUBLIC UTILITY DISTRICT   COUNTY: TULARE

Sample Point: WELL 08-RAW   CLASS: CLGA   STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_008_008	IO	**INORGANIC**														
		1002	ALUMINUM	<	50.000	0.000	0.000	UG/L	1000	50	8/20/2021	4	36		2024/08	
		1074	ANTIMONY, TOTAL	<	2.000	0.000	0.000	UG/L	6	6	8/20/2021	4	36		2024/08	
		1005	ARSENIC		2.000	2.800	0.000	UG/L	10	2	8/20/2021	4	36		2024/08	
		1010	BARIUM		50.000	66.000	0.000	UG/L	1000	100	8/20/2021	4	36		2024/08	
		1075	BERYLLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	4	1	8/20/2021	4	36		2024/08	
		1015	CADMIUM	<	1.000	0.000	0.000	UG/L	5	1	8/20/2021	4	36		2024/08	
		1020	CHROMIUM	<	10.000	0.000	0.000	UG/L	50	10	8/20/2021	4	36		2024/08	
		1025	FLUORIDE		0.100	0.160	0.000	MG/L	2	0.1	8/20/2021	4	36		2024/08	
		1035	MERCURY	<	0.200	0.000	0.000	UG/L	2	1	8/20/2021	4	36		2024/08	
		1036	NICKEL	<	10.000	0.000	0.000	UG/L	100	10	8/20/2021	4	36		2024/08	
		1039	PERCHLORATE	<	2.000	0.000	0.000	UG/L	6	2	8/20/2021	5	36		2024/08	
		1045	SELENIUM	<	2.000	0.000	0.000	UG/L	50	5	8/20/2021	4	36		2024/08	
		1085	THALLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	2	1	8/20/2021	4	36		2024/08	
	NI	**NITRATE/NITRITE**														
		1040	NITRATE		0.230	4.700	0.000	mg/L	10	0.4	8/20/2021	25	12		2022/08	
		1041	NITRITE	<	0.050	0.000	0.000	mg/L	1	0.4	8/20/2021	4	36		2024/08	
	RA	**RADIOLOGICAL**														
		4109	GROSS ALPHA PARTICLE ACTIVITY		3.000	-0.440	0.000	PCI/L	15	3	5/20/2020	9	108	Interval	2029/05	
	S1	**REGULATED VOC**														
		2981	1,1,1-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	200	0.5	8/23/2019	3	36		2022/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 08-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_008_008	**S1**	**REGULATED VOC**														
		2988	1,1,2,2-TETRACHLOROETHANE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2019	3	36		2022/08	
		2985	1,1,2-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2978	1,1-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2977	1,1-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/23/2019	3	36		2022/08	
		2378	1,2,4-TRICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2968	O-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	600	0.5	8/23/2019	3	36		2022/08	
		2980	1,2-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2983	1,2-DICHLOROPROPANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2413	1,3-DICHLOROPROPENE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2969	P-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2990	BENZENE	<	0.500	0.000	0.000	UG/L	1	0.5	8/23/2019	3	36		2022/08	
		2982	CARBON TETRACHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2380	CIS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/23/2019	3	36		2022/08	
		2964	DICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2992	ETHYLBENZENE	<	0.500	0.000	0.000	UG/L	300	0.5	8/23/2019	3	36		2022/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 08-RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_008_008	S1	2251	METHYL TERT-BUTYL ETHER	<	3.000	0.000	0.000	UG/L	13	3	8/23/2019	3	36		2022/08	
		2989	CHLOROBENZENE	<	0.500	0.000	0.000	UG/L	70	0.5	8/23/2019	3	36		2022/08	
		2996	STYRENE	<	0.500	0.000	0.000	UG/L	100	0.5	8/23/2019	3	36		2022/08	
		2987	TETRACHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2991	TOLUENE	<	0.500	0.000	0.000	UG/L	150	0.5	8/23/2019	3	36		2022/08	
		2979	TRANS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	10	0.5	8/23/2019	3	36		2022/08	
		2984	TRICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/23/2019	3	36		2022/08	
		2218	TRICHLOROFLUOROMETHANE	<	5.000	0.000	0.000	UG/L	150	5	8/23/2019	3	36		2022/08	
		2904	TRICHLOROTRIFLUOROETHANE	<	10.000	0.000	0.000	UG/L	1200	10	8/23/2019	3	36		2022/08	
		2976	VINYL CHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/23/2019	3	36		2022/08	
		2955	XYLENES, TOTAL	<	0.500	0.000	0.000	UG/L	1750	0.5	8/23/2019	3	36		2022/08	
	S2	**REGULATED SOC**														
		2414	1,2,3-TRICHLOROPROPANE	<	0.001	0.000	0.000	UG/L	0.005	0.005	9/17/2021	68	36		2024/09	
		2051	LASSO (ALACHLOR)	<	1.000	0.000	0.000	UG/L	2	1	8/21/2020	5	36		2023/08	
		2050	ATRAZINE	<	0.500	0.000	0.000	UG/L	1	0.5	8/21/2020	5	36		2023/08	
		2931	1,2-DIBROMO-3-CHLOROPROPANE		0.000	0.018	0.000	UG/L	0.2	0.01	8/21/2020	4	36		2023/08	
		2946	ETHYLENE DIBROMIDE	<	0.000	0.000	0.000	UG/L	0.05	0.02	8/21/2020	4	36		2023/08	
		2037	SIMAZINE	<	1.000	0.000	0.000	UG/L	4	1	8/21/2020	5	36		2023/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 10 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_014_014		**OROSI PUBLIC UTILITY DISTRICT**						**WELL 10 - RAW**								
	GP	**SECONDARY/GP**														
		1928	ALKALINITY, BICARBONATE		3.000	120.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1919	CALCIUM		0.100	28.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1929	ALKALINITY, CARBONATE	<	3.000	0.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1017	CHLORIDE		1.000	14.000	0.000	MG/L	500	-----	8/20/2021	4	36		2024/08	
		1905	COLOR	<	5.000	0.000	0.000	UNITS	15	-----	8/20/2021	4	36		2024/08	
		1022	COPPER, FREE	<	5.000	0.000	0.000	UG/L	1000	50	8/20/2021	4	36		2024/08	
		2905	FOAMING AGENTS (SURFACTANTS)	<	0.050	0.000	0.000	MG/L	0.5	-----	8/20/2021	4	36		2024/08	
		1915	HARDNESS, TOTAL (AS CACO3)		0.410	120.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1021	HYDROXIDE AS CALCIUM CARBONATE	<	3.000	0.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1028	IRON		30.000	42.000	0.000	UG/L	300	100	8/20/2021	4	36		2024/08	
		1031	MAGNESIUM		0.100	12.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1032	MANGANESE	<	10.000	0.000	0.000	UG/L	50	20	8/20/2021	4	36		2024/08	
		1920	ODOR	<	1.000	0.000	0.000	TON	3	1	8/20/2021	4	36		2024/08	
		1925	PH		0.000	7.900	0.000		------	-----	8/20/2021	4	36		2024/08	
		1050	SILVER	<	10.000	0.000	0.000	UG/L	100	10	8/20/2021	4	36		2024/08	
		1052	SODIUM		1.000	17.000	0.000	MG/L	------	-----	8/20/2021	4	36		2024/08	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM		1.000	310.000	0.000	US	1600	-----	8/20/2021	6	36		2024/08	
		1055	SULFATE		1.000	2.800	0.000	MG/L	500	0.5	8/20/2021	4	36		2024/08	
		1930	TDS		5.000	240.000	0.000	MG/L	1000	-----	8/20/2021	4	36		2024/08	
		1095	ZINC	<	50.000	0.000	0.000	UG/L	5000	50	8/20/2021	4	36		2024/08	

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System: OROSI PUBLIC UTILITY DISTRICT

COUNTY: TULARE

Sample Point: WELL 10 - RAW

CLASS: CLGA

STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_014_014	IO	INORGANIC														
		1002	ALUMINUM	<	50.000	0.000	0.000	UG/L	1000	50	8/20/2021	4	36		2024/08	
		1074	ANTIMONY, TOTAL	<	2.000	0.000	0.000	UG/L	6	6	8/20/2021	4	36		2024/08	
		1005	ARSENIC		2.000	2.600	0.000	UG/L	10	2	8/20/2021	4	36		2024/08	
		1010	BARIUM		50.000	57.000	0.000	UG/L	1000	100	8/20/2021	4	36		2024/08	
		1075	BERYLLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	4	1	8/20/2021	4	36		2024/08	
		1015	CADMIUM	<	1.000	0.000	0.000	UG/L	5	1	8/20/2021	4	36		2024/08	
		1020	CHROMIUM	<	10.000	0.000	0.000	UG/L	50	10	8/20/2021	4	36		2024/08	
		1025	FLUORIDE		0.100	0.160	0.000	MG/L	2	0.1	8/20/2021	4	36		2024/08	
		1035	MERCURY	<	0.200	0.000	0.000	UG/L	2	1	8/20/2021	4	36		2024/08	
		1036	NICKEL	<	10.000	0.000	0.000	UG/L	100	10	8/20/2021	4	36		2024/08	
		1039	PERCHLORATE	<	2.000	0.000	0.000	UG/L	6	2	8/20/2021	5	36		2024/08	
		1045	SELENIUM	<	2.000	0.000	0.000	UG/L	50	5	8/20/2021	4	36		2024/08	
		1085	THALLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	2	1	8/20/2021	4	36		2024/08	
	NI	NITRATE/NITRITE														
		1040	NITRATE		0.230	2.800	0.000	mg/L	10	0.4	8/20/2021	21	12		2022/08	
		1041	NITRITE	<	0.050	0.000	0.000	mg/L	1	0.4	8/20/2021	4	36		2024/08	
	RA	RADIOLOGICAL														
		4109	GROSS ALPHA PARTICLE ACTIVITY	<	1.430	0.000	0.977	PCI/L	15	3	8/20/2021	5	108	Interval	2030/08	
	S1	REGULATED VOC														
		2981	1,1,1-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	200	0.5	8/20/2021	5	36		2024/08	

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System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 10 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_014_014	**S1**	**REGULATED VOC**														
		2988	1,1,2,2-TETRACHLOROETHANE	<	0.500	0.000	0.000	UG/L	1	0.5	8/20/2021	5	36		2024/08	
		2985	1,1,2-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2978	1,1-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2977	1,1-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/20/2021	5	36		2024/08	
		2378	1,2,4-TRICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2968	O-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	600	0.5	8/20/2021	5	36		2024/08	
		2980	1,2-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/20/2021	5	36		2024/08	
		2983	1,2-DICHLOROPROPANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2413	1,3-DICHLOROPROPENE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/20/2021	5	36		2024/08	
		2969	P-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2990	BENZENE	<	0.500	0.000	0.000	UG/L	1	0.5	8/20/2021	5	36		2024/08	
		2982	CARBON TETRACHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/20/2021	5	36		2024/08	
		2380	CIS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	8/20/2021	5	36		2024/08	
		2964	DICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2992	ETHYLBENZENE	<	0.500	0.000	0.000	UG/L	300	0.5	8/20/2021	5	36		2024/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: WELL 10 - RAW CLASS: CLGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_014_014	**S1**	2251	METHYL TERT-BUTYL ETHER	<	0.500	0.000	0.000	UG/L	13	3	8/20/2021	6	36		2024/08	
		2989	CHLOROBENZENE	<	0.500	0.000	0.000	UG/L	70	0.5	8/20/2021	5	36		2024/08	
		2996	STYRENE	<	0.500	0.000	0.000	UG/L	100	0.5	8/20/2021	5	36		2024/08	
		2987	TETRACHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2991	TOLUENE	<	0.500	0.000	0.000	UG/L	150	0.5	8/20/2021	5	36		2024/08	
		2979	TRANS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	10	0.5	8/20/2021	5	36		2024/08	
		2984	TRICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	8/20/2021	5	36		2024/08	
		2218	TRICHLOROFLUOROMETHANE	<	5.000	0.000	0.000	UG/L	150	5	8/20/2021	5	36		2024/08	
		2904	TRICHLOROTRIFLUOROETHANE	<	10.000	0.000	0.000	UG/L	1200	10	8/20/2021	5	36		2024/08	
		2976	VINYL CHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	8/20/2021	5	36		2024/08	
		2955	XYLENES, TOTAL	<	0.500	0.000	0.000	UG/L	1750	0.5	8/20/2021	5	36		2024/08	
	S2	**REGULATED SOC**														
		2414	1,2,3-TRICHLOROPROPANE	<	0.001	0.000	0.000	UG/L	0.005	0.005	9/17/2021	68	36		2024/09	
		2051	LASSO (ALACHLOR)	<	1.000	0.000	0.000	UG/L	2	1	8/21/2020	7	36		2023/08	
		2050	ATRAZINE	<	0.500	0.000	0.000	UG/L	1	0.5	8/21/2020	7	36		2023/08	
		2931	1,2-DIBROMO-3-CHLOROPROPANE	<	0.010	0.000	0.000	UG/L	0.2	0.01	8/20/2021	6	36		2024/08	
		2946	ETHYLENE DIBROMIDE	<	0.020	0.000	0.000	UG/L	0.05	0.02	8/20/2021	6	36		2024/08	
		2037	SIMAZINE	<	1.000	0.000	0.000	UG/L	4	1	8/21/2020	7	36		2023/08	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: OROSI PUBLIC UTILITY DISTRICT COUNTY: TULARE

Sample Point: ST2S1-12910 WALNUT AVE CLASS: DBPA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5410008_ DST_900		**OROSI PUBLIC UTILITY DISTRICT**						**ST2S1-12910 WALNUT AVE**								
	DBP	**DISINFECTION BYPRODUCTS**														
		2943	BROMODICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2942	BROMOFORM		0.500	0.780	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2941	CHLOROFORM	<	0.500	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2454	DIBROMOACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2944	DIBROMOCHLOROMETHANE	<	0.500	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2451	DICHLOROACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2456	TOTAL HALOACETIC ACIDS (HAA5)	<	2.000	0.000	0.000	UG/L	60	-----	8/11/2021	8	12		2022/08	
		2453	MONOBROMOACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	
		2450	MONOCHLOROACETIC ACID	<	2.000	0.000	0.000	UG/L	------	2	8/11/2021	8	12		2022/08	
		2950	TTHM		0.500	0.780	0.000	UG/L	80	-----	8/11/2021	8	12		2022/08	
		2452	TRICHLOROACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	8/11/2021	8	12		2022/08	

Appendix C:
Source Water and Distribution System Bacteriological Monitoring Reports

Bacteriological Distribution Monitoring Report

5410008 Orosi Public Utility District

Distribution System Freq: 3/W

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
9/28/2021	12924 Risley Ave	A	A			Routine	0.47				
9/28/2021	12490 Ella Ave	A	A			Routine	0.84				
9/28/2021	12494 Albert Ave	A	A			Routine	0.72				
9/21/2021	12555 Ave 417	A	A			Routine	0.58				
9/21/2021	12461 Barton Ave	A	A			Routine	0.69				
9/21/2021	12910 Walnut Ave	A	A			Routine	0.75				
9/14/2021	12924 Risely Ave	A	A				0.47				
9/14/2021	12490 Ella Ave	A	A				0.51				
9/14/2021	12494 Albert Ave	A	A				0.67				
9/7/2021	12555 Ave 417	A	A				0.76				
9/7/2021	12461 Barton Ave	A	A				0.62				
9/7/2021	12910 Walnut Ave	A	A				0.71				
8/31/2021	12924 Risley Ave	A	A			Routine	0.59				
8/31/2021	12490 Ella Ave	A	A			Routine	0.77				
8/31/2021	12494 Albert Ave	A	A			Routine	0.78				
8/24/2021	12555 Ave 417	A	A			Routine	0.69				
8/24/2021	12461 Barton Ave	A	A			Routine	0.36				
8/24/2021	12910 Walnut Ave	A	A			Routine	0.63				
8/17/2021	12924 Risley Ave	A	A			Routine	0.63				
8/17/2021	Tank Well #5	A	A			Routine	0.85				
8/17/2021	12490 Ella Ave	A	A			Routine	0.91				
8/17/2021	12494 Albert Ave	A	A			Routine	0.97				
8/12/2021	12461 Barton Ave	A	A			Repeat	0.39				
8/12/2021	12438 Barton Ave	A	A			Other	0.4				
8/12/2021	12487 Barton Ave	A	A			Other	0.34				
8/12/2021	Well #5	A	A			Other				Yes	
8/12/2021	Well #8	A	A			Other				Yes	
8/12/2021	Well #10	A	A			Other				Yes	
8/12/2021	Well #4	A	A			Other				Yes	
8/10/2021	12555 Ave 417	A	A			Routine	0.58				
8/10/2021	12461 Barton Ave	A	P			Routine	0.41				
8/10/2021	12910 Walnut Ave	A	A			Routine	0.71				
8/3/2021	12924 Risley Ave.	A	A			Routine	0.72				
8/3/2021	12490 Ella Ave.	A	A			Routine	0.79				
8/3/2021	12494 Albert Ave.	A	A			Routine	0.92				
7/27/2021	12555 Ave 417	A	A			Routine	0.84				
7/27/2021	12461 Barton Ave	A	A			Routine	0.32				
7/27/2021	12910 Walnut Ave	A	A			Routine	0.42				
7/20/2021	3 samples	A	A			Routine	0.48-0.56				
7/13/2021	3 samples	A	A			Routine	0.44-0.61				
7/6/2021	3 samples	A	A			Routine	0.61-0.80				
6/29/2021	3 samples	A	A			Routine	0.21-0.88				
6/22/2021	3 samples	A	A			Routine	0.77-0.87				
6/15/2021	3 samples	A	A			Routine	0.59-0.60				
6/8/2021	3 samples	A	A			Routine	0.62-0.70				
6/1/2021	3 samples	A	A			Routine	0.72-0.76				
5/25/2021	3 samples	A	A			Other					
5/25/2021	3 samples	A	A			Routine					
5/18/2021	3 samples	A	A			Other					
5/18/2021	3 samples	A	A			Routine					

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
5/11/2021	3 samples	A	A			Routine					
5/11/2021	Tank Well 5	A	A			Other	0.69				
5/4/2021	3 samples	A	A			Routine					
4/27/2021	3 samples	A	A			Routine					
4/20/2021	3 samples	A	A			Routine					
4/14/2021	Fire Hydrant Walnut St	A	A			Other	0.54				
4/14/2021	Fire Hydrant Maple St	A	A			Other	0.66				
4/14/2021	Fire Hydrant Ave 413	A	A			Other	0.65				
4/13/2021	3 samples	A	A			Routine					
4/13/2021	Fire Hydrant Walnut St	A	A			Other	0.68				
4/13/2021	Fire Hydrant Maple St	A	A			Other	0.56				
4/13/2021	Fire Hydrant Ave 413	A	A			Other	0.53				
4/6/2021	3 samples	A	A			Routine					
3/30/2021	3 samples	A	A			Routine					
3/23/2021	3 samples	A	A			Routine					
3/16/2021	3 samples	A	A			Routine					
3/9/2021	3 samples	A	A			Routine					
3/2/2021	3 samples	A	A			Routine	0.68-0.79				
2/23/2021	3 samples	A	A			Routine					
2/16/2021	3 samples	A	A			Routine					
2/9/2021	3 samples	A	A			Routine					
2/2/2021	3 samples	A	A			Routine					
2/2/2021	3 samples	A	A			Routine					
1/26/2021	3 samples	A	A			Routine					
1/19/2021	3 samples	A	A			Routine					
1/12/2021	3 samples	A	A			Routine	0.51-0.72				
1/5/2021	3 samples	A	A			Routine	0.72-0.83				
12/29/2020	3 samples	A	A			Routine	0.40-0.94				
12/22/2020	3 samples	A	A			Routine					
12/15/2020	3 samples	A	A			Routine					
12/8/2020	3 samples	A	A			Routine					
12/1/2020	3 samples	A	A			Routine					
11/24/2020	3 Samples	A	A			Routine	0.54-0.91				
11/17/2020	3 samples	A	A			Routine	0.38-0.69				
11/10/2020	3 samples	A	A			Routine					
11/3/2020	3 samples	A	A			Routine					
10/27/2020	2 samples	A	A			Routine					
10/27/2020	3 samples	A	A			Routine					
10/20/2020	3 samples	A	A			Routine					
10/13/2020	3 samples	A	A			Routine	0.56-0.76				
10/13/2020	Tank @ Well 5	A	A			Other	0.73				
10/6/2020	3 samples	A	A			Routine	0.27-0.74				
9/29/2020	3 samples	A	A			Routine	0.67-0.99				
9/22/2020	3 samples	A	A			Routine	0.12-0.50				
9/15/2020	3 samples	A	A			Routine	0.8-0.85				
9/8/2020	3 samples	A	A			Routine	0.52-0.61				
9/1/2020	3 samples	A	A			Routine					
8/25/2020	3 samples	A	A			Routine					
8/18/2020	3 samples	A	A			Routine					
8/11/2020	3 samples	A	A			Routine					

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
8/11/2020	Tank @ Well 5	A	A			Other	0.73				
8/4/2020	3 samples	A	A			Routine					
7/28/2020	3 samples	A	A			Routine					
7/21/2020	3 samples	A	A			Routine					
7/16/2020	Wells: 4,5,8,10	A	A			Source Repeat				Y	GWR satisfied
7/16/2020	12555 Ave 417	A	A			Repeat	0.41				
7/16/2020	12526 Ave 417	A	A			Repeat	0.42				
7/16/2020	12589 Ave 417	A	A			Repeat	0.45				
7/14/2020	2 samples	A	A			Routine	0.42-0.51				
7/14/2020	12555 Ave 417	P	A			Routine	0.48				
7/7/2020	3 samples	A	A			Routine	0.64-0.86				
6/30/2020	3 samples	A	A			Routine					
6/23/2020	3 samples	A	A			Routine					
6/16/2020	3 samples	A	A			Routine	0.66-0.73				
6/9/2020	3 samples	A	A			Routine	0.39-0.51				
6/2/2020	3 samples	A	A			Routine					
5/26/2020	3 samples	A	A			Routine	0.62-0.67				
5/26/2020	3 samples	A	A			Other	0.36-0.73				
5/19/2020	3 samples	A	A			Other	0.47-0.56				
5/19/2020	3 samples	A	A			Routine	0.39-0.59				
5/12/2020	Tank Well 5	A	A			Other	0.48				
5/8/2020	North Bldg HB	A	A			Other					sample collected by Cutler-Orosi School District for Sports Complex
5/1/2020	6 samples	A	A			Routine	0.28-0.65				
4/23/2020	Baseball Concessions HB	A	A			Other					
4/23/2020	East Bldg HB	A	A			Other					
4/23/2020	Noth Bldg HB	P	A			Other					
4/14/2020	Concessions SW Bldg	P	A			Other					samples from Cutler-Orosi School District for new Sports Park.
4/14/2020	Mens Sink	P	A			Other					sample collected by Cutler Orosi Schoold District for new Sports Park.
4/1/2020	12 samples	A	A			Routine	0.36-0.76				
3/18/2020	Tank Well 5	A	A			Other	0.38				
3/18/2020	8" fire line	A	A			Other	0.49				
3/18/2020	4" domestic	A	A			Other	0.64				
3/17/2020	Tank Well 5	A	A			Other	0.45				
3/17/2020	8" fire line	A	A			Other	0.45				
3/17/2020	4" domestic	A	A			Other	0.39				
3/1/2020	15 samples	A	A			Routine	0.10-0.74				
2/1/2020	12 samples	A	A			Routine	0.19-0.6				
1/14/2020	Tank Well 5	A	A			Other	0.10				
1/1/2020	12 samples	A	A			Routine	0.31-0.67				
12/1/2019	15 samples	A	A			Routine	0.37-0.67				
11/1/2019	12 samples	A	A			Routine	0.29-0.70				
10/8/2019	Tank @ Well 5	A	A			Other	0.73				
10/1/2019	15 samples	A	A			Routine	0.24-0.91				
9/3/2019	12 samples	A	A			Routine	0.2-0.89				
8/1/2019	12 samples	A	A			Routine	0.22-0.85				
7/1/2019	15 samples	A	A			Routine	0.46-0.80				
6/1/2019	12 samples	A	A			Routine	0.30-0.85				
5/28/2019	3 samples	A	A			Other	0.58-0.76				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
5/21/2019	3 samples	A	A			Other	0.5-0.96				
5/14/2019	Tank Well 5	A	A			Other	0.69				
5/1/2019	12 samples	A	A			Routine	0.56-0.86				
4/1/2019	15 Samples	A	A			Routine	0.21-0.89				
3/1/2019	12 samples	A	A			Routine	0.22-0.74				
2/1/2019	12 samples	A	A			Routine	0.4-0.63				
1/1/2019	15 Samples	A	A			Routine	0.3-0.84				
12/1/2018	12 Samples	A	A			Routine	0.22-0.80				
11/1/2018	12 Samples	A	A			Routine	0.17-0.89				
10/9/2018	Tank Well 5	A	A			Other	0.47				
10/1/2018	15 Samples	A	A			Routine	0.15-0.78				
9/1/2018	12 Samples	A	A			Routine	0.11-0.90				
8/14/2018	Tank @ Well 5	A	A			Other	0.45				
8/1/2018	12 Samples	A	A			Routine	0.24-0.88				
7/1/2018	15 Samples	A	A			Routine	0.21-0.72				
6/1/2018	12 Samples	A	A			Routine	0.34-0.98				
5/22/2018	3 Samples	A	A			Other	0.58-0.69				
5/15/2018	3 Samples	A	A			Other	0.48-0.69				
5/1/2018	15 Samples	A	A			Routine	0.31-0.95				
4/1/2018	12 Samples	A	A			Routine	0.32-0.88				
3/1/2018	12 Samples	A	A			Routine	0.11-0.93				
2/1/2018	12 Samples	A	A			Routine	0.66-0.86				
1/1/2018	15 Samples	A	A			Routine	0.33-0.89				

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

5410008 Orosi Public Utility District

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
9/7/2021	8:52	Well #5	Well	P/A	A	A				
9/7/2021	9:00	Well #8	Well	P/A	A	A				
9/7/2021	9:23	Well #10	Well	P/A	A	A				
9/7/2021	9:35	Well #4	Well	P/A	A	A				
9/7/2021	9:45	Well #7	Well	P/A	A	A				
8/3/2021	8:33	Well #4	Well	P/A	A	A				
8/3/2021	8:44	Well #5	Well	P/A	A	A				
8/3/2021	9:15	Well #10	Well	P/A	A	A				
8/3/2021	9:29	Well #8	Well	P/A	A	A				
8/3/2021	9:40	Well #7	Well	P/A	A	A				
7/6/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
6/1/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
5/12/2021	9:11	Well 7	Well	P/A	A	A				
5/11/2021	11:13	Well 7	Well	P/A	A	A				
5/4/2021		Wells: 4,5,8,10	Well	P/A	A	A				
5/4/2021	9:37	Well 7	Well	P/A	P	A				
4/6/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
3/2/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
2/2/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
2/2/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
1/5/2021		Wells: 4,5,7,8,10	Well	P/A	A	A				
12/1/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				
11/3/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				
10/6/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				
9/1/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				
8/13/2020	8:47	Well 4	Well	P/A	A	A				
8/12/2020	8:38	Well 4	Well	P/A	A	A				
8/4/2020	9:25	Well 4	Well	P/A	P	A				
7/16/2020		Well 7	Well	P/A	A	A				
7/16/2020		Wells: 4,5,8,10	GWR Well	P/A	A	A				
7/15/2020	9:18	Well 7	Well	P/A	A	A				
7/7/2020		Wells: 4,5,8,10	Well	P/A	A	A				
6/10/2020	8:53	Well 7	Well	P/A	A	A				
6/9/2020	8:55	Well 7	Well	P/A	A	A				
6/2/2020		Wells: 4,5,8,10	Well	P/A	A	A				
6/2/2020	9:40	Well 7	Well	P/A	P	A				
5/5/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				
4/7/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				
3/9/2020	9:26	Well 5	Well	P/A	A	A				
3/4/2020	9:00	Well 5	Well	P/A	P	A				
3/3/2020		Wells: 4,5,7,8,10	Well	P/A	A	A				

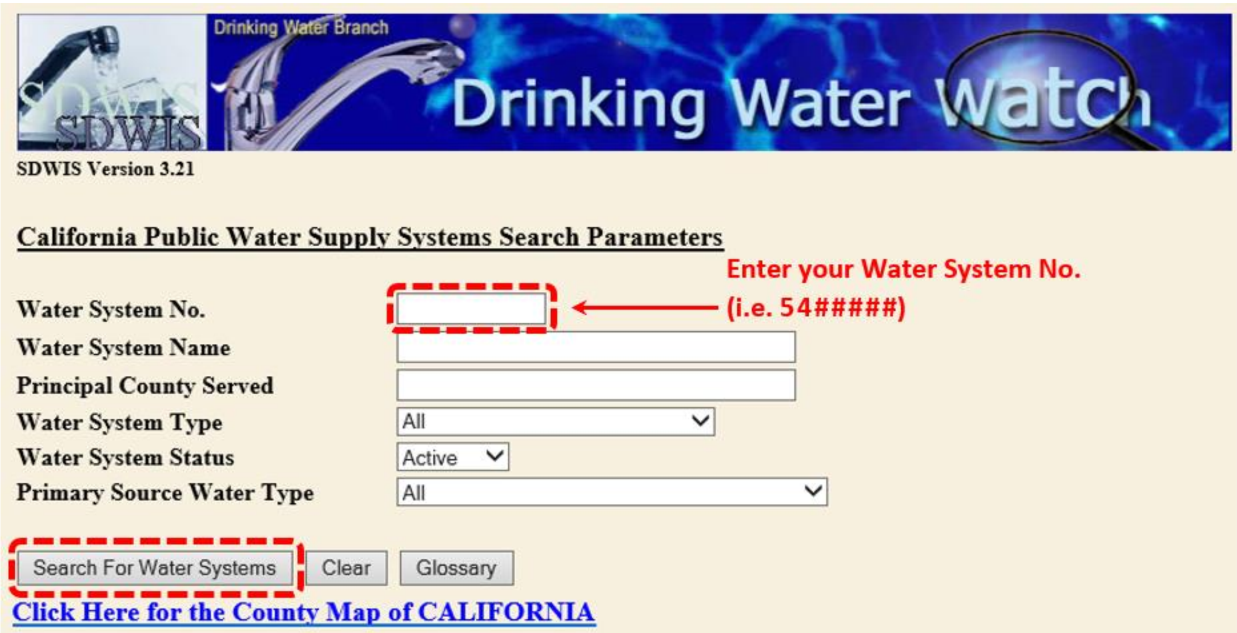
Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
2/4/2020		Wells: 4,7,8,10	Well	P/A	A	A				
1/7/2020		Wells: 4,7,8,10	Well	P/A	A	A				
12/3/2019	9:30	Well 7, 8, 10	Well	P/A	A	A				
11/15/2019	8:52	Well 7	Well	P/A	A	A				*Cl2=0.46*
11/14/2019	9:01	Well 7	Well	P/A	A	A				*Cl2=0.57*
11/5/2019		Wells: 4,8,10	Well	P/A	A	A				
11/5/2019	9:23	Well 7	Well	P/A	P	A				
10/1/2019		Wells: 4,5,7,8,10	Well	P/A	A	A				
9/3/2019		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
8/6/2019		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
7/30/2019	9:24	Well #4	Well	P/A	A	A				
7/29/2019	10:03	Well 4	Well	P/A	A	A				
7/10/2019	9:02	Well #7	Well	P/A	A	A				*Cl2 = 0.21*
7/9/2019	9:18	Well #7	Well	P/A	A	A				
7/2/2019		Wells: 4,5, 8, 10	Well	P/A	A	A				
7/2/2019	9:38	Well #7	Well	P/A	P	A				
6/4/2019		Wells: 4,5,7,8,10	Well	P/A	A	A				
5/7/2019		Wells: 4,5,7,8,10	Well	P/A	A	A				
4/2/2019		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
3/5/2019		Wells: 4,5,7,8,10	Well	P/A	A	A				
2/5/2019		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
1/8/2019	8:54	Tank Well #5	Well	P/A	A	A				
1/2/2019		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				*Repeat*
12/4/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
11/6/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
10/2/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
9/4/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
8/7/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
7/12/2018	8:36	Well 4	Well	P/A	A	A				
7/11/2018	8:48	Well 4	Well	P/A	A	A				*Cl2=0.47*
7/3/2018		Wells: 5, 7, 8, 10	Well	P/A	A	A				
6/7/2018		Wells: 5, 7, 8, 10	Well	P/A	A	A				*Well 4: No sample due to repairs*
5/8/2018	9:05	Tank Well #5	Other	P/A	A	A				
5/1/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
4/3/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
3/13/2018	9:15	Tank Well #5	Well	P/A	A	A				
3/12/2018	8:45	Tank Well #5	Well	P/A	A	A				
3/6/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
2/6/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				
1/9/2018	8:32	Tank Well #5	Other	P/A	A	A				*Cl2=0.64*
1/2/2018		Wells: 4, 5, 7, 8, 10	Well	P/A	A	A				

Appendix D:
Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data

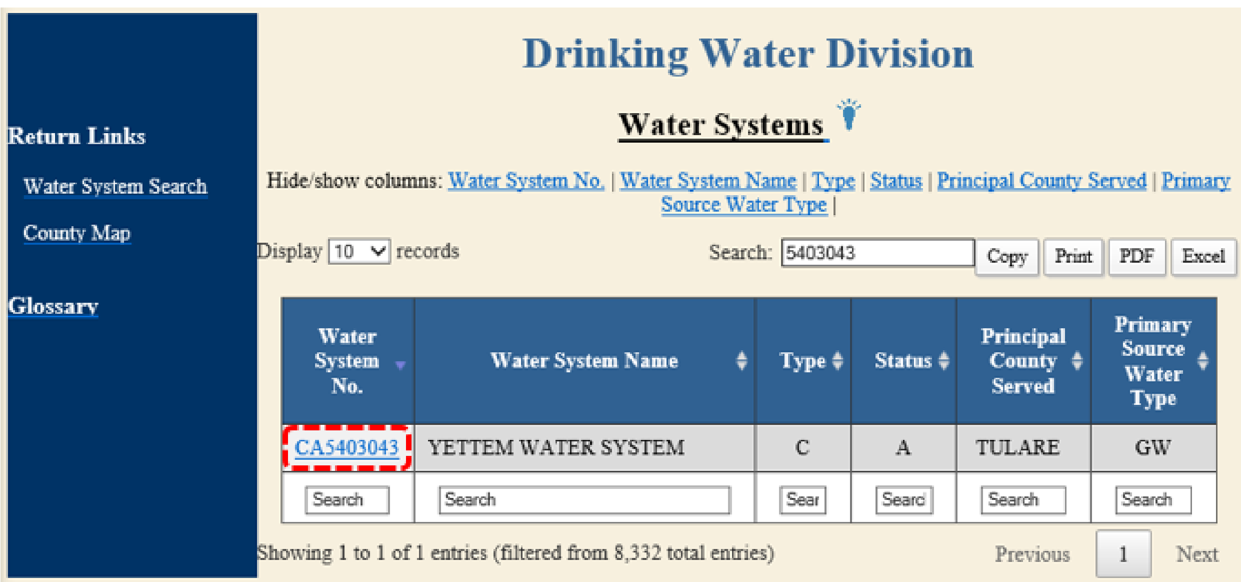
How To Access Individual System’s Drinking Water Monitoring Schedule & Water Quality Data

1. Place the following link in the internet address bar: https://sdwis.waterboards.ca.gov/PDWW/

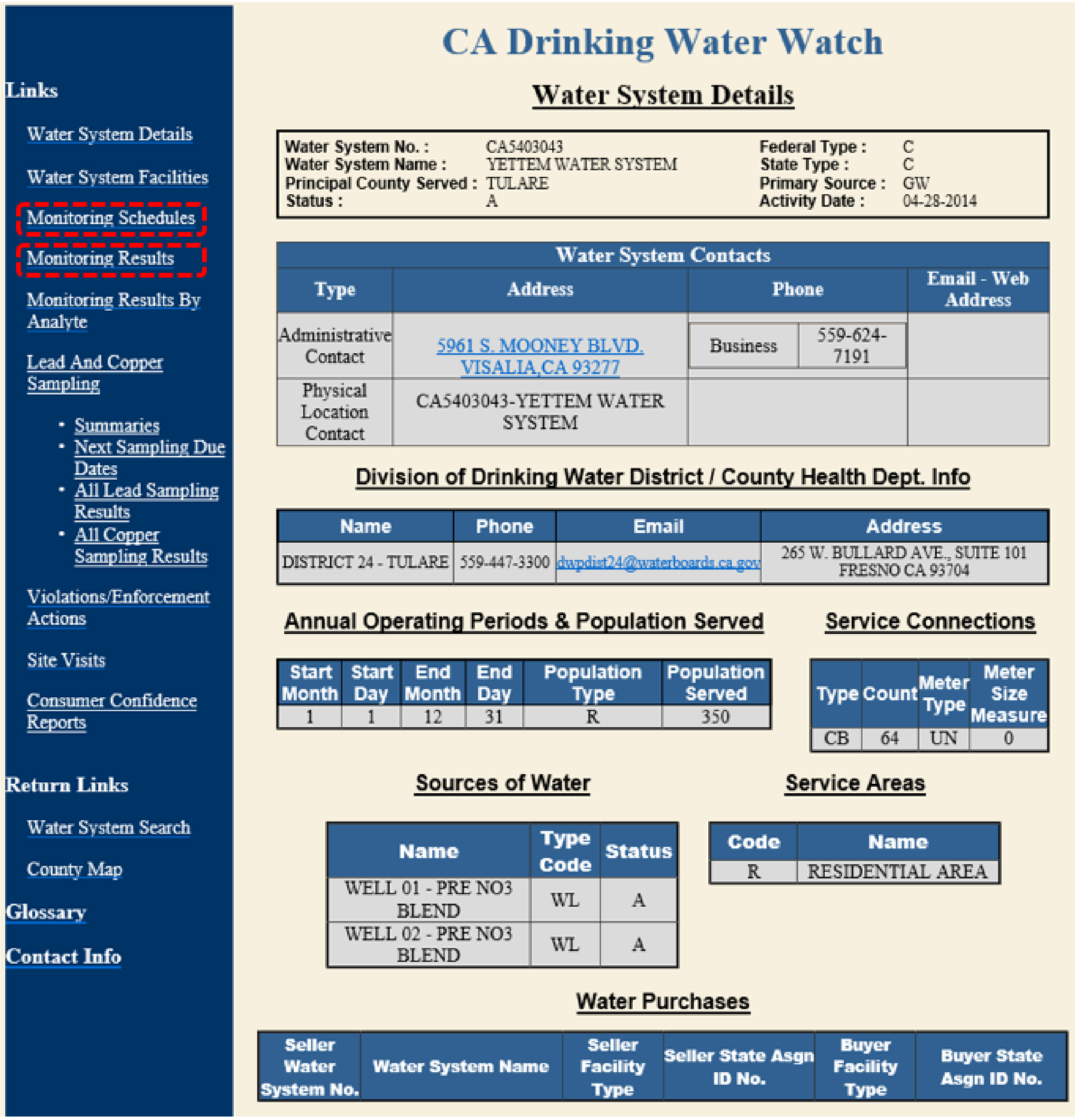
2. Enter your Water System No. and select “Search For Water Systems”



3. Click on your Water System No. (Link in blue text).



4. On the left side of the screen, select ***Monitoring Schedules*** for source monitoring schedule (last sample and next due dates) *or* ***Monitoring Results*** for water quality results.



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System Details

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Water System Contacts

Type	Address	Phone		Email - Web Address
Administrative Contact	5961 S. MOONEY BLVD. VISALIA,CA 93277	Business	559-624-7191	
Physical Location Contact	CA5403043-YETTEM WATER SYSTEM			

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 24 - TULARE	559-447-3300	dwpdist24@waterboards.ca.gov	265 W. BULLARD AVE., SUITE 101 FRESNO CA 93704

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	350

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	64	UN	0

Sources of Water

Name	Type Code	Status
WELL 01 - PRE NO3 BLEND	WL	A
WELL 02 - PRE NO3 BLEND	WL	A

Service Areas

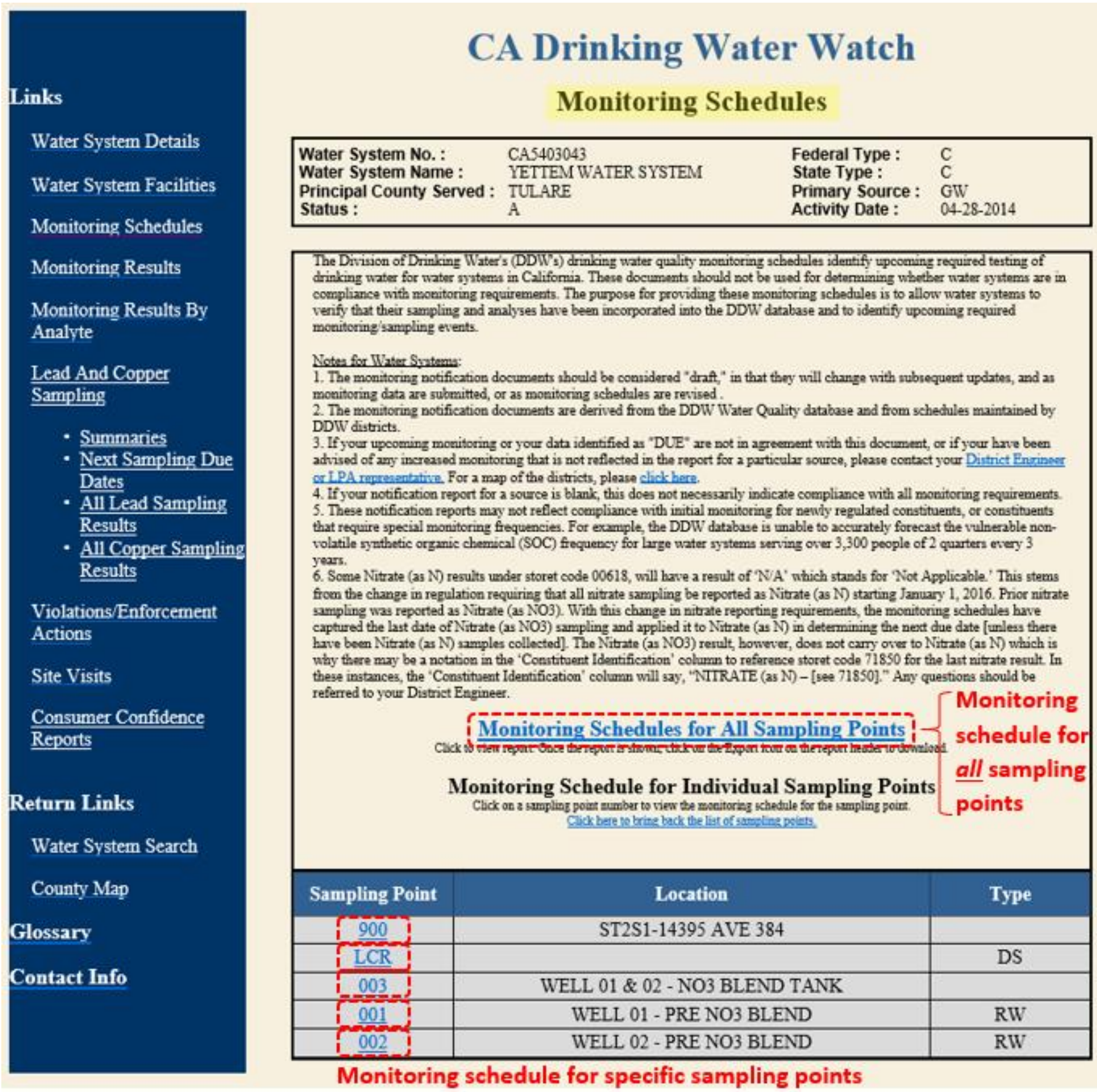
Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.

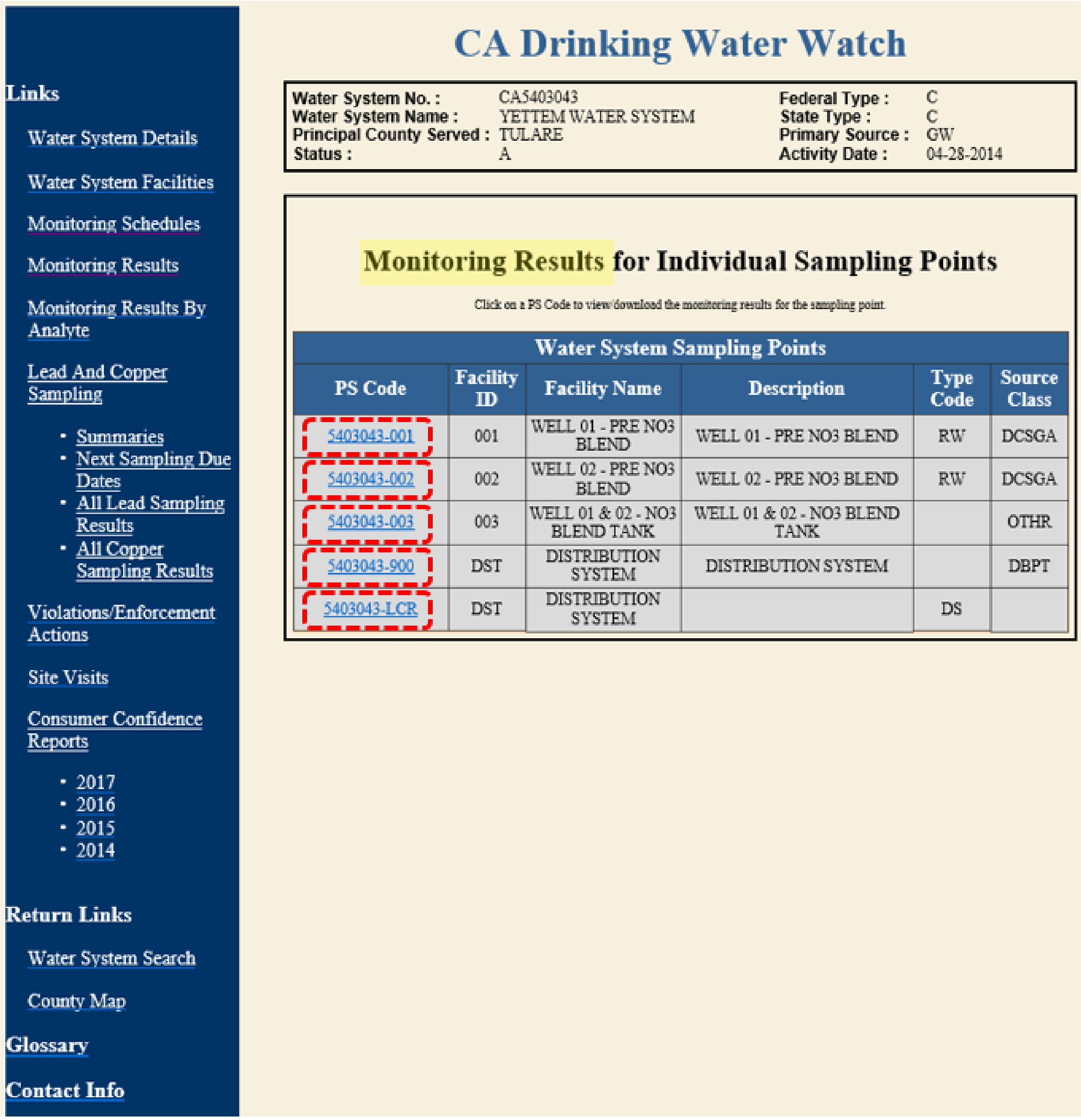
5. **5.** Select Sampling Point corresponding to the source (Link in blue text and is a number).

5A. ***Monitoring Schedules***



NOTE: Any *past due* monitoring will have "DUE NOW" in the far-right column. **Please schedule this monitoring as soon as possible.**

5B. *Monitoring Results*



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports
  - 2017
  - 2016
  - 2015
  - 2014

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Monitoring Results for Individual Sampling Points

Click on a PS Code to view/download the monitoring results for the sampling point.

Water System Sampling Points

PS Code	Facility ID	Facility Name	Description	Type Code	Source Class
5403043-001	001	WELL 01 - PRE NO3 BLEND	WELL 01 - PRE NO3 BLEND	RW	DCSGA
5403043-002	002	WELL 02 - PRE NO3 BLEND	WELL 02 - PRE NO3 BLEND	RW	DCSGA
5403043-003	003	WELL 01 & 02 - NO3 BLEND TANK	WELL 01 & 02 - NO3 BLEND TANK		OTHR
5403043-900	DST	DISTRIBUTION SYSTEM	DISTRIBUTION SYSTEM		DBPT
5403043-LCR	DST	DISTRIBUTION SYSTEM		DS	

6. Please contact the Tulare District Office at (559) 447-3300 or DWPDIST24@waterboards.ca.gov if you have any questions.

Appendix E:
Lead and Copper Tap Sample Results Reporting Form

State Water Resources Control Board
Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

This form must be submitted to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

Report Date: (mm/dd/yyyy)		**Sampling Site Change**
Water System Name:		***If any sampling sites were changed, please list the old site, new site, and reason for the change in the box below.***
Water System Number:		
Sample Schedule:	◯ 6-month ◯ Annual ◯ Triennial	
# of Samples Required:		
# of Samples Reported:		
	90th Percentile Level (mg/L)	
Lead:		
Copper:		

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier** 1, 2 or 3	**Lead (mg/L)**	**Copper (mg/L)**
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Number of Tap Sample Sites Required

The number of tap sample sites required is based on the number of people served (system size) by your water system and also whether you are performing Standard or Reduced Monitoring (*CCR §64675*).

System Size	**Minimum Number of Sites**	
	Standard Tap Sampling	Reduced Tap Sampling
> 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
< 101	5	5

Determining the 90th Percentile Lead and Copper Level

Number of Tap Samples Collected	**Determination of 90th Percentile Lead or Copper Level**
5	Average the 4th and 5th highest sample results to get the 90th percentile level
More than 5	Place results in ascending order and assign each sample a number, 1 for the lowest concentration. Multiply the total number of samples by 0.9. Round down to the nearest whole number if the decimal is 0.4 or lower and round up if the decimal is 0.5 or higher. The sample result that corresponds with the nearest whole number is the 90th percentile.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on: ______________________________ (date)

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

Additional Samples

	Sample Date	Sample Site Location/Address	Tier 1, 2 or 3	Result Lead (mg/L)	Result Copper (mg/L)
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Appendix F: East Orosi 2019 Sanitary Survey

State Water Resources Control Board
Division of Drinking Water

September 8, 2022

Ms. Carmen Moreno, Board President
East Orosi CSD – CA5401003
P.O. Box 213
Orosi, CA 93647

Dear Ms. Moreno,

On July 20, 2022, the State Water Resource Control Board, Division of Drinking Water (Division) conducted a sanitary survey of the East Orosi Community Services District Water System (Water System). After evaluation of the East Orosi CSD water system (Water System) and completion of the enclosed Sanitary Survey Report, the Division finds the following items below are required to be addressed by the Water System.

The following items were not addressed by the Water System and are still OUTSTANDING deadlines requiring completion immediately:

1. By **June 1, 2018**, the Water System must submit a bacteriological sample siting plan to the Division for review and approval.
2. By **June 1, 2018**, the Water System must submit a chlorination operations plan to the Division for review and approval.
3. By **July 1, 2018**, the Water System must provide the Division with a completed cross connection control survey or a plan and time schedule for a cross connection survey to be completed.

The following items need to be addressed by the Water System:

1. By **October 31, 2022,** the Water System must replace the flow meter at Well 01 and begin recording production from both wells at least monthly.
2. By **October 31, 2022,** the Water System must submit an updated ENP to the Division.

If you have any questions regarding this letter or the permit, please contact the Tulare District office at (559) 447-3300 or by email at DWPDIST24@waterboards.ca.gov.

Sincerely,

Kristin Willet Digitally signed by Kristin Willet
Date: 2022.09.08 09:01:59 -07'00'

Water Boards

Kristin Willet, P.E.
Senior Water Resource Control Engineer, Tulare District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

Enclosures

cc: [all email only]
Nilsa Gonzalez
Tulare County Environmental Health Division
NGonzale@tularehhsa.org

Ralph Gutierrez, Operator
woodvillerg@yahoo.com

Small Water System Evaluation and Inspection Report
Drinking Water Field Operations Branch: Tulare District

East Orosi CSD
System No. 5401003

Contact:	Carmen Moreno, Board President	System Type:	Community Water System
Inspection Date:	July 20, 2022	Inspected By	Kristin Willet, P.E.

I. INTRODUCTION

On July 20, 2022, the State Water Resources Control Board, Division of Drinking Water (Division) conducted a sanitary survey of the East Orosi CSD water system (Water System). Mr. Roberto Gutierrez, contract operator, assisted the Division with the sanitary survey. The Water System was last inspected by the Division, on September 26, 2019 as a sanitary survey to document the addition of continuous chlorination and amend the domestic water supply permit.

PERMIT STATUS

The Water System currently operates under Domestic Water Supply Permit No. 03-24-19PA-023 issued by the Division on December 31, 2019. The permit provisions are listed below.

1. The East Orosi Community Services District water system shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted there under.

2. The only approved source of domestic water supply for the East Orosi Community Services District water system is as follows:

Source Name	Status	PS Code
Well 01 – East – Raw	Active	CA5401003_001_001
Well 02 – West – Raw	Active	CA5401003_002_002

3. The only approved treatment for the East Orosi Community Services District water system is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

4. No other sources or treatment (as described in provisions No. 2 and 3 above) shall be used by the East Orosi Community Services District water system and no changes, additions, or modifications shall be made to the source unless an amended water permit has first been obtained from the Division.

5. All personnel who operate distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The East Orosi Community Services District water system is classified as a D1 water system and shall be operated by a D1 certified distribution operator or higher.

6. The East Orosi Community Services District water system shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The East Orosi Community Services District water system shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The East Orosi Community Services District water system shall submit an electronic Annual Report (EAR) each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The East Orosi Community Services District water system shall record production data from the active source at least monthly. The monthly water production shall be reported annually to the Division in the EAR.

9. The East Orosi Community Services District water system shall collect monthly raw water samples from the source for analyses of total coliform and fecal coliform or E. coli bacteria. The coliform test shall be performed using a density analytical method and the results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

10. The East Orosi Community Services District water system shall monitor for coliform bacteria in the distribution system at least monthly and in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Division shall be notified immediately if any distribution system or source sample shows the presence of *E. coli* bacteria or if more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The East Orosi Community Services District water system shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The East Orosi Community Services District water system shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The East Orosi Community Services District water system shall conduct Stage 2 Disinfection Byproduct (DBP) Monitoring once every year unless monitoring frequency is reduced by the Division. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Code:

ST2 Monitoring Site	PS Code
ST2S1 - 13920 Ave 418	CA5401003_DST_900

13. The East Orosi Community Services District water system shall submit a monthly chlorination log to the Division by the 10th day of the following month.

14. The East Orosi Community Services District water system shall operate the continuous chlorination treatment facility in accordance with a Division-approved Chlorination Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

DESCRIPTION OF SYSTEM

The mailing address for the Water System is P.O. Box 213, Orosi, CA 93647. The Water System is classified as a community water system. The Water System serves a population of 932 permanent residents through 103 unmetered service connections. Service connections consist of primarily residential homes. The domestic water supply is obtained from two active groundwater sources identified as Well 01 – East – Raw and Well 02 – West - Raw. Continuous chlorination is the only treatment provided to the source water. No storage is provided.

ENFORCEMENT HISTORY

The following enforcement actions have been issued since the last sanitary survey report:

Citation No. 03-24-20C-114; issued October 2020
The Water System failed to submit a timeline for replacement of known lead or unknown material user service lines.

Citation No. 03-24-21C-055; issued September 2021
The Water System failed to submit the 2020 EAR.

Citation No. 03-24-21C-089; issued October 2021
The Water System failed to comply with Compliance Order No. 03-24-15R-001 directives for the first and second quarter of 2021.

Citation No. 03-24-22C-047; issued May 2022
The Water System failed to comply with Compliance Order No. 03-24-15R-001 directives for the third and fourth quarter of 2021.

It is expected that the Water System comply with the directives listed in the enforcement actions by their corresponding due dates. **However, the Water System routinely misses compliance deadlines.**

SERVICE AREA

The Water System is located less than one mile east of Orosi, CA. The service area for the Water System is comprised of 103 unmetered service connections consisting of residential homes and approximately four businesses in the East Orosi service area. The Water System has individual septic systems that feed a sewer collection system. The surrounding land use area is largely agricultural. A locational map of the Water System is included in Appendix A.

II. INVESTIGATION AND FINDINGS

SOURCES OF SUPPLY

The Water System's sources of supply are two active groundwater wells identified as Wells 01 and 02. A description of the source is provided below. Photographs of the well sites are included in Appendix A.

Active Sources:

Well 01- East - RAW, Active – Treated, (CA5401003_001_001)

DWR Well Driller's Completion Report is on file at Tulare District Office:	Yes
Date of Well Completion:	August 1983
Well Depth:	365 feet
Sanitary Seal Depth:	200 feet
Well Casing:	10-inch diameter steel casing to 365 feet; perforations between 220 to 360 feet
Flow Meter:	Yes, digital
Pump Type:	Submersible
Pump Make and Model:	Unknown
Pump Size:	7.5-horsepower (hp)
Well Capacity	160 gallons per minute (gpm)

Source Discharge:	Directly to a 7,500-gallon hydropneumatic pressure tank prior to entering the distribution system.
Source Operation:	Based on system pressure.
Comments:	Well 01 is the Water System's primary source of supply.

Well 02- West - RAW, Active – Treated, (CA5401003_002_002)

DWR Well Driller's Completion Report is on file at Tulare District Office:	Yes
Date of Well Completion:	June 1984
Well Depth:	350 feet
Sanitary Seal Depth:	20 feet
Well Casing:	10-inch diameter steel casing to 350 feet; unknown perforations
Flow Meter:	No (inoperable)
Pump Type:	Submersible
Pump Make and Model:	Unknown
Pump Size:	7.5-hp
Well Capacity	150 gpm
Source Discharge:	Directly to a 3,500-gallon hydropneumatic pressure tank prior to entering the distribution system
Source Operation:	Based on system pressure.
Comments:	Well 02 is the Water System's secondary source of supply in times of high demand. The source exceeds the nitrate MCL. Previous inspection reports highlighted that grazing animals were near the source and a 50-foot control zone was not maintained; but these issues were not noted during the most recent inspection. At the time of inspection, the well was disassembled for casing repair and scrubbing.

Source Water Assessments

The Source Water Assessments for Wells 01 and 02 were completed in October 2002 by Tulare County. The sources were identified as being most vulnerable to known contaminant plumes (nitrate) and septic systems. Hard copies of the Source Water Assessments are on file in the Tulare District Office.

WATER PRODUCTION

The Water System primarily uses Well 01 to meet system demands due to nitrate contamination in Well 02. Well 02 is used during times of high demand in the summer months.

Table 1 - Production Data

Year	Population	Service Connections	Annual Production (Gal.)	Max. Month (Gal.)
2021*	932	103	26,805,000	4,920,000 (Jun.)
2020	932	103	18,249,000	2,949,000 (Oct.)

Production records are not available past September 2021.The Water System reported the flow meter at Well 01 is not working and Well 02 has not been producing as it is undergoing repair. **By October 31, 2022, the Water System must replace the flow meter at Well 01 and begin recording production from both wells at least monthly.**

ADEQUACY OF SUPPLY

According to the Waterworks Standard, the highest water usage during the past two years and a peaking factor of 1.5 was used to estimate the maximum day and peak hour demands for the system. Based on Table 1, the values for the aforementioned demands are summarized in Table 2 below.

Table 2 - Average Day, Maximum Day & Peak Hour Demand

Year	Average Day (gpm)	Maximum Day (gpm)	Peak Hour (gpm)
2021	51	171	256
2020	35	99	149

Table 3 – Total Active Source Capacity

Source	Capacity (gpm)
Well 01	160
Well 02	150
Total Capacity	**310**

Community water systems are required to have capacity equal to or greater than their maximum day demand (MDD). The Division advises the Water System to invest in a storage tank or additional source to improve reliability in the event of a well failure or power outage. The Title 22 drinking water standards requires systems with less than 1,000 service connections have storage capacity equal to or greater than MDD, unless the system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement. **The Water System does not meet this requirement.**

The Water System experienced a water outage on July 12, 2022 due to power source issues and pump failure at Well 01, resulting in the Division issuing a Do Not Drink (DND) notice. The outage lasted into the early morning of July 13, 2022. The Water System is working with the Safe and Affordable Funding for Equity and Resilience (SAFER) group within the Division to have Tulare County act as administrator for the Water System to assist with managing the technical, managerial and financial oversight of the water system.

STORAGE & DISTRIBUTION

There are no storage facilities in the system. The well pumps water directly to 7,500 and 3,500-gallon steel hydropneumatic pressure tanks prior to serving the distribution system. The pressure tanks are not equivalent of a storage tank. The purpose of the pressure tanks is to maintain system pressure between the range of 35 and 60 pounds per square inch (psi). The distribution system is classified as a D1 system. The Water System must follow American Water Works Association (AWWA) standards when any repairs or line replacements are made. The material comprising the distribution system was reported as 100% plastic in the 2021 EAR.

TREATMENT FACILITIES

The Water System provides continuous chlorination to the water produced by Wells 01 and 02. A 12.5% solution of sodium hypochlorite is injected directly into the discharge line of Wells 01 and 02 upstream of each pressure tank. The sodium hypochlorite solution is stored at the well site in a 35-gallon polyethylene tank. The chlorination equipment is activated upon startup of the well and consists of a Stenner 45MHP22 at Well 01 and Grundfos DDE 6-10 chemical feed pump at Well 02. The Stenner 45MHP22 chemical feed pump has a capacity of 0.9 gallons per hour (gph) at 100 psi. The Grundfos DDE chemical feed pump has a capacity of 1.5 gph at 150 psi. The chemical storage tank and feed pump appear to be adequately sized. The Water System aims to maintain a chlorine residual between 0.5 to 1.5 mg/L in the distribution system. The Water System must record chlorine residuals from the distribution system weekly and report the monthly chlorination report to the Division by the 10th day of the following month.

The Water System must submit a Chlorination Operations Plan to the Division; this directive is outstanding and due to the Division immediately. Guidance for completing a Chlorination Operations Plan is in Appendix F.

III. WATER QUALITY MONITORING

SOURCE MONITORING

All chemical water quality monitoring from the sources must be submitted to the Division via the California Laboratory Intake Portal (CLIP). To properly upload data to CLIP, the Water System must identify the samples with the correct primary station code (PS Code). The assigned PS Code is listed in Table 4 below. A summary of the recent source water quality monitoring results and next due dates are included in Appendix B. Additionally, the current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. Instructions for accessing this information is included in Appendix G.

Table 4 – Primary Station Codes

Source Name	Status	PS Code
Well 01 – East – Raw	Active	CA5401003_001_001
Well 02 – West – Raw	Active	CA5401003_002_002

Bacteriological

Due to continuous chlorination, the untreated well water from Wells 01 and 02 are required to be sampled monthly for total coliform bacteria at a sample tap located prior to the chlorine injection port. This is required in order to verify that the well is not producing water that contains coliform bacteria. A summary of the source bacteriological sample results is included in Appendix C.

General Mineral, General Physical and Inorganic Chemicals

The Water System is required to monitor its active groundwater sources for general mineral (GM), general physical (GP) and inorganic (IO) chemicals every three years, except for nitrate which has a different monitoring frequency. The Water System last sampled Well 01 for GM, GP, and IO chemicals in September 2020, except for iron, manganese and turbidity which were monitored for in June 2022, and conductivity and total dissolved solids which were monitored for in June 2021. Well 01 exceeds the secondary MCLs for the following constituents: iron, manganese, and turbidity and monitors for these constituents on a quarterly basis. Well 02 was last sampled for GM, GP, and IO chemicals in March 2022.

Nitrate

The Water System is required to monitor active groundwater sources for nitrate (as N) annually if monitoring data indicates nitrate concentrations of less than one-half the MCL of 10 mg/L and quarterly if the concentrations are greater than or equal to one-half the MCL. Wells 01 and 02 are required to be monitored quarterly. Well 01 was last sampled in July 2022 with results of 9.8 mg/L and is next due for nitrate monitoring by October 2022. Well 02 was last sampled in April 2022 with a result of 13 mg/L and will be due for nitrate monitoring when the well is back in service.

Volatile Organic Chemicals (VOCs)

The Water System completed initial VOC monitoring for Well 01 and 02. The Water System last sampled Well 01 for VOCs in May 2019 and the results were ND. Well 02 was last sampled for VOCs in February 2020 with non-detect (ND) results. **Well 01 is due for VOC monitoring in the 2020-2022 compliance period, by December 31, 2022. Well 02 is due for VOC monitoring in the 2023-2025 compliance period.**

Synthetic Organic Chemicals (SOCs)

The Water System completed initial SOC monitoring for Well 01 and 02. The Water System sampled Well 01 for SOCs in December 2020, except for 1,2,3-trichloropropane (1,2,3-TCP) which was last monitored for in June 2022, all with non-detect results. Well 02 was last monitored for SOCs in June 2020, except for 1,2,3-TCP which was last monitored in March 2022, all with non-detect results. The Water System must monitor Well 01 and Well 02 for all SOCs in the 2023-2025 compliance period for SOCs.

Radiological Monitoring

The initial radiological monitoring is based on the collection of four consecutive quarterly samples for gross alpha and radium-228. If the results from the first two quarters of initial monitoring are below the DLR, the final two quarters of initial monitoring may be waived. After initial monitoring is complete, no additional monitoring is required for radium-228. Subsequent monitoring frequencies for gross alpha is based on the results of the last sample collected. It should be noted that if the gross alpha result for any single sample is greater than 5 pCi/L, analysis for uranium in *that same sample* is required.

The Water System has completed initial monitoring for gross alpha from Wells 01 and 02. The last gross alpha result from Well 01 was 3.38 pCi/L and is on a 72-month frequency. The last gross alpha sample from Well 02 was 5.54 pCi/L and is on a 72-month frequency. The Water System must monitor Well 01 for gross alpha in June 2024 and Well 02 in March 2025.

DISTRIBUTION SYSTEM MONITORING

Bacteriological

Based on the population and number of service connections, the Water System is required to collect at least one routine bacteriological sample each month from the distribution system. The sample must be analyzed for total coliform bacteria with results sent to the Division by the 10th day of the following month. Additionally, bacteriological samples should be collected in accordance with an approved Bacteriological Sample Siting Plan (BSSP). **The Water System was directed to submit a BSSP in previous sanitary surveys. This directive remains outstanding and must be addressed immediately.** A summary of the distribution bacteriological sample results is included in Appendix C. A BSSP template is provided in Appendix H.

Lead and Copper Monitoring

The Water System is currently on annual monitoring for lead and copper tap monitoring from 10 locations. The 90th percentile for lead and copper should be less than the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively. Lead and Copper Sampling guidance and reporting form is in Appendix D. The Water System last monitored for lead and copper from the distribution system in September 2021 with no samples exceeding the action levels. **The Water System is next due to collect 10 lead and copper samples by September 30, 2022.**

All future lead and copper monitoring results must be submitted to the Division electronically via the Lab-To-State (LTS) Portal. The Water System must complete and submit a Lead and Copper Tap Sample Results Reporting Form with all subsequent lead and copper monitoring results. A Lead and Copper Tap Sample Results Reporting Form is included in Appendix D.

Disinfection Byproduct Monitoring

Due to the implementation of continuous chlorination, the Water System is required to comply with the Stage 2 Disinfection Byproduct Monitoring Rule (DBPR). To comply with Stage 2 DBPR monitoring requirements, the Water System is required to collect one sample every three years during a month of the warmest water temperature. The sample must be analyzed for total trihalomethanes (TTHMs) and haloacetic acids (HAA5s). The results of Stage 2 DBP monitoring must be sent to the Division electronically to the Division's electronic water quality database using the PS Code listed in Table 5 below.

Table 5 – Stage 2 DBP PS Code

ST2 DBP Monitoring Site	PS Code
ST2S1 - 13920 Ave 418	CA5401003_DST_900

The Water System last monitored for TTHM and HAA5s on June 29, 2022, both with results of non-detect. The next TTHM/HAA5 monitoring is due by June 2025.

Asbestos

Regulation requires monitoring of systems vulnerable to asbestos contamination. Monitoring is required if asbestos containing pipe is used and aggressive water is produced by the wells. The aggressive indices from Wells 01 and 02 are 12.0 and 10.4, respectively, however the Water System indicated that the distribution system is comprised of plastic material and is not required to monitor for asbestos.

IV. OPERATIONS AND MAINTENANCE

Operator Certification

The Water System's distribution system is classified as a D1 distribution system and requires a certified distribution system operator with a minimum D1 certification. Mr. Ralph Gutierrez is the certified D3 distribution system operator for the Water System (Cert. #: 18005). Per Title 22, Section 63770, California Code of Regulations, water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:

1) Install, tap, re-line, disinfect, test and connect water mains and appurtenances.
2) Shutdown, repair, disinfect and test broken water mains.
3) Oversee the flushing, cleaning, and pigging of existing water mains.
4) Pull, reset, rehabilitate, disinfect and test domestic water wells.
5) Stand-by emergency response duties for after hours distribution system operational emergencies.
6) Drain, clean, disinfect, and maintain distribution reservoirs.

The Water System shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:

1) Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.
2) Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.

The Water System shall utilize either certified distribution operators or treatment operators to make decisions addressing the following operational activities:

1) Determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.
2) Investigate water quality problems in the distribution system.

Cross Connection Control

Based on the 2021 EAR, the Water System does not have a Cross Connection Control Program in place and there are no backflow prevention devices in the distribution system. The Water System is required to maintain a Cross Connection Control Program which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

1) The conducting of surveys to identify water user premises or locations where cross connections are likely to occur,
2) The provisions of backflow protection by the water user at the user's connection or within the user's premises or both,
3) The provision of at least one person trained in cross connection control to carry out the cross-connection program,
4) The establishment of a procedure or system for annual testing of backflow preventers, and
5) The maintenance of records of locations, tests, and repairs of backflow preventers.

Backflow Prevention Device Testing

Regulation requires all backflow prevention devices to be tested annually. Copies of the testing records must be kept on file with the Water System for a minimum of three years.

The Water System must conduct a cross connection control survey using a certified cross connection control specialist or submit a time and schedule for having one completed; this directive remains outstanding and is due to the Division immediately. A guidance document for implementing a cross-connection control program is included in Appendix E.

Complaints

The Water System must keep records of all complaints received and actions taken to correct the problems related to the complaints. According to the 2021 EAR, the Water System received no complaints.

Emergency Notification Plan (ENP)

The current Emergency Notification Plan (ENP) on file with the Division is dated March 15, 2019. However, it needs to be updated. According to the ENP, the Water System will notify customers of an emergency via door-to-door notification, posted notification, and email. The Division has updated the ENP template for the Tulare District. **By October 31, 2022, the Water System must submit an updated ENP to the Division. An ENP template has been provided in Appendix I.**

Consumer Confidence Report (CCR)

The Water System is required to complete a Consumer Confidence Report (CCR) on an annual basis and provide a copy to all residents and the Division by July 1 of each year. In addition, the Water System is required to provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers. The Water System distributed the 2021 CCR to customers and submitted their CCR certification form to the Division on August 1, 2022.

Electronic Annual Report (EAR)

All public water systems are required to provide updated water system information to the Division annually in the EAR. The 2021 EAR was submitted to the Division on July 15, 2022. No backflow devices were reported, but it is important to note that if backflow devices are present in the water system, they must be tested annually by a certified backflow tester. No cross-connection control survey has been reported in the EAR survey, which is also required.

V. SMALL WATER SYSTEM RESILIENCY AND PREPAREDNESS

The effects of climate change on community water system (CWS) facilities and operations is a concern and priority of the State Water Resources Control Board (SWRCB), which is documented by the SWRCB in its Comprehensive Climate Change Resolution adopted in March 2017. DDW is reviewing each water system preparedness for climate change with the goal to increase awareness and familiarization to the effects of climate change to facilities and operations, encourage the use of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) or equivalent, and to document the Water System's efforts related to current threats that may also provide mitigation to climate change impacts.

The Water System indicated that they ***were not*** aware of the CREAT tool developed by USEPA for identifying climate change vulnerabilities. The Water System has not used CREAT (or similar tool) to identify vulnerabilities to the water system sources and facilities. The SWRCB strongly encourages utilities to evaluate climate change vulnerabilities using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

Fire ---

- A defensible space of 100 feet (*California Public Resources Code, 4291*) is maintained around all sources and structures managed by the Water System. **Yes**

Flooding ---

- Are any of the drinking water facilities vulnerable to flooding? **No**

Backup Power ---

- Is backup power available, for example, through portable or permanent power generators? **No**
    - No backup power is provided.
- If liquid fuel is used, is it properly contained and stored away from the source? **N/A**

Drought ---

- Is the Water System prepared for drought related shortages or outages? (interties, backup supply, increased storage) **No**

Degrading Source Water Quality –

- Has source water quality degraded over time, or specifically during the most recent drought? **Yes**

VI. APPRAISAL OF SANITARY HAZARDS & PUBLIC HEALTH SAFEGUARDS

The East Orosi CSD water system relies on Well 01 and Well 02 to supply the demands of the system. Well 01 is the primary well, and Well 02 supplements demand as necessary. According to the operator, the estimated source capacity is approximately 160 and 150 gpm from Wells 01 and 02, respectively. East Orosi CSD has no storage capacity. The water system has no interconnection with any nearby water systems.

The East Orosi CSD lacks managerial capacity to comply with regulatory requirements. The East Orosi CSD is past due on many deadlines related to public notification requirements set forth in Compliance Order No. 03-24-15R-001 and other enforcement actions. East Orosi CSD is working with the SAFER group within the Division to have Tulare County act as administrator for the water system starting in October 2022.

The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/.

The following items were not addressed by the Water System and are still OUTSTANDING deadlines requiring completion immediately:

1. By **June 1, 2018**, the Water System must submit a bacteriological sample siting plan to the Division for review and approval.

2. By **June 1, 2018**, the Water System must submit a chlorination operations plan to the Division for review and approval.

The following items need to be addressed by the Water System:

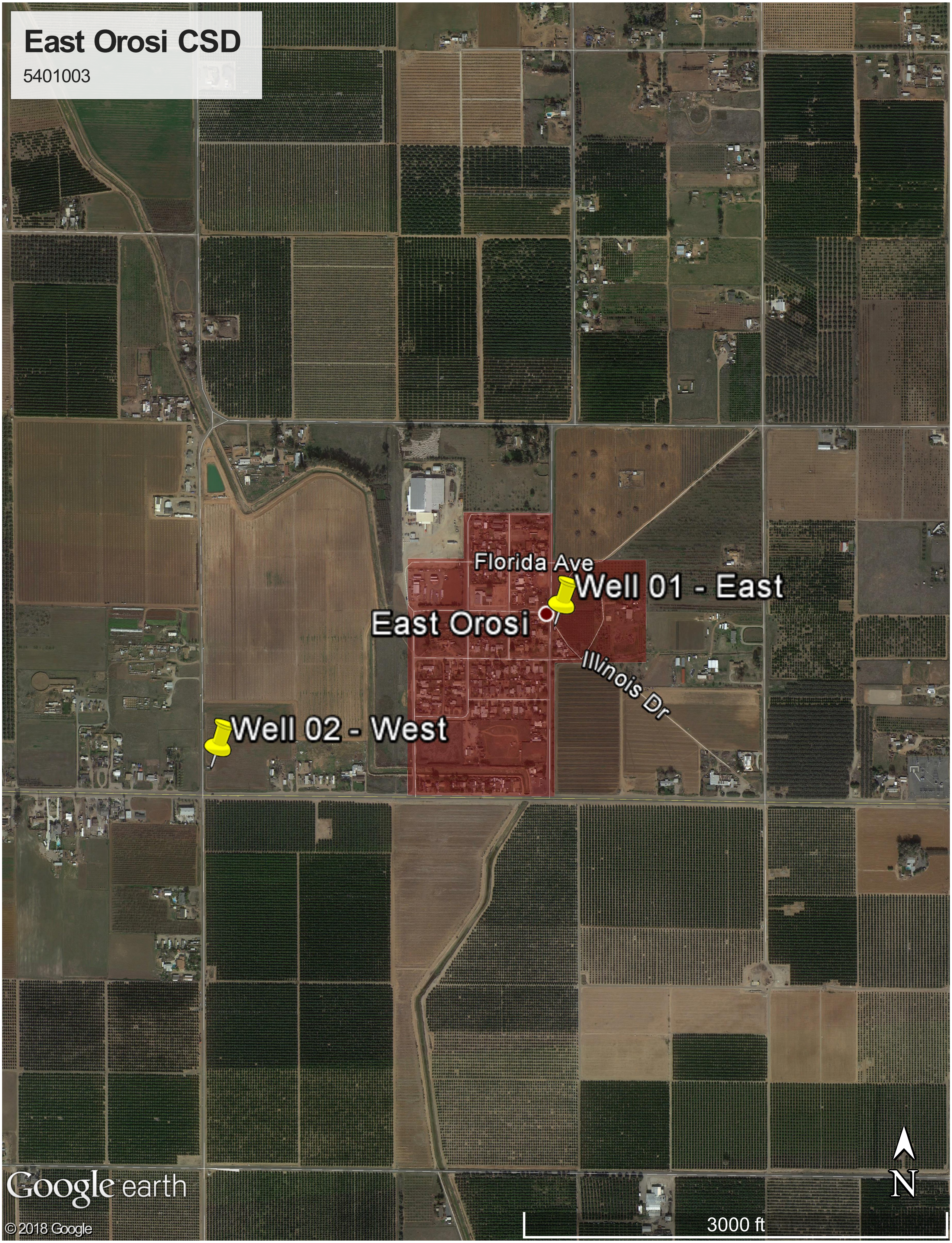
1. By **October 31, 2022,** the Water System must replace the flow meter at Well 01 and begin recording production from both wells at least monthly.

2. By **October 31, 2022,** the Water System must submit an updated ENP to the Division.

<u>Appendix:</u>

Appendix A: Location Map & Photo Index
Appendix B: Last Sample & Next Due Date Summary Reports
Appendix C: Source and Distribution System Bacteriological Monitoring Reports
Appendix D: Lead and Copper Tap Sample Results Reporting Form
Appendix E: Cross Connection Control Guidance for Community Water Systems
Appendix F: Chlorination Operations Plan Guidance/Monthly Chlorination Log
Appendix G: Instructions for Accessing Public Drinking Water Watch
Appendix H: Bacteriological Sample Siting Plan (BSSP) Template
Appendix I: Emergency Notification Plan Template

Appendix A:
Location Map & Photo Index



East Orosi CSD
5401003
Florida Ave
Well 01 - East
East Orosi
Illinois Dr
Well 02 - West
Google earth
© 2018 Google
N
3000 ft

Appendix A
East Orosi CSD Water System: 5401003
Sanitary Survey Photographs

Well 01 - East (CA5401003 001 001):

- Date Drilled: August 1983
- Depth: 365 feet
- Type: Submersible
- Pump Size: 7.5-hp
- Capacity: 150 gpm

Pressure Tank:

- Location: Well 01—East
- Volume: 7,500 gallons
- Material: Steel

Well 02 - West (CA5401003 002 002):

- Date Drilled: June 1984
- Depth: 350 feet
- Type: Submersible
- Pump Size: 7.5-hp
- Capacity: 150 gpm
- 3,500 gallon steel pressure tank

Appendix B:
Last Sample & Next Due Date Summary Report

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 01 - EAST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001		EAST OROSI COMMUNITY SERVICES DISTRICT						WELL 01 - EAST - RAW												
	GP	SECONDARY/GP																		
		1928	ALKALINITY, BICARBONATE	180.000		0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1919	CALCIUM	44.000		0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1929	ALKALINITY, CARBONATE		<	0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1017	CHLORIDE	18.000		0.000		MG/L	500	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1905	COLOR		<	0.000		UNITS	15	-----	9/28/2020	16	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1022	COPPER, FREE		<	50.000		UG/L	1000	50	9/28/2020	9	36		2023/09		6514001200928101 5L	1180	BSK ANALYTICAL LABORATORIES	
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.000		MG/L	0.5	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1915	HARDNESS, TOTAL (AS CACO3)	190.000		0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	
		1028	IRON	72.000		30.000		UG/L	300	100	6/29/2022	121	3	Interval	2022/09	**DUE NOW**	AFF3490-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1031	MAGNESIUM	20.000		0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		6514001200928101 5G	1180	BSK ANALYTICAL LABORATORIES	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 01 - EAST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001	**GP**	**SECONDARY/GP**																		
		1032	MANGANESE		<	10.000		UG/L	50	20	6/29/2022	121	3	Interval	2022/09	**DUE NOW**	AFF3490-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1920	ODOR		<	1.000		TON	3	1	9/28/2020	16	36		2023/09		65140012009281015G	1180	BSK ANALYTICAL LABORATORIES	
		1925	PH	8.000		0.000			------	-----	9/28/2020	9	36		2023/09		65140012009281015G	1180	BSK ANALYTICAL LABORATORIES	
		1050	SILVER		<	10.000		UG/L	100	10	9/28/2020	9	36		2023/09		65140012009281015G	1180	BSK ANALYTICAL LABORATORIES	
		1052	SODIUM	20.000		0.000		MG/L	------	-----	9/28/2020	9	36		2023/09		65140012009281015G	1180	BSK ANALYTICAL LABORATORIES	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	460.000		0.000		UMHO/CM	1600	-----	6/3/2021	16	36		2024/06		65140012106030950G	1180	BSK ANALYTICAL LABORATORIES	
		1055	SULFATE	19.000		0.500		MG/L	500	0.5	9/28/2020	9	36		2023/09		65140012009281015G	1180	BSK ANALYTICAL LABORATORIES	
		1930	TDS	310.000		0.000		MG/L	1000	-----	6/3/2021	25	36		2024/06		65140012106030950G	1180	BSK ANALYTICAL LABORATORIES	
		0100	TURBIDITY	0.460		0.100		NTU	5	0.1	6/29/2022	100	3	Interval	2022/09	**DUE NOW**	AFF3490-01	1180	BSK ANALYTICAL LABORATORIES	SM 2130 B-01
		1095	ZINC		<	50.000		UG/L	5000	50	9/28/2020	9	36		2023/09		65140012009281015G	1180	BSK ANALYTICAL LABORATORIES	
	IO	**INORGANIC**																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 01 - EAST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001	**IO**	**INORGANIC**																		
		1005	ARSENIC		<	2.000		UG/L	10	2	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1010	BARIUM		<	100.000		UG/L	1000	100	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1015	CADMIUM		<	1.000		UG/L	5	1	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1020	CHROMIUM		<	10.000		UG/L	50	10	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1025	FLUORIDE	0.100		0.100		MG/L	2	0.1	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1035	MERCURY		<	1.000		UG/L	2	1	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1036	NICKEL		<	10.000		UG/L	100	10	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1039	PERCHLORATE	4.000		4.000		UG/L	6	4	6/3/2021	16	36		2024/06		65140012106030950I	1180	BSK ANALYTICAL LABORATORIES	
		1045	SELENIUM		<	5.000		UG/L	50	5	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	2/25/2020	9	36		2023/02		65140012002251000I	1180	BSK ANALYTICAL LABORATORIES	
	NI	**NITRATE/NITRITE**																		
		1040	NITRATE	9.800		0.230		MG/L	10	0.4	7/28/2022	400	3	Interval	2022/10		AFG3472-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 01 - EAST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001	**NI**	**NITRATE/NITRITE**																		
		1041	NITRITE		<	0.400		MG/L	1	0.4	2/25/2020	9	36		2023/02		65140012002251000N	1180	BSK ANALYTICAL LABORATORIES	
	RA	**RADIOLOGICAL**																		
		4109	GROSS ALPHA PARTICLE ACTIVITY	3.380		1.300	1.450	PCI/L	15	3	6/22/2018	16	72	Interval	2024/06		65140011806221350R	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	S1	**REGULATED VOC**																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	5/24/2019	9	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 01 - EAST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001	S1	REGULATED VOC																		
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	5/24/2019	9	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2990	BENZENE		<	0.500		UG/L	1	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	5/24/2019	9	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	5/24/2019	49	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	5/24/2019	16	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2996	STYRENE		<	0.500		UG/L	100	0.5	5/24/2019	9	36		2022/05	**DUE NOW**	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	

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System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 01 - EAST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001	S1	REGULATED VOC																		
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	5/24/2019	9	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	5/24/2019	16	36		2022/05	DUE NOW	65140011905241035V	1180	BSK ANALYTICAL LABORATORIES	
	S2	REGULATED SOC																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.005		UG/L	0.005	0.005	6/29/2022	64	36		2025/06		AFF3490-01	1180	BSK ANALYTICAL LABORATORIES	SRL 524M-TCP
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	12/28/2020	4	36		2023/12		65140012012280955S	1180	BSK ANALYTICAL LABORATORIES	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	12/28/2020	4	36		2023/12		65140012012280955S	1180	BSK ANALYTICAL LABORATORIES	

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System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY:

Sample Point: CLASS: DCSGA STATUS:

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_001_001	**S2**	2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.000		UG/L	0.2	0.01	12/28/2020	9	36		2023/12		6514001201228095 5S	1180	BSK ANALYTICAL LABORATORIES	
		2946	ETHYLENE DIBROMIDE		<	0.000		UG/L	0.05	0.02	12/28/2020	9	36		2023/12		6514001201228095 5S	1180	BSK ANALYTICAL LABORATORIES	
		2037	SIMAZINE		<	1.000		UG/L	4	1	12/28/2020	4	36		2023/12		6514001201228095 5S	1180	BSK ANALYTICAL LABORATORIES	

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System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 02 - WEST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_002_002		**EAST OROSI COMMUNITY SERVICES DISTRICT**						**WELL 02 - WEST - RAW**												
	GP	**SECONDARY/GP**																		
		1928	ALKALINITY, BICARBONATE	230.000		3.000		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1919	CALCIUM	74.000		0.100		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1929	ALKALINITY, CARBONATE		<	3.000		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1017	CHLORIDE	29.000		1.000		MG/L	500	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1905	COLOR	5.000		5.000		UNITS	15	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2120 B
		1022	COPPER, FREE		<	5.000		UG/L	1000	50	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.050		MG/L	0.5	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 5540 C-00
		1915	HARDNESS, TOTAL (AS CACO3)	320.000		0.410		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2340 B
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	3.000		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2320 B
		1028	IRON		<	30.000		UG/L	300	100	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1031	MAGNESIUM	34.000		0.100		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1032	MANGANESE		<	10.000		UG/L	50	20	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7

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Sample Point: WELL 02 - WEST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_002_002	GP	SECONDARY/GP																		
		1920	ODOR		<	1.000		TON	3	1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2150 B
		1925	PH	7.900		0.000			------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 4500-H+B
		1050	SILVER		<	10.000		UG/L	100	10	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1052	SODIUM	28.000		1.000		MG/L	------	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	760.000		1.000		UMHO/CM	1600	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2510 B
		1055	SULFATE	66.000		1.000		MG/L	500	0.5	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1930	TDS	470.000		5.000		MG/L	1000	-----	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2540 C
		0100	TURBIDITY	0.170		0.100		NTU	5	0.1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	SM 2130 B-01
		1095	ZINC		<	50.000		UG/L	5000	50	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
	IO	INORGANIC																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1074	ANTIMONY, TOTAL		<	2.000		UG/L	6	6	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1005	ARSENIC	2.400		2.000		UG/L	10	2	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8

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Sample Point: WELL 02 - WEST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_002_002	IO	INORGANIC																		
		1010	BARIUM	130.000		50.000		UG/L	1000	100	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.7
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1015	CADMIUM		<	1.000		UG/L	5	1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1020	CHROMIUM		<	10.000		UG/L	50	10	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1025	FLUORIDE	0.120		0.100		MG/L	2	0.1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1035	MERCURY		<	0.200		UG/L	2	1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1036	NICKEL		<	10.000		UG/L	100	10	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1039	PERCHLORATE	3.600		2.000		UG/L	6	2	3/23/2022	16	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 314.0
		1045	SELENIUM		<	2.000		UG/L	50	5	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 200.8
	NI	NITRATE/NITRITE																		
		1040	NITRATE	13.000		0.230		MG/L	10	0.4	4/28/2022	900	3	Interval	2022/07	**DUE NOW**	AFD3347-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0
		1041	NITRITE		<	0.050		MG/L	1	0.4	3/23/2022	9	36		2025/03		AFC2635-01	1180	BSK ANALYTICAL LABORATORIES	EPA 300.0

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Sample Point: WELL 02 - WEST - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_002_002	RA	RADIOLOGICAL																		
		4109	GROSS ALPHA PARTICLE ACTIVITY	5.540		1.100	0.397	PCI/L	15	3	3/22/2019	16	72	Interval	2025/03		65140021903220905R	1180	BSK ANALYTICAL LABORATORIES	
		4030	RADIUM-228		<	0.642	0.736	PCI/L	------	1	6/29/2022	100	3	Interval	2022/09	**DUE NOW**	SP 2210845-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA RA-05
	S1	REGULATED VOC																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	

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CA5401003_002_002	S1	REGULATED VOC																		
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2990	BENZENE		<	0.500		UG/L	1	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	
		2996	STYRENE		<	0.500		UG/L	100	0.5	2/25/2020	9	36		2023/02		6514002200225101 0V	1180	BSK ANALYTICAL LABORATORIES	

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PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_002_002	S1	REGULATED VOC																		
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	2/25/2020	9	36		2023/02		65140022002251010V	1180	BSK ANALYTICAL LABORATORIES	
	S2	REGULATED SOC																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.005		UG/L	0.005	0.005	3/30/2022	49	12	Interval	2023/03		AFC3336-01	1180	BSK ANALYTICAL LABORATORIES	SRL 524M-TCP
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	6/4/2020	4	36		2023/06		65140022006041100S	1180	BSK ANALYTICAL LABORATORIES	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	6/4/2020	4	36		2023/06		65140022006041100S	1180	BSK ANALYTICAL LABORATORIES	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY:

Sample Point: CLASS: DCSGA STATUS:

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_002_002	**S2**	2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.000		UG/L	0.2	0.01	6/4/2020	9	36		2023/06		65140022006041100S	1180	BSK ANALYTICAL LABORATORIES	
		2946	ETHYLENE DIBROMIDE		<	0.000		UG/L	0.05	0.02	6/4/2020	9	36		2023/06		65140022006041100S	1180	BSK ANALYTICAL LABORATORIES	
		2037	SIMAZINE		<	1.000		UG/L	4	1	6/4/2020	4	36		2023/06		65140022006041100S	1180	BSK ANALYTICAL LABORATORIES	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: ST2S1 - 13920 AVE 418 CLASS: DBPT STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_DST_900		**EAST OROSI COMMUNITY SERVICES DISTRICT**						**ST2S1 - 13920 AVE 418**												
	DBP	**DISINFECTION BYPRODUCTS**																		
		2943	BROMODICHLOROMETHANE		<	0.500		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2942	BROMOFORM		<	0.500		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2941	CHLOROFORM		<	0.500		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2454	DIBROMOACETIC ACID		<	1.000		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2944	DIBROMOCHLOROMETHANE		<	0.500		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2
		2451	DICHLOROACETIC ACID		<	1.000		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2456	TOTAL HALOACETIC ACIDS (HAA5)		<	2.000		UG/L	60	-----	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2453	MONOBROMOACETIC ACID		<	1.000		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2450	MONOCHLOROACETIC ACID		<	2.000		UG/L	------	2	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3
		2950	TTHM		<	0.500		UG/L	80	-----	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 524.2

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: EAST OROSI COMMUNITY SERVICES DISTRICT COUNTY:

Sample Point: CLASS: DBPT STATUS:

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5401003_DST_900	**DBP**	2452	TRICHLORO ACETIC ACID		<	1.000		UG/L	------	1	6/29/2022	4	36		2025/06		AFF3490-03	1180	BSK ANALYTICAL LABORATORIES	EPA 552.3

Appendix C:
Source Water and Distribution System Bacteriological Monitoring Reports

Bacteriological Distribution Monitoring Report

5401003 East Orosi Community Services Distr — Distribution System Freq: 1/M

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
8/23/2022	See Notes										DND (water outage) rescinded per KW.
8/3/2022	Church	A	A			Routine	1.2				
7/26/2022	Church	A	A			Routine	1.2				
7/13/2022	See Notes										DND issued per KW-TW (water outage)
7/5/2022	See Notes										DND rescinded per TW-KW
6/29/2022	Church	A	A			Routine	1.0				
5/23/2022	Church	A	A			Routine	0.7				
4/28/2022	Church	A	A			Routine	0.7				
3/22/2022	Church	A	A			Routine	0.8				
3/11/2022	See Notes										DND issued per BP (water outage/Well 01 failure)
2/15/2022	Church	A	A			Routine	0.7				
1/28/2022	Church	A	A			Routine	0.7				
12/28/2021	Church	A	A			Routine	1.1				
11/18/2021	Church	A	A			Routine	1				
10/26/2021	Church	A	A			Routine	0.7				
10/26/2021	Church	A	A			Routine	0.7				
9/27/2021	Church	A	A			Routine	0.7				
8/20/2021	Church	A	A			Routine	0.8				
7/20/2021	Church	A	A			Routine	0.8				
6/24/2021	Church	A	A			Routine	1.0				
5/20/2021	Church	A	A			Routine	0.7				
4/21/2021	Church	A	A			Routine	0.8				
3/25/2021	Church	A	A			Routine	0.8				
2/18/2021	Church	A	A			Routine	0.7				
1/14/2021	Church	A	A			Routine	0.8				
12/10/2020	Church	A	A			Routine	0.8				
11/23/2020	Church	A	A			Routine	0.8				
10/13/2020	Church	A	A			Routine	1.00				
9/18/2020	Church	A	A			Routine			MR9		no chlorine residual on report
8/14/2020	Church	A	A			Routine	1				
7/23/2020	Church	A	A			Routine	0.7				
6/19/2020	Church	A	A			Routine			MR9		no chlorine reisudal on report
5/7/2020	Church	A	A			Routine	0.7				
4/10/2020	Church	A	A			Routine	0.9				
3/20/2020	Church	A	A			Routine	1.0				
2/6/2020	Church	A	A			Routine	0.90				
1/10/2020	Church	A	A			Routine	0.9				
12/5/2019	Church	A	A			Routine	0.9				
11/8/2019	Church	A	A			Routine	1.0				
10/15/2019	Church	A	A			Routine	1.0				
9/18/2019	Church	A	A			Routine	1.0				
8/28/2019	Church	A	A			Routine	1.1				
7/16/2019	Church	A	A			Routine	0.90				
6/6/2019	Chrurch	A	A			Routine	0.80				
5/17/2019	Church HB	<1	<1			Routine	0.7				
4/10/2019	Church	A	A			Routine	0.90				
3/12/2019	Church	A	A			Routine	1.0				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
3/4/2019	5 samples	<1.0	<1.0			Other	0.69-0.95				investigative samples
2/19/2019	Church location	A	A			Routine					
1/1/2019	No sample								MR1		Cit 03-24-19C-010 with fine

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

5401003 East Orosi Community Services District

Sample Date	*Time*	*Source*	*Sample Type*	*Test Method*	*T Coli*	*E Coli*	*F Coli*	*HPC*	*Violation*	*Comments*
8/11/2022	9:58	East Well	Well	QTray	<1	<1				
8/3/2022	10:58	East Well	Well	QTray	<1	<1				
7/22/2022	10:40	East Well	Well	QTray	<1	<1				
7/1/2022	11:10	East Well	Well	QTray	<1	<1				
6/29/2022	10:22	West Well	Well	QTray	>200.5	<1				
6/13/2022	11:10	East Well	Well	QTray	3.1	<1				
6/6/2022	10:45	East Well	Well	QTray	25.4	<1				
5/31/2022	9:11	East Well	Well	Qtray	3.1	<1				
5/27/2022	10:24	East Well	Well	Qtray	200.5	78.2				
5/23/2022	10:23	West Well	Well	Qtray	<1	<1				
4/28/2022	8:54	West Well	Well	Qtray	<1	<1				
3/22/2022	10:46	West Well	Well	Qtray	<1	<1				
2/15/2022	10:30	East Well	Well	Qtray	<1	<1				
2/15/2022	10:38	West Well	Well	Qtray	<1	<1				
1/28/2022	10:20	East Well	Well	Qtray	<1	<1				
1/28/2022	10:38	West Well	Well	Qtray	<1	<1				
12/28/2021	10:26	East Well	Well	Qtray	<1	<1				
12/28/2021	10:40	West Well	Well	Qtray	<1	<1				
11/18/2021	10:10	East Well	Well	Qtray	<1	<1				
11/18/2021	10:24	West Well	Well	Qtray	<1	<1				
10/26/2021		Wells: East, West	Well	QTray	<1	<1				
10/26/2021	9:55	East Well	Well	Qtray	<1	<1				
10/26/2021	10:07	West Well	Well	Qtray	<1	<1				
9/27/2021	10:02	East Well	Well	Qtray	<1	<1				
9/27/2021	10:12	West Well	Well	Qtray	<1	<1				
8/20/2021	10:42	East Well	Well	Qtray	<1	<1				
8/20/2021	10:58	West Well	Well	Qtray	<1	<1				
7/20/2021	10:18	East Well	Well	QTray	<1	<1				
7/20/2021	10:32	West Well	Well	QTray	1	<1				
6/24/2021		Wells: East, West	Well	QTray	<1	<1				
5/20/2021		Wells: East, West	Well	Qtray	<1	<1				
4/21/2021		Wells: East,West	Well	Qtray	<1	<1				
3/25/2021		Wells: East, West	Well	Qtray	<1	<1				
2/18/2021		Wells: East, West	Well	Qtray	<1	<1				
1/14/2021		Wells: East,West	Well	Qtray	<1	<1				
12/10/2020		Wells: East, West	Well	Qtray	<1	<1				
11/23/2020	10:08	Wells: East, West	Well	Qtray	<1.0	<1.0				
10/13/2020		Wells: East West	Well	Qtray	<1	<1				
9/18/2020		Wells: East, West	Well	Qtray	<1	<1				
8/14/2020		Wells: East, West	Well	Qtray	<1	<1				
7/23/2020		Wells: East, West	Well	Qtray	<1	<1				

5401003 East Orosi Community Services District

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
6/19/2020		Wells: East, West	Well	Qtray	<1	<1				
5/7/2020		Wells: East, West	Well	QTray	<1	<1				
4/10/2020		Wells: East, West	Well	QTray	<1	<1				
3/20/2020		Wells: East,West	Well	QTray	<1	<1				
2/6/2020		Wells: East, West	Well	QTray	<1	<1				
1/10/2020		Wells: East, West	Well	QTray	<1	<1				
12/5/2019		Wells: East, West	Well	QTray	<1	<1				
11/8/2019		Wells: East, West	Well	QTray	<1	<1				
10/15/2019		Wells: East West	Well	QTray	<1	<1				
9/18/2019	10:40	East Well	Well	QTray	<1	<1				
9/18/2019	10:55	West Well	Well	QTray	<1	<1				
8/28/2019		Wells: East,West	Well	QTray	<1	<1				
7/16/2019		Wells: East, West	Well	Qtray	<1	<1				
6/6/2019		Wells; East,West	Well	QTray	<1	<1				
5/24/2019	11:10	West Well	Well	QTray	<1	<1				
5/17/2019	10:35	East Well	Well	P/A	P	A				
5/17/2019	10:35	West Well	Well	QTray	<1	<1				
4/19/2019	11:00	West Well	Well	QTray	<1	<1				
4/10/2019	10:46	East Well	Well	QTray	<1	<1				
3/14/2019	10:50	West Well	Well	QTray	<1	<1				
3/4/2019	11:23	Well 02 - West	Well	QTray	<1.0	<1.0				*investigative sample*
2/19/2019		Well 02 - West	Well	QTray	<1	<1				

Appendix D:
Lead and Copper Tap Sample Results Reporting Form

State Water Resources Control Board

Division of Drinking Water

Lead and Copper Tap Sample Results Reporting Form

This form must be submitted to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

		Sampling Site Change
Report Date: (mm/dd/yyyy)		
Water System Name:		***If any sampling sites were changed, please list the old site, new site, and reason for the change in the box below.***
Water System Number:		
Sample Schedule:	◯ 6-month ◯ Annual ◯ Triennial	
# of Samples Required:		
# of Samples Reported:		
	90th Percentile Level (mg/L)	
Lead:		
Copper:		

	Sample Date	**Sample Site Location/Address**	**Tier** 1, 2 or 3	**Result** Lead (mg/L)	**Result** Copper (mg/L)
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Number of Tap Sample Sites Required

The number of tap sample sites required is based on the number of people served (system size) by your water system and also whether you are performing Standard or Reduced Monitoring (*CCR §64675*).

System Size	**Minimum Number of Sites**	
	Standard Tap Sampling	Reduced Tap Sampling
> 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
< 101	5	5

Determining the 90th Percentile Lead and Copper Level

Number of Tap Samples Collected	**Determination of 90th Percentile Lead or Copper Level**
5	Average the 4th and 5th highest sample results to get the 90th percentile level
More than 5	Place results in ascending order and assign each sample a number, 1 for the lowest concentration. Multiply the total number of samples by 0.9. Round down to the nearest whole number if the decimal is 0.4 or lower and round up if the decimal is 0.5 or higher. The sample result that corresponds with the nearest whole number is the 90th percentile.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on: ______________________________ (date)

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

Additional Samples

	Sample Date	Sample Site Location/Address	Tier 1, 2 or 3	Result Lead (mg/L)	Result Copper (mg/L)
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Appendix E:
Cross Connection Control Survey Guidance

Cross-Connection Control for Small Community Water Systems
Division of Drinking Water – Tulare District

Purpose of Cross-Connection Control Program: Water provided by a public water system may be contaminated via cross-connections within the distribution system. The purpose of the cross-connection control program is to reduce the hazard of contamination of the public water system by identifying actual and potential cross-connections and taking action to protect the system from these hazards. This is accomplished by installing backflow prevention assemblies where hazards are identified; or ensuring that water-using equipment on the premises is installed in accordance with plumbing code requirements and good practice.

What are cross-connections?

Cross-connections are actual and potential unprotected connections between a potable water system and any source or system containing unapproved water or a substance which is not safe. Examples of cross-connections include:

1. Improperly installed irrigation systems that may allow backsiphonage of stagnant, bacteriologically unsafe water into the piping system.
2. Improperly plumbed water-using devices such as hot-tubs, boilers or commercial dishwashers which may allow unsafe water back into the domestic piping system.
3. Irrigation systems served by an auxiliary source, such as a private well or creek. Such systems create a potential for major contamination of the public water system via interties with the domestic piping system.
4. Interconnections between the potable system and a non-potable system.

What the Regulations Require

Section 7584 of the California Code of Regulations requires that each public water system have a cross connection control program that includes these elements:

1. The adoption of operating rules or ordinances to implement the cross-connection program.
2. The conducting of surveys to identify water user premises where cross connections exist or are likely to occur.
3. The provisions of backflow protection by the water user at all connections where a cross connection hazard has been identified.
4. The provision of at least one person trained in cross connection control to carry out the program.
5. The establishment of a procedure or system for testing backflow prevention assemblies.
6. The maintenance of records of locations, tests, and repairs of backflow prevention assemblies within each water supplier's distribution system.

Getting Started

For small community water systems, the initial elements of the program consist of the following:

1. Adopting an ordinance or set of rules to implement the cross-connection control program. The ordinance or set of rules is important since it establishes the legal authority to carry out the program.
2. Conducting a system survey to identify actual and potential cross-connection hazards.
3. Ensuring that hazards are abated by the installation of backflow prevention assemblies at the meter, eliminating the hazard in conjunction with the owner of the property or providing internal cross-connection protection.

System Survey

The system survey consists of a preliminary survey and, if necessary, a more detailed second survey. For most small systems, the initial survey may consist of a questionnaire sent to each customer asking whether the customer has specific potential hazards. Documentation of the system survey is to be submitted to the Division. Attached is a summary form for documentation of the system survey.

Residential areas

Customers should be asked if any of the following are located on-site:

1. Auxiliary water supply (i.e. either a well or a creek pump) - backflow prevention device is mandatory.
2. Irrigation systems - backflow prevention device not required if system is installed in accordance with plumbing codes with appropriate vacuum breakers.
3. Swimming pool, hot tub or spa - backflow prevention device not required if system is installed in accordance with plumbing codes.
4. Solar hot water heating panels - backflow prevention device not required if system is installed in accordance with plumbing codes.
5. Gray water systems - backflow prevention assemblies may not be required if the system is installed in accordance with the Uniform Plumbing Code.

If these or other potential hazards are located on site, the water system is to determine whether the equipment has been installed in accordance with plumbing codes and/or good practice in order to minimize the risk of backflow.

Commercial customers: A more detailed questionnaire and survey is necessary. Small community systems, which also serve commercial customers, should review the Department of Health Service's "Manual of Cross-Connection Control - Procedures and Practices". A system survey of commercial users as specified in the Manual is to be performed. As an alternative, the system may decide to require backflow prevention assemblies' at all commercial service connections where hazards are likely to exist.

Wastewater and Hazardous Wastes: A service connection which handles wastewater or dangerous chemicals requires special evaluation and protection from cross-connection hazards. For additional information on evaluating this type of facility, please contact the appropriate regulatory agency and a cross-connection control specialist.

ELEMENTS OF A CROSS-CONNECTION CONTROL PROGRAM
DDW – Tulare District

When implementing a Cross-Connection Control Program, the water supplier or health agency should follow an organized plan. The following items should be included as a minimum. The items **explain the Department of Health Services' policy regarding the regulations.**

7584. Responsibility and Scope of Program
The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program. The program, or any portion thereof, may be implemented directly by the water supplier or by means of a contract with the local health agency, or with another agency approved by the health agency. The water supplier's cross-connection control program shall for the purpose of addressing the requirements of Sections 7585 through 7605 include, but not limited to, the following elements:

(1) The adoption of operating rules or ordinances to implement the cross-connection program.

A public water supplier shall enact an ordinance or rule of service outlining the cross-connection control program and providing enforcement authority.

(2) The conducting of surveys to identify places where cross-connections are likely to occur.

Water utilities do not have any responsibility for controlling or abating cross-connections on a user's premises. All existing facilities where potential cross-connections are suspected, however, shall be listed and inspected or reinspected on a priority basis, where feasible. All applications for new services or for enlarging existing services or changing of occupant shall be reviewed or screened for cross-connect1ons hazards

(3) The provision of backflow protection at the user's connection or within the user's premises or both.

Adequate provisions for implementation and enforcement of backflow protection where needed including the shutting off service when necessary

4) The provision of at least one person trained in cross-connection control to carry out the cross-connection program.

Specific units of the health agency and/or water supplier should be designated to organize and carry out the cross-connection control program. The personnel in those units should be trained as to the causes and hazards of unprotected cross-connections.

(5) The establishment of a procedure or system for testing backflow preventers.

A list of approved backflow preventers and list of certified testers should be made available to each water user required to provide backflow protection.

The list may include backflow devices approved by University of Southern California, Foundation for Cross-Connection Control and IAPMO, which may be found on the SWRCB website at the following address:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml

The List of certified testers may be lists developed by the American Water Works Association and local county health agencies.

Backflow preventers should be tested at least yearly or more often as required by the health agency or water supplier.

(6) The maintenance of records of locations, tests and repairs of backflow preventers

Adequate records should be kept and filed for reference. These records should include, in addition to the name of the owner of the premises, the:

a) Date of inspection
b) Results of inspection
c) Required protection
d) List of all backflow preventer devices in the system
e) Test and maintenance reports
f) All correspondence between the water supplier, the local health authority, and the consumer
g) Records must be maintained for a minimum of three years

Records of inspection and testing should be evaluated to determine if:

a) Devices are frequently or sufficiently reviewed to detect failure.
b) There are unusual feature of a particular model of device or component.
c) Cause of failure can be eliminated.

A program should be established to notify the water user when his backflow preventer must be tested. (A minimum of once each year is required.) After installation or repair, a backflow preventer should be tested and approved before it is accepted.

7605. Testing and Maintenance of Backflow Preventers

Regulations require the following regarding testing and maintenance of backflow prevention devices:

(a) The water supplier shall assure that adequate maintenance and periodic testing are provided by the water user to ensure their proper operation.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the water supplier or health agency.

(c) Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the health agency or water supplier. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this Chapter.

(d) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required.

(e) The water supplier shall notify the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

(f) Reports of testing and maintenance shall be maintained by the water supplier for a minimum of three years.

Cross-Connection Survey Summary Form-Small Community Water Systems

Name of System ___________________________________ System Number ___________

Description of Survey Procedures-How survey was conducted, (include copy of survey form):
Person conducting survey (List name and qualifications):

____

____

Procedures for Residential Connections:

____

____

____

____

Procedures for Commercial Connections:

____

____

____

____

Total number of service connections _______ Number of service connections surveyed ______
Number of connections with auxiliary sources (i.e. wells or creek pumps) ___________
Number of connections with other hazards ___________
Total number of backflow prevention devices ___________

Type of Hazard Identified(i.e. private well, hot tub, irrigation system, swimming pool, etc)	**Number of connections with hazard**	**Number of devices installed**	**Number where device not necessary**

Describe follow-up for service connections that did not respond to the survey:

____

____

____

____

____

Long-term (Describe on-going cross-connection protection & testing of backflow prevention assemblies)

____

____

____

____

____

Submitted by (signature) ____ Date _________

Appendix F:
Chlorine Operations Plan Guidance

Guidance Document for the Preparation of an Operations Plan For Small Water Systems With Chlorination

Written Description of Water Sources, Storage Tanks and Distribution System (with as-built maps or schematics) and General Record Keeping

We recommend a brief description of sources, storage, chlorinator unit (treatment) and number of connections and character (seasonal rental, year-round, etc.). Example; 200 foot well drilled in 1972, 1500 gallon welded steel storage tank, chlorinator with a diaphragm type pump (manufacturer and model) and 25 gallon disinfectant reservoir, serving 15 connections (one third seasonal occupancy).

We strongly recommend a multi-tabbed file be set up to keep copies of the laboratory results (10 year retention) and monitoring requirements and an accompanying calendar schedule for all sampling.

Other files that should be kept on file are copies of correspondence from our Division (e.g., water supply permit), all sampling plans (Bacteriological Sample Siting Plan), water main and valve location maps, the well driller's report and County well construction permit that demonstrates conformance to its well ordinance (schematic documenting adequate horizontal protection of well from sanitary hazards), pump and storage tank information, and their accompanying service records, etc.

The Operations Plan elements are as follows:

- **ROUTINE OPERATIONAL PROCEDURES FOR EACH COMPONENT OF THE SYSTEM**:

A. Visual inspection of **WELL** (daily or minimum of weekly).
Check for the following; water leaks that could contaminate well, unscreened or openings where sealants can be applied, electrical hazards, chemical hazards (proper use of chemicals around well head). Tip: Maintain a log book for each well site that records maintenance and monthly water production and flow rates, water table depths and any maintenance performed.
1. Well has the ability to be pumped to waste and sampling tap (non-threaded down-turned hose bib).
2. Check the pump and controls for proper operation of well and chlorination equipment.
3. General house keeping: remove rodent feces, dirt, vegetation, any standing water, control gophers/squirrel burrowing around well head to eliminate potential contamination hazards.

B. Visual inspection of the **STORAGE TANKS** (daily or minimum of weekly).
1. Inspect vents and overflow outlets for proper protection (screens, flapper valve, etc.) to keep out rodents and insects.
2. Inspect for any leaks or damage (record observations and repair as needed).
3. Record system pressure. Record the pressure the pump turns on, the pressure the pump turns off and the duration of the run time so storage tank does not overflow.

4. Scheduled inspection and cleaning of storage tank (quarterly, semi-annually or annually). Record kept for the date cleaned and any observations (e.g., remnants of rodents, etc.)

C. Visual inspection of **CHLORINATOR PUMP** and disinfection reservoir (daily or minimum of weekly).
   1. Inspect the pump for proper operation. Hypochlorinator pumps are prone to vapor lock (air bubble in line) and need to be equipped with degassing feature. Installation Tip: The problem can be greatly alleviated by maintaining positive pressure on the intake of the hypochlorinator pump by placing the hypochlorinator pump at the same elevation as the chlorine solution tank.
   2. Inspect the disinfectant in the reservoir for concentration and adequate volume for the operational period (record results).
   3. Determine if there is enough disinfectant on hand for one or more weeks.

D. Measure the **DISINFECTANT RESIDUAL** in the distribution system (free chlorine test kit required).
   1. Monitor and record the results from designated locations which are the same locations as the routine bacteriological sample sites. The residuals must be reported with the bacteriological results at the time the bacteriological sample is collected. This information is also used for reporting the quarterly chlorine residuals under the Disinfection Byproducts Rule). Reporting forms attached.
   2. Determine if an adequate level of disinfectant is maintained.
      a. If disinfectant level is low (0.2 to 0.3 mg/L is generally the lowest level reportable using colorimetric test kits), determine the reason and correct. If enforcement action taken for repeated Total Coliform Rule violations, there may be more stringent chlorine residual requirements.
      b. If no measurable disinfectant, notify owner, determine reason, and remedy. If no disinfectant residual for 24 hours, notify Tulare District Office of the California Department of Public Health.

E. Maintenance of **GAUGES and METERS**.
   1. Inspect all gauges and meters for leaks and proper function daily. Repair or replace as needed (keep record of date). Schedule routine calibration checks to ensure accurate readings are being provided.

F. Inspection and **EXERCISING of the VALVES**.
   1. Inspect valves for leaks (record observations, repair or replace if leaking).
   2. Exercise valves on a schedule, as needed (i.e. quarterly, semi-annually, annually, record dates on attached sheet).

G. Operation and maintenance of **DISTRIBUTION FACITILIES**.
   1. Visually inspect the distribution system for leaks on a regular basis. Record date and observations.
   2. Flush dead end mains or lines periodically (quarterly, semi-annually, annually as needed. Record date and observations).

- **MONITORING AND REPORTING**:

A. **BACTERIOLOGICAL MONITORING FROM DISTRIBTUTION SYSTEM**; as per approved Bacteriological Sample Siting Plan, required monthly, report containing results submitted to the Department by the 10th day of the following month (refer to attached guidance). Recommend samples be collected early in the week in case repeat samples must be collected after a positive sample result is received. Repeat samples must be collected within 24 hours of receipt of positive result.

   1. If sample positive, lab must notify water system contact person or the Department if you can not be reached. Multiple repeat samples must be collected (three to four repeat samples depending on system classification). Department recommends that water system provides a copy of the Emergency Notification Plan form to analyzing laboratory.
   2. Take five routine samples the month following a positive sample.

B. **BACTERIOLOGICAL MONITORING FROM WELL SOURCES;** should be described in the sample siting plan and is required from raw water at well head PRIOR to chlorination. The samples are required to be analyzed using the density method. If sample positive, notify Department by telephone, e-mail for follow-up investigation. Frequency is dependent on type of water system and report containing the results submitted to the Department by the 10th day of the following month.

C. **CHEMICAL SOURCE MONITORING**; as required by the Department, forward results to the Department (see attached Water Quality Monitoring Schedule).

D. **DISINFECTION BYPRODUCT RULE MONITORING**; as required annually for non-transient non-community and community water systems. If less than half the MCL for total trihalomethanes (TTHM) and haloacetic acids (HAA5), the sample can be reduced to once every three years. Routine sample should be collected during the warmest month of the year from a location with the longest detention time in the distribution system. Submit copy of laboratory results to the Visalia District of the CDPH.

E. **LEAD AND COPPER TAP MONITORING**; as required for nontransient noncommunity and community water systems. Contact Department for when next round of monitoring is due.

F. **WATER PRODUCTION**
Recommend installation of instantaneous and totalizing flow meter and record daily or at least weekly instantaneous and monthly production volume readings. This is especially valuable and necessary for hard rock wells. This information is reported in the annual report form.

G. **PUBLIC NOTIFICATION** of violation required.

   1. Notification shall be given as per Emergency Notification Plan (copy of form attached). Provide updated plans when personnel change to the Department (attached). Templates of the various for public notices are available at
   http://www.cdph.ca.gov/certlic/drinkingwater/Pages/notices.aspx
   2. State the cause of problem, if known, and what steps have been taken to correct it.
   3. Send a copy of the notification to the Department with proof of notification.

- **EMERGENCY NOTIFICATION PLAN (ENP), ANNUAL REPORT TO THE DRINKING WATER PROGRAM (ARDWP) AND CONSUMER CONFIDENCE REPORT (CCR):**

A. ENP: a form that lists the Department's and water system's contact information in the event of **water quality emergency** in which public notification must be performed. It must describe the methods to be followed in order to distribute the public notices to each customer as rapidly as possible. Small system may distribute notices by hand delivery. Attached is a copy of the form.

B. ARDWP: a form for all water systems that summarizes system operations for the previous calendar year and includes number of service connections and population served and supplemental information relating to consumer complaints, annual water production, sources, and use of NSF approved treatment chemicals, etc. Also provides updated contact and mailing address information. This information is necessary for classification of the system and contact information.

C. CCR: required for nontransient noncommunity and community water systems that summarizes all monitoring done during the previous calendar year. The CCR must be distributed by July of every year. A template available at http://www.cdph.ca.gov/certlic/drinkingwater/Pages/CCR.aspx

- **EMERGENCY OPERATIONAL PRACTICES:**

A. List of **equipment on hand** for emergency repairs.
  1. Miscellaneous wrenches.
  2. Leak clamps

B. List of sources of needed **equipment, not on hand**.
  1. Name and address of supplier and type of equipment.
  2. If under contract or rental.

Name	Address	Phone #	Equipment	Rental/ Contract
			Steel Tank Welder	
			Electrical repair	
			Digging equipment	
			Generator	
			Chemicals	

C. List of distributors or suppliers of **replacement parts** for the system.
  1. Name and address of supplier and type of equipment.

Name	Address	Phone #	Equipment
			PVC pipe, valves, and fittings
			pumps, pressure tank and gauges
			Chlorinator

D. List of **emergency contact numbers**:

	Name	**Phone #**
1.	Bryan Potter, SWRCB-DDW Tulare District Office	Office: (559) 447-3300 / Cell: (559) 280-6363
2.	Law Enforcement -	
3.	Electrician	
4.	Laboratory	
5.	Pump repair service	
6.	Chemical disinfectant supplier	
7.	Equipment supplier	
8.	Water System Owner	
9.	Certified Operators (include certification level)	

Attachments (Note: electronic copies of all forms available upon request):

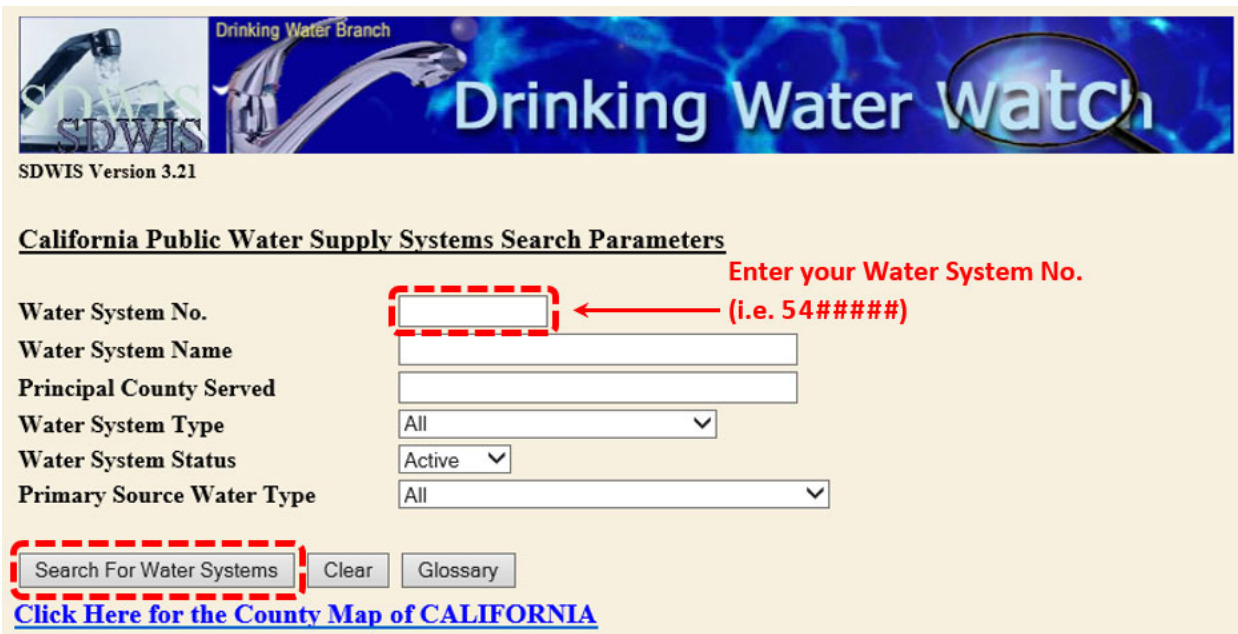
1. Monthly water production and chlorine usage report
2. Coliform monitoring report forms for distribution and raw well sources
3. Quarterly chlorine residual report form for Disinfection Byproducts Rule
4. Bacteriological Sampling Siting Plan guidance
5. Water Quality Monitoring Schedule
6. Emergency Notification Plan form (please include job title and any operator certifications for names listed)
7. Lead and copper tap monitoring guidance

Appendix G:
Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data

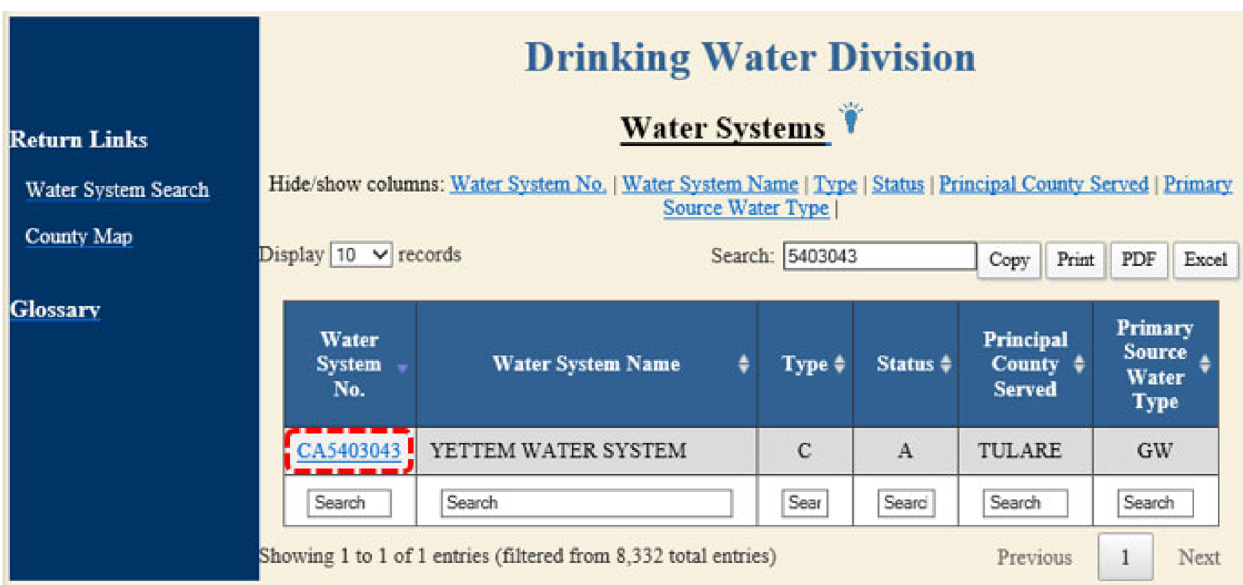
How To Access Individual System's Drinking Water Monitoring Schedule & Water Quality Data

1. Place the following link in the internet address bar: https://sdwis.waterboards.ca.gov/PDWW/

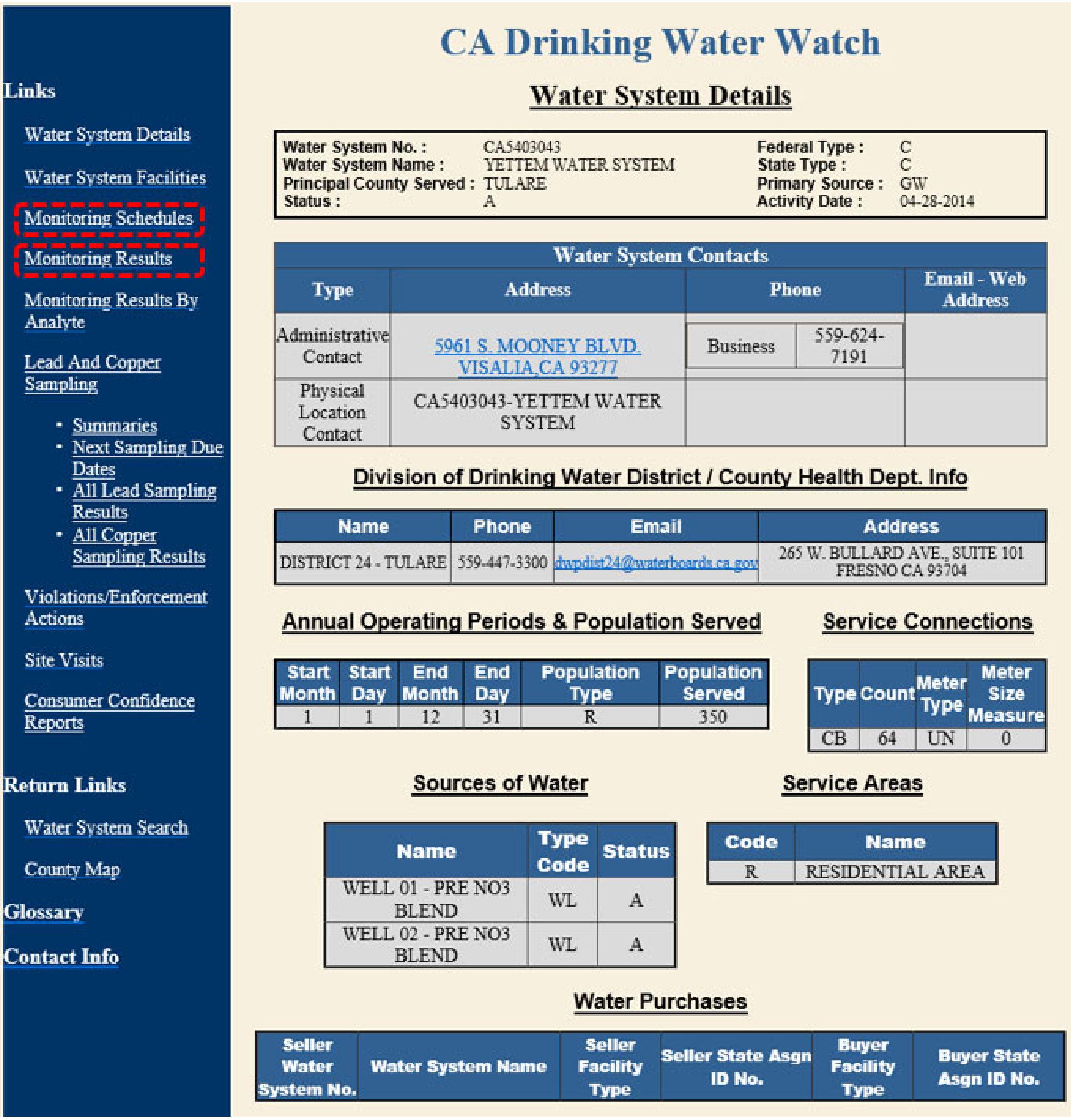
2. Enter your Water System No. and select "Search For Water Systems"



3. Click on your Water System No. (Link in blue text).



4. On the left side of the screen, select ***Monitoring Schedules*** for source monitoring schedule (last sample and next due dates) *or* ***Monitoring Results*** for water quality results.



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System Details

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Water System Contacts

Type	Address	Phone		Email - Web Address
Administrative Contact	5961 S. MOONEY BLVD. VISALIA,CA 93277	Business	559-624-7191	
Physical Location Contact	CA5403043-YETTEM WATER SYSTEM			

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 24 - TULARE	559-447-3300	dwpdist24@waterboards.ca.gov	265 W. BULLARD AVE., SUITE 101 FRESNO CA 93704

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	350

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	64	UN	0

Sources of Water

Name	Type Code	Status
WELL 01 - PRE NO3 BLEND	WL	A
WELL 02 - PRE NO3 BLEND	WL	A

Service Areas

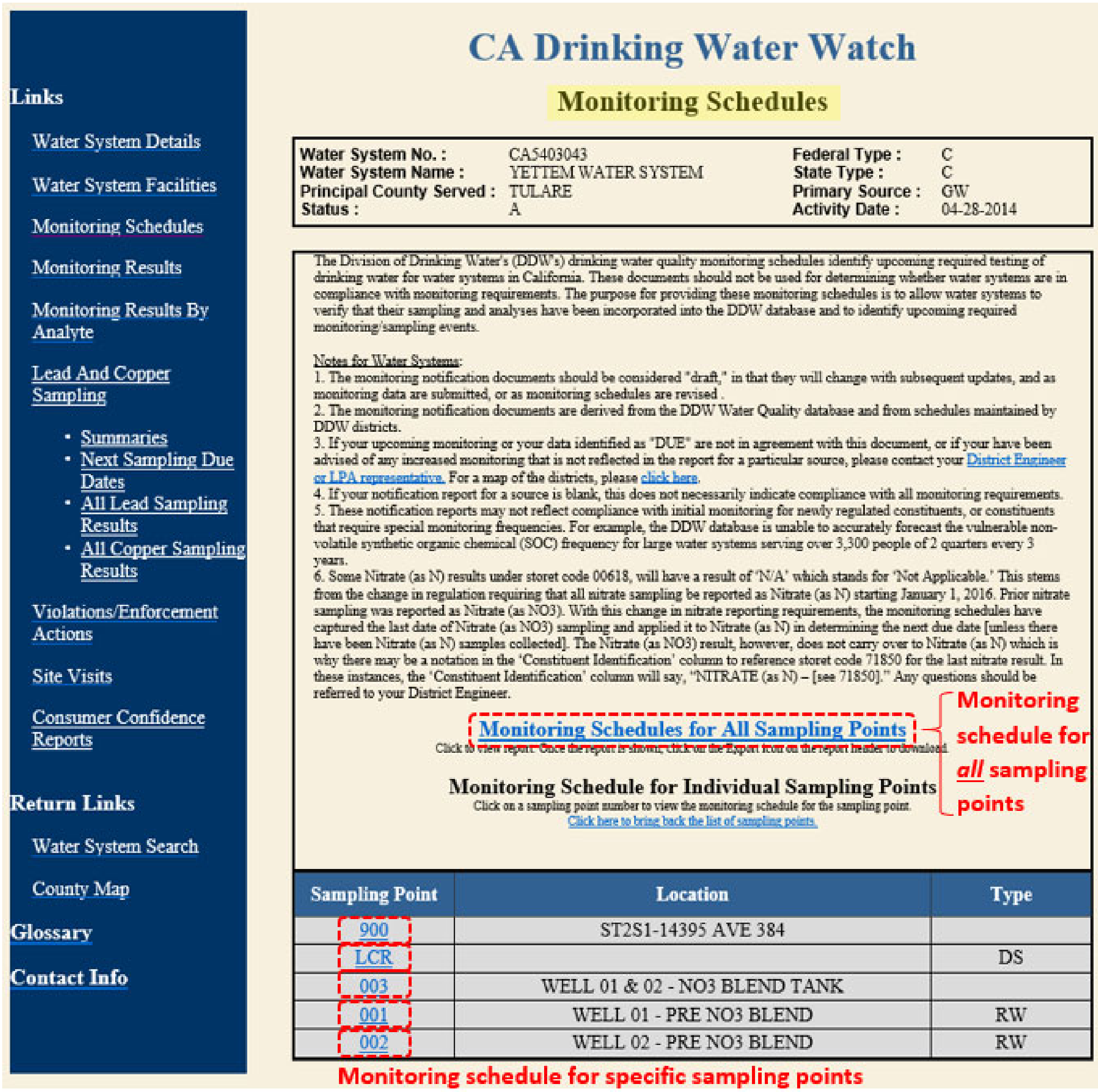
Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.

5. Select Sampling Point corresponding to the source (Link in blue text and is a number).

5A. ***Monitoring Schedules***



CA Drinking Water Watch

Monitoring Schedules

Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

The Division of Drinking Water's (DDW's) drinking water quality monitoring schedules identify upcoming required testing of drinking water for water systems in California. These documents should not be used for determining whether water systems are in compliance with monitoring requirements. The purpose for providing these monitoring schedules is to allow water systems to verify that their sampling and analyses have been incorporated into the DDW database and to identify upcoming required monitoring/sampling events.

Notes for Water Systems:
1. The monitoring notification documents should be considered "draft," in that they will change with subsequent updates, and as monitoring data are submitted, or as monitoring schedules are revised .
2. The monitoring notification documents are derived from the DDW Water Quality database and from schedules maintained by DDW districts.
3. If your upcoming monitoring or your data identified as "DUE" are not in agreement with this document, or if your have been advised of any increased monitoring that is not reflected in the report for a particular source, please contact your District Engineer or LPA representative. For a map of the districts, please click here.
4. If your notification report for a source is blank, this does not necessarily indicate compliance with all monitoring requirements.
5. These notification reports may not reflect compliance with initial monitoring for newly regulated constituents, or constituents that require special monitoring frequencies. For example, the DDW database is unable to accurately forecast the vulnerable non-volatile synthetic organic chemical (SOC) frequency for large water systems serving over 3,300 people of 2 quarters every 3 years.
6. Some Nitrate (as N) results under storet code 00618, will have a result of 'N/A' which stands for 'Not Applicable.' This stems from the change in regulation requiring that all nitrate sampling be reported as Nitrate (as N) starting January 1, 2016. Prior nitrate sampling was reported as Nitrate (as NO3). With this change in nitrate reporting requirements, the monitoring schedules have captured the last date of Nitrate (as NO3) sampling and applied it to Nitrate (as N) in determining the next due date [unless there have been Nitrate (as N) samples collected]. The Nitrate (as NO3) result, however, does not carry over to Nitrate (as N) which is why there may be a notation in the 'Constituent Identification' column to reference storet code 71850 for the last nitrate result. In these instances, the 'Constituent Identification' column will say, "NITRATE (as N) – [see 71850]." Any questions should be referred to your District Engineer.

Monitoring Schedules for All Sampling Points

Click to view report. Once the report is shown, click on the Export icon on the report header to download.

Monitoring Schedule for Individual Sampling Points

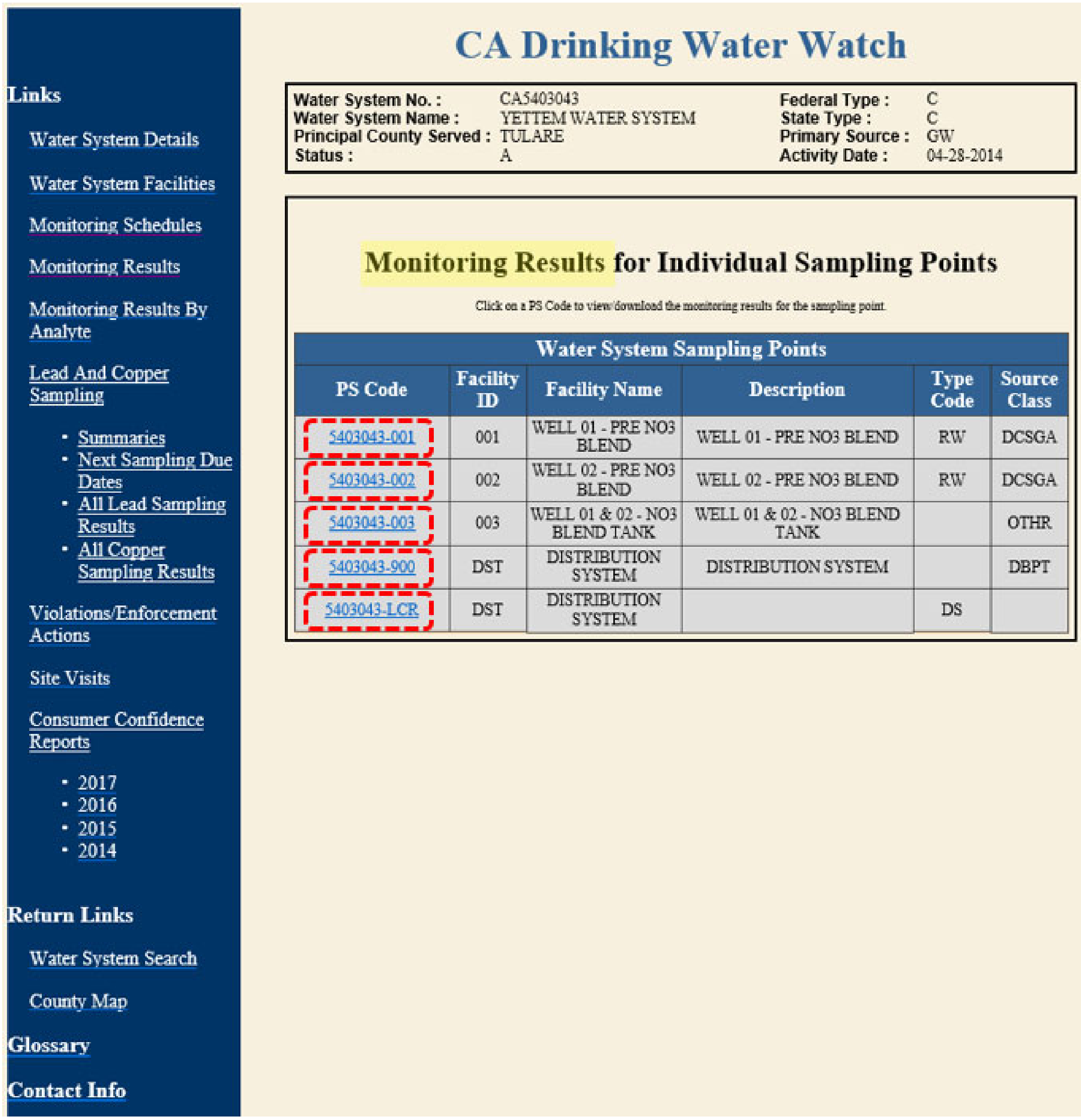
Click on a sampling point number to view the monitoring schedule for the sampling point.

Click here to bring back the list of sampling points.

Sampling Point	Location	Type
900	ST2S1-14395 AVE 384	
LCR		DS
003	WELL 01 & 02 - NO3 BLEND TANK	
001	WELL 01 - PRE NO3 BLEND	RW
002	WELL 02 - PRE NO3 BLEND	RW

NOTE: Any *past due* monitoring will have "DUE NOW" in the far-right column. **Please schedule this monitoring as soon as possible.**

5B. ***Monitoring Results***



Links

- Water System Details
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  - All Copper Sampling Results
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- Site Visits
- Consumer Confidence Reports
  - 2017
  - 2016
  - 2015
  - 2014

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Monitoring Results for Individual Sampling Points

Click on a PS Code to view/download the monitoring results for the sampling point.

Water System Sampling Points

PS Code	Facility ID	Facility Name	Description	Type Code	Source Class
5403043-001	001	WELL 01 - PRE NO3 BLEND	WELL 01 - PRE NO3 BLEND	RW	DCSGA
5403043-002	002	WELL 02 - PRE NO3 BLEND	WELL 02 - PRE NO3 BLEND	RW	DCSGA
5403043-003	003	WELL 01 & 02 - NO3 BLEND TANK	WELL 01 & 02 - NO3 BLEND TANK		OTHR
5403043-900	DST	DISTRIBUTION SYSTEM	DISTRIBUTION SYSTEM		DBPT
5403043-LCR	DST	DISTRIBUTION SYSTEM		DS	

6. Please contact the Tulare District Office at (559) 447-3300 or DWPDIST24@waterboards.ca.gov if you have any questions.

Appendix H:
Bacteriological Sample Siting Plan Template

Division of Drinking Water
Tulare District

GUIDELINES FOR COMPLETING THE
BACTERIOLOGICAL SAMPLE SITING PLAN FOR SMALL WATER SYSTEMS

The total coliform regulation requires the water supplier to submit a bacteriological sample siting plan to the Division of Drinking Water (Division), District Office for review and approval. The locations where samples are to be collected must be written down and formally approved by the District Office. These guidelines and Attachment 1, “Bacteriological Sample Siting Plan” Form, are to assist you in complying with these requirements.

To comply with the requirements for submitting a Bacteriological Sample Siting Plan, two (2) items must be submitted to the District Office at this time.

1. A system map, street map, or system schematic showing all sampling locations must be submitted. The map can be prepared by any system representative. It <u>does not have to be prepared by an engineer</u>. The following are also to be shown on the map:

    - Water Sources (i.e., well or spring)
    - Treatment Facilities (i.e., chlorination)
    - Storage Tanks
    - Pressure Reducing Stations
    - Booster Stations
    - Pressure Zones
    - Dead Ends
    - Service Area Boundaries
    - Routine Sample Sites
    - Repeat Sample Sites
    - Special Sample Sites

2. Complete Attachment 1, the “Bacteriological Sample Siting Plan” form, and **return the system map and form to the District Office for review and approval**.

    Once the Bacteriological Sample Siting Plan has been approved by the Division, copies should be provided to the person responsible for sample collection, the laboratory and the person responsible for reporting coliform-positive samples to the Division.

<u>Selection of Sampling Sites</u>

The routine sampling sites chosen must be representative of the water distribution system including all pressure zones, areas supplied by each water source and distribution reservoir.

<u>Looped Systems</u>: If your entire water distribution system is looped, then one routine sample point may be representative of your system, assuming valves are open.

Pressure Zones: You should only be concerned about sampling in different pressure zones if your water system serves different areas of varying elevations, for example in mountainous areas.

How many routine sampling sites are required?

The minimum number of samples for the water system shall be based on the known population served or the total number of service connections, whichever results in the greater number of samples, as shown in Table 64423-A. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

Table 64423-A

Minimum Number of Routine Total Coliform Samples

Monthly Population Served1	*Service Connections*	*Minimum Number of Samples Per Month*
25 to 1000	15 to 400	1
1,001 to 2,500	401 to 890	2
2,501 to 3,300	891 to 1,180	3
3,301 to 4,100	1,181 to 1,460	4
4,101 to 4,900	1,461 to 1,750	5
4,901 to 5,800	1,751 to 2,100	6
5,801 to 6,700	2,101 to 2,400	7
6,701 to 7,600	2,401 to 2,700	8
7,601 to 8,500	2,701 to 3,000	9
8,501 to 12,900	3,001 to 4,600	10
12,901 to 17,200	4,601 to 6,100	15
17,201 to 21,500	6,101 to 7,700	20
21,501 to 25,000	7,701 to 8,900	25
25,001 to 33,000	8,901 to 11,800	30
33,001 to 41,000	11,801 to 14,600	40
41,001 to 50,000	14,601 to 17,900	50
50,001 to 59,000	17,901 to 21,100	60
59,001 to 70,000	21,101 to 25,000	70

1 For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

How many repeat sampling sites are required?

A repeat sample set consists of three samples to be collected from the following locations:

- One repeat sample from the same routine location.
- One repeat sample from an *upstream location* (within 5 connections of the routine site).
- One repeat sample from a *downstream location* (within 5 connections of the routine site).

Each routine sample site must have identified repeat sample sites.

Ground Water Rule Compliance: All active groundwater sources in operation at the time of the coliform-positive sample must also be sampled along with the repeat sample set.

What if the water system does not have enough locations to select the required number of routine and repeat sample sites?

If the water system does not have enough sample locations to identify the required routine and repeat sample sites, contact the District Office for further guidance.

Pointers for Sample Site Selection

- When selecting a routine sample site you should be able to select a site upstream and a site downstream for repeat sampling.
- Select a site where the water is used continuously all year round.
- Pick a site that is easily accessible, i.e., a fenced yard with a locked gate and vicious dog is not a good selection.
- When choosing a sampling tap you should consider these factors:
  The sampling tap should be located in as clean an environment as possible. It should be protected from contamination by humans, animals, airborne materials or other sources of contamination.

  If you choose an outside private tap, it should be one that is in frequent use, clean, and at least 1½ feet (18 inches) above the ground. The sample tap should discharge downward.

  If you choose an inside tap, be sure that you are not sampling from drinking fountains; taps that have aerators or strainers, or swivel faucets; or taps off of individual homeowner treatment units.

  Do not choose a fire hydrant as sampling tap.

  Avoid taps that are surrounded by excessive foliage or taps that are dirty or corroded.

  Avoid taps that leak, have fittings with packing, or have permanent hoses or attachments fastened to the tap (Never collect a sample from a hose).

  Avoid the use of dead ends for routine sample collection, and use them for repeat samples only of no other sample sites are available and if there is continuous water use from a service off the dead-end.

Instructions for Completing the Bacteriological Sample Siting Plan Form

This form has been designed to include all the requirements for the Bacteriological Sample Siting Plan.

- **Public Water System Classification**
  The public water system (PWS) classification for your water system is either community, nontransient noncommunity or transient noncommunity. If you are uncertain of your classification, contact the District Office.

- **Month/Daily Users**
  The monthly population determines the frequency of bacteriological sample collection for community water systems and nontransient noncommunity systems. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

- **Active Service Connections (Community water systems only)**
  This is the number of active hook-ups served by the system. If your system has a hook-up to a vacant lot, do not count this as an active connection. If a vacant lot has a right to a future connection, do not count this an active connection. If a residence is connected to the system, but the residence is vacant, count this as an active hook-up.

- **Sampling Frequency**
  This is the minimum number of routine bacteriological samples required at the frequency specified. If any routine sample is positive for coliform bacteria, additional repeat samples will be required. Repeat samples are in addition to the required routine samples. If you are uncertain of the routine sampling frequency for your water system, contact the District Office.

- **Trained Sampler**
  The person collecting samples must be trained.

  Sampling Service: Water systems utilizing a certified laboratory or other sampling service for water sample collection will be considered to have trained samplers. Enter the name of the laboratory or sampling service collecting your samples. A copy of the approved Bacteriological Sample Siting Plan should be provided to the laboratory or sampling service, if one is used.

  Other Trained Samplers: Any person receiving a certificate from AWWA for attendance of the Water Sampling Training should submit a copy of their certificate along with the completed form. Any other samplers should submit a statement of their experience and training to this office for approval.

- **Analyzing Lab**
  Enter the state-certified laboratory, which will be analyzing your water samples.

- **Person Responsible to Report Coliform-Positive Samples to the Division**
  This should be the person that the laboratory is required to contact when a sample is total or fecal coliform positive. This person must notify the Division within 24 hours of a violation of the total coliform standard (more than one positive sample in a month) or when any sample is fecal or *E. coli* positive. This person should have the authority to take corrective action as required by regulation and the Division. This should be the same person listed on your Emergency Notification Plan.

- **Day/Evening Phone Number**
  The Division requires that the water system provide the phone numbers of the person listed above so that they can be contacted by the laboratory or the Division at any time during the day or evening in the event of a bacteriological emergency.

- **Signature and Date**

The person preparing the Sample Siting Plan should sign and date the plan. If the Division has questions regarding the sampling plan, this is the person to be contacted.

- **<u>Sample ID</u>**
  This should be entered on the laboratory slip when the sample is turned into the laboratory. This is the unique identifier for the water sample location, or the location address may also be used. For systems, which have no more than five (5) routine locations, these routine sites will be 1-ROU, 2-ROU, 3-ROU, 4-ROU, and 5-ROU.

  Each routine sample site must have two repeat sampling sites. Repeat sample sites are to be located within five (5) service connections upstream and downstream of the routine sample site.

  All sample locations should be marked in some way with the <u>Sample ID or location address</u> , i.e., the code painted on the sampling location or tagged with a water proof tag so the person collecting the water sample is sure to collect the water from the correct sample locations.

- **<u>Sample Type</u>**
  This describes what type of sample (routine or repeat) is to be collected at this location.

- **<u>Sample Point</u>**
  This is the type of the sample location. Use the following abbreviations, when appropriate: HB - Hose Bib (exterior), SF - Sink Faucet, PC - Goose Neck Type Copper Tube with Pet Cock

- **<u>Location of Sample Point</u>**
  This is the description of the area in the distribution that the sample site is located. <u>Routine sample sites shall not be located at dead ends</u>. Use the following abbreviations, when appropriate: DE - Dead End (Not Recommended), PZ - Pressure Zone, RD - Representative Distribution

- **<u>Location Address</u>**
  This is the actual physical location where the water sample is to be collected. If possible use a street address, i.e., 103 Good Street. If the location does not have a street address, use the nearest crossroads or use the last name of the resident, i.e., "Brown Residence." If the location is a business, please list the business name and address.

  When describing the location, keep in mind that the person collecting water samples must be able to locate the sample site from your description.

- **<u>Months Sample Collected at This Location</u>**
  This is the schedule for routine samples to be collected. For example, suppose two (2) sites are representative of your systems. Site No. 1 will be sampled in January, March, May, July, September, and November. Site No. 2 will be sampled in February, April, June, August, October, and December. All routine sites identified should be rotated to allow sampling at least every 3 months.

BACTERIOLOGICAL SAMPLE SITING PLAN (BSSP) FOR SMALL WATER SYSTEMS

System No.:	**System Name:**	**PWS Classification:**

No. of Monthly Users:	**No. of Daily Users:**	**No. Active Service Connections:**	**Cl2 Treatment:**

Sampling Frequency: __ per month	**Seasonal System:**	**Period of Operation:**
Name of Trained Sampler:	**Analyzing Lab:**	**Analyzing Lab:**

Person Responsible to Report Positive Samples to the Division:	**Day/Evening Phone No:**
Signature of Water System Representative:	**Date:**

Sample ID	Sample Type	Sample Point	Location of Sample Point	Address of Sample Point	Months Sample Collection at this Location
1-ROU	Routine				
1-REP1	*Repeat*				*Repeat Sample Only*
1-REP2	*Repeat*				*Repeat Sample Only*

In the event of a routine positive sample, a sample(s) will be collected from the well(s) in use for Ground Water Rule compliance.

If continuous chlorination is provided, raw water samples are taken **monthly.**

The SWRCB-Division of Drinking Water or Local Primacy Agency has reviewed and approved this BSSP. Any plans on file dated prior to approval date below are void. The water system must sample their distribution system and raw water special purpose source samples for bacteriological quality in accordance with the approved BSSP beginning _________________. Per the California Code of Regulations-Title 22 §64422, a water system is required to submit an updated plan to the State Board at least once every ten years and at any time the plan no longer ensures representative monitoring of the system.

District Office Representative Name: _____________________________ Title: _____________________ District Name: Tulare District

Signature:____ Date: ________________

Appendix I:
Emergency Notification Plan Template

State Water Resources Control Board

System No. ____________________

DIVISION OF DRINKING WATER – TULARE DISTRICT
WATER QUALITY EMERGENCY NOTIFICATION PLAN

Water System Name: ____________________

Physical Location Address: ____________________

The following persons have been designated to implement the Plan upon notification by the Division of Drinking Water that an imminent danger to the health of the water users exists:

	Contact Name & Title	Email Address	Home/Office	Cell
1.				
2.				
3.				

The implementation of the plan will be carried out with the following Division of Drinking Water and County Health personnel:

	Contact Name & Title	Email Address	Office	Cell
1.	Kristin Willet, Tulare District Engineer Division of Drinking Water	kristin.willet@waterboards.ca.gov	(559) 447-3300	(559) 280-6363
2.	Tricia Wathen, Supervising Sanitary Engineer Division of Drinking Water	tricia.wathen@waterboards.ca.gov	(559) 447-3300	(559) 696-8506
3.	Nilsa Gonzalez, Director Tulare County Environmental Health Division Manager	ngonzale@tularehhsa.org	(559) 624-7400	(559) 285-2440

4. **If the above personnel cannot be reached, contact:**

Office of Emergency Services (24 Hrs.) (800) 852-7550 or (916) 845-8911
Ask for "Division of Drinking of Drinking Water, Duty Officer"

NOTIFICATION PLAN

Community and Nontransient Noncommunity
(Must identify three methods)
☐ Door to Door Delivery ☐ Posted Notification
☐ Social Media ☐ Reverse 911/Telephone
☐ News Media (TV, Radio, Newspaper) ☐ Email
☐ Other: personal phone call

Transient Noncommunity
☐ Water system must post notification. Hand delivered notification must be provided to any residential/overnight customers.

***SYSTEMS SERVING MORE THAN 200 SERVICE CONNECTIONS MUST PROVIDE A CUSTOM PLAN.**

APPROXIMATE TIME TO ISSUE NOTICE:_______ HRS

Report prepared by:

______________________________ ______________
Signature and Title Date

Appendix G: Sultana 2024 Sanitary Survey

State Water Resources Control Board
Division of Drinking Water

August 12, 2024

Ms. Celeste Perez, Board Secretary
Sultana Community Services District – CA5400824
P.O. Box 158
Sultana, CA 93666

2024 Sanitary Survey

Dear Ms. Perez:

On October 30, 2023, Tulare District staff member Michelle Palencia, with the Division of Drinking Water (Division) conducted an inspection of the Sultana Community Services District's water system (Water System).

The findings of this inspection are detailed in the enclosed sanitary survey report. Upon completion of the inspection, the items listed below are required to be addressed by the Water System.

1. **DUE IMMEDIATELY***,* a plan for the continuous chlorination of the water delivered from Well 03 shall be submitted for the Division's review.

2. By **September 30, 2024**, the Water System must sample Well 02 and Well 03 quarterly for Nitrate.

3. **DUE IMMEDIATELY**, the Water System must sample Well 03 for 1,2,3-TCP and Alachlor.

4. By **September 1, 2024**, a map and updated BSSP must be submitted to the Division for review and approval.

If you have any questions regarding the information contained in the report, please contact the Tulare District at (559) 447-3132 or email dwpdist24@waterboards.ca.gov.

Sincerely,

Jeff Densmore, P.E.
South Central Section Chief
Central Branch Division of Drinking Water
State Water Resources Control Board

JD/MP
Enclosures

Cc: Jose A Padilla, Contract Operator, D1/T2
Jose_padilla2010@yahoo.com

Cruz Perez, Contract Operator, D1
Cruzperez0323@gmail.com

Small Water System Evaluation and Technical Report
Division of Drinking Water: Tulare District

Sultana Community Services District
System No. CA5400824

Contact:	Celeste Perez, Board Secretary
Report Date:	August 12, 2024
System Type:	Community Water System
Prepared by:	Michelle Palencia

I. INTRODUCTION

Date of Sanitary Survey Inspection:	October 30, 2023
Water System Name:	Sultana Community Services District water system (Water System)
Inspected by:	Michelle Palencia, Division of Drinking Water (DDW) Staff
Regulatory Entity:	State Water Resources Control Board, Division of Drinking Water (Division)
Other Attendees:	Jose A. Padilla, Contract Operator
Previous Inspection Date:	January 17, 2020 by Andrew Forbes

PERMIT STATUS

Current Permit:	Issued by Tulare District- DDW on August 29, 2014.
Purpose of this Report:	The Water System is currently in compliance with all permit provisions. The purpose of this engineering report is to document the inspection of the water system, describe the facilities and operational practices as they exist today, and to describe any deficiencies needing corrective action.

SERVICE AREA

Mailing Address:	P.O. Box 158, Sultana, CA 93666
Physical Location:	Located across from 41645 Road 105, Sultana, CA 93618
Average Daily Population:	779
Service Connections:	Total 249; 239 residential, 10 commercial. Unmetered.
Description of water system:	The legal owner of the Sultana Community Services District is Sultana Community Services District and the headquarters is located near the intersection of El Monte Way and Road 105, Sultana, CA 93666. The Water System is classified as a community water system and serves a population of 779 permanent residents through 249 service connections. The service connection types are

residential and businesses. The domestic water supply is obtained from one active groundwater source, Well 03 – MAIN RAW, and one standby source, Well 02 – SOUTH STBY. Continuous chlorination is the only treatment provided to the source water produced by Well 03. The water system has one pressure zone and uses 2,500 and 5,300-gallon hydropneumatic pressure tanks to main system pressure. There is no storage provided. The service connections are unmetered.

Treatment: Continuous Chlorination

A simple configuration of the water system schematic including all treatment is shown below.

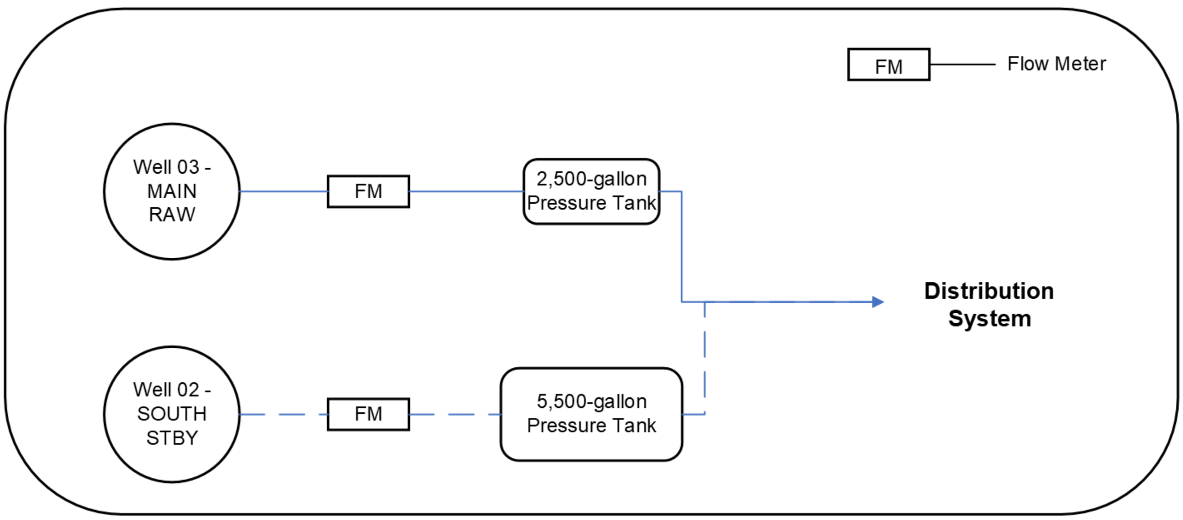

Figure 1. Flow Schematic for the Water System

II. INVESTIGATION AND FINDINGS

ENFORCEMENT

The Water System has not been issued any enforcement actions from the Division since the last inspection in 2019.

SOURCE OF SUPPLY

Source Water: Groundwater
Source of Supply: Well 03 and Well 02
Source Capacity: Well 03: 540 gallons per minute (gpm) and
Well 02: 525 gpm

Source Water Assessment on File at Tulare District Office:	Yes; Well 03 has a completed PCA checklist on file with the Division. Documents for the Source Water Assessment Program (DSWAP) for Well 03 are on file with the Division. Based on the DSWAP documents, Well 03 is most vulnerable to automobile-gas stations, underground storage tanks (confirmed leaking tanks), fertilizer/pesticide/herbicide application, chemical/petroleum processing/storage, historic gas stations, and known contaminant plumes. This information is required to be reported each year in the Consumer Confidence Report (CCR) to each of the Water System's customers.

Well 03 – MAIN RAW, CA5400824_003_003: Status – Active, Treated

DWR Well Completion Report:	A DWR Well Completion Report for Well 03 is on file at the Tulare District office.
Location of Well/Source:	
Date of Well Completion:	September 1996
Well Depth:	430 feet
Sanitary Seal Depth:	250 feet; cement
Perforation Depths:	260 to 420 feet
Well Casing:	26-inch steel casing to 430 feet
Flow Meter:	Yes, digital
Pump Type:	Deep-well turbine (DWT); oil-lubed
Pump Make and Model:	Unknown
Pump Size:	60-horsepower (hp)
Well Capacity:	540 gpm
Well Equipment:	Raw water sample tap, check valve, air release valve
Casing Vents:	No
Air Vacuum Release Valves:	No
Check Valves:	Yes; One (1)
Sampling Tap:	Yes; Threaded, down-turned
Pump Pedestal:	18 inches in height
Source Discharge:	Directly to 2,500-gallon hydropneumatic pressure tank
Source Operation:	Operation based on system pressure
Discharge to waste:	Yes
Back-up Power Supply:	No
Type of access control:	Fencing
Site Security:	Yes; Locked gate

Distance to closest sanitary condition:	Well 03 is most vulnerable to historic leaking underground petroleum tanks, known contamination plumes, agricultural activity and drainage and sewer lines. The contamination plumes are for nitrate and DBCP.
Status of Deficiencies from last inspection:	Not applicable

Well 02 – SOUTH STBY, CA5400824_002_002: Status - Standby

DWR Well Completion Report:	A DWR Well Completion Report for Well 02 is on file at the Tulare District office.
Location of Well/Source:	
Date of Well Completion:	March 1978
Well Depth:	358 feet
Sanitary Seal Depth:	60 feet; cement
Perforation Depths:	162 to 322 feet
Well Casing:	14-inch steel casing to 332 feet
Flow Meter:	Yes, digital
Pump Type:	Submersible
Pump Make and Model:	Unknown
Pump Size:	60-horsepower (hp)
Well Capacity:	525 gpm
Well Equipment:	Raw water sample tap, check valve
Casing Vents:	Yes
Air Vacuum Release Valves:	No
Check Valves:	Yes; One (1)
Sampling Tap:	Yes; Threaded, down-turned
Pump Pedestal:	4 inches in height
Other Equipment:	
Source Discharge:	Directly to 5,500-gallon hydropneumatic pressure tank
Source Operation:	Manual operation
Discharge to waste:	Yes
Back-up Power Supply:	Yes
Type of access control:	Fencing
Site Security:	Yes; Locked gate
Distance to closest sanitary condition:	Well 02 is most vulnerable to historic leaking underground petroleum tanks, known contamination plumes, agricultural activity and drainage and sewer lines.
Status of Deficiencies from last inspection:	Not applicable

WATER PRODUCTION AND ADEQUACY OF SUPPLY

Flow Meter on all Sources: Yes.
Production Records: Yes.
Total Source Capacity: Well 02: 525 gpm
Well 03: 540

Year	Annual Production (MG)	Max Month (MG)	Max Month
2014	45.6	5.3	July
2015	45	5.53	July
2016	39.9	5.24	August
2017	43.5	5.33	June
2018	38.9	4.95	August
2019	46.63	6.22	July
2020	53.27	6.57	July
2021	57.31	7.5	August
2022	54.9	6.8	July

Year	Average Day Demand (gpm)	Max Day Demand (gpm)	Peak Hour Demand (gpm)
2014	86.8	178	267
2015	85.6	185	277
2016	75.9	176	264
2017	82.7	185	278
2018	74.0	166	249
2019	88.7	209	314
2020	101.3	221	331
2021	109.0	252	378
2022	104.5	229	343

The 2023 Production Data was not reported by the Water System.

Sufficient Capacity: Yes
The Waterworks Standard outlines that the highest water usage during the most recent ten years and a peaking factor of 1.5 be used to estimate the average day (ADD), maximum day (MDD) and peak hour demand (PHD) for the Water System. The ADD, MDD, and PHD for the Water System are 109.0 gpm, 252 gpm, and 378 gpm,

respectively. The Water System is able to meet the peak hour demand with the active source offline and using only the standby source. The Water System does not have any storage. Although the Water System does have the standby source that can meet the MDD and is not required to have storage the Division still recommends that storage be implemented in the future.

TREATMENT FACILITIES

Disinfection Treatment – CA5400824_004_004

Type:	Continuous chlorination using liquid sodium hypochlorite
Source Treated:	Well 03
Purpose and Description:	The Water System injects a 12.5% solution of sodium hypochlorite for disinfection directly into the discharge line of Well 03 upstream of the pressure tank.
Treatment Site Location:	Discharge line of Well 03, upstream of pressure tank
Chemical Storage:	120-gallon polyethylene tank
Equipment:	Iwaki Model EHE36E1-VC chemical feed pump (max output 8.5 gallons per hour (gph) @ 105 pounds per square inch (psi))
Housing Facilities:	Yes.
NSF Approved:	Yes. NSF/ANSI 60 certified.
Operations Plan on File:	No. The Water System was previously directed to submit a Chlorination Operations Plan to the Division and is still outstanding. **DUE IMMEDIATELY, a plan for the continuous chlorination of the water delivered from Well 03 shall be submitted for the Division's review.** Guidance for completing a Chlorination Operations Plan is in Appendix G.

STORAGE AND DISTRIBUTION

Distribution System:	¾-inch high density polyethylene to 8-inch ductile iron mains
Storage:	None
Pressure Tanks:	2,500 and 5,500-gallon steel hydropneumatic pressure tanks
Typical System Pressure:	39 to 62 pounds per square inch (psi)
Isolation Valves:	YES

NOTE: The pressure tanks are not considered the equivalent of a storage tank.

III. WATER QUALITY MONITORING

SOURCE MONITORING

A summary report of the last source sample results and next due dates are included in Appendix B. Additionally, the current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/.

All chemical water quality monitoring from the sources must be submitted to the Division via the California Laboratory Intake Portal (CLIP). For CLIP to work properly, the Water System must identify the samples with the correct primary station code (PS Code). The correct assigned PS Code is listed in the table below.

Primary Station Code

Source Name	PS Code	Status
Well 02	CA5400824_002_002	Standby
Well 03	CA5400824_003_003	Active Raw

General Mineral (GM), General Physical (GP) Constituent Monitoring

Monitoring Requirements:	Every 3 years
Date of Last Analysis:	Well 02: February 18, 2021
	Well 03: April 29, 2019
Last Sample Results:	All results were below the respective MCLs.
Past Due Monitoring:	None
GM and GP Results:	Appendix B

Inorganic Chemical Monitoring

Monitoring Requirements:	Every 3 years
Date of Last Analysis:	Well 02: February 18, 2021
	Well 03: March 29, 2019
Last Sample Results:	All results were below the respective MCLs.
Past Due Monitoring:	None or List Constituents
Nitrate (as N) Monitoring:	Well 02; Due annually. Sampled on February 12, 2024, result was 4.5 mg/L.
	Well 03; Due annually. Sampled on March 7, 2024, result was 5.7 mg/L.

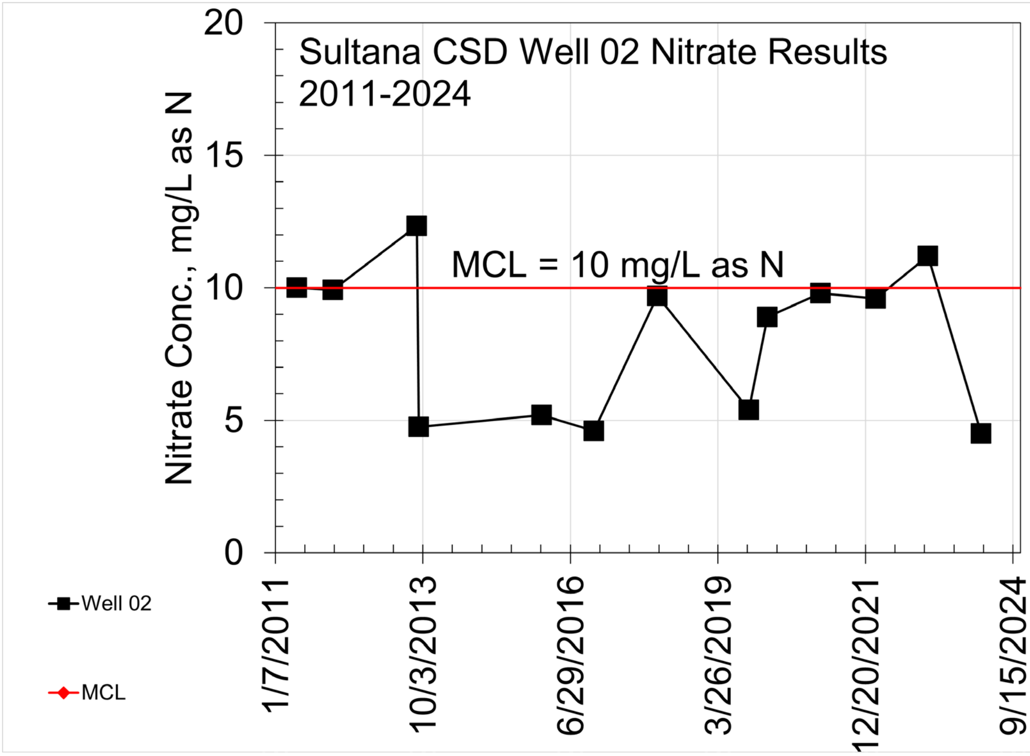

Figure 2. Well 02 Nitrate Results from 2011-2024

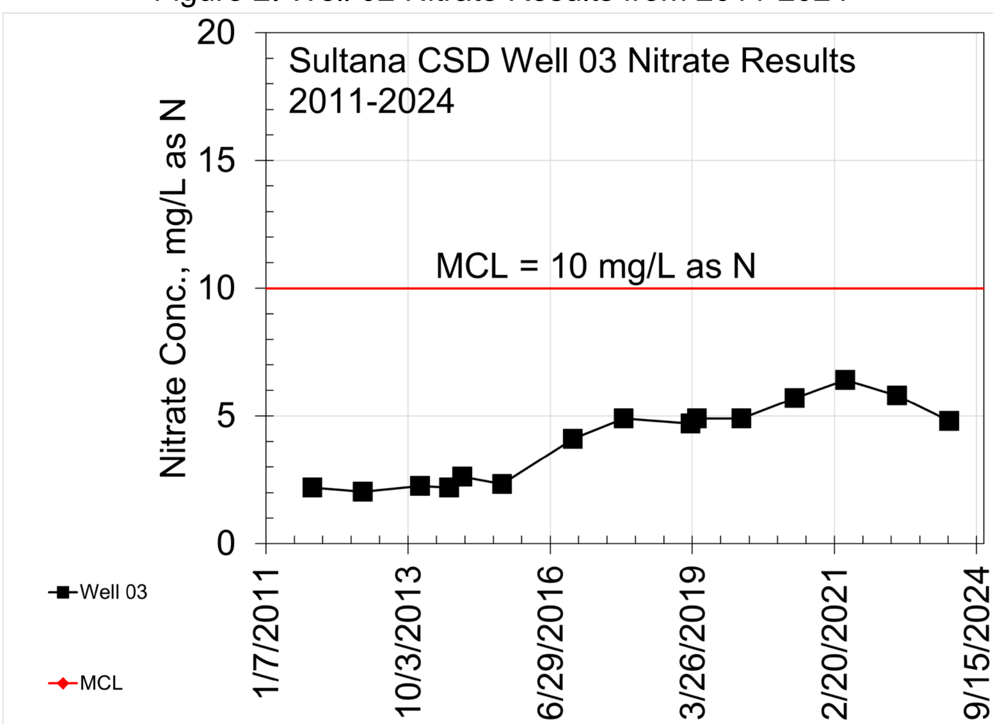

Figure 3. Well 03 Nitrate Results from 2011-2024

The Water System is required to monitor groundwater for nitrate (as N) annually if monitoring data indicates concentrations of less than one half the MCL of 10.0 mg/L, and quarterly if the concentrations are greater than or equal to one-half the MCL. After four consecutive quarterly samples are less than the MCL, a system may request reduced monitoring to annual. Wells 02 and 03 have been consistently over half the MCL and even exceeding the MCL at times as shown by Figures 2 and 3. **By September 30, 2024, the Water System must sample Well 03 quarterly for Nitrate. Since Well 02 is a standby source it will remain on annual monitoring.**

Volatile Organic Chemicals (VOCs) Monitoring period 2023-2025

Monitoring Requirements:	Every 6 years. Initial monitoring requirements have been completed.
Date of Last Analysis:	Well 02: February 18, 2021
	Well 03: March 29, 2019
Last Sample Results:	All results were non-detect.
Past Due Monitoring:	None
VOC waiver:	Submitted on February 15, 2023. Approved.

The waiver reduces the VOC monitoring frequency from every 3 years to every 6 years. The approved waiver is for the monitoring period of January 1, 2023, through December 31, 2025. With this waiver, the Water System is required to sample all active wells for VOC's once every six years. For the Water System to renew the waiver, the waiver request must be submitted to the Division prior to December 31, 2025. It must be renewed every 3 years.

Synthetic Organic Chemicals (SOCs) Monitoring

Monitoring Requirements:	Every 3 years. Initial monitoring requirements have been completed.
Date of Last Analysis:	Well 02: February 18, 2021
	Well 03: March 21, 2022
Last Sample Results:	Well 03: All results below the respective MCLs.
	Well 02: DBCP detected at levels above MCL
Past Due Monitoring:	Well 03: 1,2,3-Trichloropropane (1,2,3-TCP) and Alachlor monitoring are overdue.

DUE IMMEDIATELY, the Water System must sample Well 03 for 1,2,3-TCP and Alachlor.

By September 30, 2024, the Water System needs to sample Well 03 for Dibromochloropropane (DBCP) on a quarterly basis.

Radiological Monitoring

Initial Monitoring Requirements:	Complete
Monitoring Frequency:	Available online
Date of Last Analysis:	02/2023
Last Sample Results:	Non-detect (Wells 01 and 02)
Past Due Monitoring:	None
Next Sample Due Date:	02/2032

Initial Monitoring:

Initial radiological monitoring is based on the collection of four consecutive quarterly samples for gross alpha activity (GA) and total radium. If the results from the first two quarters of initial monitoring are below the detection limit for the purposes of reporting (DLR), the final two quarters of initial monitoring may be waived. **The Water System has completed the initial monitoring requirements for GA and total radium. The next GA sample is due in 2032.**

Source Bacteriological Monitoring

Routine Frequency:	Monthly
Analytes:	Total coliform and *E. coli* bacteria
Sample Site Location:	Raw water sample tap prior to chlorine injection port.
Analytical Method:	Density analytical method with the results reported in units of MPN/100mL. Submit results to the Division by the 10th day of the following month.
Source Bacteriological Results:	Appendix C

Groundwater Rule

In the event that a routine distribution sample is positive for total coliform bacteria, the Water System must collect a raw water bacteriological sample from each source in operation at the time of the positive result. The bacteriological sample shall be analyzed for total coliform and *E.coli* bacteria using a density analytical method with the analytical results reported in MPN/100 mL (Most Probable Number per 100 milliliters).

DISTRIBUTION SYSTEM MONITORING

Bacteriological

Bacteriological Sample Siting Plan (BSSP) on file:	Yes, however it is outdated. **By September 1, 2024, a map and updated BSSP must be submitted to the Division for review and approval**. Guidelines for completing a BSSP are included in Appendix D.
Date of BSSP:	March 19, 2020

Routine Frequency:	One routine sample per month. Bacteriological sampling must be conducted in accordance with the State Board-approved BSSP.
Groundwater Rule:	Source repeat upon any routine distribution positive from all active sources.
Distribution Bacteriological Sampling Results:	Appendix C

Lead and Copper Tap Sampling

The Water System is required to comply with the Lead and Copper Rule (LCR) and conduct lead and copper tap monitoring during each monitoring period. Compliance with the lead and copper action levels is based on the 90^{th} percentile lead and copper results. The 90^{th} percentile for lead and copper should be less than the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively. A summary of all lead and copper tap monitoring results is outlined in the tables below.

Results:

Monitoring Period	Sample Date(s)	No. of Samples	Lead 90^{th} Percentile Result (mg/L)	Copper 90^{th} Percentile Result (mg/L)	No. of Samples Exceeding Action Level
3Y2020-2022	8/4/2022	6	0	0.119	--
3Y2017-2019	7/21/2019	6	0	0.31	--
3Y2014-2016	6/20/2016	5	ND	0.211	--
3Y2011-2013	7/8/2013	5	ND	0.46	--
3Y2008-2010	7/14/2010	5	0.0034	0.114	--
3Y2005-2007	7/26/2007	5	ND	0.256	--
3Y2002-2004	8/3/2004	5	0.0027	0.2085	--
YR2001	8/1/2001	5	0.005	0.361	--
YR1999	8/1/1999	5	0.005	0.26	--
6M2ND-1998	11/1/1998	10	0.005	0.05	--
6M2ND-1997	7/1/1997	10	0.005	0.235	--

Future Monitoring Period:

Frequency	No. of Samples Required	Monitoring Period	Next Monitoring Period Begin	Next Monitoring Period End	Next Sample Due Date
3 years	5	3YR2023-2025	6/1/2023	9/30/2025	9/30/2025

It should be noted that all future lead and copper monitoring results must be submitted to the Division electronically via the California Laboratory Intake Portal (CLIP). The results may only be submitted through the CLIP by an Environmental Laboratory Accreditation Program (ELAP) accredited laboratory. More information regarding the new drinking water quality data intake portal can be found at:

https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/clip.html

The Water System must complete and submit a Lead and Copper Tap Sample Results Reporting Form with all subsequent lead and copper monitoring results. A Lead and Copper Tap Sample Results Reporting Form is included in Appendix E.

Lead Service Line Inventory Requirement

On January 15, 2021, the US EPA issued revisions to the federal Lead and Copper Rule (LCR). US EPA's new Lead and Copper Rule Revisions (LCRR) aim to strengthen the LCR to better protect communities and children in elementary schools and childcare facilities from the impacts of lead exposure. All community and nontransient noncommunity water systems must complete and submit their inventory by **October 16, 2024.** Each water system must maintain the required inventory information described in the FAQ and inventory instructions are found on the Lead and Copper Rule for Drinking Water website: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadandcopperrule.html.

Asbestos

Asbestos monitoring from the distribution system is not required.

Disinfection Byproduct (DBP) Monitoring

Analytes:	Total trihalomethanes (TTHMs) and Haloacetic acids (HAA5s)
MCLs:	TTHM MCL is 80 ug/L; HAA5 MCL is 60 ug/L
DBP Monitoring Site:	ST2S1 – 10427 AVE 416 (POST OFC) (CA5400824_DST_900)
Current Frequency:	Annually
Date of Last Analysis:	August 14, 2023
Last Sample Results:	TTHM – non-detect ; HAA5 – non-detect
Next Due Date:	August 2024

The results of TTHMs and HAA5s for Stage 2 DBP monitoring are to be submitted electronically to the Division's electronic water quality database using the PS Code listed above by the site name.

IV. OPERATIONS AND MAINTENANCE

Operator Certification

Distribution System Classification:	D1
Distribution Operator Requirement:	D1
Certified Operator:	Jose Padilla, D1, Certification No. 27640

Complaint Records

The Water System must keep records of all complaints received and actions taken to correct the problems related to the complaints. This information should then be reported in the electronic annual report (EAR) to the Division each year. There were no complaints reported in the 2023 EAR.

Consumer Confidence Report (CCR)

Current CCR Year:	2023
Current CCR submitted to Division:	2023 CCR
CCR Certification Form Submittal to the Division:	Yes; April 23, 2024
CCR Evaluation:	The 2023 CCR was filled out appropriately and submitted in a timely manner.

The Water System is required to complete a CCR on an annual basis and provide a copy to all residents in their service area by July 1 of each year.

Cross Connection Control Program

Cross Connection Control Program:	No
Cross Connection Control Program Coordinator:	None
Cross Connection Control Survey:	No
Backflow Prevention Devices in System:	4

Cross Connection Control Program Guidance:	Appendix F

Backflow Prevention Device Testing

Regulation requires all backflow prevention devices to be tested annually and certified by a licensed Backflow Prevention Device Tester. Copies of the testing records must be kept on file with the Water System for a minimum of three years.

The 2017 Sanitary Survey had a directive that the Water System must conduct a cross connection control survey using a certified cross connection control specialist or submit a time and schedule for having one completed. This directive remains outstanding and is due immediately.

Emergency Notification Plan (ENP)

Approved ENP on File at the Tulare District Office:	Yes.
Date of approved ENP:	March 13, 2019
Notification Method(s):	The ENP identifies using door-to-door delivery, posted notification and telephone as their notification methods in the event of an emergency.

Electronic Annual Report (EAR)

Current EAR Year, Submittal Date:	2023 EAR. Submitted on March 29, 2024
Deficiencies:	No.

All public water systems are required to provide updated water system information to the Division annually. The technical information included in the report is required per Section 116530 of the California Health and Safety Code.

Small Water System Resiliency And Preparedness

Current EAR Year:	2023
Climate Related Impacts Identified by Water System:	None

The effects of extreme weather on community water system (CWS) facilities and operations is a concern and priority of the State Water Resources Control Board (SWRCB), which is documented by the SWRCB in its Comprehensive Climate Change Resolution adopted in March 2017. The Division is reviewing each water system's level of resiliency and preparedness for changing climate conditions and extreme weather events, increasing awareness and familiarization to the effects of climate change to facilities and operations, encouraging the use of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT), and documenting the Water System's efforts related to current threats that may also provide mitigation to climate change impacts.

The SWRCB strongly encourages utilities to evaluate infrastructure and operational vulnerabilities to extreme weather and other emergency conditions using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

V. APPRAISAL OF SANITARY HAZARDS & PUBLIC HEALTH SAFEGUARDS

The Water System relies on Well 03 to supply the demands of the system. The system has a backup emergency source, Well 02, on standby. The total source capacity of the water system appears to meet demand requirements. The system has no storage capacity and there are no interconnections with any nearby water systems.

Overall, the Water System's water supply facilities are in good sanitary condition and appear to be operating satisfactorily. The Water System supplies water that currently meets all primary and secondary drinking water standards. The water system is capable of providing adequate water quality and resiliency.

The Water System has items that need to be addressed that are identified below. The Water System needs to ensure that all directives in this report are complied with in a timely manner.

The Water System may access the public Drinking Water Watch website (https://sdwis.waterboards.ca.gov/PDWW/) where the Water System can access system information including the current water quality sampling status and schedules.

VI. CONCLUSIONS AND RECOMMENDATIONS

The following items need to be addressed by the Water System:

1. **DUE IMMEDIATELY***,* a plan for the continuous chlorination of the water delivered from Well 03 shall be submitted for the Division's review.

2. By **September 30, 2024**, the Water System must sample Well 03 quarterly for Nitrate.

3. **DUE IMMEDIATELY**, the Water System must sample Well 03 for 1,2,3-TCP and Alachlor.

4. By **September 30, 2024**, the Water System needs to sample Well 03 for Dibromochloropropane (DBCP) on a quarterly basis.

5. By **September 1, 2024**, a map and updated BSSP must be submitted to the Division for review and approval.

Appendices

Appendix A: Photo Index
Appendix B: Last Sample & Next Due Date Summary Report
Appendix C: Source Water & Distribution Bacteriological Monitoring Report
Appendix D: Guidance for Bacteriological Sample Site Plan
Appendix E: Lead and Copper Tap Sample Results Reporting Form
Appendix F: Cross Connection Control Guidance for Community Water Systems
Appendix G: Guidance for Chlorination Operations Plan

Appendix A: Photo Index

<u>Well 02 – SOUTH STBY (CA5400824_003_003):</u>

- No deficiencies found at well site

Well 03 – MAIN RAW (CA5400824_003_003):

- No deficiencies found at well site
- Chlorination operations plan needs to be submitted

Appendix B: Last Sample & Next Due Date Summary Report

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 03 - MAIN RAW CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003		SULTANA COMMUNITY SERVICES DISTRICT						WELL 03 - MAIN RAW												
	GP	SECONDARY/GP																		
		1928	ALKALINITY, BICARBONATE	200.000		10.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2320 B
		1919	CALCIUM	55.000		1.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		1929	ALKALINITY, CARBONATE		<	10.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2320 B
		1017	CHLORIDE	35.000		1.000		MG/L	500	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 300.0
		1905	COLOR		<	5.000		UNITS	15	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2120 B
		1022	COPPER, FREE		<	50.000		UG/L	1000	50	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.050		MG/L	0.5	-----	3/7/2022	3	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 5540 C-00
		1915	HARDNESS, TOTAL (AS CACO3)	199.000		1.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	10.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2320 B
		1028	IRON		<	100.000		UG/L	300	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		1031	MAGNESIUM	15.000		1.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 03 - MAIN RAW CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003	GP	SECONDARY/GP																		
		1032	MANGANESE		<	20.000		UG/L	50	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		1920	ODOR	2.000		1.000		TON	3	1	3/7/2022	4	36		2025/03		VI 2241498-001 ADD2	2810	FGL ENVIRONMENTAL (VISALIA, CA)	SM 2150 B
		1925	PH	6.900		0.000		pH	------	-----	4/29/2019	3	36		2022/04	**DUE NOW**	64870031904291515G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1050	SILVER		<	10.000		UG/L	100	10	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1052	SODIUM	38.000		1.000		MG/L	------	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	530.000		0.000		UMHO/CM	1600	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2510 B
		1055	SULFATE	24.000		0.500		MG/L	500	0.5	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 300.0
		1930	TDS	330.000		40.000		MG/L	1000	-----	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2540 C
		0100	TURBIDITY		<	0.100		NTU	5	0.1	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 2130 B-01
		1095	ZINC		<	50.000		UG/L	5000	50	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
	IO	INORGANIC																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 03 - MAIN RAW CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003	**IO**	**INORGANIC**																		
		1005	ARSENIC	2.000		2.000		UG/L	10	2	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1010	BARIUM		<	100.000		UG/L	1000	100	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1015	CADMIUM		<	1.000		UG/L	5	1	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1020	CHROMIUM		<	10.000		UG/L	50	10	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1025	FLUORIDE	0.100		0.100		MG/L	2	0.1	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 300.0
		1035	MERCURY		<	1.000		UG/L	2	1	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 245.1
		1036	NICKEL		<	10.000		UG/L	100	10	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1039	PERCHLORATE		<	2.000		UG/L	6	1	2/12/2024	6	36		2027/02		VI 2441075-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 331.0
		1045	SELENIUM		<	5.000		UG/L	50	5	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.8
	NI	**NITRATE/NITRITE**																		
		1040	NITRATE	4.800		0.400		MG/L	10	0.4	3/7/2024	10	3	Interval	2024/06	**DUE NOW**	VI 2441776-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00

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Sample Point: WELL 03 - MAIN RAW CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003	NI	**NITRATE/NITRITE**																		
		1041	NITRITE		<	0.400		MG/L	1	0.4	3/7/2022	4	36		2025/03		VI 2241498-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 300.0
	RA	**RADIOLOGICAL**																		
		4109	GROSS ALPHA PARTICLE ACTIVITY		<	1.820	1.500	PCI/L	15	3	2/13/2023	11	108	Interval	2032/02		VI 2340936-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 900.0
	S1	**REGULATED VOC**																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 03 - MAIN RAW CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003	S1	REGULATED VOC																		
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2990	BENZENE		<	0.500		UG/L	1	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2996	STYRENE		<	0.500		UG/L	100	0.5	3/29/2019	3	72		2025/03		6487003190329100 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 03 - MAIN RAW CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003	**S1**	**REGULATED VOC**																		
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	3/29/2019	3	72		2025/03		64870031903291000V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.000		UG/L	0.005	0.005	11/5/2018	6	36		2021/11	**DUE NOW**	64870031811051445S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	3/29/2019	3	36		2022/03	**DUE NOW**	64870031903291000S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	3/21/2022	4	36		2025/03		C2C3168-01	2698	E.S. BABCOCK & SONS	EPA 525.2

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY:

Sample Point: CLASS: CTGA STATUS:

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_003_003	**S2**	2931	1,2-DIBROMO-3-CHLOROPROPANE	0.065		0.010		UG/L	0.2	0.01	3/7/2022	5	3	Interval	2022/06	**DUE NOW**	C2C0965-01	2698	E.S. BABCOCK & SONS	EPA 504.1
		2946	ETHYLENE DIBROMIDE		<	0.020		UG/L	0.05	0.02	3/7/2022	5	36		2025/03		C2C0965-01	2698	E.S. BABCOCK & SONS	EPA 504.1
		2037	SIMAZINE		<	1.000		UG/L	4	1	3/21/2022	4	36		2025/03		C2C3168-01	2698	E.S. BABCOCK & SONS	EPA 525.2

DATE: 8/12/2024

STATE OF CALIFORNIA
LAST AND NEXT SAMPLE REPORT

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 02 - SOUTH STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_002_002		**SULTANA COMMUNITY SERVICES DISTRICT**						**WELL 02 - SOUTH STBY**												
	IO	**INORGANIC**																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1005	ARSENIC		<	2.000		UG/L	10	2	2/18/2021	3	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1010	BARIUM		<	100.000		UG/L	1000	100	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1015	CADMIUM		<	1.000		UG/L	5	1	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1020	CHROMIUM		<	10.000		UG/L	50	10	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1025	FLUORIDE	0.100		0.100		MG/L	2	0.1	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1035	MERCURY		<	1.000		UG/L	2	1	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1036	NICKEL		<	10.000		UG/L	100	10	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1039	PERCHLORATE		<	4.000		UG/L	6	4	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1045	SELENIUM		<	5.000		UG/L	50	5	2/18/2021	2	108		2030/02		6487002210218145 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 02 - SOUTH STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_002_002	IO	INORGANIC																		
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	2/18/2021	2	108		2030/02		64870022102181450I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	NI	NITRATE/NITRITE																		
		1040	NITRATE	4.500		0.400		MG/L	10	0.4	2/12/2024	9	12	Interval	2025/02		VI 2441076-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00
		1041	NITRITE		<	0.400		MG/L	1	0.4	2/18/2021	2	108		2030/02		64870022102181450N	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	RA	RADIOLOGICAL																		
		4109	GROSS ALPHA PARTICLE ACTIVITY		<	1.900	1.410	PCI/L	15	3	2/17/2023	2	108		2032/02		VI 2341038-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 900.0
	S1	REGULATED VOC																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 02 - SOUTH STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_002_002	S1	REGULATED VOC																		
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2990	BENZENE		<	0.500		UG/L	1	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	2/18/2021	2	108		2030/02		6487002210218145 0V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY: TULARE

Sample Point: WELL 02 - SOUTH STBY CLASS: STCA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_002_002	**S1**	**REGULATED VOC**																		
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2996	STYRENE		<	0.500		UG/L	100	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	2/18/2021	2	108		2030/02		64870022102181450V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.000		UG/L	0.005	0.005	11/5/2018	6	108		2027/11		64870021811051430S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: SULTANA COMMUNITY SERVICES DISTRICT COUNTY:

Sample Point: CLASS: STCA STATUS:

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400824_002_002	**S2**	2051	LASSO (ALACHLOR)		<	0.200		UG/L	2	1	2/2/2012	1	108		2021/02	**DUE NOW**	64870021202021430S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	2/18/2021	2	108		2030/02		64870022102181450S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2931	1,2-DIBROMO-3-CHLOROPROPANE	0.710		0.050		UG/L	0.2	0.01	2/28/2022	7	12	Interval	2023/02	**DUE NOW**	C2C0065-01	2698	E.S. BABCOCK & SONS	EPA 504.1
		2946	ETHYLENE DIBROMIDE		<	0.020		UG/L	0.05	0.02	2/28/2022	6	108		2031/02		C2C0065-01	2698	E.S. BABCOCK & SONS	EPA 504.1
		2037	SIMAZINE		<	1.000		UG/L	4	1	2/18/2021	2	108		2030/02		64870022102181450S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

Appendix C: Source Water & Distribution Bacteriological Monitoring Report

Source Bacteriological Monitoring Report

5400824 Sultana Community Services District

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
7/11/2024	10:15	Well 03 Main	Well	QTray	<1.0	<1.0				
6/20/2024	12:15	Well 03 Main	Well	QTray	<1.0	<1.0				
5/6/2024	13:55	Well 03 - Main	Well	QTray	<1.0	<1.0				
4/16/2024	13:35	Well 03 Main	Well	QTray	<1.0	<1.0				
3/7/2024	14:55	Well 03 - Main	Well	QTray	<1.0	<1.0				
2/12/2024	12:45	Well 03 Main	Well	QTray	<1.0	<1.0				
1/4/2024	13:25	Well 03 Main	Well	QTray	1	<1.0				

Bacteriological Distribution Monitoring Report

5400824 Sultana Community Services District

Distribution System Freq: ***1/M***

Sample Date	*Location*	*T Coli*	*E Coli*	*F Coli*	*HPC*	*Type*	*Cl2*	*Cl2 Avg*	*Viol. Type*	*GWR Satisfied?*	*Comments*
7/11/2024	410427 Ave 416	A	A			Routine	0.56				
6/20/2024	10427 Ave 416	A	A			Routine	0.51				
5/6/2024	10427 Ave 416	A	A			Routine	0.88				
4/16/2024	10427 Ave 416	A	A			Routine	0.57				
3/7/2024	10427 Ave 416	A	A			Routine	0,.67				
2/12/2024	10427 Ave 416	A	A			Routine	0.80				
1/4/2024	10427 Ave 416	A	A			Routine	0.89				

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Appendix D: Guidance for Bacteriological Sample Site Plan

Division of Drinking Water
Tulare District

GUIDELINES FOR COMPLETING THE BACTERIOLOGICAL SAMPLE SITING PLAN FOR SMALL WATER SYSTEMS

The total coliform regulation requires the water supplier to submit a bacteriological sample siting plan to the Division of Drinking Water (Division), District Office for review and approval. The locations where samples are to be collected must be written down and formally approved by the District Office. These guidelines and Attachment 1, "Bacteriological Sample Siting Plan" Form, are to assist you in complying with these requirements.

To comply with the requirements for submitting a Bacteriological Sample Siting Plan, two (2) items must be submitted to the District Office at this time.

1. A system map, street map, or system schematic showing all sampling locations must be submitted. The map can be prepared by any system representative. It <u>does not have to be prepared by an engineer</u>. The following are also to be shown on the map:

    - Water Sources (i.e., well or spring)
    - Treatment Facilities (i.e., chlorination)
    - Storage Tanks
    - Pressure Reducing Stations
    - Booster Stations
    - Pressure Zones
    - Dead Ends
    - Service Area Boundaries
    - Routine Sample Sites
    - Repeat Sample Sites
    - Special Sample Sites

2. Complete Attachment 1, the "Bacteriological Sample Siting Plan" form, and **return the system map and form to the District Office for review and approval**.

    Once the Bacteriological Sample Siting Plan has been approved by the Division, copies should be provided to the person responsible for sample collection, the laboratory and the person responsible for reporting coliform-positive samples to the Division.

<u>Selection of Sampling Sites</u>

The routine sampling sites chosen must be representative of the water distribution system including all pressure zones, areas supplied by each water source and distribution reservoir.

<u>Looped Systems</u>: If your entire water distribution system is looped, then one routine sample point may be representative of your system, assuming valves are open.

Pressure Zones: You should only be concerned about sampling in different pressure zones if your water system serves different areas of varying elevations, for example in mountainous areas.

How many routine sampling sites are required?
The minimum number of samples for the water system shall be based on the known population served or the total number of service connections, whichever results in the greater number of samples, as shown in Table 64423-A. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

Table 64423-A
Minimum Number of Routine Total Coliform Samples

Monthly Population Served1	*Service Connections*	*Minimum Number of Samples Per Month*
25 to 1000	15 to 400	1
1,001 to 2,500	401 to 890	2
2,501 to 3,300	891 to 1,180	3
3,301 to 4,100	1,181 to 1,460	4
4,101 to 4,900	1,461 to 1,750	5
4,901 to 5,800	1,751 to 2,100	6
5,801 to 6,700	2,101 to 2,400	7
6,701 to 7,600	2,401 to 2,700	8
7,601 to 8,500	2,701 to 3,000	9
8,501 to 12,900	3,001 to 4,600	10
12,901 to 17,200	4,601 to 6,100	15
17,201 to 21,500	6,101 to 7,700	20
21,501 to 25,000	7,701 to 8,900	25
25,001 to 33,000	8,901 to 11,800	30
33,001 to 41,000	11,801 to 14,600	40
41,001 to 50,000	14,601 to 17,900	50
50,001 to 59,000	17,901 to 21,100	60
59,001 to 70,000	21,101 to 25,000	70

1 For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

How many repeat sampling sites are required?

A repeat sample set consists of three samples to be collected from the following locations:

- One repeat sample from the same routine location.
- One repeat sample from an *upstream location* (within 5 connections of the routine site).
- One repeat sample from a *downstream location* (within 5 connections of the routine site).

Each routine sample site must have identified repeat sample sites.

Ground Water Rule Compliance: All active groundwater sources in operation at the time of the coliform-positive sample must also be sampled along with the repeat sample set.

What if the water system does not have enough locations to select the required number of routine and repeat sample sites?

If the water system does not have enough sample locations to identify the required routine and repeat sample sites, contact the District Office for further guidance.

Pointers for Sample Site Selection

- When selecting a routine sample site you should be able to select a site upstream and a site downstream for repeat sampling.
- Select a site where the water is used continuously all year round.
- Pick a site that is easily accessible, i.e., a fenced yard with a locked gate and vicious dog is not a good selection.
- When choosing a sampling tap you should consider these factors:
  The sampling tap should be located in as clean an environment as possible. It should be protected from contamination by humans, animals, airborne materials or other sources of contamination.

  If you choose an outside private tap, it should be one that is in frequent use, clean, and at least 1½ feet (18 inches) above the ground. The sample tap should discharge downward.

  If you choose an inside tap, be sure that you are not sampling from drinking fountains; taps that have aerators or strainers, or swivel faucets; or taps off of individual homeowner treatment units.

  Do not choose a fire hydrant as sampling tap.

  Avoid taps that are surrounded by excessive foliage or taps that are dirty or corroded.

  Avoid taps that leak, have fittings with packing, or have permanent hoses or attachments fastened to the tap (Never collect a sample from a hose).

  Avoid the use of dead ends for routine sample collection, and use them for repeat samples only of no other sample sites are available and if there is continuous water use from a service off the dead-end.

Instructions for Completing the Bacteriological Sample Siting Plan Form

This form has been designed to include all the requirements for the Bacteriological Sample Siting Plan.

- **Public Water System Classification**
  The public water system (PWS) classification for your water system is either community, nontransient noncommunity or transient noncommunity. If you are uncertain of your classification, contact the District Office.

- **Month/Daily Users**
  The monthly population determines the frequency of bacteriological sample collection for community water systems and nontransient noncommunity systems. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

- **Active Service Connections (Community water systems only)**
  This is the number of active hook-ups served by the system. If your system has a hook-up to a vacant lot, do not count this as an active connection. If a vacant lot has a right to a future connection, do not count this an active connection. If a residence is connected to the system, but the residence is vacant, count this as an active hook-up.

- **Sampling Frequency**
  This is the minimum number of routine bacteriological samples required at the frequency specified. If any routine sample is positive for coliform bacteria, additional repeat samples will be required. Repeat samples are in addition to the required routine samples. If you are uncertain of the routine sampling frequency for your water system, contact the District Office.

- **Trained Sampler**
  The person collecting samples must be trained.

  Sampling Service: Water systems utilizing a certified laboratory or other sampling service for water sample collection will be considered to have trained samplers. Enter the name of the laboratory or sampling service collecting your samples. A copy of the approved Bacteriological Sample Siting Plan should be provided to the laboratory or sampling service, if one is used.

  Other Trained Samplers: Any person receiving a certificate from AWWA for attendance of the Water Sampling Training should submit a copy of their certificate along with the completed form. Any other samplers should submit a statement of their experience and training to this office for approval.

- **Analyzing Lab**
  Enter the state-certified laboratory, which will be analyzing your water samples.

- **Person Responsible to Report Coliform-Positive Samples to the Division**
  This should be the person that the laboratory is required to contact when a sample is total or fecal coliform positive. This person must notify the Division within 24 hours of a violation of the total coliform standard (more than one positive sample in a month) or when any sample is fecal or *E. coli* positive. This person should have the authority to take corrective action as required by regulation and the Division. This should be the same person listed on your Emergency Notification Plan.

- **Day/Evening Phone Number**
  The Division requires that the water system provide the phone numbers of the person listed above so that they can be contacted by the laboratory or the Division at any time during the day or evening in the event of a bacteriological emergency.

- **Signature and Date**

The person preparing the Sample Siting Plan should sign and date the plan. If the Division has questions regarding the sampling plan, this is the person to be contacted.

- **Sample ID**
  This should be entered on the laboratory slip when the sample is turned into the laboratory. This is the unique identifier for the water sample location, or the location address may also be used. For systems, which have no more than five (5) routine locations, these routine sites will be 1-ROU, 2-ROU, 3-ROU, 4-ROU, and 5-ROU.

  Each routine sample site must have two repeat sampling sites. Repeat sample sites are to be located within five (5) service connections upstream and downstream of the routine sample site.

  All sample locations should be marked in some way with the Sample ID or location address , i.e., the code painted on the sampling location or tagged with a water proof tag so the person collecting the water sample is sure to collect the water from the correct sample locations.

- **Sample Type**
  This describes what type of sample (routine or repeat) is to be collected at this location.

- **Sample Point**
  This is the type of the sample location. Use the following abbreviations, when appropriate: HB - Hose Bib (exterior), SF - Sink Faucet, PC - Goose Neck Type Copper Tube with Pet Cock

- **Location of Sample Point**
  This is the description of the area in the distribution that the sample site is located. Routine sample sites shall not be located at dead ends. Use the following abbreviations, when appropriate: DE - Dead End (Not Recommended), PZ - Pressure Zone, RD - Representative Distribution

- **Location Address**
  This is the actual physical location where the water sample is to be collected. If possible use a street address, i.e., 103 Good Street. If the location does not have a street address, use the nearest crossroads or use the last name of the resident, i.e., “Brown Residence.” If the location is a business, please list the business name and address.

  When describing the location, keep in mind that the person collecting water samples must be able to locate the sample site from your description.

- **Months Sample Collected at This Location**
  This is the schedule for routine samples to be collected. For example, suppose two (2) sites are representative of your systems. Site No. 1 will be sampled in January, March, May, July, September, and November. Site No. 2 will be sampled in February, April, June, August, October, and December. All routine sites identified should be rotated to allow sampling at least every 3 months.

BACTERIOLOGICAL SAMPLE SITING PLAN (BSSP) FOR SMALL WATER SYSTEMS

System No.:	**System Name:**	**PWS Classification:**

No. of Monthly Users:	**No. of Daily Users:**	**No. Active Service Connections:**	**Cl2 Treatment:**

Sampling Frequency: __ per month	**Seasonal System:**	**Period of Operation:**
Name of Trained Sampler:	**Analyzing Lab:**	**Analyzing Lab:**

Person Responsible to Report Positive Samples to the Division:	**Day/Evening Phone No:**
<u>Signature of Water System Representative:</u>	**Date:**

Sample ID	Sample Type	Sample Point	Location of Sample Point	Address of Sample Point	Months Sample Collection at this Location
1-ROU	Routine				
1-REP1	*Repeat*				*Repeat Sample Only*
1-REP2	*Repeat*				*Repeat Sample Only*

In the event of a routine positive sample, a sample(s) will be collected from the well(s) in use for Ground Water Rule compliance.

If continuous chlorination is provided, raw water samples are taken **<u>monthly.</u>**

The SWRCB-Division of Drinking Water or Local Primacy Agency has reviewed and approved this BSSP. Any plans on file dated prior to approval date below are void. The water system must sample their distribution system and raw water special purpose source samples for bacteriological quality in accordance with the approved BSSP beginning _________________. Per the California Code of Regulations-Title 22 §64422, a water system is required to submit an updated plan to the State Board at least once every ten years and at any time the plan no longer ensures representative monitoring of the system.

District Office Representative Name: ____________________________ Title: _____________________ District Name: <u>Tulare District</u>

Signature:____ Date: ________________

Appendix E: Lead and Copper Tap Sample Results Reporting Form

State Water Resources Control Board
Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

This form must be submitted by the public water system to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

Report Date: (mm/dd/yyyy)	
Water System Name:	
Water System Number:	
Water System Type:	○ Community ○ Non-Transient, Non Community
Monitoring Frequency:	○ 6-month ○ Annual ○ Triennial
# of Samples Required:	
# of Samples Reported:	
	90th Percentile Level (mg/L)
Lead: *Action Level = 0.015 mg/L*	
Copper: *Action Level = 1.3 mg/L*	

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier 1, 2, 3, or R**	**Lead (mg/L)**	**Copper (mg/L)**
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Sampling Site Change

Each round of sampling should be conducted at the same sampling sites. If an original sampling site is not available, you should collect a tap sample from another site meeting the same Tier criteria as the original site.

You must complete/submit the ***Lead and Copper Tap Sampling Site Change*** form.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on ______________________________ by
(date)

- ☐ Direct Mail
- ☐ Posting in public area (NTNC systems only)
- ☐ Other (please specify below)

____

For general information on lead and copper tap sampling, you can refer to the ***SWRCB Lead and Copper Tap Sample Results Guidance Document***. If you have any questions or comments, please contact your regulating entity (Division of Drinking Water District or County Agency).

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

	Sample Date	Sample Site Location/Address	Tier 1, 2, 3, or R	Result	
				Lead (mg/L)	Copper (mg/L)
21					
22					
23					
24					
25					
26					
27					
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31					
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60					

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

	Sample Date	Sample Site Location/Address	Tier 1, 2, 3, or R	Result	
				Lead (mg/L)	Copper (mg/L)
61					
62					
63					
64					
65					
66					
67					
68					
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71					
72					
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Appendix F: Cross Connection Control Guidance

Cross-Connection Control for Small Community Water Systems
Division of Drinking Water – Tulare District

Purpose of Cross-Connection Control Program: Water provided by a public water system may be contaminated via cross-connections within the distribution system. The purpose of the cross-connection control program is to reduce the hazard of contamination of the public water system by identifying actual and potential cross-connections and taking action to protect the system from these hazards. This is accomplished by installing backflow prevention assemblies where hazards are identified; or ensuring that water-using equipment on the premises is installed in accordance with plumbing code requirements and good practice.

What are cross-connections?

Cross-connections are actual and potential unprotected connections between a potable water system and any source or system containing unapproved water or a substance which is not safe. Examples of cross-connections include:

1. Improperly installed irrigation systems that may allow backsiphonage of stagnant, bacteriologically unsafe water into the piping system.
2. Improperly plumbed water-using devices such as hot-tubs, boilers or commercial dishwashers which may allow unsafe water back into the domestic piping system.
3. Irrigation systems served by an auxiliary source, such as a private well or creek. Such systems create a potential for major contamination of the public water system via interties with the domestic piping system.
4. Interconnections between the potable system and a non-potable system.

What the Regulations Require

Section 7584 of the California Code of Regulations requires that each public water system have a cross connection control program that includes these elements:

1. The adoption of operating rules or ordinances to implement the cross-connection program.
2. The conducting of surveys to identify water user premises where cross connections exist or are likely to occur.
3. The provisions of backflow protection by the water user at all connections where a cross connection hazard has been identified.
4. The provision of at least one person trained in cross connection control to carry out the program.
5. The establishment of a procedure or system for testing backflow prevention assemblies.
6. The maintenance of records of locations, tests, and repairs of backflow prevention assemblies within each water supplier's distribution system.

Getting Started

For small community water systems, the initial elements of the program consist of the following:

1. Adopting an ordinance or set of rules to implement the cross-connection control program. The ordinance or set of rules is important since it establishes the legal authority to carry out the program.
2. Conducting a system survey to identify actual and potential cross-connection hazards.
3. Ensuring that hazards are abated by the installation of backflow prevention assemblies at the meter, eliminating the hazard in conjunction with the owner of the property or providing internal cross-connection protection.

System Survey

The system survey consists of a preliminary survey and, if necessary, a more detailed second survey. For most small systems, the initial survey may consist of a questionnaire sent to each customer asking whether the customer has specific potential hazards. Documentation of the system survey is to be submitted to the Division. Attached is a summary form for documentation of the system survey.

Residential areas

Customers should be asked if any of the following are located on-site:

1. Auxiliary water supply (i.e. either a well or a creek pump) - backflow prevention device is mandatory.
2. Irrigation systems - backflow prevention device not required if system is installed in accordance with plumbing codes with appropriate vacuum breakers.
3. Swimming pool, hot tub or spa - backflow prevention device not required if system is installed in accordance with plumbing codes.
4. Solar hot water heating panels - backflow prevention device not required if system is installed in accordance with plumbing codes.
5. Gray water systems - backflow prevention assemblies may not be required if the system is installed in accordance with the Uniform Plumbing Code.

If these or other potential hazards are located on site, the water system is to determine whether the equipment has been installed in accordance with plumbing codes and/or good practice in order to minimize the risk of backflow.

Commercial customers: A more detailed questionnaire and survey is necessary. Small community systems, which also serve commercial customers, should review the Department of Health Service's "Manual of Cross-Connection Control - Procedures and Practices". A system survey of commercial users as specified in the Manual is to be performed. As an alternative, the system may decide to require backflow prevention assemblies' at all commercial service connections where hazards are likely to exist.

Wastewater and Hazardous Wastes: A service connection which handles wastewater or dangerous chemicals requires special evaluation and protection from cross-connection hazards. For additional information on evaluating this type of facility, please contact the appropriate regulatory agency and a cross-connection control specialist.

ELEMENTS OF A CROSS-CONNECTION CONTROL PROGRAM
DDW – Tulare District

When implementing a Cross-Connection Control Program, the water supplier or health agency should follow an organized plan. The following items should be included as a minimum. The items **explain the Department of Health Services' policy regarding the regulations.**

7584. Responsibility and Scope of Program
The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program. The program, or any portion thereof, may be implemented directly by the water supplier or by means of a contract with the local health agency, or with another agency approved by the health agency. The water supplier's cross-connection control program shall for the purpose of addressing the requirements of Sections 7585 through 7605 include, but not limited to, the following elements:

(1) The adoption of operating rules or ordinances to implement the cross-connection program.

A public water supplier shall enact an ordinance or rule of service outlining the cross-connection control program and providing enforcement authority.

(2) The conducting of surveys to identify places where cross-connections are likely to occur.

Water utilities do not have any responsibility for controlling or abating cross-connections on a user's premises. All existing facilities where potential cross-connections are suspected, however, shall be listed and inspected or reinspected on a priority basis, where feasible. All applications for new services or for enlarging existing services or changing of occupant shall be reviewed or screened for cross-connect1ons hazards

(3) The provision of backflow protection at the user's connection or within the user's premises or both.

Adequate provisions for implementation and enforcement of backflow protection where needed including the shutting off service when necessary

4) The provision of at least one person trained in cross-connection control to carry out the cross-connection program.

Specific units of the health agency and/or water supplier should be designated to organize and carry out the cross-connection control program. The personnel in those units should be trained as to the causes and hazards of unprotected cross-connections.

(5) The establishment of a procedure or system for testing backflow preventers.

A list of approved backflow preventers and list of certified testers should be made available to each water user required to provide backflow protection.

The list may include backflow devices approved by University of Southern California, Foundation for Cross-Connection Control and IAPMO, which may be found on the SWRCB website at the following address:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml

The List of certified testers may be lists developed by the American Water Works Association and local county health agencies.

Backflow preventers should be tested at least yearly or more often as required by the health agency or water supplier.

(6) The maintenance of records of locations, tests and repairs of backflow preventers

Adequate records should be kept and filed for reference. These records should include, in addition to the name of the owner of the premises, the:

a) Date of inspection
b) Results of inspection
c) Required protection
d) List of all backflow preventer devices in the system
e) Test and maintenance reports
f) All correspondence between the water supplier, the local health authority, and the consumer
g) Records must be maintained for a minimum of three years

Records of inspection and testing should be evaluated to determine if:

a) Devices are frequently or sufficiently reviewed to detect failure.
b) There are unusual feature of a particular model of device or component.
c) Cause of failure can be eliminated.

A program should be established to notify the water user when his backflow preventer must be tested. (A minimum of once each year is required.) After installation or repair, a backflow preventer should be tested and approved before it is accepted.

7605. Testing and Maintenance of Backflow Preventers

Regulations require the following regarding testing and maintenance of backflow prevention devices:

(a) The water supplier shall assure that adequate maintenance and periodic testing are provided by the water user to ensure their proper operation.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the water supplier or health agency.

(c) Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the health agency or water supplier. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this Chapter.

(d) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required.

(e) The water supplier shall notify the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

(f) Reports of testing and maintenance shall be maintained by the water supplier for a minimum of three years.

Cross-Connection Survey Summary Form-Small Community Water Systems

Name of System ____________________________________ System Number ___________

Description of Survey Procedures-How survey was conducted, (include copy of survey form):
Person conducting survey (List name and qualifications):

____

____

Procedures for Residential Connections:

____

____

____

____

Procedures for Commercial Connections:

____

____

____

____

Total number of service connections _______ Number of service connections surveyed ______
Number of connections with auxiliary sources (i.e. wells or creek pumps) ___________
Number of connections with other hazards ___________
Total number of backflow prevention devices ___________

Type of Hazard Identified(i.e. private well, hot tub, irrigation system, swimming pool, etc)	**Number of connections with hazard**	**Number of devices installed**	**Number where device not necessary**

Describe follow-up for service connections that did not respond to the survey:

____

____

____

____

____

Long-term (Describe on-going cross-connection protection & testing of backflow prevention assemblies)

____

____

____

____

____

Submitted by (signature) ____ Date _________

Appendix G: Guidance for Chlorination Operations Plan

Guidance Document for the Preparation of an Operations Plan for Small Water Systems with Chlorination

<u>Written Description of Water Sources, Storage Tanks and Distribution System (with as-built maps or schematics) and General Record Keeping</u>

We recommend a brief description of sources, storage, chlorinator unit (treatment) and number of connections and character (seasonal rental, year-round, etc.). Example; 200 foot well drilled in 1972, 1500 gallon welded steel storage tank, chlorinator with a diaphragm type pump (manufacturer and model) and 25 gallon disinfectant reservoir, serving 15 connections (one third seasonal occupancy).

We strongly recommend a multi-tabbed file be set up to keep copies of the laboratory results (10 year retention) and monitoring requirements and an accompanying calendar schedule for all sampling.

Other files that should be kept on file are copies of correspondence from our Division (e.g., water supply permit), all sampling plans (Bacteriological Sample Siting Plan), water main and valve location maps, the well driller's report and County well construction permit that demonstrates conformance to its well ordinance (schematic documenting adequate horizontal protection of well from sanitary hazards), pump and storage tank information, and their accompanying service records, etc.

The Operations Plan elements are as follows:

- **<u>ROUTINE OPERATIONAL PROCEDURES FOR EACH COMPONENT OF THE SYSTEM</u>**:

  A. Visual inspection of **WELL** (daily or minimum of weekly).
  Check for the following; water leaks that could contaminate well, unscreened or openings where sealants can be applied, electrical hazards, chemical hazards (proper use of chemicals around well head). Tip: Maintain a log book for each well site that records maintenance and monthly water production and flow rates, water table depths and any maintenance performed.
  1. Well has the ability to be pumped to waste and sampling tap (non-threaded down-turned hose bib).
  2. Check the pump and controls for proper operation of well and chlorination equipment.
  3. General house keeping: remove rodent feces, dirt, vegetation, any standing water, control gophers/squirrel burrowing around well head to eliminate potential contamination hazards.

  B. Visual inspection of the **STORAGE TANKS** (daily or minimum of weekly).
  1. Inspect vents and overflow outlets for proper protection (screens, flapper valve, etc.) to keep out rodents and insects.
  2. Inspect for any leaks or damage (record observations and repair as needed).
  3. Record system pressure. Record the pressure the pump turns on, the pressure the pump turns off and the duration of the run time so storage tank does not overflow.

4. Scheduled inspection and cleaning of storage tank (quarterly, semi-annually or annually). Record kept for the date cleaned and any observations (e.g., remnants of rodents, etc.)

C. Visual inspection of **CHLORINATOR PUMP** and disinfection reservoir (daily or minimum of weekly).
   1. Inspect the pump for proper operation. Hypochlorinator pumps are prone to vapor lock (air bubble in line) and need to be equipped with degassing feature. Installation Tip: The problem can be greatly alleviated by maintaining positive pressure on the intake of the hypochlorinator pump by placing the hypochlorinator pump at the same elevation as the chlorine solution tank.
   2. Inspect the disinfectant in the reservoir for concentration and adequate volume for the operational period (record results).
   3. Determine if there is enough disinfectant on hand for one or more weeks.

D. Measure the **DISINFECTANT RESIDUAL** in the distribution system (free chlorine test kit required).
   1. Monitor and record the results from designated locations which are the same locations as the routine bacteriological sample sites. The residuals must be reported with the bacteriological results at the time the bacteriological sample is collected. This information is also used for reporting the quarterly chlorine residuals under the Disinfection Byproducts Rule). Reporting forms attached.
   2. Determine if an adequate level of disinfectant is maintained.
      a. If disinfectant level is low (0.2 to 0.3 mg/L is generally the lowest level reportable using colorimetric test kits), determine the reason and correct. If enforcement action taken for repeated Total Coliform Rule violations, there may be more stringent chlorine residual requirements.
      b. If no measurable disinfectant, notify owner, determine reason, and remedy. If no disinfectant residual for 24 hours, notify Tulare District Office of the California Department of Public Health.

E. Maintenance of **GAUGES and METERS**.
   1. Inspect all gauges and meters for leaks and proper function daily. Repair or replace as needed (keep record of date). Schedule routine calibration checks to ensure accurate readings are being provided.

F. Inspection and **EXERCISING of the VALVES**.
   1. Inspect valves for leaks (record observations, repair or replace if leaking).
   2. Exercise valves on a schedule, as needed (i.e. quarterly, semi-annually, annually, record dates on attached sheet).

G. Operation and maintenance of **DISTRIBUTION FACITILIES**.
   1. Visually inspect the distribution system for leaks on a regular basis. Record date and observations.
   2. Flush dead end mains or lines periodically (quarterly, semi-annually, annually as needed. Record date and observations).

- **MONITORING AND REPORTING**:

A. **BACTERIOLOGICAL MONITORING FROM DISTRIBTUTION SYSTEM**; as per approved Bacteriological Sample Siting Plan, required monthly, report containing results submitted to the Department by the 10th day of the following month (refer to attached guidance). Recommend samples be collected early in the week in case repeat samples must be collected after a positive sample result is received. Repeat samples must be collected within 24 hours of receipt of positive result.
   1. If sample positive, lab must notify water system contact person or the Department if you can not be reached. Multiple repeat samples must be collected (three to four repeat samples depending on system classification). Department recommends that water system provides a copy of the Emergency Notification Plan form to analyzing laboratory.
   2. Take five routine samples the month following a positive sample.

B. **BACTERIOLOGICAL MONITORING FROM WELL SOURCES;** should be described in the sample siting plan and is required from raw water at well head PRIOR to chlorination. The samples are required to be analyzed using the density method. If sample positive, notify Department by telephone, e-mail for follow-up investigation. Frequency is dependent on type of water system and report containing the results submitted to the Department by the 10th day of the following month.

C. **CHEMICAL SOURCE MONITORING**; as required by the Department, forward results to the Department (see attached Water Quality Monitoring Schedule).

D. **DISINFECTION BYPRODUCT RULE MONITORING**; as required annually for non-transient non-community and community water systems. If less than half the MCL for total trihalomethanes (TTHM) and haloacetic acids (HAA5), the sample can be reduced to once every three years. Routine sample should be collected during the warmest month of the year from a location with the longest detention time in the distribution system. Submit copy of laboratory results to the Visalia District of the CDPH.

E. **LEAD AND COPPER TAP MONITORING**; as required for nontransient noncommunity and community water systems. Contact Department for when next round of monitoring is due.

F. **WATER PRODUCTION**
Recommend installation of instantaneous and totalizing flow meter and record daily or at least weekly instantaneous and monthly production volume readings. This is especially valuable and necessary for hard rock wells. This information is reported in the annual report form.

G. **PUBLIC NOTIFICATION** of violation required.
   1. Notification shall be given as per Emergency Notification Plan (copy of form attached). Provide updated plans when personnel change to the Department (attached). Templates of the various for public notices are available at
      Templates for Public Notification | California State Water Resources Control Board
   2. State the cause of problem, if known, and what steps have been taken to correct it.
   3. Send a copy of the notification to the Department with proof of notification.

- **EMERGENCY NOTIFICATION PLAN (ENP), ELECTRONIC ANNUAL REPORT TO THE DIVISION OF DRINKING WATER AND CONSUMER CONFIDENCE REPORT (CCR):**
  A. ENP: a form that lists the Department's and water system's contact information in the event of **water quality emergency** in which public notification must be performed. It must describe the methods to be followed in order to distribute the public notices to each customer as rapidly as possible. Small system may distribute notices by hand delivery. Attached is a copy of the form.
  B. Electronic Annual Report to the Division of Drinking Water: Outline the process for completing the Electronic Annual Report (EAR) to the Division of Drinking Water. The EAR is located at: http://drinc.ca.gov/ear/home.aspx
  C. CCR: required for nontransient noncommunity and community water systems that summarizes all monitoring done during the previous calendar year. The CCR must be distributed by July of every year. A template available at Consumer Confidence Reports (CCRs) | California State Water Resources Control Board

- **EMERGENCY OPERATIONAL PRACTICES:**
  A. List of **equipment on hand** for emergency repairs.
     1. Miscellaneous wrenches.
     2. Leak clamps

  B. List of sources of needed **equipment, not on hand**.
     1. Name and address of supplier and type of equipment.
     2. If under contract or rental.

Name	Address	Phone #	Equipment	Rental/ Contract
			Steel Tank Welder	
			Electrical repair	
			Digging equipment	
			Generator	
			Chemicals	

  C. List of distributors or suppliers of **replacement parts** for the system.
     1. Name and address of supplier and type of equipment.

Name	Address	Phone #	Equipment
			PVC pipe, valves, and fittings
			pumps, pressure tank and gauges
			Chlorinator

D. List of **emergency contact numbers**:

	Name	**Phone #**
1.	Kristin Willet, SWRCB-DDW Tulare District Office	Office: (559) 447-3310 / Cell: (559) 280-6363
2.	Law Enforcement -	
3.	Electrician	
4.	Laboratory	
5.	Pump repair service	
6.	Chemical disinfectant supplier	
7.	Equipment supplier	
8.	Water System Owner	
9.	Certified Operators (include certification level)	

Attachments (Note: electronic copies of all forms available upon request):

1. Monthly water production and chlorine usage report
2. Coliform monitoring report forms for distribution and raw well sources
3. Quarterly chlorine residual report form for Disinfection Byproducts Rule
4. Bacteriological Sampling Siting Plan guidance
5. Water Quality Monitoring Schedule
6. Emergency Notification Plan form (please include job title and any operator certifications for names listed)
7. Lead and copper tap monitoring guidance

Appendix H: Monson Permit and 2022 Sanitary Survey

State Water Resources Control Board
Division of Drinking Water

May 12, 2022

Mrs. Celeste Perez
Monson Water System – 5403212
P.O. Box 158
Sultana, CA 93666

2022 DOMESTIC WATER SUPPLY PERMIT AMENDMENT NO. 03-24-22P-012 (REVISED PERMIT)

Dear Mrs. Perez:

On April 21, 2022, the State Water Resources Control Board, Division of Drinking Water (Division) staff conducted an inspection of the Monson Water System water system (Water System). The findings of this inspection are detailed in the enclosed sanitary survey report. Attached to this letter is Permit Amendment No. 03-24-22P-012. After evaluation of the Water System and completion of the enclosed sanitary survey report, the Division finds that the items below are required to be addressed by the Water System.

The items below were included in the 2017 and 2018 Sanitary Survey Report and are not considered past due.

1. By **January 31, 2018,** the Water System must complete a Possible Contaminating Activity (PCA) checklist for Well 01 and submit it to the Division.

2. By **May 31, 2020,** The Water System must submit an Operations Plan to the Division for review and approval.

3. By **December 31, 2017,** the Water System must submit a Bacteriological Sample Siting Plan to the Division for review and approval.

4. By **May 31, 2020,** the Water System must conduct a cross connection control survey using a certified cross connection control specialist or submit a time and schedule for having one completed.

If you have any questions regarding the information contained in the sanitary survey report, please contact the Tulare District office at (559) 447-3300 or by email at DWPDIST24@waterboards.ca.gov.

Sincerely,

Kurt Souza
Digitally signed by Kurt Souza
Date: 2022.05.12 16:51:18 -07'00'
Water Boards

Kurt Souza, P.E.
Principle Engineer
DIVISION OF DRINKING WATER
SOUTHERN CALIFORNIA FIELD OPERATIONS BRANCH

KS/JA

cc: [all email only]
Tulare County Environmental Health Department
NGonzale@tularehhsa.org

Jose Padilla, Operator
jose_Padilla2010@yahoo.com

STATE OF CALIFORNIA

DOMESTIC WATER SUPPLY PERMIT

Issued To

Sultana Community Services District

For the Operation of the

Monson Water System
Water System No. 5403212

By the

State Water Resources Control Board, Division of Drinking Water

PERMIT NUMBER: 03-24-22P-012 **DATE:** May 11, 2022

WHEREAS:

1. The public water system known as *Monson Water System* is located approximately two miles southeast of Dinuba, California.

2. The legal owner of the *Monson Water System* is *Sultana Community Services District. Sultana Community Services District,* therefore, is responsible for compliance with all statutory and regulatory drinking water requirements and the conditions set forth in this permit.

3. This permit is being issued to *Sultana Community Services District* for the purpose of providing an updated permit reflecting the current operations of the *Monson Water System* under the regulations of the State of California Health and Safety Code.

4. The public water system for which the permit was written is described briefly below (a more detailed description of the permitted system is described in the attached report):

   The Monson Water System's source of supply is groundwater. The Water System is classified as a community water system and serves a population of approximately 140 people through 32 service connections. The Water System serves one pressure zone and consists of one active groundwater source, Well 01. The water produced by Well 01 is treated using continuous chlorination prior to entering the distribution system.

And WHEREAS:

1. The Division of Drinking Water has evaluated all of the information submitted by *Sultana Community Services District* and has conducted a physical investigation of the *Monson Water System*.

2. The Division of Drinking Water has the authority to issue domestic water supply permits pursuant to Health and Safety Code Section 116540.

THEREFORE: The Division of Drinking Water has determined the following:

1. The *Monson Water System* meets the criteria for and is hereby classified as a community water system.

2. Provided the following conditions are complied with, the *Monson Water System* should be capable of providing water to consumers that is pure, wholesome, and potable and in compliance with statutory and regulatory drinking water requirements at all times.

SULTANA COMMUNITY SERVICES DISTRICT IS HEREBY ISSUED THIS DOMESTIC WATER SUPPLY PERMIT TO OPERATE SULTANA COMMUNITY SERVICES DISTRICT WATER SYSTEM.

The Monson Water System shall comply with the following permit conditions:

1. The Monson Water System shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted there under.

2. The only approved sources of domestic water supply for the Monson Water System are as follows:

Source	PS Code	Status
Well 01	CA5403212_001_001	Active

3. The only approved treatment for Monson Water System is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

4. No other sources or treatment (as described in provisions No. 2 and 3 above) shall be used by Monson Water System and no changes, additions, or modifications shall be made to the source unless an amended water permit has first been obtained from the Division.

5. All personnel who operate distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Monson Water System is classified as a D1 distribution system and shall be operated by, at minimum, a D1 certified distribution operator.

6. The Monson Water System shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Water System shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Monson Water System shall submit an Electronic Annual Report (EAR) each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Monson Water System shall record production data from each active source at least monthly.

9. The Monson Water System shall collect monthly raw water samples from the source for analyses of total coliform and fecal coliform or E. coli bacteria. The coliform test shall be performed using a density analytical method and the results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following

10. The Monson Water System shall monitor for coliform bacteria in the distribution system at least monthly and in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Division shall be notified immediately if any distribution system or source sample shows the presence of *E. coli* bacteria or if more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Monson Water System shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Monson Water System shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Monson Water System shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring from the sample site listed below. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Code:

ST2 Monitoring Site	PS Code
ST2S1 - 13920 Ave 418	CA5403212_DST_900

13. The Monson Water System shall submit a monthly chlorination log to the Division by the 10th day of the following month.

14. The Monson Water System shall operate the continuous chlorination treatment facility in accordance with a Division-approved Chlorination Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

This permit supersedes all previous domestic water supply permits issued for this public water system and shall remain in effect unless and until it is amended, revised, reissued, or declared to be null and void by the Division of Drinking Water. This revised permit is non-transferable. Should Monson Water System water system undergo a change of ownership, the new owner must apply for and receive a new domestic water supply permit.

Any change in the source of water for the water system, any modification of the method of treatment as described in the Sanitary Survey Report, or any addition of distribution system storage reservoirs shall not be made unless an application for such change is submitted to the Division of Drinking Water.

This permit shall be effective as of the date shown below.

FOR THE DIVISION OF DRINKING WATER

Kurt Souza

Digitally signed by Kurt Souza
Date: 2022.05.12 16:58:49 -07'00'

Water Boards

Kurt Souza, P.E.
Principle Engineer

Date

Small Water System Evaluation and Technical Report
Division of Drinking Water: Tulare District

Monson Water System
System No. 5403212

Contact:	Celeste Perez, Board Secretary	System Type:	Community Water System
Inspection Date:	April 21, 2022	Inspected by:	Mr. Jason Autry, E.I.T.

I. INTRODUCTION

On April 21, 2022, the State Water Resources Control Board, Division of Drinking Water (Division) conducted a sanitary survey of the Monson Water System (Water System). The purpose of this report is to document the findings of the sanitary survey, to describe the existing water supply facilities and current operational practices, and to describe any deficiencies needing corrective action. The Water System was last inspected by the Division on January 17, 2019, as a routine sanitary survey.

PERMIT STATUS

The Water System currently operates under Domestic Water Supply Permit No. 03-24-20PA-010 issued by the Division on April 10, 2020. The permit provisions are listed below.

1. The Monson Water System water system shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted there under.

2. The only approved source of domestic water supply for the Monson Water System water system is as follows:

Source Name	Status	PS Code
Well 01 – Raw	Active	5403212-001

3. The only approved treatment for the Monson Water System water system is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

4. No other sources or treatment (as described in provisions No. 2 and 3 above) shall be used by the Monson Water System water system and no changes, additions, or modifications shall be made to the source unless an amended water permit has first been obtained from the Division.

5. All personnel who operate distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Monson Water System water system is classified as a D1 water system and shall be operated by a D1 certified distribution operator or higher.

6. The Monson Water System water system shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Monson Water System water system shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Monson Water System water system shall submit an electronic Annual Report (EAR) each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Monson Water System water system shall record production data from the active source at least monthly. The monthly water production shall be reported annually to the Division in the EAR.

9. The Monson Water System water system shall collect monthly raw water samples from the source for analyses of total coliform and fecal coliform or E. coli bacteria. The coliform test shall be performed using a density analytical method and the results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

10. The Monson Water System water system shall monitor for coliform bacteria in the distribution system at least monthly and in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Division shall be notified immediately if any distribution system or source sample shows the presence of *E. coli* bacteria or if more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Monson Water System water system shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Monson Water System shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Monson Water System water system shall conduct Stage 2 Disinfection Byproduct (DBP) Monitoring once every year unless monitoring frequency is

reduced by the Division. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Code:

ST2 Monitoring Site	PS Code
ST2S1 - 13920 Ave 418	5403212-900

13. The Monson Water System water system shall submit a monthly chlorination log to the Division by the 10th day of the following month.

14. The Monson Water System water system shall operate the continuous chlorination treatment facility in accordance with a Division-approved Chlorination Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

The provisions included in the active permit are not all-inclusive and some do not reflect the current operations of the Water System. As a result, a revised permit is required. The revised permit, which accompanies this inspection report, reflects the changes in provisions and describes the current operations of the Water System.

DESCRIPTION OF WATER SYSTEM

Sultana Community Services District is the legal owner of the Water System. The mailing address for the Water System is P.O. Box 158 Sultana, California 93666. The Water System is located north of the City of Visalia, California. The Water System is classified as a community water system and supplies water to a population of approximately 140 through 32 service connections.

The Water System consists of a single pressure zone, one well, a storage tank and a distribution system. The Water System does not provide treatment to the source water. A locational map is provided in Appendix A.

ENFORCEMENT HISTORY

Citation No. 03-24-22C-024, issued February 18, 2022
The Water System failed to monitor Well 01 for nitrate in 2021.

II. INVESTIGATION AND FINDINGS

SOURCES OF SUPPLY

Well 01, Active – Treated, (CA5403212_001_001)

DWR Well Driller's Completion Report is on	Yes

file at Tulare District Office:	
Date of Well Completion:	May 2017
Well Depth:	920 feet
Sanitary Seal Depth:	315 feet; cement
Well Casing:	22-inch diameter steel casing to 910 feet; perforations between 350 to 510, 550 to 730, and 780 to 900 feet
Flow Meter:	Yes, digital
Pump Type:	Submersible
Pump Make and Model:	Unknown
Pump Size:	50-horsepower (hp)
Well Capacity	550 gallons per minute (gpm)
Source Discharge:	Directly to a 65,000-gallon steel storage prior to entering the distribution system.
Source Operation:	Based on tank level.
Comments:	Well 01 is the Water System’s only source of supply.

Source Water Assessments

In the 2018 Sanitary Survey Report, the Water System was directed to submit a Possible Contaminating Activity (PCA) Checklist. This directive remains outstanding and must be addressed by the Water System immediately. Please note, the Division does not establish new deadlines for past due items.

By January 31, 2018, the Water System must complete a Possible Contaminating Activity (PCA) checklist for Well 01 and submit it to the Division. A PCA Inventory form is included in Attachment F.

WATER PRODUCTION

The Water System uses Well 01 to meet system demands. Flow meters was installed at the wells in 2018. Based on the information reported in the Electronic Annual Reports, the production data from the active sources is outlined in Table 1 below. According to Water System staff flow data is recorded daily.

Table 1 – Water Production Data

Year	Annual Production (Gal.)	Max. Month (Gal.)
2020	4,959,000	618,000 (Aug.)
2019	4,401,000	723,000 (Sept.)
2018	3,946,100	481,400 (Jul.)

ADEQUACY OF SUPPLY

Production data, as reported by the Water System, and peaking factors established in the California Waterworks Standards were used to determine the Water System's Average Day (ADD), Maximum Day (MDD), and Peak Hour Demands (PHD). The adequacy of supply is determined by comparing the Water System's demands with its total source capacity which includes active and standby sources, storage capacity, and emergency interconnections with other water systems. The Water System's ADD, MDD, and PHD for the most recent four years are provided in Table 2. The total source capacity is provided by Well 01, which is 550 gpm

Table 2 – Average Day, Maximum Day, and Peak Hour Demands

Year	Average Day Demand (gpm)	Maximum Day Demand (gpm)	Peak Hour Demand (gpm)
2020	9.4	20.8	31.1
2019	8.4	25.1	37.7
2018	7.5	16.2	24.3

Table 3 – Total Active Source Capacity

Source	Capacity (gpm)
Well 01	550
Total Source Capacity	290

The total source capacity of the Water System is estimated to be 550 gpm. The Water System has adequate source capacity to supply the average day, maximum day, and peak hour demands of 8.4 gpm, 25.1 gpm, and 37.7 gpm, respectively.

Water systems with fewer than 1,000 service connections shall have storage capacity equal to or greater than the maximum day demand (MDD). The Water System currently meets this requirement. The 65,000 gallon storage tank is equivalent to 43 hours of MDD.

According to California Waterworks Standards, community water systems using only groundwater shall have a minimum of two approved sources. Additionally, the system shall be capable of meeting MDD with the highest-capacity source offline. The Division recommends the Water System explore options for adding a source or consolidating with a nearby public drinking water system.

STORAGE & DISTRIBUTION

The Water System uses a 65,000 gallon bolted steel storage tank. The well pumps water directly to a 65,000 gallon steel storage tank. Water is called at 5.3 feet (low) and stops at 12.5 feet (high). The water from the storage tank is then sent to four 119-gallon bladder tanks and three alternating 20-hp Grundfos booster pumps to pressurize the effluent of the tank. The purpose of the pressure tank and booster pumps is to maintain distribution system pressure between the range of 50 and 60 pounds per square inch (psi) after the storage tank. The distribution system is classified as a D1 system. The Water System must follow American Water Works Association (AWWA) standards when any repairs or line replacements are made. The distribution system is new (as of 2017) and primarily composed of 8-inch-high density polyethylene (HDPE) piping. The 2018 Lead Service Line Inventory in the Division's records showed 28 service connections with high density polyethylene (HDPE).

In the 2020 Sanitary Survey Report, the Water System was directed to submit an Operations Plan to the Division for review and approval. This directive remains outstanding and must be addressed by the Water System immediately. Please note, the Division does not establish new deadlines for past due items.

By May 31, 2020, The Water System must submit an Operations Plan to the Division for review and approval. Guidance for completing a Chlorination Operations Plan is in Attachment F.

TREATMENT FACILITIES

The Water System provides continuous chlorination to the water produced by Well 01. A 12.5% solution of sodium hypochlorite is injected directly into the discharge line of Well prior to entering the storage tank. The sodium hypochlorite solution is stored at the well site in a 120-gallon polyethylene tank. The chlorination equipment is activated upon startup of the well and consists of an Iwaki Model: EHE36E1-VC at Well 01. The Iwaki EHE36E1-VC chemical feed pump has a capacity of 8.5 gallons per hour (gph) at 105 psi. The chemical feed pump appears to be adequately sized and is not operating at the upper or lower dial limits. The Water System aims to maintain a chlorine residual of approximately 1.0 mg/L in the distribution system. The Water System must record chlorine residuals from the distribution system weekly and report the monthly chlorination report to the Division by the 10th day of the following month.

III. WATER QUALITY MONITORING

SOURCE MONITORING

For purposes of water quality monitoring, the Water System's source has been assigned a water quality monitoring schedule. The current water quality monitoring schedule and water quality monitoring results can also be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. A summary report of the last source sample results and next due dates is included in Appendix B. Directions to access the monitoring schedules and monitoring results are included in Appendix D.

Bacteriological

Due to continuous chlorination, the untreated well water from Well 01 is required to be sampled monthly for total coliform bacteria at a sample tap located prior to the chlorine injection port. This is required in order to verify that the well is not producing water that contains coliform bacteria. A summary of the source bacteriological sample results is included in Attachment C.

General Mineral (GM), General Physical (GP) and Inorganic (IO) Chemicals

The Water System is required to monitor its active groundwater sources for general mineral, general physical, and inorganic chemical water quality every three years, except for nitrate which has an annual monitoring frequency.

The Water System last sampled Well 01 for GM, GP, and IO chemicals in March 2020. All GM, GP, and IO chemical monitoring results for Well 01 was below the respective MCLs. The next round of GM, GP, and IO chemical monitoring for Well 01 is due in 2023.

Nitrate

The Water System is required to monitor active groundwater sources for nitrate (as N) annually if monitoring data indicates nitrate concentrations of less than one-half the MCL of 10 mg/L and quarterly if the concentrations are greater than or equal to one-half the MCL. The nitrate result on February 10, 2022 from Well 01 was 3.1 mg/L. Nitrate is next due to be monitored in March 2023.

Volatile Organic Chemicals (VOCs)

The Water System monitors VOCs from Well 01 once during every three-year monitoring period. Well 01 was last sampled for VOCs in September 2021, during the 2020-2022 monitoring period, and the results were non-detect. The next round of VOC monitoring is due to be collected in the 2023-2025 monitoring period.

Synthetic Organic Chemicals (SOCs)

The Water System is required to sample for 1,2,3-trichloropropane (1,2,3-TCP), alachlor, atrazine, dibromochloropropane (DBCP), ethylene dibromide (EDB), and simazine once during every three-year monitoring period. Well 01 was last sampled for alachlor, atrazine, DBCP and EDB in June 2020, and for 1,2,3-TCP in August 2020. The sample results were all non-detect. The next round of SOC monitoring is due to be collected in the 2023-2025 monitoring period.

Radiological Monitoring

The initial radiological monitoring is based on the collection of four consecutive quarterly samples for gross alpha and radium-228. If the results from the first two quarters of initial monitoring are below the DLR, the final two quarters of initial monitoring may be waived. After initial monitoring is complete, no additional monitoring is required for radium-228. Subsequent monitoring frequencies for gross alpha are based on the results of the last sample collected. It should be noted that if the gross alpha result for any single sample is greater than 5 pCi/L, analysis for uranium in *that same sample* is required.

The Water System completed the initial radium-228 monitoring requirements from Well 01 in September 2019; all results were below the DLR. No further monitoring is required for radium 228.

The Water System has completed initial monitoring requirements for gross alpha from Well 01; the result was below the DLR. Wells 01 was last sampled for gross alpha in February 2022. The sample result was non-detect. Wells 01 is currently on a nine-year monitoring frequency for gross alpha. Therefore, the next gross alpha sample is scheduled to be collected from Well 01 in September 2031.

It is noted that monitoring for uranium, radium-226 and radium-228 may be triggered from *the same sample* as noted below. Triggered monitoring needs to be communicated to the laboratory on the chain of custody at the time the sample is submitted.

Triggered Monitoring:

Uranium (U):
If the gross alpha (GA) + (0.84 * Counting Error, CE) for any single sample is greater than 5 pCi/L, analysis for U in that same sample, is required.

Radium-226 and Radium-228:
If the GA + (0.84 * CE) - U is greater than 5 pCi/L, analysis for radium-226 and radium-228 in that same sample, is required.

DISTRIBUTION SYSTEM MONITORING

Bacteriological Monitoring

Based on the population served and number of service connections, the Water System is required to collect at least one routine bacteriological sample each month from the distribution system. The sample must be analyzed for total coliform bacteria with results sent to the Division by the 10^{th} day of the following month. Additionally, bacteriological samples should be collected in accordance with an approved Bacteriological Sample

Siting Plan (BSSP). Anytime the BSSP is updated, the Water System must submit the updated copy to the Division for review and approval.

In the 2017 Sanitary Survey Report, the Water System was directed to submit a Bacteriological Sample Siting Plan (BSSP) to the Division for review and approval. This directive remains outstanding and must be addressed by the Water System immediately. Please note, the Division does not establish new deadlines for past due items.

By December 31, 2017, the Water System must submit a Bacteriological Sample Siting Plan to the Division for review and approval. Appendix E contains guidelines for completing the BSSP in compliance with the RTCR and a template that should be used.

The Federal Groundwater Rule states that when a Water System receives a total coliform positive sample, all sources that were running at the time when the positive sample was collected must be sampled for *E.coli*. A summary of the distribution bacteriological sample results is included in Appendix C.

Lead and Copper Tap Sampling

The Water System is currently on reduced monitoring schedule for lead and copper tap monitoring, which consists of collecting five samples from the distribution system every three years. The 90th percentile for lead and copper should be less than the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively. Table 4 summarizes the lead and copper sample tap results.

Table 4 – Lead and Copper Sample Tap Results

Monitoring Period	Sample Date	No. of Samples	Lead 90th Percentile Result (mg/L)	Copper 90th Percentile Result (mg/L)
6M1ST-2018	6/8/2018	10	0	0
6M2ND-2018	11/2/2018	10	0	0
YR2019	7/5/2019	10	0	0
YR2020	8/14/2020	5	0	0.0035
YR2021	8/6/2021	5	0	0

The Water System last collected five tap samples in August 2021, as presented in Table 4 and submitted the corresponding Lead and Copper Tap Sample Results Reporting Form. Samples for the current 3Y2022-2024 monitoring period must be collected no later than September 30, 2024.

It should be noted that all future lead and copper monitoring results must be submitted to the Division electronically via the Lab-To-State (LTS) Portal. The results may only be submitted through the LTS Portal by an Environmental Laboratory Accreditation Program (ELAP) accredited laboratory. A list of LTS registered laboratories can be found at:
http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/lts_portal_info.shtml

The Water System must complete and submit a Lead and Copper Tap Sample Results Reporting Form with all subsequent lead and copper monitoring results. A Lead and Copper Tap Sample Results Reporting Form is included in Appendix F. It is noted that lead and copper tap sampling must be conducted between June 1st and September 30th.

Lead Service Line Inventory and Replacement

The Water System submitted a lead service line inventory on August 1, 2018 showing 28 high density polyethylene (HDPE) service lines and no lead service lines or lead fittings.

Asbestos Pipe Distribution System Monitoring

Regulation requires monitoring of systems vulnerable to asbestos contamination. The Water System indicated in the Lead Service Line Inventory that the distribution system is composed primarily of high-density polyethylene (HDPE) and that no asbestos-containing cement piping is in the distribution system.

IV. OPERATIONS AND MAINTENANCE

Operator Certification

The Water System's distribution system is classified as a D1 distribution system and requires a certified distribution system operator with a minimum D1 certification. The Water System meets the Division's requirement. Mr. Jose Padilla maintains a D1 certification (Certification No. 27640). Per Title 22, Section 63770, California Code of Regulations water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:

1) Install, tap, re-line, disinfect, test and connect water mains and appurtenances.
2) Shutdown, repair, disinfect and test broken water mains.
3) Oversee the flushing, cleaning, and pigging of existing water mains.
4) Pull, reset, rehabilitate, disinfect and test domestic water wells.
5) Stand-by emergency response duties for after-hours distribution system operational emergencies.
6) Drain, clean, disinfect, and maintain distribution reservoirs.

The Water System shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:

1) Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.
2) Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.

The Water System shall utilize either certified distribution operators or treatment operators to make decisions addressing the following operational activities:

1) Determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.
2) Investigate water quality problems in the distribution system.

Cross Connection Control

The Water System is required to maintain a Cross Connection Control Program which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

1) The conducting of surveys to identify water user premises or locations where cross connections are likely to occur,
2) The provisions of backflow protection by the water user at the user's connection or within the user's premises or both,
3) The provision of at least one person trained in cross connection control to carry out the cross-connection program,
4) The establishment of a procedure or system for annual testing of backflow preventers, and
5) The maintenance of records of locations, tests, and repairs of backflow preventers.

Backflow Prevention Device Testing

Regulations require all backflow prevention devices to be tested annually. Copies of the testing records must be kept on file with the Water System for a minimum of three years.

In the 2020 Sanitary Survey Report, the Water System was directed to conduct a cross connection control survey using a certified cross connection control specialist or submit a time and schedule for having one completed. This directive remains outstanding and must be addressed by the Water System immediately. Please note, the Division does not establish new deadlines for past due items.

By May 31, 2020, the Water System must conduct a cross connection control survey using a certified cross connection control specialist or submit a time and schedule for having one completed.

Complaint Records

The Water System must keep records of all complaints received and actions taken to correct the problems related to complaints. Records of any complaints must be kept on file by the water system for a minimum of three years. In the 2020 Electronic Annual Report (EAR), the Water System reported zero (0) complaints from customers.

Emergency Notification Plan (ENP)

The Water System submitted an Emergency Notification Plan (ENP) to the Tulare District on March 2019. Included in the ENP is a plan that outlines the notification methods that will be used in case of an emergency. These methods include door-to-door contact, posted notifications, and telephone calls.

Consumer Confidence Report (CCR)

The Water System is required to complete a CCR annually and provide a copy to all residents by July 1st of each year. In addition, a signed certification form is required to be submitted to the Division by October 1 of each year that certifies the report has been distributed to customers. A copy of the 2020 CCR was submitted to the Division on June 25, 2021.

Electronic Annual Report (EAR)

All public water systems are required to provide updated water system information to the Division annually. The technical information included in the report is required per Section 116530 of the California Health and Safety Code. The 2020 Electronic Annual Report was submitted to the Division on June 23, 2021.

V. SMALL WATER SYSTEM RESILIENCY AND PREPAREDNESS

The effects of climate change on community water system (CWS) facilities and operations is a concern and priority of the State Water Resources Control Board (SWRCB), which is documented by the SWRCB in its Comprehensive Climate Change Resolution adopted in March 2017. DDW is reviewing each water system preparedness for climate change with the goal to increase awareness and familiarization to the effects of climate change to facilities and operations, encourage the use of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) or equivalent, and to document the

Water System's efforts related to current threats that may also provide mitigation to climate change impacts.

The Water System indicated that they ***were not*** aware of the CREAT tool developed by USEPA for identifying climate change vulnerabilities. The Water System has not used CREAT (or similar tool) to identify vulnerabilities to the water system sources and facilities. The SWRCB strongly encourages utilities to evaluate climate change vulnerabilities using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

Fire ---

- A defensible space of 100 feet (*California Public Resources Code, 4291*) is maintained around all sources and structures managed by the Water System. **Yes.**

Flooding ---

- Are any of the drinking water facilities vulnerable to flooding? **No**

Backup Power ---

- Is backup power available, for example, through portable or permanent power generators? **Yes**
    - Backup power connection point is provided at Well 01.
- If liquid fuel is used, is it properly contained and stored away from the source? **N/A. No generator on site at the moment.**

Drought ---

- Is the Water System prepared for drought related shortages or outages? (interties, backup supply, increased storage) **Yes**

Degrading Source Water Quality –

- Has source water quality degraded over time, or specifically during the most recent drought? **No**

VI. APPRAISAL OF SANITARY HAZARDS & PUBLIC HEALTH SAFEGUARDS

The Monson Water System water system relies on Well 01 to supply the demands of the system. The system has storage that meets MDD requirements in the event of an emergency. Monson Water System has no interconnection with any nearby water systems. However, arrangements are being made to connect Sultana CSD to Monson Water System nearby to increase reliability. The Water System has not implemented a cross-connection control program. The Water System must prioritize implementing the cross-connection control program and testing the backflow prevention devices annually.

All laboratory chemical analytical results must be submitted to the Division via electronic data transfer (EDT) with the correct primary station code (PS Code). The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/.

Competent supervision is provided over the operational and maintenance practices of the Water System.

VI. CONCLUSIONS AND RECOMMENDATIONS

Issuance of a Domestic Water Supply Permit Amendment by the State Water Resources Control Board, Division of Drinking Water to Monson Water System for the operation of the Monson Water System water system is recommended subject to the following provisions:

1. The Monson Water System shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted there under.

2. The only approved sources of domestic water supply for the Monson Water System are as follows:

Source	PS Code	Status
Well 01	CA5403212_001_001	Active

3. The only approved treatment for Monson Water System is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

4. No other sources or treatment (as described in provisions No. 2 and 3 above) shall be used by Monson Water System and no changes, additions, or modifications shall be made to the source unless an amended water permit has first been obtained from the Division.

5. All personnel who operate distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Monson Water System is classified as a D1 distribution system and shall be operated by, at minimum, a D1 certified distribution operator.

6. The Monson Water System shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Water System shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Monson Water System shall submit an Electronic Annual Report (EAR) each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Monson Water System shall record production data from each active source at least monthly.

9. The Monson Water System shall collect monthly raw water samples from the source for analyses of total coliform and fecal coliform or E. coli bacteria. The coliform test shall be performed using a density analytical method and the results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following

10. The Monson Water System shall monitor for coliform bacteria in the distribution system at least monthly and in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Division shall be notified immediately if any distribution system or source sample shows the presence of *E. coli* bacteria or if more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Monson Water System shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Monson Water System shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Monson Water System shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring from the sample site listed below. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Code:

ST2 Monitoring Site	**PS Code**
ST2S1 - 13920 Ave 418	CA5403212_DST_900

13. The Monson Water System shall submit a monthly chlorination log to the Division by the 10th day of the following month.

14. The Monson Water System shall operate the continuous chlorination treatment facility in accordance with a Division-approved Chlorination Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

In addition to the aforementioned permit provisions, and after evaluation of the existing water supply facilities and completion of a subsequent file review, the Division finds that the items below need to be addressed by the Water System:

The Water System has two directives that were included in the 2017 Sanitary Survey Report, and two directives that were included in the 2020 Sanitary Survey, that are past due. The Division does not establish new deadlines for the directives and the Water System is required to address the directives as soon as possible:

1. By **January 31, 2018,** the Water System must complete a Possible Contaminating Activity (PCA) checklist for Well 01 and submit it to the Division.

2. By **May 31, 2020,** The Water System must submit an Operations Plan to the Division for review and approval.

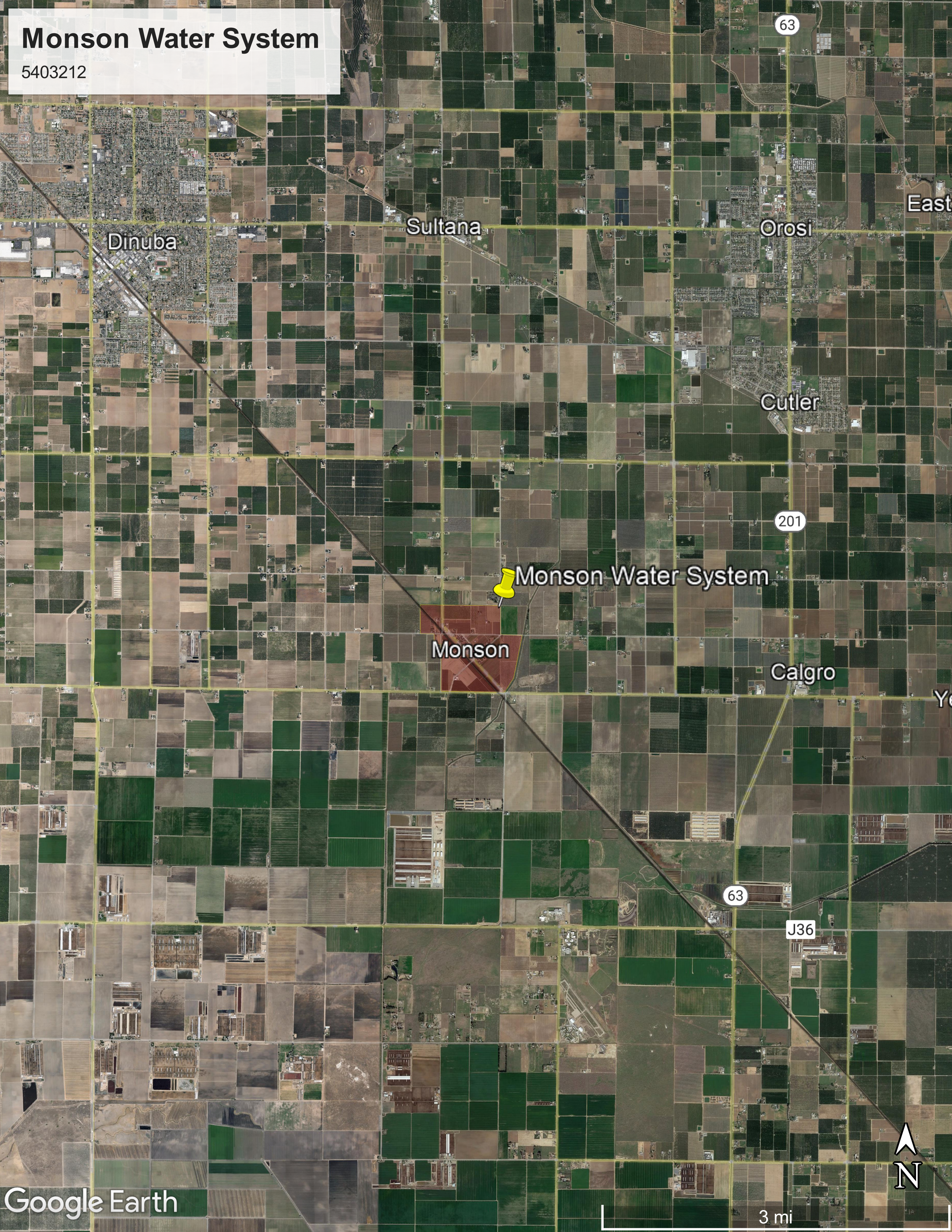
3. By **December 31, 2017,** the Water System must submit a Bacteriological Sample Siting Plan to the Division for review and approval.

4. By **May 31, 2020,** the Water System must conduct a cross connection control survey using a certified cross connection control specialist or submit a time and schedule for having one completed.

Appendices

Appendix A: System Map & Photographs
Appendix B: Last Sample Next Due Summary Report
Appendix C: Distribution System Bacteriological Sample Results Summary
Appendix D: Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data
Appendix E: Guidelines for Completing BSSP for Small Water Systems and Template
Appendix F: Lead and Copper Tap Sample Results Reporting Form

Appendix A:
Location Map & Photo Index



Monson Water System
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Appendix A
Monson Water System
Photographs

Well 01

Pump Type: Submersible

Pump Make and Model: Unknown

Pump Size: 50 hp

Capacity: 550 gpm

65,000 Gallon Storage Tank

Steel storage tank, bottom in/out configuration. Located at the Well 01 site.

Appendix A
Monson Water System
Photographs

Continuous Chlorination

120-gallon 12.5% sodium hypochlorite solution. Iwaki EHE36E1-VC chemical feed pump. Injected into discharge of Well 01 prior to storage tank.

Booster Station

Three Grundfos 20-hp booster pumps and four 119 gallon pressure tanks

Appendix B:
Last Sample & Next Due Date Summary Reports

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: MONSON WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: NCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5403212_001_001		MONSON WATER SYSTEM						WELL 01 - RAW								
	GP	SECONDARY/GP														
		1928	ALKALINITY, BICARBONATE		0.000	140.000	0.000	MG/L	------	-----	3/6/2020	2	36		2023/03	
		1919	CALCIUM		0.000	24.000	0.000	MG/L	------	-----	3/6/2020	3	36		2023/03	
		1929	ALKALINITY, CARBONATE	<	10.000	0.000	0.000	MG/L	------	-----	3/6/2020	2	36		2023/03	
		1017	CHLORIDE		0.000	21.000	0.000	MG/L	500	-----	3/6/2020	2	36		2023/03	
		1905	COLOR		0.000	5.000	0.000	UNITS	15	-----	3/6/2020	2	36		2023/03	
		1022	COPPER, FREE	<	50.000	0.000	0.000	UG/L	1000	50	3/6/2020	2	36		2023/03	
		2905	FOAMING AGENTS (SURFACTANTS)	<	0.100	0.000	0.000	MG/L	0.5	-----	3/6/2020	2	36		2023/03	
		1915	HARDNESS, TOTAL (AS CACO3)		0.000	88.700	0.000	MG/L	------	-----	3/6/2020	2	36		2023/03	
		1021	HYDROXIDE AS CALCIUM CARBONATE	<	10.000	0.000	0.000	MG/L	------	-----	3/6/2020	2	36		2023/03	
		1028	IRON	<	100.000	0.000	0.000	UG/L	300	100	3/6/2020	2	36		2023/03	
		1031	MAGNESIUM		0.000	7.000	0.000	MG/L	------	-----	3/6/2020	3	36		2023/03	
		1032	MANGANESE	<	20.000	0.000	0.000	UG/L	50	20	3/6/2020	2	36		2023/03	
		1920	ODOR	<	1.000	0.000	0.000	TON	3	1	3/6/2020	2	36		2023/03	
		1925	PH		0.000	8.100	0.000		------	-----	3/6/2020	2	36		2023/03	
		1050	SILVER	<	10.000	0.000	0.000	UG/L	100	10	3/6/2020	2	36		2023/03	
		1052	SODIUM		0.000	32.000	0.000	MG/L	------	-----	3/6/2020	2	36		2023/03	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM		0.000	350.000	0.000	US	1600	-----	3/6/2020	2	36		2023/03	
		1055	SULFATE		0.500	4.500	0.000	MG/L	500	0.5	3/6/2020	2	36		2023/03	
		1930	TDS		0.000	230.000	0.000	MG/L	1000	-----	3/6/2020	2	36		2023/03	
		0100	TURBIDITY		0.100	1.300	0.000	NTU	5	0.1	3/6/2020	2	36		2023/03	
		1095	ZINC	<	50.000	0.000	0.000	UG/L	5000	50	3/6/2020	2	36		2023/03	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: MONSON WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: NCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5403212_001_001	IO	**INORGANIC**														
		1002	ALUMINUM	<	50.000	0.000	0.000	UG/L	1000	50	3/6/2020	2	36		2023/03	
		1074	ANTIMONY, TOTAL	<	6.000	0.000	0.000	UG/L	6	6	3/6/2020	2	36		2023/03	
		1005	ARSENIC		2.000	3.000	0.000	UG/L	10	2	3/6/2020	2	36		2023/03	
		1010	BARIUM	<	100.000	0.000	0.000	UG/L	1000	100	3/6/2020	2	36		2023/03	
		1075	BERYLLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	4	1	3/6/2020	2	36		2023/03	
		1015	CADMIUM	<	1.000	0.000	0.000	UG/L	5	1	3/6/2020	2	36		2023/03	
		1020	CHROMIUM	<	10.000	0.000	0.000	UG/L	50	10	3/6/2020	2	36		2023/03	
		1025	FLUORIDE		0.100	0.200	0.000	MG/L	2	0.1	3/6/2020	2	36		2023/03	
		1035	MERCURY	<	1.000	0.000	0.000	UG/L	2	1	3/6/2020	2	36		2023/03	
		1036	NICKEL	<	10.000	0.000	0.000	UG/L	100	10	3/6/2020	2	36		2023/03	
		1039	PERCHLORATE	<	2.000	0.000	0.000	UG/L	6	2	3/7/2022	7	36		2025/03	
		1045	SELENIUM	<	5.000	0.000	0.000	UG/L	50	5	3/6/2020	2	36		2023/03	
		1085	THALLIUM, TOTAL	<	1.000	0.000	0.000	UG/L	2	1	3/6/2020	2	36		2023/03	
	NI	**NITRATE/NITRITE**														
		1040	NITRATE		0.400	3.100	0.000	mg/L	10	0.4	2/10/2022	4	12		2023/02	
		1041	NITRITE	<	0.400	0.000	0.000	mg/L	1	0.4	9/10/2020	2	36		2023/09	
	RA	**RADIOLOGICAL**														
		4109	GROSS ALPHA PARTICLE ACTIVITY	<	1.230	0.000	0.860	PCI/L	15	3	2/10/2022	9	72	Interval	2028/02	
	S1	**REGULATED VOC**														
		2981	1,1,1-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	200	0.5	9/28/2021	8	12	Interval	2022/09	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: MONSON WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: NCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5403212_001_001	S1	REGULATED VOC														
		2988	1,1,2,2-TETRACHLOROETHANE	<	0.500	0.000	0.000	UG/L	1	0.5	9/28/2021	8	12	Interval	2022/09	
		2985	1,1,2-TRICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2978	1,1-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2977	1,1-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	9/28/2021	8	12	Interval	2022/09	
		2378	1,2,4-TRICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2968	O-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	600	0.5	9/28/2021	8	12	Interval	2022/09	
		2980	1,2-DICHLOROETHANE	<	0.500	0.000	0.000	UG/L	0.5	0.5	9/28/2021	8	12	Interval	2022/09	
		2983	1,2-DICHLOROPROPANE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2413	1,3-DICHLOROPROPENE	<	0.500	0.000	0.000	UG/L	0.5	0.5	9/28/2021	8	12	Interval	2022/09	
		2969	P-DICHLOROBENZENE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2990	BENZENE	<	0.500	0.000	0.000	UG/L	1	0.5	9/28/2021	8	12	Interval	2022/09	
		2982	CARBON TETRACHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	9/28/2021	8	12	Interval	2022/09	
		2380	CIS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	6	0.5	9/28/2021	8	12	Interval	2022/09	
		2964	DICHLOROMETHANE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2992	ETHYLBENZENE	<	0.500	0.000	0.000	UG/L	300	0.5	9/28/2021	8	12	Interval	2022/09	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: MONSON WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: NCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5403212_001_001	S1	2251	METHYL TERT-BUTYL ETHER	<	3.000	0.000	0.000	UG/L	13	3	9/28/2021	8	12	Interval	2022/09	
		2989	CHLOROBENZENE	<	0.500	0.000	0.000	UG/L	70	0.5	9/28/2021	8	12	Interval	2022/09	
		2996	STYRENE	<	0.500	0.000	0.000	UG/L	100	0.5	9/28/2021	8	12	Interval	2022/09	
		2987	TETRACHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2991	TOLUENE	<	0.500	0.000	0.000	UG/L	150	0.5	9/28/2021	8	12	Interval	2022/09	
		2979	TRANS-1,2-DICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	10	0.5	9/28/2021	8	12	Interval	2022/09	
		2984	TRICHLOROETHYLENE	<	0.500	0.000	0.000	UG/L	5	0.5	9/28/2021	8	12	Interval	2022/09	
		2218	TRICHLOROFLUOROMETHANE	<	5.000	0.000	0.000	UG/L	150	5	9/28/2021	8	12	Interval	2022/09	
		2904	TRICHLOROTRIFLUOROETHANE	<	10.000	0.000	0.000	UG/L	1200	10	9/28/2021	8	12	Interval	2022/09	
		2976	VINYL CHLORIDE	<	0.500	0.000	0.000	UG/L	0.5	0.5	9/28/2021	8	12	Interval	2022/09	
		2955	XYLENES, TOTAL	<	0.500	0.000	0.000	UG/L	1750	0.5	9/28/2021	8	12	Interval	2022/09	
	S2	REGULATED SOC														
		2414	1,2,3-TRICHLOROPROPANE	<	0.000	0.000	0.000	UG/L	0.005	0.005	8/13/2020	11	36	Interval	2023/08	
		2051	LASSO (ALACHLOR)	<	1.000	0.000	0.000	UG/L	2	1	6/16/2020	7	36	Interval	2023/06	
		2050	ATRAZINE	<	0.500	0.000	0.000	UG/L	1	0.5	6/16/2020	7	36	Interval	2023/06	
		2931	1,2-DIBROMO-3-CHLOROPROPANE	<	0.000	0.000	0.000	UG/L	0.2	0.01	6/16/2020	7	36	Interval	2023/06	
		2946	ETHYLENE DIBROMIDE	<	0.000	0.000	0.000	UG/L	0.05	0.02	6/16/2020	7	36	Interval	2023/06	
		2037	SIMAZINE	<	1.000	0.000	0.000	UG/L	4	1	6/16/2020	7	36	Interval	2023/06	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: MONSON WATER SYSTEM COUNTY: TULARE

Sample Point: ST2S1 - 10678 SIMPSON DR CLASS: DBPT STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LESS THAN	REPORTING LEVEL	LAST RESULT	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
CA5403212_DST_900		MONSON WATER SYSTEM						ST2S1 - 10678 SIMPSON DR								
	DBP	DISINFECTION BYPRODUCTS														
		2943	BROMODICHLOROMETHANE	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2942	BROMOFORM	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2941	CHLOROFORM	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2454	DIBROMOACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2944	DIBROMOCHLOROMETHANE	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2451	DICHLOROACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2456	TOTAL HALOACETIC ACIDS (HAA5)	<	0.000	0.000	0.000	UG/L	60	-----	7/26/2019	1	36		2022/07	
		2453	MONOBROMOACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	
		2450	MONOCHLOROACETIC ACID	<	2.000	0.000	0.000	UG/L	------	2	7/26/2019	1	36		2022/07	
		2950	TTHM	<	0.000	0.000	0.000	UG/L	80	-----	7/26/2019	1	36		2022/07	
		2452	TRICHLOROACETIC ACID	<	1.000	0.000	0.000	UG/L	------	1	7/26/2019	1	36		2022/07	

Appendix C:
Distribution System Bacteriological Sample Results Summary

Bacteriological Distribution Monitoring Report

5403212 Monson Water System

Distribution System Freq: ***1/M***

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
4/25/2022	Hyd #3	A	A			Routine	0.29				
3/7/2022	Hyd #3	A	A			Routine	0.83				
2/8/2022	Hyd #3	A	A			Routine	0.37				
1/7/2022	Monson Hyd #3	A	A			Routine	0.19				
12/27/2021	Monson Hyd #3	A	A			Routine	1.17				
11/19/2021	Monson Hyd #3	A	A			Routine	0.72				
10/18/2021	Monson Hyd #3	A	A			Routine	0.55				
9/28/2021	Monson Hyd #3	A	A			Routine	0.19				
8/23/2021	Monson Hyd #3	A	A			Routine	0.35				
7/26/2021	Monson Hyd #3	A	A			Routine	0.39				
6/21/2021	Hyd #3	A	A			Routine	0.23				
5/24/2021	Hyd #3	A	A			Routine	0.19				
4/15/2021	Hyd#3	A	A			Routine	0.13				
3/15/2021	Hyd #3	A	A			Routine	0.56				
2/18/2021	Hyd #3	A	A			Routine	0.41				
1/19/2021	Hyd #3	A	A			Routine	0.69				
12/21/2020	Monson Hyd #3	A	A			Routine	0.7				
11/3/2020	Monson Hyd #3	A	A			Routine	0.74				
10/26/2020	Hyd #3	A	A			Routine	0.39				
9/10/2020	Hyd #3	A	A			Routine	0.25				
8/13/2020	Hyd #3	A	A			Routine	0.19				
7/15/2020	Hyd #3	A	A			Routine	0.19				
6/16/2020	Hyd #3	A	A			Routine	0.41				
5/14/2020	Hyd #3	A	A			Routine	0.31				
4/22/2020	Hyd #3	A	A			Routine	0.21				
3/6/2020	Hyd #3	A	A			Routine	0.64				
2/14/2020	Hyd #3	A	A			Routine	0.37				
1/13/2020	Hyd #3	A	A			Routine	0.35				

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

5403212 Monson Water System

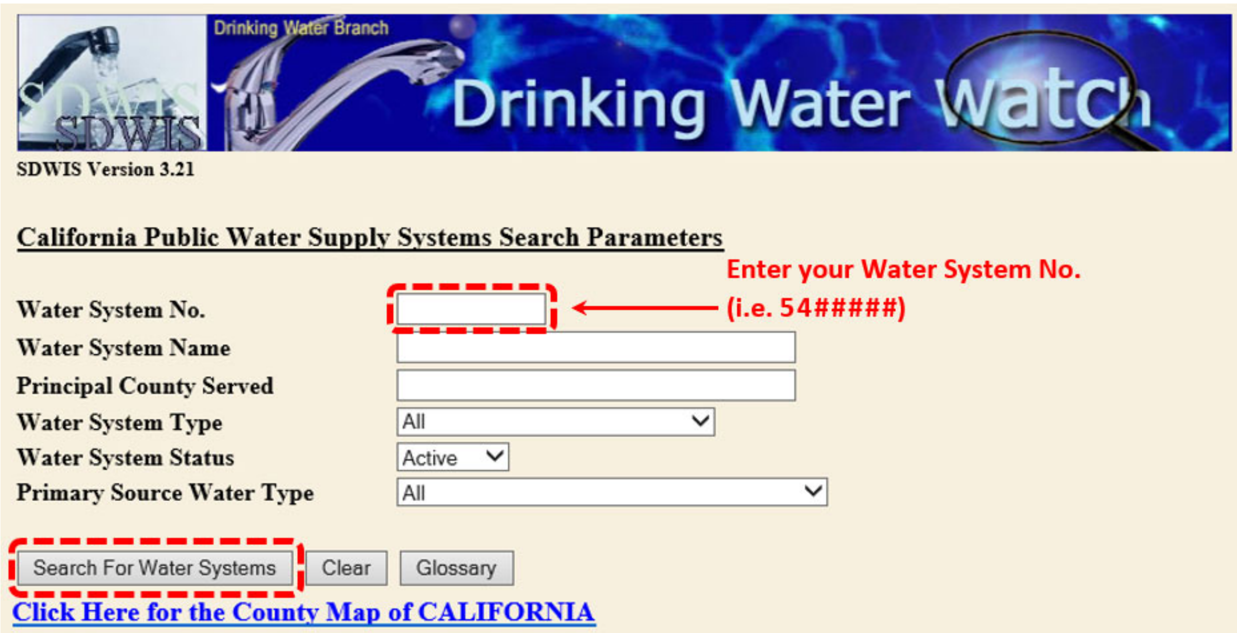
Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
4/25/2022	12:15	Well 01	Well	QTray	<1.0	<1.0				
3/7/2022	12:45	Well 01	Well	QTray	<1.0	<1.0				
2/8/2022	10:50	Well 01	Well	QTray	<1.0	<1.0				
1/7/2022	11:35	Well 01	Well	Qtray	<1.0	<1.0				
12/27/2021	13:00	Well 01	Well	Qtray	<1.0	<1.0				
11/19/2021	13:45	Well 01	Well	Qtray	<1.0	<1.0				
10/18/2021	10:15	Well 01 - Raw	Well	Qtray	<1.0	<1.0				
9/28/2021	11:15	Well 01	Well	Qtray	<1.0	<1.0				
8/23/2021	14:00	Well 01	Well	Qtray	<1.0	<1.0				
7/26/2021	12:50	Well 01	Well	Qtray	<1.0	<1.0				
6/21/2021	14:05	Well 01	Well	QTray	<1.0	<1.0				
5/24/2021	12:50	Well 01	Well	Qtray	<1.0	<1.0				
4/15/2021	12:40	Well 01	Well	Qtray	<1.0	<1.0				
3/15/2021	13:20	Well 01	Well	Qtray	<1.0	<1.0				
2/18/2021	14:00	Well 01	Well	Qtray	<1.0	<1.0				
1/19/2021	12:55	Well 01	Well	QTray	<1.0	<1.0				
12/21/2020	12:15	Well 01	Well	Qtray	<1	<1				
11/3/2020	15:25	Well 01	Well	Qtray	<1.0	<1.0				
10/26/2020	13:30	Well 01	Well	Qtray	<1.0	<1.0				
9/10/2020	15:40	Well 01	Well	Qtray	<1.0	<1.0				
8/13/2020	14:35	Well 01	Well	Qtray	<1.0	<1.0				
7/15/2020	14:35	Well 01	Well	Qtray	<1.0	<1.0				
6/16/2020	13:30	Well 01	Well	Qtray	2	<1.0				
5/14/2020	14:00	Well 01	Well	QTray	28.8	<1.0				
4/22/2020	13:00	Well 01	Well	QTray	<1.0	<1.0				
3/6/2020	13:20	Well 01	Well	QTray	<1.0	<1.0				
2/14/2020	11:05	Well 01	Well	QTray	<1.0	<1.0				
1/13/2020	14:20	Well 01	Well	QTray	<1.0	<1.0				

Appendix D:
Instructions for Accessing Individual Water System’s Water Monitoring Schedule and Water Quality Data

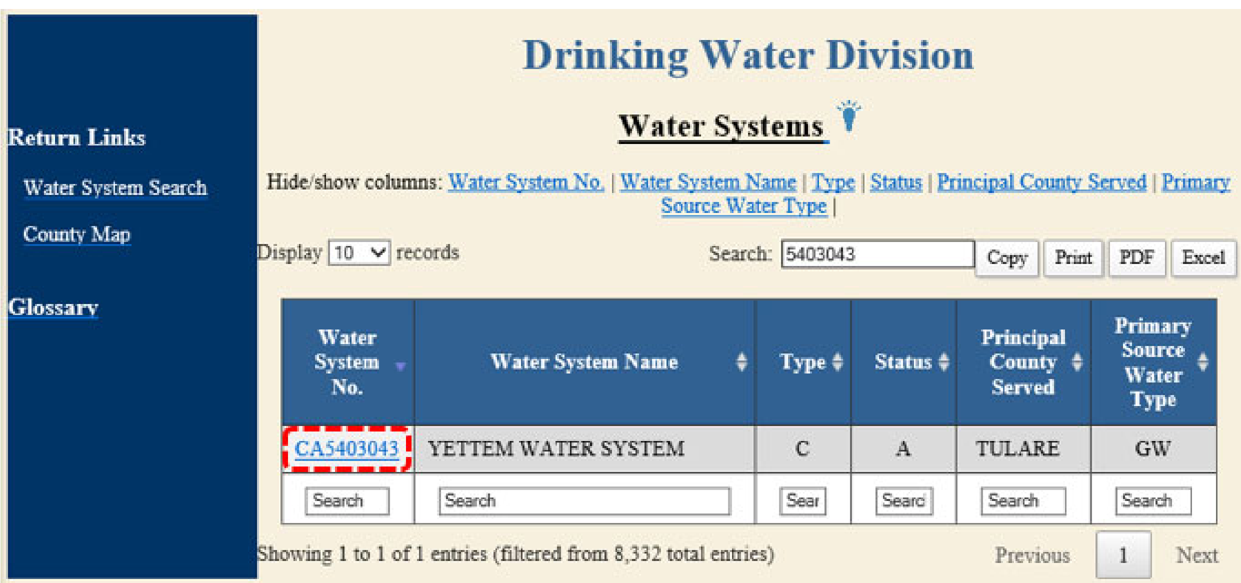
How To Access Individual System's Drinking Water Monitoring Schedule & Water Quality Data

1. Place the following link in the internet address bar: https://sdwis.waterboards.ca.gov/PDWW/

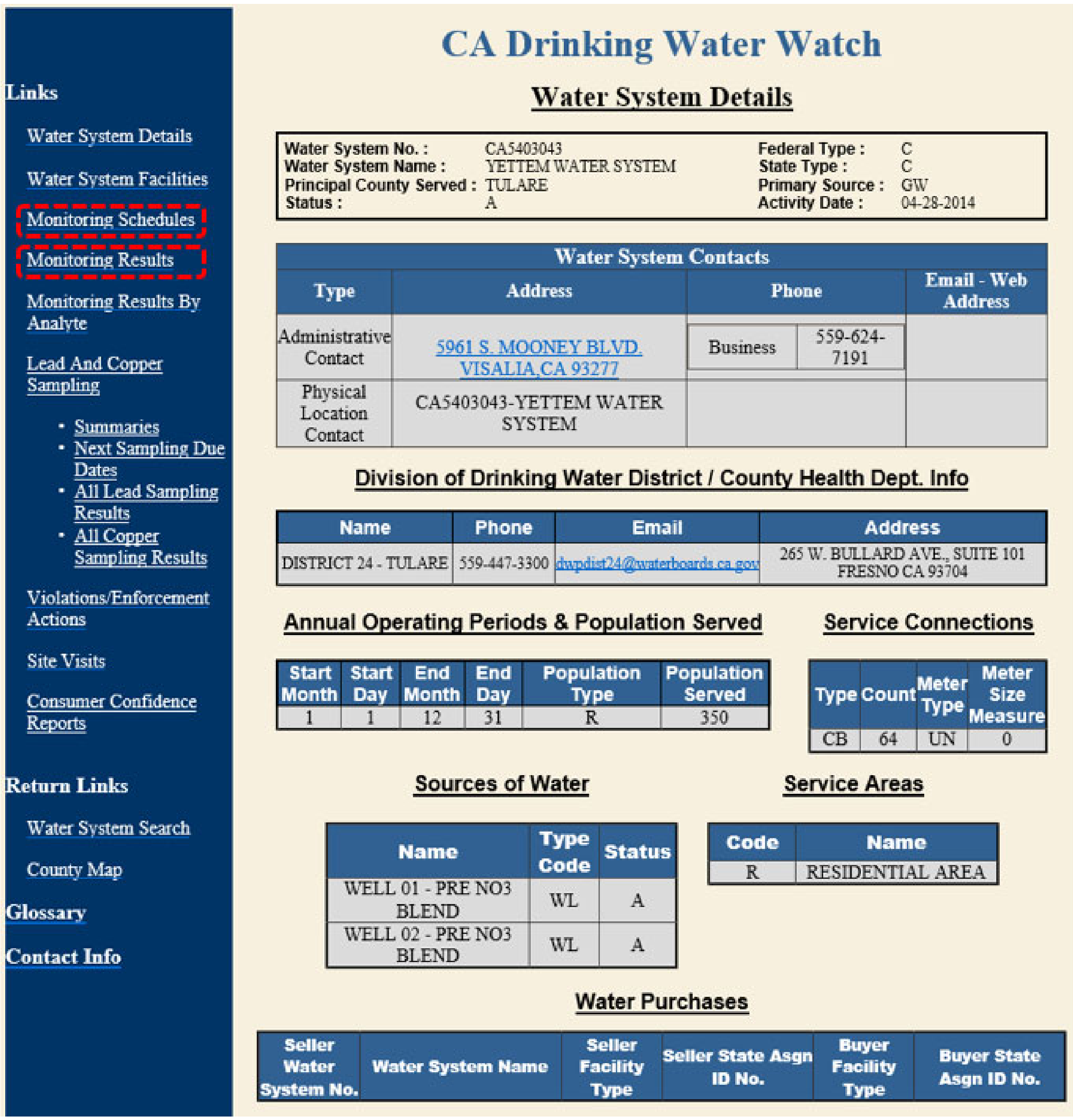
2. Enter your Water System No. and select "Search For Water Systems"



3. Click on your Water System No. (Link in blue text).



4. On the left side of the screen, select ***Monitoring Schedules*** for source monitoring schedule (last sample and next due dates) *or* ***Monitoring Results*** for water quality results.



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System Details

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Water System Contacts

Type	Address	Phone		Email - Web Address
Administrative Contact	5961 S. MOONEY BLVD. VISALIA,CA 93277	Business	559-624-7191	
Physical Location Contact	CA5403043-YETTEM WATER SYSTEM			

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 24 - TULARE	559-447-3300	dwpdist24@waterboards.ca.gov	265 W. BULLARD AVE., SUITE 101 FRESNO CA 93704

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	350

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	64	UN	0

Sources of Water

Name	Type Code	Status
WELL 01 - PRE NO3 BLEND	WL	A
WELL 02 - PRE NO3 BLEND	WL	A

Service Areas

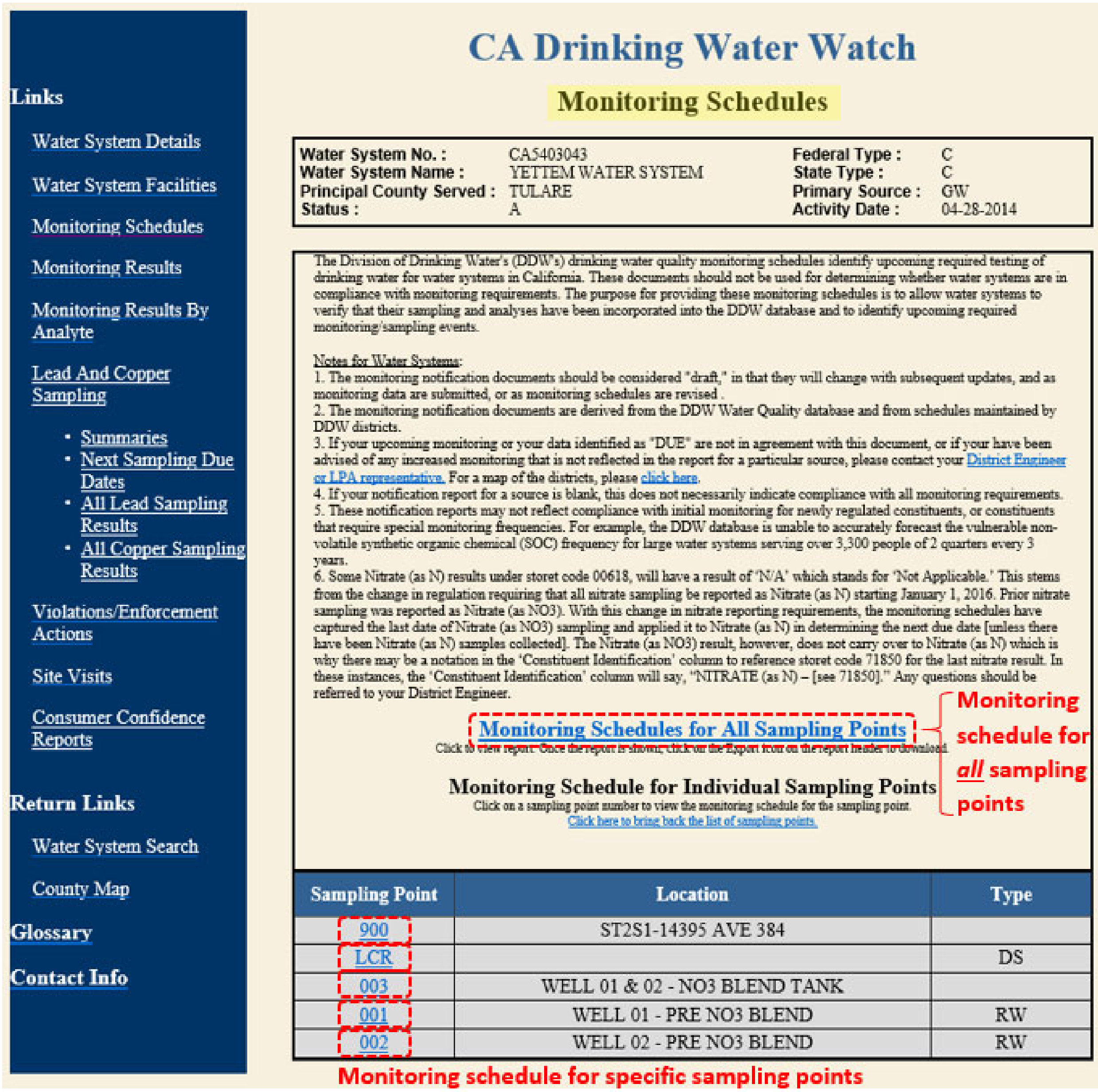
Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.

5. Select Sampling Point corresponding to the source (Link in blue text and is a number).

5A. *Monitoring Schedules*



CA Drinking Water Watch

Monitoring Schedules

Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

The Division of Drinking Water's (DDW's) drinking water quality monitoring schedules identify upcoming required testing of drinking water for water systems in California. These documents should not be used for determining whether water systems are in compliance with monitoring requirements. The purpose for providing these monitoring schedules is to allow water systems to verify that their sampling and analyses have been incorporated into the DDW database and to identify upcoming required monitoring/sampling events.

Notes for Water Systems:

1. The monitoring notification documents should be considered "draft," in that they will change with subsequent updates, and as monitoring data are submitted, or as monitoring schedules are revised .
2. The monitoring notification documents are derived from the DDW Water Quality database and from schedules maintained by DDW districts.
3. If your upcoming monitoring or your data identified as "DUE" are not in agreement with this document, or if your have been advised of any increased monitoring that is not reflected in the report for a particular source, please contact your District Engineer or LPA representative. For a map of the districts, please click here.
4. If your notification report for a source is blank, this does not necessarily indicate compliance with all monitoring requirements.
5. These notification reports may not reflect compliance with initial monitoring for newly regulated constituents, or constituents that require special monitoring frequencies. For example, the DDW database is unable to accurately forecast the vulnerable non-volatile synthetic organic chemical (SOC) frequency for large water systems serving over 3,300 people of 2 quarters every 3 years.
6. Some Nitrate (as N) results under storet code 00618, will have a result of 'N/A' which stands for 'Not Applicable.' This stems from the change in regulation requiring that all nitrate sampling be reported as Nitrate (as N) starting January 1, 2016. Prior nitrate sampling was reported as Nitrate (as NO3). With this change in nitrate reporting requirements, the monitoring schedules have captured the last date of Nitrate (as NO3) sampling and applied it to Nitrate (as N) in determining the next due date [unless there have been Nitrate (as N) samples collected]. The Nitrate (as NO3) result, however, does not carry over to Nitrate (as N) which is why there may be a notation in the 'Constituent Identification' column to reference storet code 71850 for the last nitrate result. In these instances, the 'Constituent Identification' column will say, "NITRATE (as N) – [see 71850]." Any questions should be referred to your District Engineer.

Monitoring Schedules for All Sampling Points

Click to view report. Once the report is shown, click on the Export icon on the report header to download.

Monitoring schedule for *all* sampling points

Monitoring Schedule for Individual Sampling Points

Click on a sampling point number to view the monitoring schedule for the sampling point.

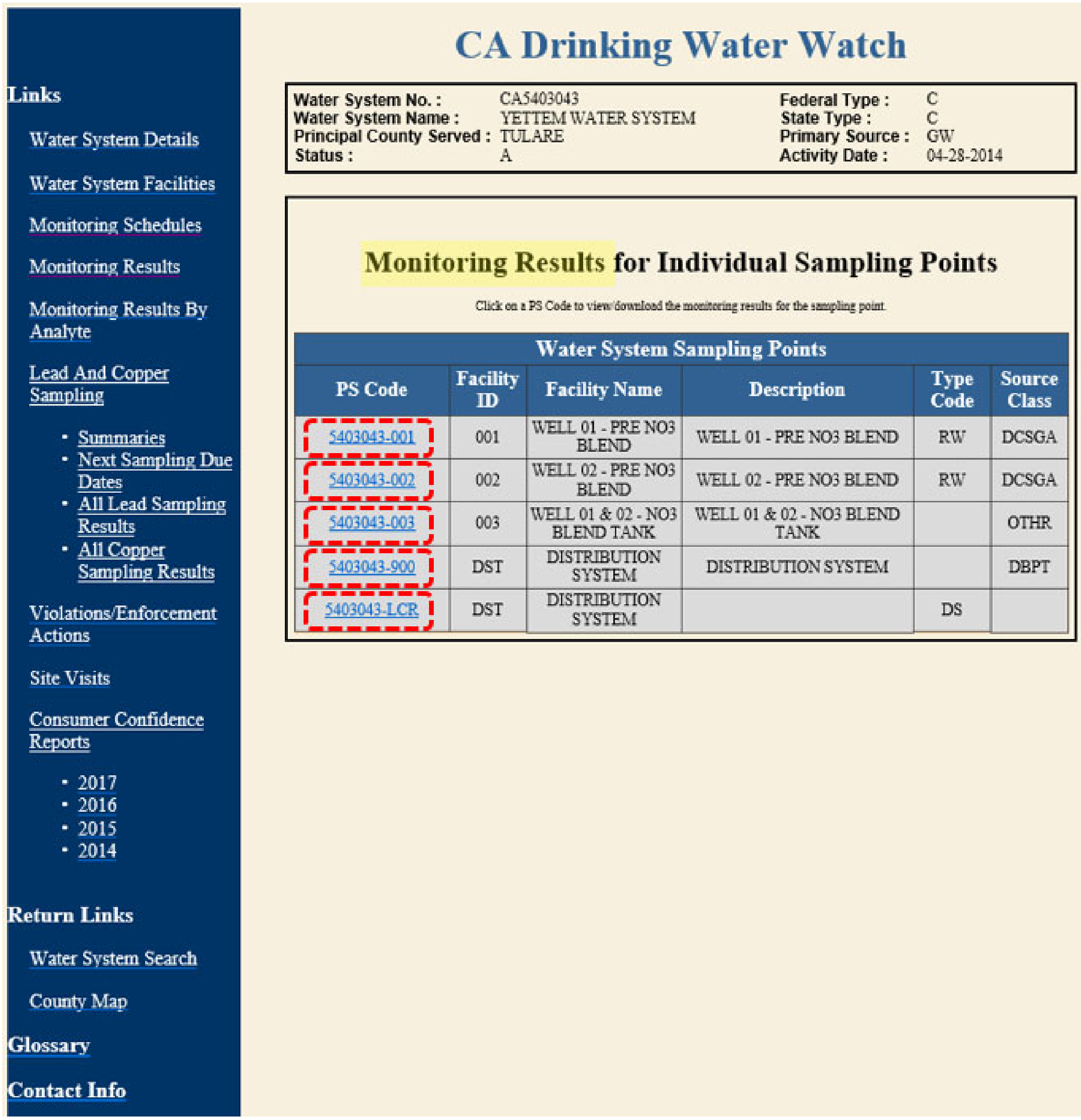
Click here to bring back the list of sampling points.

Sampling Point	Location	Type
900	ST2S1-14395 AVE 384	
LCR		DS
003	WELL 01 & 02 - NO3 BLEND TANK	
001	WELL 01 - PRE NO3 BLEND	RW
002	WELL 02 - PRE NO3 BLEND	RW

Monitoring schedule for specific sampling points

NOTE: Any *past due* monitoring will have "DUE NOW" in the far-right column. **Please schedule this monitoring as soon as possible.**

5B. ***Monitoring Results***



Links

Water System Details

Water System Facilities

Monitoring Schedules

Monitoring Results

Monitoring Results By Analyte

Lead And Copper Sampling

- Summaries
- Next Sampling Due Dates
- All Lead Sampling Results
- All Copper Sampling Results

Violations/Enforcement Actions

Site Visits

Consumer Confidence Reports

- 2017
- 2016
- 2015
- 2014

Return Links

Water System Search

County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

Monitoring Results for Individual Sampling Points

Click on a PS Code to view/download the monitoring results for the sampling point.

Water System Sampling Points

PS Code	Facility ID	Facility Name	Description	Type Code	Source Class
5403043-001	001	WELL 01 - PRE NO3 BLEND	WELL 01 - PRE NO3 BLEND	RW	DCSGA
5403043-002	002	WELL 02 - PRE NO3 BLEND	WELL 02 - PRE NO3 BLEND	RW	DCSGA
5403043-003	003	WELL 01 & 02 - NO3 BLEND TANK	WELL 01 & 02 - NO3 BLEND TANK		OTHR
5403043-900	DST	DISTRIBUTION SYSTEM	DISTRIBUTION SYSTEM		DBPT
5403043-LCR	DST	DISTRIBUTION SYSTEM		DS	

6. Please contact the Tulare District Office at (559) 447-3300 or DWPDIST24@waterboards.ca.gov if you have any questions.

Appendix E:
Guidelines for Completing BSSP for Small Water Systems and Template

Division of Drinking Water
Tulare District

GUIDELINES FOR COMPLETING THE BACTERIOLOGICAL SAMPLE SITING PLAN FOR SMALL WATER SYSTEMS

The total coliform regulation requires the water supplier to submit a bacteriological sample siting plan to the Division of Drinking Water (Division), District Office for review and approval. The locations where samples are to be collected must be written down and formally approved by the District Office. These guidelines and Attachment 1, "Bacteriological Sample Siting Plan" Form, are to assist you in complying with these requirements.

To comply with the requirements for submitting a Bacteriological Sample Siting Plan, two (2) items must be submitted to the District Office at this time.

1. A system map, street map, or system schematic showing all sampling locations must be submitted. The map can be prepared by any system representative. It <u>does not have to be prepared by an engineer</u>. The following are also to be shown on the map:

   - Water Sources (i.e., well or spring)
   - Treatment Facilities (i.e., chlorination)
   - Storage Tanks
   - Pressure Reducing Stations
   - Booster Stations
   - Pressure Zones
   - Dead Ends
   - Service Area Boundaries
   - Routine Sample Sites
   - Repeat Sample Sites
   - Special Sample Sites

2. Complete Attachment 1, the "Bacteriological Sample Siting Plan" form, and **return the system map and form to the District Office for review and approval**.

   Once the Bacteriological Sample Siting Plan has been approved by the Division, copies should be provided to the person responsible for sample collection, the laboratory and the person responsible for reporting coliform-positive samples to the Division.

<u>Selection of Sampling Sites</u>

The routine sampling sites chosen must be representative of the water distribution system including all pressure zones, areas supplied by each water source and distribution reservoir.

<u>Looped Systems</u>: If your entire water distribution system is looped, then one routine sample point may be representative of your system, assuming valves are open.

Pressure Zones: You should only be concerned about sampling in different pressure zones if your water system serves different areas of varying elevations, for example in mountainous areas.

How many routine sampling sites are required?

The minimum number of samples for the water system shall be based on the known population served or the total number of service connections, whichever results in the greater number of samples, as shown in Table 64423-A. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

Table 64423-A

Minimum Number of Routine Total Coliform Samples *Monthly Population Served1*	*Service Connections*	*Minimum Number of Samples Per Month*
25 to 1000	15 to 400	1
1,001 to 2,500	401 to 890	2
2,501 to 3,300	891 to 1,180	3
3,301 to 4,100	1,181 to 1,460	4
4,101 to 4,900	1,461 to 1,750	5
4,901 to 5,800	1,751 to 2,100	6
5,801 to 6,700	2,101 to 2,400	7
6,701 to 7,600	2,401 to 2,700	8
7,601 to 8,500	2,701 to 3,000	9
8,501 to 12,900	3,001 to 4,600	10
12,901 to 17,200	4,601 to 6,100	15
17,201 to 21,500	6,101 to 7,700	20
21,501 to 25,000	7,701 to 8,900	25
25,001 to 33,000	8,901 to 11,800	30
33,001 to 41,000	11,801 to 14,600	40
41,001 to 50,000	14,601 to 17,900	50
50,001 to 59,000	17,901 to 21,100	60
59,001 to 70,000	21,101 to 25,000	70

1 For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

How many repeat sampling sites are required?

A repeat sample set consists of three samples to be collected from the following locations:

- One repeat sample from the same routine location.
- One repeat sample from an *upstream location* (within 5 connections of the routine site).
- One repeat sample from a *downstream location* (within 5 connections of the routine site).

Each routine sample site must have identified repeat sample sites.

Ground Water Rule Compliance: All active groundwater sources in operation at the time of the coliform-positive sample must also be sampled along with the repeat sample set.

What if the water system does not have enough locations to select the required number of routine and repeat sample sites?

If the water system does not have enough sample locations to identify the required routine and repeat sample sites, contact the District Office for further guidance.

Pointers for Sample Site Selection

- When selecting a routine sample site you should be able to select a site upstream and a site downstream for repeat sampling.
- Select a site where the water is used continuously all year round.
- Pick a site that is easily accessible, i.e., a fenced yard with a locked gate and vicious dog is not a good selection.
- When choosing a sampling tap you should consider these factors:
  The sampling tap should be located in as clean an environment as possible. It should be protected from contamination by humans, animals, airborne materials or other sources of contamination.

  If you choose an outside private tap, it should be one that is in frequent use, clean, and at least 1½ feet (18 inches) above the ground. The sample tap should discharge downward.

  If you choose an inside tap, be sure that you are not sampling from drinking fountains; taps that have aerators or strainers, or swivel faucets; or taps off of individual homeowner treatment units.

  Do not choose a fire hydrant as sampling tap.

  Avoid taps that are surrounded by excessive foliage or taps that are dirty or corroded.

  Avoid taps that leak, have fittings with packing, or have permanent hoses or attachments fastened to the tap (<u>Never collect a sample from a hose</u>).

  Avoid the use of dead ends for routine sample collection, and use them for repeat samples only of no other sample sites are available and if there is continuous water use from a service off the dead-end.

Instructions for Completing the Bacteriological Sample Siting Plan Form

This form has been designed to include all the requirements for the Bacteriological Sample Siting Plan.

- **<u>Public Water System Classification</u>**
  The public water system (PWS) classification for your water system is either community, nontransient noncommunity or transient noncommunity. If you are uncertain of your classification, contact the District Office.

- **Month/Daily Users**
  The monthly population determines the frequency of bacteriological sample collection for community water systems and nontransient noncommunity systems. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

- **Active Service Connections (Community water systems only)**
  This is the number of active hook-ups served by the system. If your system has a hook-up to a vacant lot, do not count this as an active connection. If a vacant lot has a right to a future connection, do not count this an active connection. If a residence is connected to the system, but the residence is vacant, count this as an active hook-up.

- **Sampling Frequency**
  This is the minimum number of routine bacteriological samples required at the frequency specified. If any routine sample is positive for coliform bacteria, additional repeat samples will be required. Repeat samples are in addition to the required routine samples. If you are uncertain of the routine sampling frequency for your water system, contact the District Office.

- **Trained Sampler**
  The person collecting samples must be trained.

  Sampling Service: Water systems utilizing a certified laboratory or other sampling service for water sample collection will be considered to have trained samplers. Enter the name of the laboratory or sampling service collecting your samples. A copy of the approved Bacteriological Sample Siting Plan should be provided to the laboratory or sampling service, if one is used.

  Other Trained Samplers: Any person receiving a certificate from AWWA for attendance of the Water Sampling Training should submit a copy of their certificate along with the completed form. Any other samplers should submit a statement of their experience and training to this office for approval.

- **Analyzing Lab**
  Enter the state-certified laboratory, which will be analyzing your water samples.

- **Person Responsible to Report Coliform-Positive Samples to the Division**
  This should be the person that the laboratory is required to contact when a sample is total or fecal coliform positive. This person must notify the Division within 24 hours of a violation of the total coliform standard (more than one positive sample in a month) or when any sample is fecal or *E. coli* positive. This person should have the authority to take corrective action as required by regulation and the Division. This should be the same person listed on your Emergency Notification Plan.

- **Day/Evening Phone Number**
  The Division requires that the water system provide the phone numbers of the person listed above so that they can be contacted by the laboratory or the Division at any time during the day or evening in the event of a bacteriological emergency.

- **Signature and Date**

The person preparing the Sample Siting Plan should sign and date the plan. If the Division has questions regarding the sampling plan, this is the person to be contacted.

- **Sample ID**
  This should be entered on the laboratory slip when the sample is turned into the laboratory. This is the unique identifier for the water sample location, or the location address may also be used. For systems, which have no more than five (5) routine locations, these routine sites will be 1-ROU, 2-ROU, 3-ROU, 4-ROU, and 5-ROU.

  Each routine sample site must have two repeat sampling sites. Repeat sample sites are to be located within five (5) service connections upstream and downstream of the routine sample site.

  All sample locations should be marked in some way with the Sample ID or location address , i.e., the code painted on the sampling location or tagged with a water proof tag so the person collecting the water sample is sure to collect the water from the correct sample locations.

- **Sample Type**
  This describes what type of sample (routine or repeat) is to be collected at this location.

- **Sample Point**
  This is the type of the sample location. Use the following abbreviations, when appropriate: HB - Hose Bib (exterior), SF - Sink Faucet, PC - Goose Neck Type Copper Tube with Pet Cock

- **Location of Sample Point**
  This is the description of the area in the distribution that the sample site is located. Routine sample sites shall not be located at dead ends. Use the following abbreviations, when appropriate: DE - Dead End (Not Recommended), PZ - Pressure Zone, RD - Representative Distribution

- **Location Address**
  This is the actual physical location where the water sample is to be collected. If possible use a street address, i.e., 103 Good Street. If the location does not have a street address, use the nearest crossroads or use the last name of the resident, i.e., "Brown Residence." If the location is a business, please list the business name and address.

  When describing the location, keep in mind that the person collecting water samples must be able to locate the sample site from your description.

- **Months Sample Collected at This Location**
  This is the schedule for routine samples to be collected. For example, suppose two (2) sites are representative of your systems. Site No. 1 will be sampled in January, March, May, July, September, and November. Site No. 2 will be sampled in February, April, June, August, October, and December. All routine sites identified should be rotated to allow sampling at least every 3 months.

BACTERIOLOGICAL SAMPLE SITING PLAN (BSSP) FOR SMALL WATER SYSTEMS

System No.:	**System Name:**	**PWS Classification:**

No. of Monthly Users:	**No. of Daily Users:**	**No. Active Service Connections:**	**Cl2 Treatment:**

Sampling Frequency: __ per month	**Seasonal System:**	**Period of Operation:**
Name of Trained Sampler:	**Analyzing Lab:**	**Analyzing Lab:**

Person Responsible to Report Positive Samples to the Division:	**Day/Evening Phone No:**
Signature of Water System Representative:	**Date:**

Sample ID	Sample Type	Sample Point	Location of Sample Point	Address of Sample Point	Months Sample Collection at this Location
1-ROU	Routine				
1-REP1	*Repeat*				*Repeat Sample Only*
1-REP2	*Repeat*				*Repeat Sample Only*

In the event of a routine positive sample, a sample(s) will be collected from the well(s) in use for Ground Water Rule compliance.

If continuous chlorination is provided, raw water samples are taken **monthly.**

The SWRCB-Division of Drinking Water or Local Primacy Agency has reviewed and approved this BSSP. Any plans on file dated prior to approval date below are void. The water system must sample their distribution system and raw water special purpose source samples for bacteriological quality in accordance with the approved BSSP beginning _________________. Per the California Code of Regulations-Title 22 §64422, a water system is required to submit an updated plan to the State Board at least once every ten years and at any time the plan no longer ensures representative monitoring of the system.

District Office Representative Name: _____________________________ Title: _____________________ District Name: Tulare District

Signature:____ Date: ________________

Appendix F:
Lead and Copper Tap Sample Results Reporting Form

State Water Resources Control Board

Division of Drinking Water

Lead and Copper Tap Sample Results Reporting Form

This form must be submitted by the public water system to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

Report Date: (mm/dd/yyyy)	
Water System Name:	
Water System Number:	
Water System Type:	○ Community ○ Non-Transient, Non Community
Monitoring Frequency:	○ 6-month ○ Annual ○ Triennial
# of Samples Required:	
# of Samples Reported:	
	90^{th} Percentile Level (mg/L)
Lead: *Action Level = 0.015 mg/L*	
Copper: *Action Level = 1.3 mg/L*	

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier 1, 2, 3, or R**	**Lead (mg/L)**	**Copper (mg/L)**
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Sampling Site Change

Each round of sampling should be conducted at the same sampling sites. If an original sampling site is not available, you should collect a tap sample from another site meeting the same Tier criteria as the original site.

You must complete/submit the ***Lead and Copper Tap Sampling Site Change*** form.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on ______________________________ by
(date)

☐ Direct Mail
☐ Posting in public area (NTNC systems only)
☐ Other (please specify below)
____

For general information on lead and copper tap sampling, you can refer to the ***SWRCB Lead and Copper Tap Sample Results Guidance Document***. If you have any questions or comments, please contact your regulating entity (Division of Drinking Water District or County Agency).

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

	Sample Date	Sample Site Location/Address	Tier 1, 2, 3, or R	Result	
				Lead (mg/L)	Copper (mg/L)
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
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51					
52					
53					
54					
55					
56					
57					
58					
59					
60					

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier 1, 2, 3, or R**	**Lead (mg/L)**	**Copper (mg/L)**
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
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100					

Appendix I: Yettem 2023 Sanitary Survey

State Water Resources Control Board
Division of Drinking Water

June 01, 2023

Ms. Celeste V. Perez
Yettem Water System - CA5403043
5961 S. Mooney Blvd.
Visalia, CA 93277

2023 SANITARY SURVEY

Dear Ms. Perez,

On April 10, 2023, the State Water Resources Control Board, Division of Drinking Water (Division) staff conducted an inspection of the Yettem Water System (Water System) with the assistance of Mr. Jose Padilla, Contract Operator for the Water System. After evaluation of the Water System and completion of the enclosed sanitary survey report, the Division finds that the items below are required to be addressed by the Water System.

After evaluation of the existing water supply facilities and completion of a subsequent file review, the Division finds that the items below must addressed by the Water System:

1. By **July 30,2023**, the Water System must install a non-corrodible fine mesh screen on the storage tank vent.
2. **Due immediately**, the Water System must begin to sample Well 01 for iron quarterly.
3. **Due immediately,** the Water System must begin testing the backflow devices annually or provide an explanation of why is not necessary. In addition, the Water System must provide information regarding how the remainder of the action items were addressed.

The following items were required by Water Supply Permit Amendment No. 03-24-20PA-025 and the 2020 Sanitary Survey and have not been addressed by the Water System. These items are DUE IMMEDIATELY:

During the inspection the Division identified holes in the storage tank and an active leak. This is a Significant Deficiency and must be addressed by the Water System.

4. By **October 19, 2020**, the Water System must submit a timeline with a course of action for having the storage tank repaired.

In addition, the following items also require attention.

5. By **December 31, 2020**, the Water System must designate a shift treatment operator with a minimum T1 treatment operator certification.
6. By **December 31, 2020**, the Water System must submit a revised Operations Plan to the Division for review and approval.

If you have any questions regarding the information contained in the sanitary survey report, please contact the Tulare District office at (559) 447-3300 or by email at DWPDIST24@waterboards.ca.gov.

Sincerely,

Kristin Willet Digitally signed by Kristin Willet
Date: 2023.06.01 15:42:10 -07'00'
Water Boards

Kristin Willet, P.E.
Senior Water Resource Control Engineer, Tulare District
Division of Drinking Water
Southern California Field Operations Branch

ER/KW

cc: Tulare County Environmental Health Division
ngonzale@tularecounty.ca.gov

Brenda Pauli, Division of Financial Assistance-Project Manager
Brenda.Pauli@waterboards.ca.gov

Caitlyn Juarez, Division of Drinking Water, SAFER
Caitlin.Juarez@Waterboards.ca.gov

Jose A. Padilla, Contract Operator
jose_padilla2010@yahoo.com

Small Water System Evaluation and Inspection Report
Drinking Water Field Operations Branch: Tulare District

Yettem Water System
System No. CA5403043

Contact:	Ms. Celeste Perez, General Manager	System Type:	Community Water System
Inspection Date:	April 10, 2023	Inspected by:	Elvira Reyes

I. INTRODUCTION

On April 10, 2023, Elvira Reyes, with the State Water Resources Control Board, Division of Drinking Water (Division) conducted a sanitary survey of the Yettem Water System (Water System). Mr. Jose Padilla, water system contract operator, assisted with the sanitary survey. Ms. Reyes is responsible for the investigation, analysis, and preparation of this report as well as the directives regarding the deficiencies noted during the sanitary survey and subsequent file review. The Water System was last inspected by the Division on September 11, 2020 as a routine sanitary survey.

PERMIT STATUS

The Water System currently operates under Domestic Water Supply Permit No. 03-24-20PA-025 issued by the Division on September 18, 2020. The permit provisions are listed below.

The Yettem Water System shall comply with the following permit conditions:

1. The Yettem Water System shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted there under.

2. The only approved sources of domestic water supply for the Yettem Water System are as follows:

Source	PS Code	Status
Well 01 – Pre NO3 Blend	CA5403043_001_001	Active
Well 02 – Pre NO3 Blend	CA5403043_002_002	Active

3. The only approved treatment for the Yettem Water System is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution and nitrate blending.

Treatment Facility	PS Code
Well 01 & 02 – NO3 Blend Tank	CA5403043_003_003

4. No other sources or treatment (as described in provision Nos. 2 and 3 above) shall be used by the Yettem Water System and no changes, additions, or modifications shall be made to the sources or treatment unless an amended domestic water supply permit has first been obtained from the Division.

5. All personnel who operate the distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Yettem Water System is classified as a D1 distribution system and shall be operated by a certified D1 distribution operator or higher.

6. All personnel who operate the treatment facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Yettem Water System's nitrate blending treatment facility is classified as a T2 treatment facility. The Yettem Water System must have a chief treatment operator who is certified, at a minimum, as a T2 treatment operator and a shift operator who is certified as a T1 treatment operator or higher.

7. The Yettem Water System shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Yettem Water System shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

8. The Yettem Water System shall submit an electronic Annual Report (EAR) each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

9. The Yettem Water System shall record water production data from the active sources at least monthly. The monthly water production data shall be reported annually to the Division in the EAR.

10. The Yettem Water System shall collect monthly raw water samples from each source for analyses of total coliform and fecal coliform or E. coli bacteria. The coliform test shall be performed using a density analytical method and the results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

11. The Yettem Water System shall monitor for coliform bacteria in the distribution system at least monthly and in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Division shall be notified immediately if any distribution system or source sample shows the presence of E. coli bacteria or if

more than one bacteriological sample shows the presence of coliform bacteria during a single month.

12. The Yettem Water System shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Yettem Water System shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

13. The Yettem Water System shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring from the sample site below. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Code:

ST2 Monitoring Site	PS Code
ST2S1 – 14395 Ave 384	CA5403043_DST_900

14. The Yettem Water System shall submit a monthly chlorination log to the Division by the 10th day of the following month.

15. The Yettem Water System shall operate the continuous chlorination and nitrate blending treatment facilities in accordance with a Division-approved Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

SERVICE AREA & DESCRIPTION OF SYSTEM

The mailing address for the Yettem Water System is 5961 S. Mooney Blvd. Visalia, CA 93277. The legal owner of the Water System is the Yettem-Seville Community Services District. The Water System is classified as a community water system (CWS), which serves an approximate population of 350 people through 66 service connections. The domestic water supply is obtained from two active groundwater sources, identified as Wells No. 01 and 02. Continuous chlorination and nitrate blending treatments are provided to the source water. Storage is provided by a 150,000-gallon bolted steel storage tank. Figure 1 illustrates the components of the Water System. The surrounding land use area is largely agricultural. The Seville Water Company is located two miles east of the Water System. Appendix A provides a map of the Water System and photos of Water System components.

The Water System is involved in a two-phase water system improvement project with the Seville Water Company (System No. CA5400550). The first phase was completed in 2020. This phase included replacing the distribution system, adding a 211,000-gallon storage tank with booster station in the Seville Water Company water system. The second phase is in progress. It includes the addition of a new well, an interconnection of it with the existing system and to the Seville Water Company; installation of new water meters for existing connections; storage tank site improvements; integration of the

Yettem and Seville pump station sites using a Supervisory Control and Data Acquisition (SCADA) system; and the installation of an emergency standby generator. New water services and meters (approximately 26 connections) will be included along the interconnection pipeline (including on-site private lateral pipes to connect to existing homes). The project is being funded by the State Water Resources Control Board, Division of Financial Assistance (DFA).

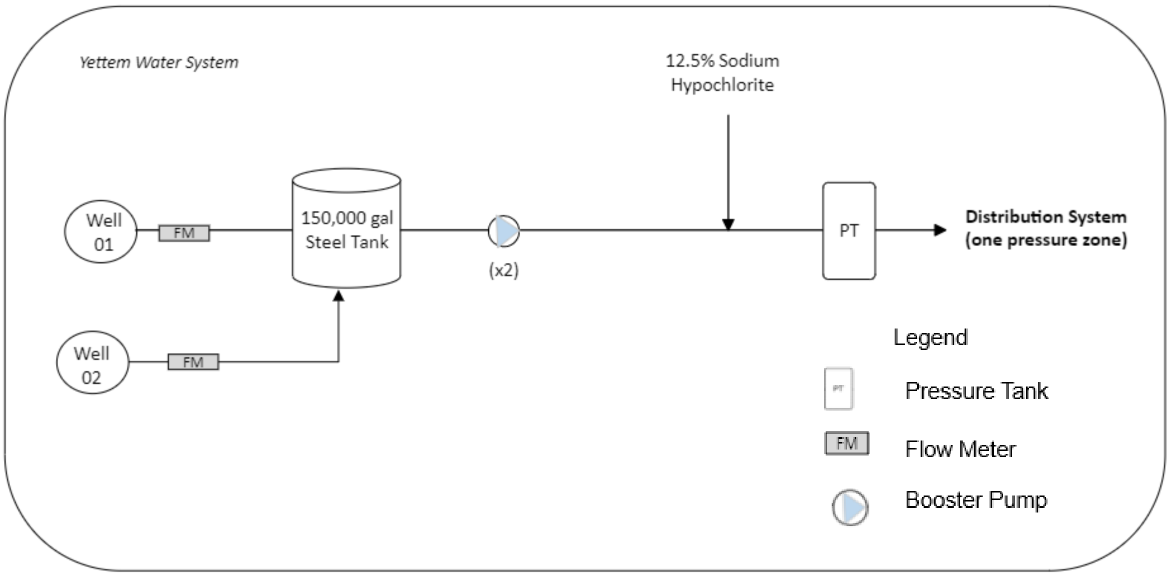


Figure 1 – Current Flow Schematic for the Water System

ENFORCEMENT HISTORY

The Water System has received the following enforcement action from the Division since the last sanitary survey in September 2020:

Enforcement Action:	**Citation No.03-24-21C-011**
Issue Date:	January 29, 2021
Description:	The Water System failed to collect the required bacteriological samples for November 2021.
Status	The Water System returned to compliance in February 2021. The directives on the citation were completed.

II. INVESTIGATION AND FINDINGS

SOURCES OF SUPPLY

The Water System's source of supply is from two active groundwater sources identified as Wells No. 01 and 02.

Well 01, Active - Treated, Groundwater, (CA5403043_001_001)

DWR Well Completion Report:	Yes
Date of Well Completion:	December 1994
Well Depth:	330 feet
Sanitary Seal Depth:	89 feet, cement
Well Casing:	10-inch diameter steel casing to 330 feet; perforations between 130 to 260 feet and 270 to 330 feet.
Flow Meter:	Yes
Pump Type:	Deep well turbine, oil-lubricated
Pump Make and Model:	U.S. Motors
Pump Size:	10-horsepower (hp)
Well Capacity:	130-gallons per minute (gpm)
Source Discharge:	Directly to a 150,000-gallon bolted steel storage tank
Source Operation:	Water level in the storage tank
Well Equipment:	Well 01 is equipped with a sounding tube, air relief valve, sampling port, check valve, and source meter. Well 01, the storage tank, booster pumps and pressure tanks are located at the same site. The site is fenced and locked.
Discharge-to-waste:	No

Well 02, Active - Treated, Groundwater, (CA5403043_002_002)

DWR Well Completion Report:	Yes
Date of Well Completion:	December 1994
Well Depth:	320 feet
Sanitary Seal Depth:	90 feet, cement
Well Casing:	10-inch diameter steel casing to 316 feet; perforations between 120 and 316 feet.
Flow Meter:	Yes
Pump Type:	Submersible
Pump Make and Model:	Hitachi

Pump Size:	7.5-hp
Well Capacity:	130-gpm
Source Discharge:	Directly to a 150,000-gallon bolted steel storage tank
Source Operation:	Water level in the storage tank
Well Equipment:	Well 02 is equipped with a sounding tube, screened and inverted casing vent, sampling port, check valve, and source meter. The well is in a fenced and locked site.
Discharge-to-waste:	No

Source Water Assessments

Source water assessments were completed for Wells No. 01 and 02 by Tulare County in September 2002. According to the source water assessments, Wells No. 01 and 02 are considered most vulnerable to known contaminant plumes, agricultural drainage, sewer collection systems, and agricultural/irrigation wells. This information should be included in the annual Consumer Confidence Report.

WATER PRODUCTION

Based on the information reported to the Division in the 2014 through 2021 electronic Annual Reports, the population, number of service connections, annual production, and maximum month of production is outlined in Table 1 below. Production data 2022 was obtained from the monthly production report submittals.

Table 1 - Production Data

Year	Population	Service Connections	Annual Production (Gal.)	Max. Month (Gal.)
2014	350	66	13,456,100	2,005,700 (JUL.)
2015	350	66	13,455,600	1,764,300 (JUN.)
2016	350	64	18,131,300	2,404,300 (SEP.)
2017	350	64	8,209,708	1,820,600 (JUN.)
2018	350	64	13,857,100	1,785,500 (JUL.)
2019	350	66	12,872,700	2,044,900 (JUL.)
2020	350	66	5,038,934	627,100 (OCT.)
2021	350	66	14,290,000	2,325,000 (MAY.)
2022	350	66	16,817,000	2,116,000 (SEP..)

Annual production reported for 2017 and 2020 appear to be lower than typical values reported. The reason for the low production values is unknown.

ADEQUACY OF SUPPLY

Production data, as reported by the Water System, and peaking factors established in the California Waterworks Standards were used to determine the Water System's Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD). The Water System's ADD, MDD, and PHD and the total source capacities are provided in Tables 2 and 3, respectively, below. The 2017 values were not considered in the water usage evaluation due to the discrepancy in reported values. According to Water System staff, monthly production is based on water meter reads.

Table 2 - Average Day, Maximum Day & Peak Hour Demands

Year	ADD (gpm)	MDD (gpm)	PHD (gpm)
2014	26	67	101
2015	26	61	92
2016	34	83	125
2017	16	63	95
2018	26	60	90
2019	25	68	103
2020	9.6	22	33
2021	27	78	117
2022	32	73	110

Table 3 - Total Active Source Capacity

Source	Capacity (gpm)
Well 01	130
Well 02	130
Total System Capacity	260

The total combined source capacity of the Water System is estimated to be 260 gpm. Based on the highest reported water usage for 2016, the Water System appears to have adequate source capacity to supply the ADD, MDD, and PHD of 34 gpm, 83 gpm, and 125 gpm, respectively.

California Waterworks standards require water systems serving less than 1,000 service connections to have storage capacity equal to or greater than MDD, unless the water system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement. The Water System has a total storage capacity of 150,000 gallons, which is equivalent to approximately 20 hours of MDD. The Water System appears to meet storage capacity requirements. It should be noted that the storage tank has a leak deficiency (discussed in more detail below) which may affect storage capacity volume.

STORAGE TANK & BOOSTER STATION

Storage is provided by a 150,000-gallon bolted steel storage tank. The tank is configured with a top inlet and a bottom outlet and is equipped with a locked ladder with safety cage. The vent was noted to be unscreened. An overflow vent features a flapper to keep any insects or small animals from accessing the tank. An external water level indicator is installed on the exterior of the tank but does not work. **By July 30, 2023, the Water System must install a non-corrodible fine-mesh screen on the storage tank vent.**

The deficiencies noted in the last inspection remained unaddressed, there are still several rust spots and the visible leak at the bottom outer surface of the storage tank are present. A new leak was observed near the same vicinity and subsection of the existing leak. The date of the last internal inspection and/or cleaning is still unknown. The leaks and rusting of the outer surface of the storage tank is a Significant Deficiency. Photos of the Significant Deficiency are provided in Appendix A. **In the 2020 Sanitary Survey, the Water System was directed to immediately investigate and repair the storage tank as needed or submit a timeline with a course of action for having the tank repaired by October 19, 2020. This directive remains outstanding and must be addressed by the Water System immediately.**

A programmable logic control (PLC) water level control system controls how the tank is filled. A float switch inside the tank communicates with the PLC to signal Wells No. 01 and 02 to fill the storage tank based on predetermined water level settings. At the time of the inspection, the high and low level alarm settings remained at 22 feet and 16 feet, respectively. Water from the storage tank is boosted to a 10,000-gallon steel hydropneumatic pressure tank using a 10-hp vertical centrifugal pump (lead) and a 25-hp water-lubricated turbine pump (lag). Operation of the booster pumps is based on system pressure and controlled with the PLC.

DISTRIBUTION SYSTEM

The distribution system is classified as a D1 system and consists of 6-inch diameter galvanized steel and polyvinyl chloride (PVC) mains with 1-inch diameter service laterals. The distribution system was installed in the 1980s. Distribution system pressure is maintained between 40 and 60 psi. AWWA standards are followed when any repairs are made. If a main is taken out of service, special bacteriological samples are required to be collected and must be coliform free prior to placing the main back in service.

TREATMENT FACILITIES

Nitrate Blending, Well 01 & 02 NO3 Blend Tank, Active, (CA5403043_003_003)

The Water System provides nitrate blending treatment to the water produced by Wells No. 01 and 02 to reduce the nitrate concentration in Well 01. The nitrate blending treatment occurs in the 150,000-gallon storage tank. The PLC signals Wells No. 01 and 02 to fill the tank simultaneously when the water level in the tank reaches 19 feet. Well 01 is signaled to turn off when the water level reaches 19 ¾ feet, but Well 02 continues to fill the tank until the water level in the tank reaches 21 feet.

The Water System has been sampling Wells No. 01 and 02 and the blended effluent monthly for nitrate. The nitrate effluent sample is collected at the tank. The average blended nitrate effluent result is 7.2 mg/L and the range is 6.3 mg/L to 10 mg/L. Per data available, February 7, 2020 has been the only date where the nitrate level was at 10 mg/L. A follow up sample was collected on February 11, 2020 and the result was 7.5 mg/L. The blending tank is not equipped with an online nitrate analyzer to instantaneously verify that the water served to customers meets the nitrate standard. From February 2020 to August 2020, the Water system monitored treated effluent at least every two weeks for nitrate, as directed from the Division. There is no data available from September 2020 through September 2021 for nitrate blended effluent. A graphical representation of all raw and blended effluent nitrate (as N) results available are illustrated in Figure 2 below. Under the Operations Plan section, the Division has requested an updated plan from the Water System that must include actions on how it will address potential nitrate exceedances.

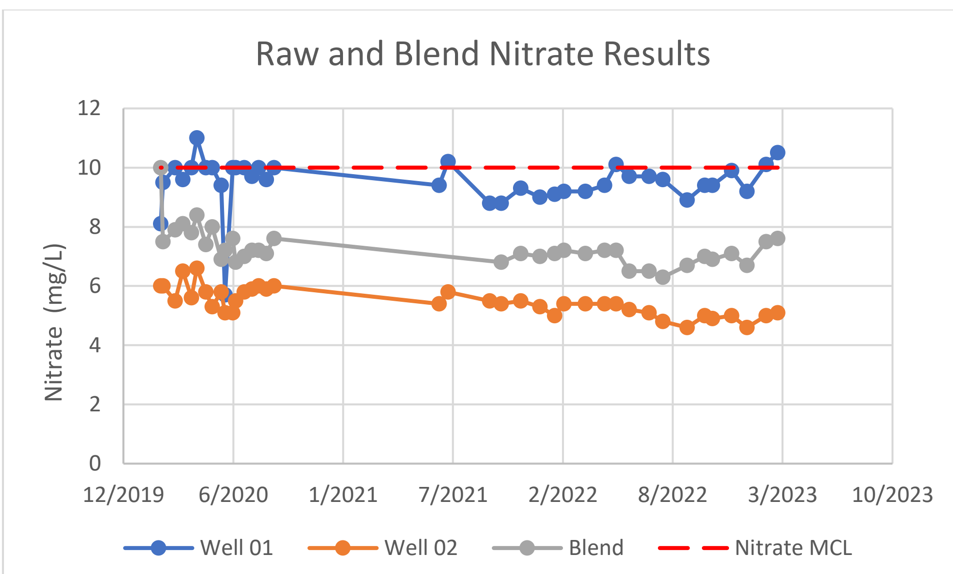


Figure 2 –Raw and Blend Nitrate Results

Continuous Chlorination

The Water System provides continuous chlorination to the water produced by Wells No. 01 and 02. A 12.5% solution of sodium hypochlorite is injected directly into the effluent line of the storage tank, upstream of the 10,000-gallon hydropneumatic pressure tank. The sodium hypochlorite solution is stored at the site of the storage tank in a 35-gallon polyethylene tank inside a fiberglass shelter. The chlorination equipment consists of an Iwaki (Walchem) E-Class chemical feed pump. The chemical feed pump has a capacity of 0.6 gallons per hour (gph) at 150 psi. The chemical storage tank and feed pump appear to be adequately sized. A sample tap located downstream of the injection point is used to measure the chlorine residual entering the distribution system. The typical chlorine residual range maintained within the distribution system is 0.28-1.9 mg/L.

SOURCE MONITORING

A summary of the recent source water quality monitoring results and next due dates is included in Appendix B. Additionally, the current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. Instructions for accessing this information is included in Appendix C.

Bacteriological

Due to continuous chlorination, the untreated well water from Wells No. 01 and 02 must be sampled monthly for total coliform bacteria at a sample tap located prior to the chlorine injection port. This is required in order to verify that the wells are not producing water that contains coliform bacteria. A summary of source water bacteriological sample results is included in Appendix D.

General Mineral and General Physical

The Water System is required to monitor its active groundwater sources for general mineral (GM) and general physical (GP) chemical water quality every three years. The Water System last sampled Well 01 for GM and GP in 2021. All chemical monitoring results for Well 01 were below the MCL, except for iron. The result for iron is 480 mg/L which exceeds secondary MCL of 300 mg/L. Monitoring frequency was increased to quarterly for iron and compliance will be determined on an average of the initial sample and the next three consecutive quarterly samples collected. **Due immediately, the Water System must begin to sample Well 01 for iron quarterly.** The monitoring schedule was modified to reflect the new due dates and is available online. Well 02 sampled for GM and GP in 2021 and all chemical monitoring results were below the MCL. The next round of GM and GP monitoring for Well 01 and Well 02 is due in 2024, except for iron from Well 01.

Inorganic Chemicals

The Water System is required to sample each active well for inorganic chemicals every three years, except for nitrate which has a different monitoring frequency as described below. Well 01 and Well 02 chemical monitoring results were below the respective MCLs. The next round of inorganic chemical water quality monitoring from Well 01 and Well 02 is due in 2024.

Nitrate

Wells No. 01 and 02 are on a monthly nitrate (as N) monitoring frequency and were last sampled in April 2023. The results for Wells No. 01 and 02 were 10.8 mg/L and 4.8 mg/L, respectively. The next round of nitrate monitoring for Wells No. 01 and 02 is due in May 2023.

Volatile Organic Chemicals (VOCs)

The monitoring waiver application for volatile organic chemicals (VOCs) for the 2023-2025 monitoring period was approved for all VOCs for both wells. Both wells are on a six-year sampling frequency for VOCs. The monitoring schedule was modified to reflect the new due dates and is available online. Wells No. 01 and 02 were last sampled for VOCs in 2021 and 2018, respectively. The results were all non-detect. The next round of VOC monitoring for Well 01 is due in 2024 and Well 02 is due in 2027.

Synthetic Organic Chemicals (SOCs)

The Water System is required to sample Wells No. 01 and 02 on a three-year frequency for synthetic organic chemicals (SOCs). Wells No. 01 and 02 were last sampled for 1,2,3-trichloropropane (1,2,3-TCP), alachlor, atrazine, and simazine in 2021 and dibromochloropropane (DBCP) and ethylene dibromide (EDB) in 2020. The SOC results were all non-detect. The next round of SOC monitoring for both sources is scheduled for 2024, except for DBCP and EDB which are due in 2023.

The Water System must sample for DBCP and EDB by December 31,2023.

Radiological Monitoring

Initial radiological monitoring is based on the collection of four consecutive quarterly samples of gross alpha and radium-228. If the results from the first two quarters of initial monitoring are below the detection limit for the purposes of reporting (DLR), the final two quarters of initial monitoring may be waived. After initial monitoring is complete, no additional monitoring is required for radium-228. Subsequent monitoring frequencies for gross alpha is based on the results of the last sample collected. It should be noted that if the gross alpha result for any single sample is greater than 5 pCi/L, analysis for uranium in *that same sample* is required.

Triggered Monitoring:

Uranium:
If the GA + (0.84 * CE) for any single sample is greater than 5 pCi/L, analysis for U in that same sample, is required.

Total Radium:
If the GA + (0.84 * CE) - U is greater than 5 pCi/L, analysis for total radium in that same sample, is required.

Triggered monitoring needs to be communicated to the laboratory on the chain of custody at the time the sample is submitted.

The Water System has completed the initial gross alpha and radium-228 monitoring requirements for Wells No. 01 and 02. As such, the Water System is no longer required to monitor for radium-228. Wells No. 01 and 02 were last sampled for gross alpha in 2017 and 2015, respectively, and the result for both sources was non-detect. Wells No. 01 and 02 are currently on a nine-year monitoring frequency for gross alpha. Therefore, the next gross alpha sample from Wells No. 01 and 02 are scheduled for 2026 and 2024, respectively.

DISTRIBUTION SYSTEM MONITORING

Bacteriological

Based on the population and number of service connections, the Water System is required to collect at least one routine bacteriological sample each month from the distribution system. The sample must be analyzed for total coliform bacteria with results sent to the Division by the 10th day of the following month. A summary of the distribution bacteriological sample results is included in Appendix D.

Bacteriological samples should be collected in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The last approved BSSP is dated April 30, 2015. The Water System Operator submitted an updated BSSP during the inspection. The review and approval of the new BSSP will be issued in a separate cover letter.

Lead and Copper Monitoring

The Water System is required to comply with the Lead and Copper Rule (LCR) and conduct lead and copper tap monitoring during each monitoring period. Compliance with the lead and copper action levels is based on the 90th percentile lead and copper results. The 90th percentile for lead and copper should be less than the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively. A summary of all lead and copper tap monitoring results is outlined in Table 4 below. **The next round of lead and copper tap monitoring from the distribution system must be collected between June 1 and September 30, 2023, see Table 5 below**.

Table 4 – Lead and Copper Tap Monitoring Results

Monitoring Period	Sample Date(s)	No. of Samples	Lead 90th Percentile Result (mg/L)	Copper 90th Percentile Result (mg/L)	No. of Samples Exceeding Action Level
3Y2018-2020	10/02/2020	5	ND	ND	--
3Y2016-2018	7/25/2017-8/15/2017	10	0.012	ND	1 (Lead)
6M2ND-2017	12/22/2017	10	ND	ND	--
3Y2013-2015	6/24/2015	5	ND	ND	--
3Y2010-2012	8/10/2012	5	0.006	0.172	--
3Y2009-2011	6/30/2011	5	ND	0.099	--
3Y2006-2008	9/25/2008	5	0.003	0.034	--
3Y2003-2005	5/12/2005	10	0.002	0.025	--
3Y2000-2002	5/1/2002	5	0.002	0.025	--
YR2001	2/1/2001	5	0.007	0.006	--
YR1999	6/1/1999	5	0.013	0.025	--
6M1ST-1997	6/1/1997	10	0.002	0.025	--
6M2ND-1996	12/1/1996	10	0.013	0.025	--

Table 5 – Future Lead and Copper Tap Monitoring Period

Frequency	No. of Samples Required	Monitoring Period	Next Monitoring Period Begin	Next Monitoring Period End	Next Sample Due Date
3 years	5	3Y2021-2023	6/1/2023	9/30/2023	9/30/2023

All future lead and copper monitoring results must be submitted to the Division electronically via California Laboratory Intake Portal (CLIP) using PS Code CA5403043_DST_LCR.

The Water System must complete and submit a Lead and Copper Tap Sample Results Reporting Form with all subsequent lead and copper monitoring results. A Lead and Copper Tap Sample Results Reporting Form is included in Appendix E.

Lead Service Line Inventory Requirement

The Water System submitted a service line inventory dated September 5, 2018. The Water System identified 104 polyethylene service lines and did not indicate any lead or unknown material service lines.

On January 15, 2021, the US EPA issued revisions to the federal Lead and Copper Rule (LCR). US EPA's new Lead and Copper Rule Revisions (LCRR) aim to strengthen the LCR to better protect communities and children in elementary schools and childcare facilities from the impacts of lead exposure. All community and nontransient noncommunity water systems must complete and submit their inventory by **October 16, 2024.** Each water system must maintain the required inventory information described in the FAQ and inventory instructions are found on the Lead and Copper Rule for Drinking Water website: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/leadandcopperrule.html.

Disinfection Byproduct Monitoring

Due to the implementation of continuous chlorination, the Water System is required to comply with the Stage 2 Disinfection Byproduct Monitoring Rule (DBPR). To comply with Stage 2 DBPR monitoring requirements, the Water System is required to collect one DBP sample from the distribution system every three years during a month of the warmest water temperature. The sample must be analyzed for total trihalomethanes (TTHMs) and haloacetic acids (HAA5s). The results of the Stage 2 DBP monitoring must be sent to the Division electronically using the PS Code listed in Table 6 below.

Table 6 – Stage 2 DBP Monitoring Site

ST2 DBP Monitoring Site	PS Code
ST2S1-14395 Ave 384	CA5403043_DST_900

The last Stage 2 DBP sample was collected on July 8, 2020. The results for TTHMs and HAA5s were non-detect and 0.0055 mg/L, respectively. The next round of DBP monitoring in the distribution system is scheduled for 2023. **Between June 1 and September 30, 2023, the Water System must sample for DBPs.**

Asbestos

Asbestos monitoring from the distribution system is not required since the system does not have any asbestos cement distribution piping.

IV. OPERATIONS AND MAINTENANCE

Operator Certification

The Water System's distribution system is classified as a D1 system and requires a certified distribution system operator with a minimum D1 certification or higher. In addition, the Water System's nitrate blending treatment facility is classified as a T2 treatment facility and requires a certified chief treatment operator with a minimum T2 certification or higher and a shift treatment operator with a minimum T1 treatment operator certification. Mr. Jose Padilla is the Water System's chief treatment operator and is a certified D1 distribution operator (Certification No. 27640, Exp. 6/1/2025) and T2 treatment operator (Certification No. 25926, Exp. 4/1/2025). Mr. Cruz Perez is the Water System's Chief distribution operator and is a certified D1 distribution operator (Certification No. 39737, Exp. 7/1/2023). The Water System does not meet the minimum shift treatment operator requirements of a T1 certification or higher. **In the 2020 Sanitary Survey the Water System was directed to designate a shift operator with a minimum T1 treatment operator certification by December 31, 2020. This directive remains outstanding and must be completed immediately to avoid enforcement action.**

Per Title 22, Section 63770, California Code of Regulations, water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:

1) Install, tap, re-line, disinfect, test and connect water mains and appurtenances.
2) Shutdown, repair, disinfect and test broken water mains.
3) Oversee the flushing, cleaning, and pigging of existing water mains.
4) Pull, reset, rehabilitate, disinfect and test domestic water wells.
5) Stand-by emergency response duties for after hours distribution system operational emergencies.
6) Drain, clean, disinfect, and maintain distribution reservoirs.

The Water System shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:

1) Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.
2) Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.

The Water System shall utilize either certified distribution operators or treatment operators to make decisions addressing the following operational activities:

1) Determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.
2) Investigate water quality problems in the distribution system.

Cross Connection Control

The Water System is required to maintain a Cross Connection Control Program, which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

1) The conducting of surveys to identify water user premises or locations where cross connections are likely to occur,
2) The provisions of backflow protection by the water user at the user's connection or within the user's premises or both,
3) The provision of at least one person trained in cross connection control to carry out the cross-connection program,
4) The establishment of a procedure or system for annual testing of backflow preventers, and
5) The maintenance of records of locations, tests, and repairs of backflow preventers.

Backflow Prevention Device Testing

Regulation requires all backflow prevention devices to be tested annually. Copies of the testing records must be kept on file with the Water System for a minimum of three years.

Mr. Michael McKeever, Cross Connection Specialist (AWWA#02183 and ABPA3S05-00202), completed the last cross connection control survey of the water system on November 6, 2015. The survey highlighted eight items of which four required follow-up action items. Per the site visit, one of the action items has been resolved, it is unknow if the three remainder items were addressed. The survey stated that there were two backflow assemblies that must be tested annually. The Water System indicated in the 2021 EAR that it does not have any backflow prevention assemblies in the distribution system. **Due immediately, the Water System must begin testing the backflow devices annually or provide an explanation of why is not necessary. In addition, the Water System must provide information regarding how the remainder of the action items were addressed**. The Water System adopted a Cross Connection Control Program on July 16, 2019.

Cross-Connection Control Policy Handbook (CCCPH)

The State Water Board is developing a CCCPH with anticipated adoption in late 2023. Standards described in the CCCPH will be applicable to all California

Public Water Systems, as defined in California's Health and Safety Code (CHSC, Section 116275(h)). Compliance with the CCCPH will be mandatory for all California Public Water Systems. More information is available at this link: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/cccph.html.

Complaints

The Water System must keep records of all complaints received and actions taken to correct the problems related to the complaints. According to the 2019 through 2021 electronic Annual Reports, the Water System did not receive any complaints during those calendar years.

Operations Plan

The current Operations Plan on file with the Division for the Water System is dated September 24, 2015. The plan reflects the implementation of the continuous chlorination and nitrate blending treatment. The Operations Plan is outdated and does not include the most current information. In addition, the Water System must include a plan of action on how to address potential nitrate exceedances. **In the 2020 Sanitary Survey, the Water System was directed to revised and submit an Operations Plan to the Division for review and approval by December 31, 2020. This directive remains outstanding and must be completed immediately to avoid enforcement action.** Guidance for completing an Operations Plan is included in Appendix F.

Emergency Notification Plan (ENP)

The current Emergency Notification Plan (ENP) on file with the Division is dated April 10, 2023. The Water System will provide notifications via door-to-door delivery, posted notification and automated phone notifications.

Consumer Confidence Report (CCR)

The Water System is required to complete a Consumer Confidence Report (CCR) on an annual basis and provide a copy to all residents and the Division by July 1 of each year. In addition, the Water System is required to provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers. The Water System submitted the CCR in April 2022 and the 2021 CCR Certification Form on June 7, 2022.

Electronic Annual Report (EAR)

All public water systems are required to provide updated water system information to the Division annually in the EAR. The Water System submitted the 2022 EAR to the Division via the Division's DRINC Portal on May 17, 2023. The Division noted that the

Water System does not meet the shift treatment operator requirements and that the backflow assemblies reported differentiate from the Cross Connection survey.

Water System Resiliency and Preparedness

The effects of climate change on community water system (CWS) facilities and operations is a concern and priority of the State Water Resources Control Board (SWRCB), which is documented by the SWRCB in its Comprehensive Climate Change Resolution adopted in March 2017. DDW is reviewing each water system preparedness for climate change with the goal to increase awareness and familiarization to the effects of climate change to facilities and operations, encourage the use of EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) or equivalent, and to document the Water System's efforts related to current threats that may also provide mitigation to climate change impacts.

As part of the 2021 EAR, community water systems were asked to identify their vulnerabilities, and rank them as either high or already experiencing, medium, or low sensitivity, and proposed or implemented projects to prepare for the impacts from climate change. The Water System indicated none to low sensitivity to the list of questions regarding drought, water quality degradation, flooding/sea level rise, extreme heat, fire and other climate threats, sensitivity, and magnitude of impacts. There are no adaptation measures implemented.

The Water System operator indicated that he is not aware of the CREAT tool developed by USEPA for identifying climate change vulnerabilities. It is unclear if the Water System representative has used the CREAT (or similar tool) to identify vulnerabilities to the water system sources and facilities. The SWRCB strongly encourages utilities to evaluate climate change vulnerabilities using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

V. APPRAISAL OF SANITARY HAZARDS & PUBLIC HEALTH SAFEGUARDS

The Yettem Water System is composed of Wells 01, Well 02, two booster pumps, 150,000 gallon bolted steel storage tank, 10,000 gallon steel hydropneumatic pressure tank, and chlorination system. The total source capacity of the system is approximately 260 gpm. The Water System provides nitrate blending treatment and continuous chlorination. The nitrate blending occurs in the 150,000 gallon storage tank and is controlled with the PLC.

The Water System maintains the same physical deficiencies as noted in the last inspection, several rust spots and one active leak were still noted to be at the bottom outer surface of the storage tank. To date the significant deficiency has not been investigated nor a timeline has been submitted to the Division of when it will be addressed. At this inspection, it was noted that the storage tank vent was missing a non-corrodible screen and an additional leak was present. In addition, the directive to conduct more frequent nitrate effluent sampling is not performed. The Water System also began experiencing elevated iron levels for Well 01, surpassing MCL secondary levels.

The Water System has several directives that remain outstanding that were established in the 2020 Sanitary Survey, including providing a timeline with a course of action for having the storage tank repaired, designating a shift treatment operator with a minimum T1 treatment certification, and submitting a revised operations plan. The Division established directives for the Water System in Permits, Sanitary Surveys and Enforcement Actions. The Water System is expected to address any Division issued directives by the deadline cited in this report. Fulfilling directives beyond the specified deadline is unacceptable. Please note that the Division does not grant deadline extensions. Failure to comply with Drinking Water Regulations demonstrates the Water System's lack of technical, managerial, and financial capacity.

The Water System is involved in a two-phase water system improvement project with the Seville Water Company (System No. CA5400550) that is being funded by the State Water Resources Control Board, Division of Financial Assistance. The first phase was completed in 2020, which replaced the distribution system and added a 211,000 gallon storage tank and booster station a the Seville Water Company. The second phase is in progress and will provide a new well, interconnection of that well with the existing system and to the Seville Water Company, installation of new water meters for existing connections, storage tank site improvements, integration of the Yettem and Seville pump station sites using a Supervisory Control and Data Acquisition and installation of an emergency standby generator. It will also add new water services and meters (approximately 26 connections) along the interconnection pipeline (including on-site private lateral pipes to connect to existing homes). The Division understands the Water System expects to resolve physical deficiencies via future projects, but it must still complete the directives stipulated in the Sanitary Surveys because they do not depend on the project completion.

The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. All laboratory chemical analytical results must be submitted to the Division via the California Laboratory Intake Portal (CLIP) using the correct primary station code (PS Code).

After evaluation of the existing water supply facilities and completion of a subsequent file review, the Division finds that the items below must addressed by the Water System:

1. By **July 30,2023**, the Water System must install a non-corrodible fine mesh screen on the storage tank vent.

2. **Due immediately**, the Water System must begin to sample Well 01 for iron quarterly.
3. **Due immediately,** the Water System must begin testing the backflow devices annually or provide an explanation of why is not necessary. In addition, the Water System must provide information regarding how the remainder of the action items were addressed.

The following items were required by Water Supply Permit Amendment No. 03-24-20PA-025 and the 2020 Sanitary Survey and have not been addressed by the Water System. These items are DUE IMMEDIATELY:

During the inspection the Division identified holes in the storage tank and an active leak. This is a Significant Deficiency and must be addressed by the Water System.

4. By **October 19, 2020**, the Water System must submit a timeline with a course of action for having the storage tank repaired.

In addition, the following items also require attention.

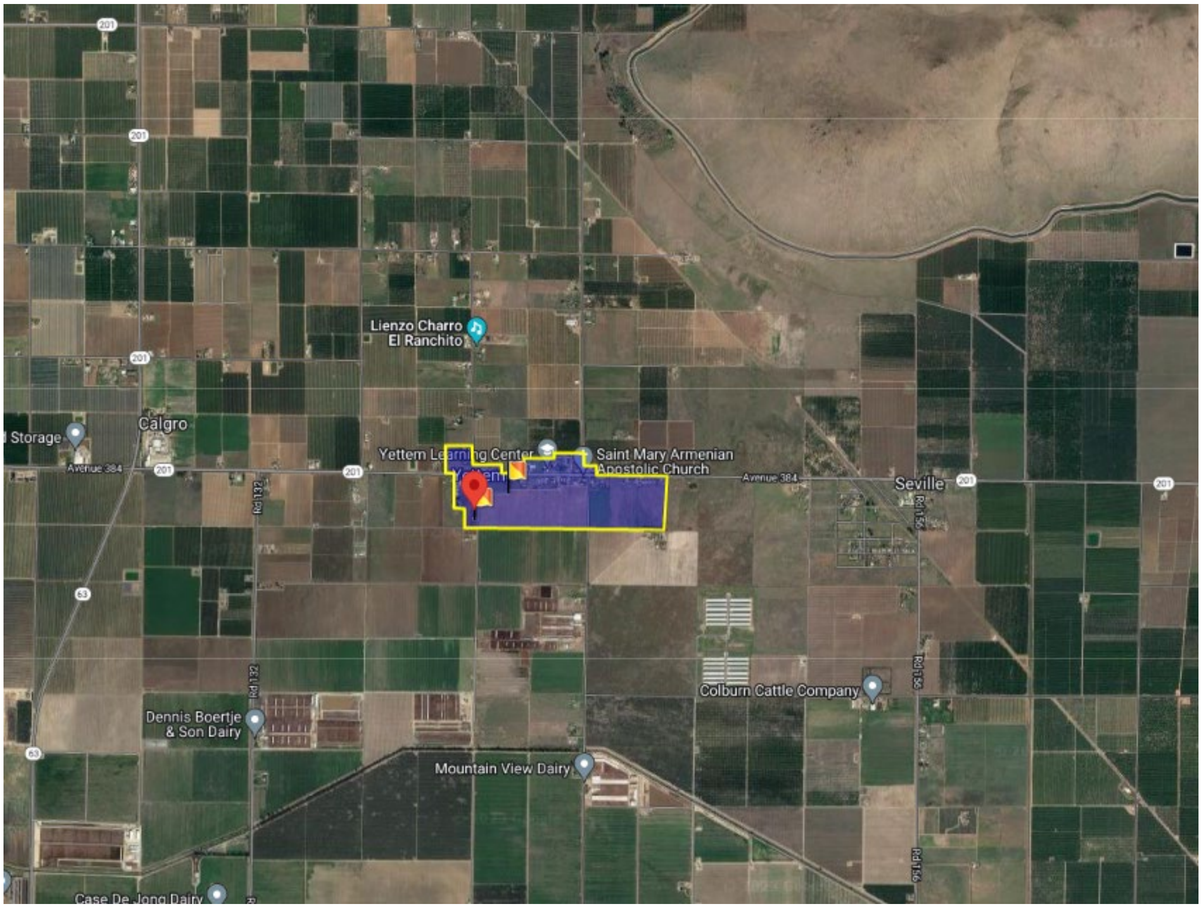
5. By **December 31, 2020**, the Water System must designate a shift treatment operator with a minimum T1 treatment operator certification.
6. By **December 31, 2020**, the Water System must submit a revised Operations Plan to the Division for review and approval.

Appendices:

Appendix A: Location Map & Photo Index
Appendix B: Last Sample & Next Due Date Summary Reports
Appendix C: Instructions for Accessing Public Drinking Water Watch
Appendix D: Source and Distribution System Bacteriological Monitoring Reports
Appendix E: Lead and Copper Tap Sample Results Reporting Form
Appendix F: Guidance Document for the Preparation of an Operations Plan

Appendix A:
Location Map & Photo Index

Appendix A
Yettem Water System: CA5403043
Location Map



Appendix A
Yettem Water System: CA5403043
Sanitary Survey Photographs

Well 01-Pre NO3 Blend (CA5403043_001_001)

- Date Drilled: December 1994
- Depth: 330 feet
- Type: Deep well turbine, oil-lube.
- Pump Size: 10-hp
- Capacity: 130 gpm

Well 02-Pre NO3 Blend (CA5403043_002_002)

- Date Drilled: December 1994
- Depth: 320 feet
- Type: Submersible
- Pump Size: 7.5-hp
- Capacity: 130 gpm

Appendix A
Yettem Water System: CA5403043
Sanitary Survey Photographs

Chlorination Equipment:

- Location: Chlorine solution is injected to the effluent line of the storage tank, upstream of the pressure tank
- Storage: 35 gallon poly. tank
- Chemical Pump:
  - Make: Walchem E-Class
  - Capacity: 0.6 gph/150 psi

Injection Point

Booster Station:

- Type: Centrifugal (lead) and turbine (lag)
- Size: 10-hp (lead) and 25-hp (lag)

Appendix A
Yettem Water System: CA5403043
Sanitary Survey Photographs

Pressure Tank:

- Location: Downstream of booster pumps
- Volume: 10,000 gallons
- Material: Steel

Programmable Logic Controller (PLC):

- Location: Site of Well 01

Appendix A
Yettem Water System: CA5403043
Sanitary Survey Photographs

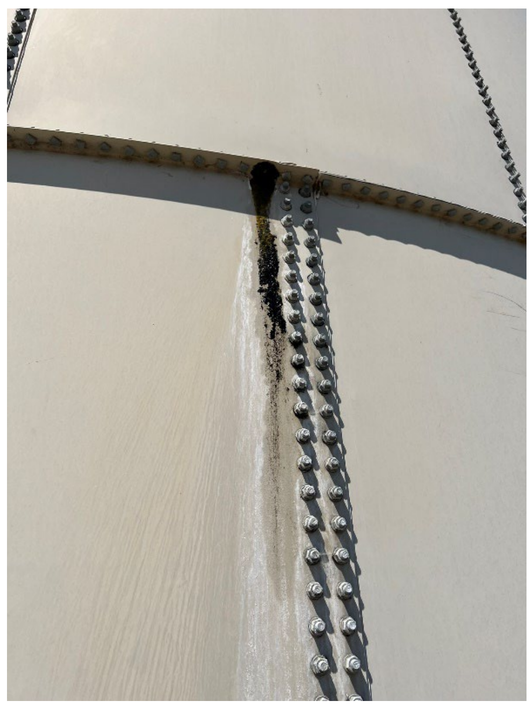
Storage/Blending Tank:

- Location: Downstream of Wells 01 and 02
- Volume: 150,000 gallons
- Material: Bolted steel

Appendix A
Yettem Water System: CA5403043
Sanitary Survey Photographs

Tank Deficiencies

Leak 1: First observed in 2020 Sanitary Survey. Still present



Leak 2: New Leak observed in 2023 Sanitary Survey

Appendix A
Yettem Water System: CA5403043
Sanitary Survey Photographs

Storage Vent does not have a non-corrodible screen.

Appendix B:
Last Sample & Next Due Date Summary Report

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_001_001		**YETTEM WATER SYSTEM**						**WELL 01 - PRE NO3 BLEND**												
	GP	**SECONDARY/GP**																		
		1928	ALKALINITY, BICARBONATE	170.000		0.000		MG/L	------	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1919	CALCIUM	20.000		0.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1929	ALKALINITY, CARBONATE		<	10.000		MG/L	------	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1017	CHLORIDE	22.000		0.000		MG/L	500	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1905	COLOR		<	5.000		UNITS	15	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1022	COPPER, FREE		<	50.000		UG/L	1000	50	7/14/2021	6	36		2024/07		69520012107141400L	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.100		MG/L	0.5	-----	7/14/2021	6	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1915	HARDNESS, TOTAL (AS CACO3)	112.000		0.000		MG/L	------	-----	7/14/2021	4	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	10.000		MG/L	------	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1028	IRON	480.000		100.000		UG/L	300	100	7/14/2021	6	3	Interval	2021/10	**DUE NOW**	69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1031	MAGNESIUM	15.000		0.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1032	MANGANESE	40.000		20.000		UG/L	50	20	7/14/2021	6	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_001_001	GP	**SECONDARY/GP**																		
		1920	ODOR		<	1.000		TON	3	1	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1925	PH	7.610		0.000		pH	------	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1050	SILVER		<	10.000		UG/L	100	10	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1052	SODIUM	44.000		0.000		MG/L	------	-----	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	456.000		0.000		UMHO/CM	1600	-----	7/14/2021	6	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1055	SULFATE	17.400		0.500		MG/L	500	0.5	7/14/2021	6	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1930	TDS	280.000		0.000		MG/L	1000	-----	7/14/2021	6	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		0100	TURBIDITY	1.900		0.100		NTU	5	0.1	7/14/2021	5	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1095	ZINC		<	50.000		UG/L	5000	50	7/14/2021	6	36		2024/07		69520012107141400G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	IO	**INORGANIC**																		
		1002	ALUMINUM	120.000		50.000		UG/L	1000	50	7/14/2021	4	36		2024/07		69520012107141400I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	7/14/2021	4	36		2024/07		69520012107141400I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1005	ARSENIC	3.000		2.000		UG/L	10	2	7/14/2021	4	36		2024/07		69520012107141400I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_001_001	**IO**	**INORGANIC**																		
		1010	BARIUM		<	100.000		UG/L	1000	100	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1015	CADMIUM		<	1.000		UG/L	5	1	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1020	CHROMIUM		<	10.000		UG/L	50	10	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1025	FLUORIDE	0.100		0.100		MG/L	2	0.1	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1035	MERCURY		<	1.000		UG/L	2	1	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1036	NICKEL		<	10.000		UG/L	100	10	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1039	PERCHLORATE		<	2.000		UG/L	6	2	7/14/2021	8	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1045	SELENIUM		<	5.000		UG/L	50	5	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	7/14/2021	4	36		2024/07		69520012 10714140 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	NI	**NITRATE/NITRITE**																		
		1040	NITRATE	10.800		0.400		MG/L	10	0.4	4/18/2023	127	1	Interval	2023/05	**DUE NOW**	VI 2342312-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00
		1041	NITRITE		<	0.400		MG/L	1	0.4	7/14/2021	6	36		2024/07		69520012 10714140 0N	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_001_001	RA	RADIOLOGICAL																		
		4109	GROSS ALPHA PARTICLE ACTIVITY		<	2.000	1.800	PCI/L	15	3	11/13/2017	9	108	Interval	2026/11		69520011711131200R	2920	EUROFINS EATON ANALYTICAL (SOUTH BEND)	
	S1	REGULATED VOC																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_001_001	S1	**REGULATED VOC**																		
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2990	BENZENE		<	0.500		UG/L	1	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2996	STYRENE		<	0.500		UG/L	100	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_001_001	**S1**	2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	7/14/2021	4	72		2027/07		69520012107141400V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	7/14/2021	4	72		2027/07		6952001210714140V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	7/14/2021	4	72		2027/07		6952001210714140V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	7/14/2021	4	72		2027/07		6952001210714140V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	7/14/2021	4	72		2027/07		6952001210714140V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	7/14/2021	4	72		2027/07		6952001210714140V	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.000		UG/L	0.005	0.005	7/14/2021	7	36		2024/07		6952001210714140S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	7/14/2021	5	36		2024/07		6952001210714140S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	7/14/2021	5	36		2024/07		6952001210714140S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.000		UG/L	0.2	0.01	7/8/2020	5	36		2023/07		69520012007081340S	1371	MOORE TWINING ASSOCIATES, INC.	
		2946	ETHYLENE DIBROMIDE		<	0.000		UG/L	0.05	0.02	7/8/2020	5	36		2023/07		69520012007081340S	1371	MOORE TWINING ASSOCIATES, INC.	
		2037	SIMAZINE		<	1.000		UG/L	4	1	7/14/2021	5	36		2024/07		6952001210714140S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 02 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_002_002		**YETTEM WATER SYSTEM**						**WELL 02 - PRE NO3 BLEND**												
	GP	**SECONDARY/GP**																		
		1928	ALKALINITY, BICARBONATE	170.000		0.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1919	CALCIUM	16.000		0.000		MG/L	------	-----	7/14/2021	8	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1929	ALKALINITY, CARBONATE		<	10.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1017	CHLORIDE	17.000		0.000		MG/L	500	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1905	COLOR		<	5.000		UNITS	15	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1022	COPPER, FREE		<	50.000		UG/L	1000	50	7/14/2021	7	36		2024/07		69520022107141420L	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.100		MG/L	0.5	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1915	HARDNESS, TOTAL (AS CACO3)	93.400		0.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	10.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1028	IRON		<	100.000		UG/L	300	100	7/15/2022	12	36		2025/07		VI 2245358-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 200.7
		1031	MAGNESIUM	13.000		0.000		MG/L	------	-----	7/14/2021	8	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1032	MANGANESE		<	20.000		UG/L	50	20	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 02 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_002_002	GP	**SECONDARY/GP**																		
		1920	ODOR		<	1.000		TON	3	1	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1925	PH	7.760		0.000		pH	------	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1050	SILVER		<	10.000		UG/L	100	10	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1052	SODIUM	41.000		0.000		MG/L	------	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	400.000		0.000		UMHO/CM	1600	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1055	SULFATE	15.100		0.500		MG/L	500	0.5	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1930	TDS	250.000		0.000		MG/L	1000	-----	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		0100	TURBIDITY		<	0.100		NTU	5	0.1	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1095	ZINC		<	50.000		UG/L	5000	50	7/14/2021	7	36		2024/07		69520022107141420G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	IO	**INORGANIC**																		
		1002	ALUMINUM		<	50.000		UG/L	1000	50	7/14/2021	6	36		2024/07		69520022107141420I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	7/14/2021	6	36		2024/07		69520022107141420I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1005	ARSENIC	3.000		2.000		UG/L	10	2	7/14/2021	6	36		2024/07		69520022107141420I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 02 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_002_002	**IO**	**INORGANIC**																		
		1010	BARIUM		<	100.000		UG/L	1000	100	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1015	CADMIUM		<	1.000		UG/L	5	1	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1020	CHROMIUM		<	10.000		UG/L	50	10	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1025	FLUORIDE	0.100		0.100		MG/L	2	0.1	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1035	MERCURY		<	1.000		UG/L	2	1	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1036	NICKEL		<	10.000		UG/L	100	10	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1039	PERCHLORATE		<	2.000		UG/L	6	2	7/14/2021	8	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1045	SELENIUM		<	5.000		UG/L	50	5	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	7/14/2021	6	36		2024/07		6952002210714142 0I	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
	NI	**NITRATE/NITRITE**																		
		1040	NITRATE	4.800		0.400		MG/L	10	0.4	4/18/2023	99	1	Interval	2023/05	**DUE NOW**	VI 2342312-002	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00
		1041	NITRITE		<	0.400		MG/L	1	0.4	7/14/2021	7	36		2024/07		6952002210714142 0N	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 02 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_002_002	**RA**	**RADIOLOGICAL**																		
		4109	GROSS ALPHA PARTICLE ACTIVITY		<	1.900	1.900	PCI/L	15	3	12/21/2015	9	108	Interval	2024/12		695200215122113 24R	2920	EUROFINS EATON ANALYTICAL (SOUTH BEND)	
	S1	**REGULATED VOC**																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 02 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_002_002	**S1**	**REGULATED VOC**																		
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2990	BENZENE		<	0.500		UG/L	1	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2996	STYRENE		<	0.500		UG/L	100	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	4/27/2018	3	72		2024/04		69520021804271355V	1371	MOORE TWINING ASSOCIATES, INC.	

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System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 02 - PRE NO3 BLEND CLASS: CTGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_002_002	**S1**	2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2984	TRICHLORO ETHYLENE		<	0.500		UG/L	5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2218	TRICHLORO FLUOROMETHANE		<	5.000		UG/L	150	5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2904	TRICHLORO TRIFLUORO ETHANE		<	10.000		UG/L	1200	10	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	4/27/2018	3	72		2024/04		6952002180427135 5V	1371	MOORE TWINING ASSOCIATES, INC.	
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLORO PROPANE		<	0.000		UG/L	0.005	0.005	7/14/2021	7	36		2024/07		6952002210714142 0S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	7/14/2021	5	36		2024/07		6952002210714142 0S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	7/14/2021	4	36		2024/07		6952002210714142 0S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.000		UG/L	0.2	0.01	7/8/2020	5	36		2023/07		6952002200708134 5S	1371	MOORE TWINING ASSOCIATES, INC.	
		2946	ETHYLENE DIBROMIDE		<	0.000		UG/L	0.05	0.02	7/8/2020	5	36		2023/07		6952002200708134 5S	1371	MOORE TWINING ASSOCIATES, INC.	
		2037	SIMAZINE		<	1.000		UG/L	4	1	7/14/2021	4	36		2024/07		6952002210714142 0S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: WELL 01 & 02 - NO3 BLEND TANK CLASS: OTHR STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_003_003		**YETTEM WATER SYSTEM**						**WELL 01 & 02 - NO3 BLEND TANK**												
	NI	**NITRATE/NITRITE**																		
		1040	NITRATE	7.400		0.400		MG/L	10	0.4	4/18/2023	125	1	Interval	2023/05	**DUE NOW**	VI 2342312-004	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY: TULARE

Sample Point: ST2S1-14395 AVE 384 CLASS: DBPT STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_DST_900		**YETTEM WATER SYSTEM**						**ST2S1-14395 AVE 384**												
	DBP	**DISINFECTION BYPRODUCTS**																		
		2943	BROMODICHLOROMETHANE		<	1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2942	BROMOFORM		<	1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2941	CHLOROFORM		<	1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2454	DIBROMOACETIC ACID	1.100		1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2944	DIBROMOCHLOROMETHANE		<	1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2451	DICHLOROACETIC ACID	1.900		1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2456	TOTAL HALOACETIC ACIDS (HAA5)	5.500		0.000		UG/L	60	-----	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2453	MONOBROMOACETIC ACID		<	1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2450	MONOCHLOROACETIC ACID		<	2.000		UG/L	------	2	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2950	TTHM		<	0.000		UG/L	80	-----	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: YETTEM WATER SYSTEM COUNTY:

Sample Point: CLASS: DBPT STATUS:

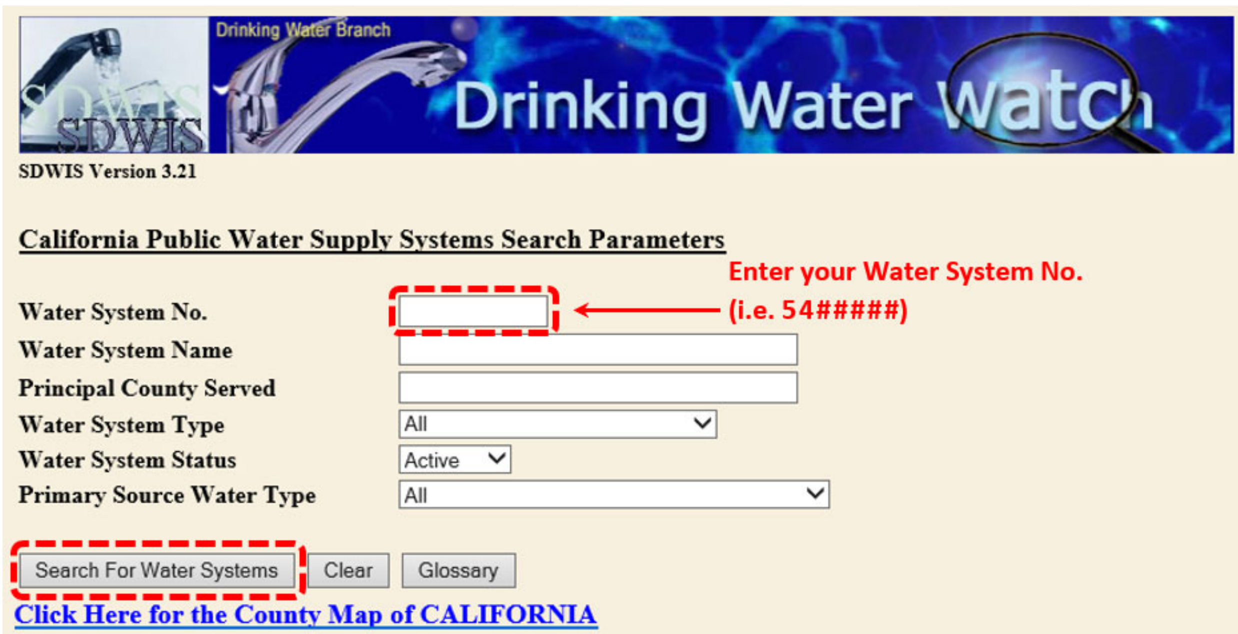
PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5403043_DST_900	**DBP**	2452	TRICHLOROACETIC ACID	1.600		1.000		UG/L	------	1	7/8/2020	4	36		2023/07		6952900200708141 0D	1371	MOORE TWINING ASSOCIATES, INC.	

Appendix C:
Instructions for Accessing Public Drinking Water Watch

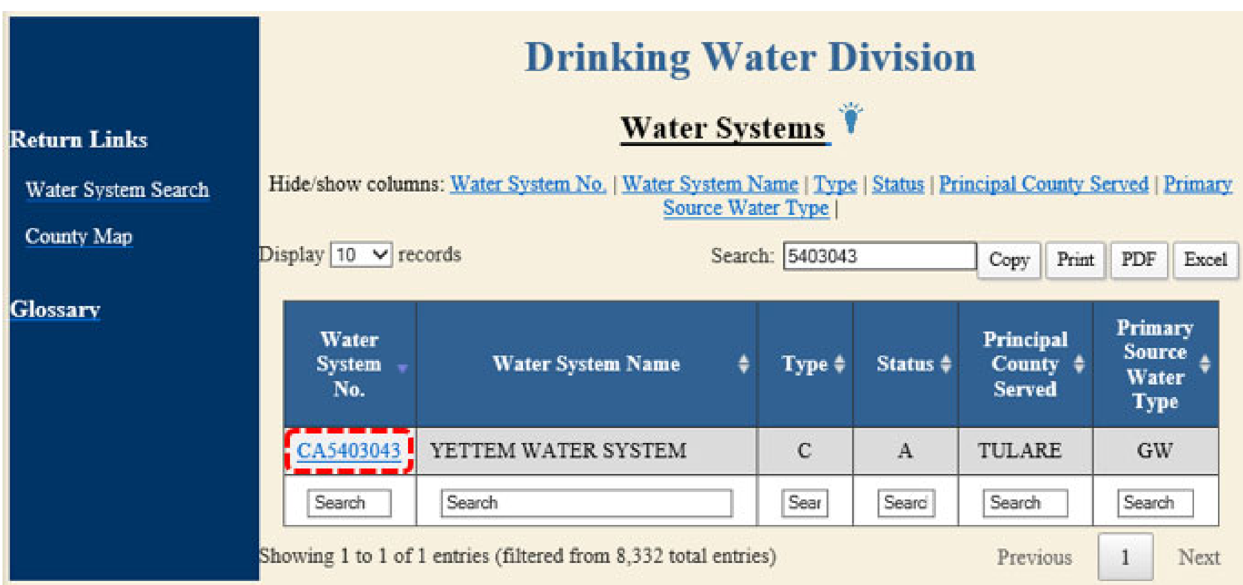
How To Access Individual System's Drinking Water Monitoring Schedule & Water Quality Data

1. Place the following link in the internet address bar: https://sdwis.waterboards.ca.gov/PDWW/

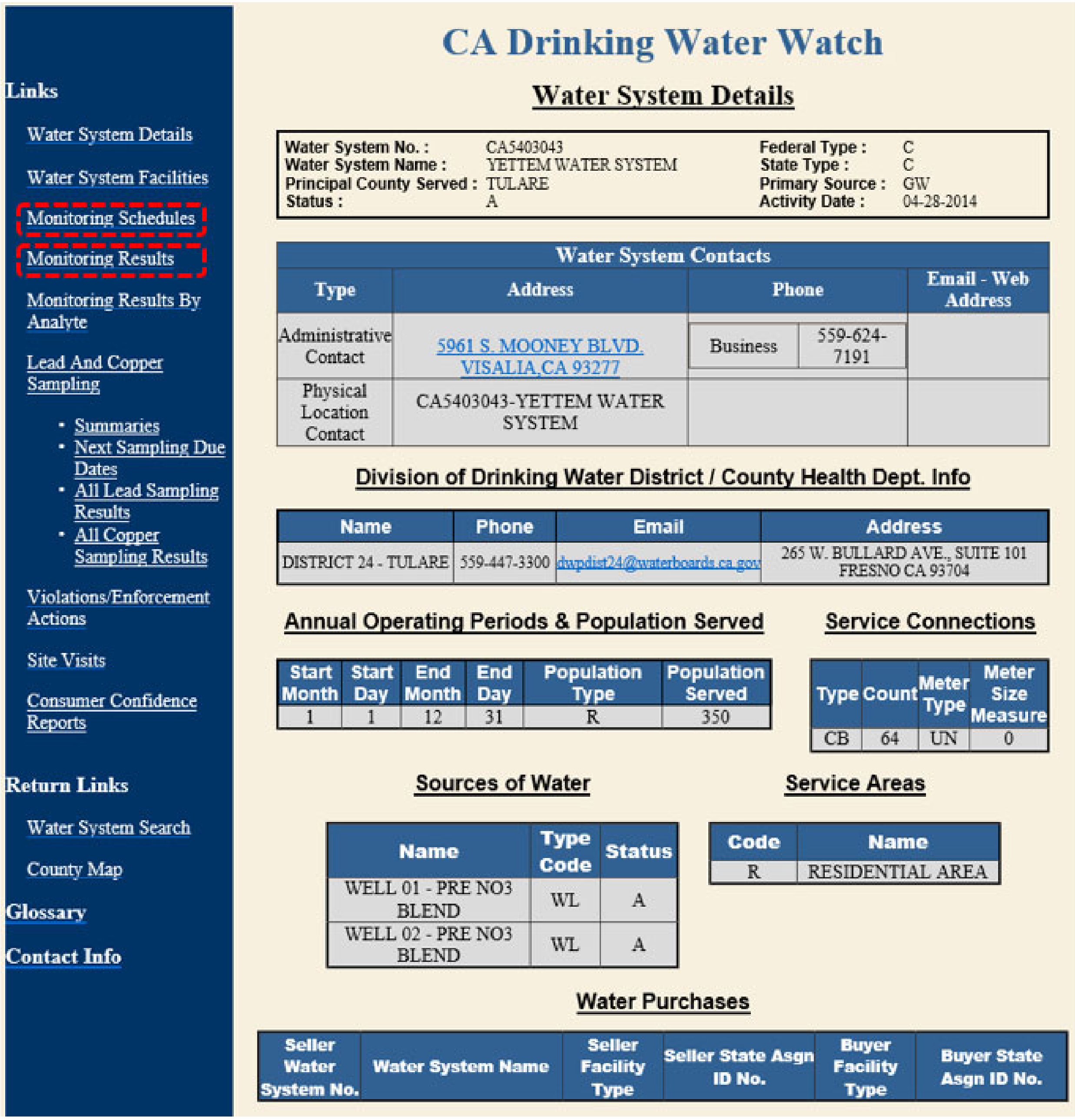
2. Enter your Water System No. and select "Search For Water Systems"



3. Click on your Water System No. (Link in blue text).



4. On the left side of the screen, select ***Monitoring Schedules*** for source monitoring schedule (last sample and next due dates) *or* ***Monitoring Results*** for water quality results.



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System Details

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Water System Contacts

Type	Address	Phone		Email - Web Address
Administrative Contact	5961 S. MOONEY BLVD. VISALIA,CA 93277	Business	559-624-7191	
Physical Location Contact	CA5403043-YETTEM WATER SYSTEM			

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 24 - TULARE	559-447-3300	dwpdist24@waterboards.ca.gov	265 W. BULLARD AVE., SUITE 101 FRESNO CA 93704

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	350

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	64	UN	0

Sources of Water

Name	Type Code	Status
WELL 01 - PRE NO3 BLEND	WL	A
WELL 02 - PRE NO3 BLEND	WL	A

Service Areas

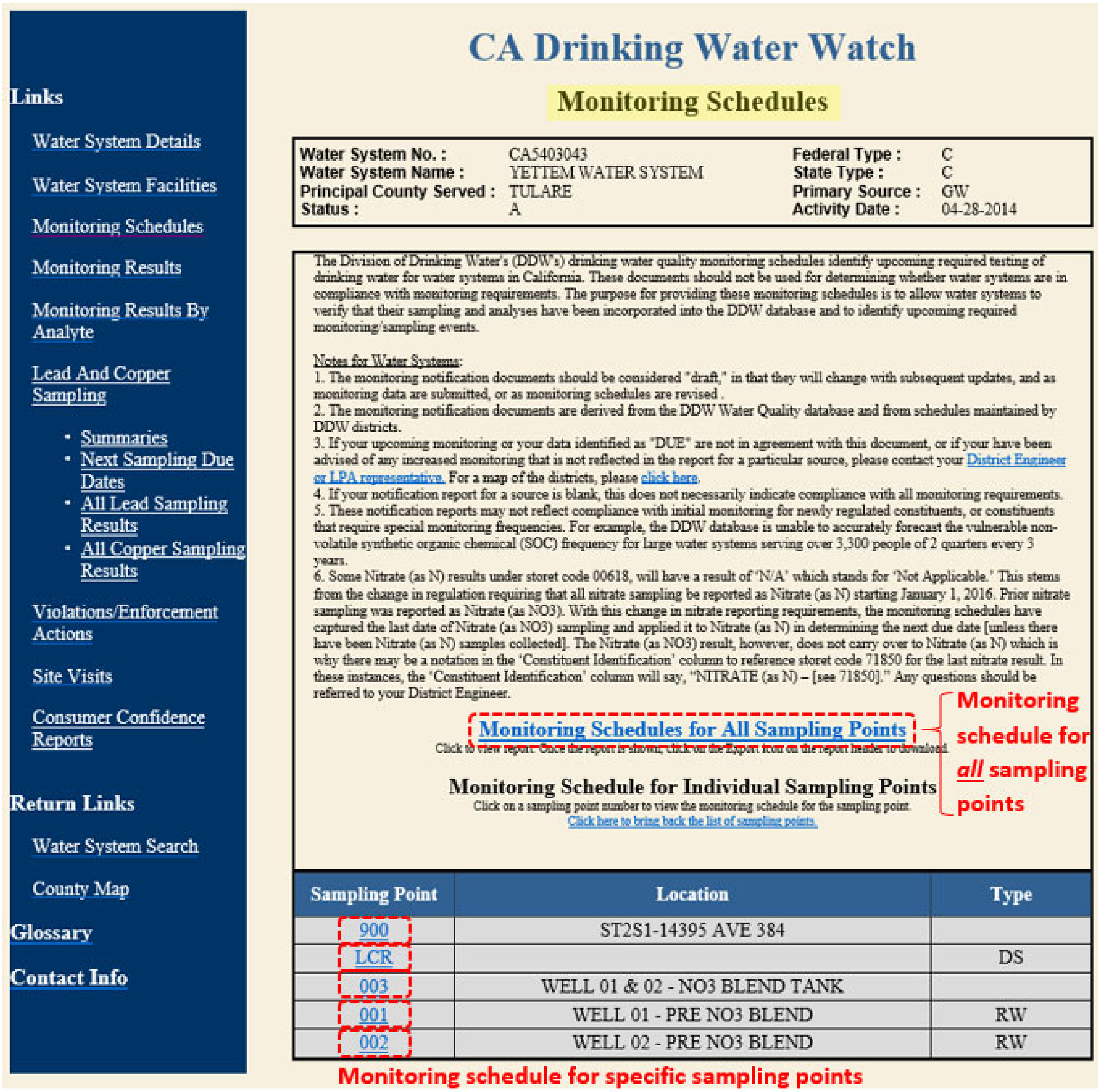
Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.

5. Select Sampling Point corresponding to the source (Link in blue text and is a number).

5A. ***Monitoring Schedules***



CA Drinking Water Watch

Monitoring Schedules

Links

Water System Details

Water System Facilities

Monitoring Schedules

Monitoring Results

Monitoring Results By Analyte

Lead And Copper Sampling

- Summaries
- Next Sampling Due Dates
- All Lead Sampling Results
- All Copper Sampling Results

Violations/Enforcement Actions

Site Visits

Consumer Confidence Reports

Return Links

Water System Search

County Map

Glossary

Contact Info

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

The Division of Drinking Water's (DDW's) drinking water quality monitoring schedules identify upcoming required testing of drinking water for water systems in California. These documents should not be used for determining whether water systems are in compliance with monitoring requirements. The purpose for providing these monitoring schedules is to allow water systems to verify that their sampling and analyses have been incorporated into the DDW database and to identify upcoming required monitoring/sampling events.

Notes for Water Systems:
1. The monitoring notification documents should be considered "draft," in that they will change with subsequent updates, and as monitoring data are submitted, or as monitoring schedules are revised .
2. The monitoring notification documents are derived from the DDW Water Quality database and from schedules maintained by DDW districts.
3. If your upcoming monitoring or your data identified as "DUE" are not in agreement with this document, or if your have been advised of any increased monitoring that is not reflected in the report for a particular source, please contact your District Engineer or LPA representative. For a map of the districts, please click here.
4. If your notification report for a source is blank, this does not necessarily indicate compliance with all monitoring requirements.
5. These notification reports may not reflect compliance with initial monitoring for newly regulated constituents, or constituents that require special monitoring frequencies. For example, the DDW database is unable to accurately forecast the vulnerable non-volatile synthetic organic chemical (SOC) frequency for large water systems serving over 3,300 people of 2 quarters every 3 years.
6. Some Nitrate (as N) results under storet code 00618, will have a result of 'N/A' which stands for 'Not Applicable.' This stems from the change in regulation requiring that all nitrate sampling be reported as Nitrate (as N) starting January 1, 2016. Prior nitrate sampling was reported as Nitrate (as NO3). With this change in nitrate reporting requirements, the monitoring schedules have captured the last date of Nitrate (as NO3) sampling and applied it to Nitrate (as N) in determining the next due date [unless there have been Nitrate (as N) samples collected]. The Nitrate (as NO3) result, however, does not carry over to Nitrate (as N) which is why there may be a notation in the 'Constituent Identification' column to reference storet code 71850 for the last nitrate result. In these instances, the 'Constituent Identification' column will say, "NITRATE (as N) – [see 71850]." Any questions should be referred to your District Engineer.

Monitoring Schedules for All Sampling Points

Click to view report. Once the report is shown, click on the Export icon on the report header to download.

Monitoring schedule for *all* sampling points

Monitoring Schedule for Individual Sampling Points

Click on a sampling point number to view the monitoring schedule for the sampling point.

Click here to bring back the list of sampling points.

Sampling Point	Location	Type
900	ST2S1-14395 AVE 384	
LCR		DS
003	WELL 01 & 02 - NO3 BLEND TANK	
001	WELL 01 - PRE NO3 BLEND	RW
002	WELL 02 - PRE NO3 BLEND	RW

Monitoring schedule for specific sampling points

NOTE: Any *past due* monitoring will have "DUE NOW" in the far-right column. **Please schedule this monitoring as soon as possible.**

5B. *Monitoring Results*

Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports
  - 2017
  - 2016
  - 2015
  - 2014

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

Monitoring Results for Individual Sampling Points

Click on a PS Code to view/download the monitoring results for the sampling point.

Water System Sampling Points

PS Code	Facility ID	Facility Name	Description	Type Code	Source Class
5403043-001	001	WELL 01 - PRE NO3 BLEND	WELL 01 - PRE NO3 BLEND	RW	DCSGA
5403043-002	002	WELL 02 - PRE NO3 BLEND	WELL 02 - PRE NO3 BLEND	RW	DCSGA
5403043-003	003	WELL 01 & 02 - NO3 BLEND TANK	WELL 01 & 02 - NO3 BLEND TANK		OTHR
5403043-900	DST	DISTRIBUTION SYSTEM	DISTRIBUTION SYSTEM		DBPT
5403043-LCR	DST	DISTRIBUTION SYSTEM		DS	

6. Please contact the Tulare District Office at (559) 447-3300 or DWPDIST24@waterboards.ca.gov if you have any questions.

Appendix D:
Source and Distribution System Bacteriological Monitoring Reports

Bacteriological Distribution Monitoring Report

5403043 Yettem Water System

Distribution System Freq: 1/M

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
3/6/2023	14246 Ave 384	A	A			Routine	0.79				
2/13/2023	14246 Ave 384	A	A			Routine	0.71				
1/9/2023	14246 Ave 384	A	A			Routine	0.67				
12/12/2022	14246 Ave 384	A	A			Routine	0.50				
11/7/2022	14246 Ave 384	A	A			Routine	0.69				
10/24/2022	14246 Ave 384	A	A			Routine	0.50				
9/22/2022	14246 Ave 384	A	A			Routine	0.66				
8/9/2022	14246 ave 384	A	A			Routine	0.49				
7/15/2022	14246 Ave 384	A	A			Routine	0.93				
6/9/2022	14246 Ave 384	A	A			Routine	0.84				
5/16/2022	14246 Ave 384	A	A			Routine	0.98				
4/25/2022	14246 Ave 384	A	A			Routine	0.97				
3/21/2022	14246 Ave 384	A	A			Routine	0.77				
2/10/2022	14246 Ave 384	A	A			Routine	0.87				
2/10/2022	14246 Ave 384	A	A			Routine	0.87				
1/24/2022	14246 Ave 384	A	A			Routine	0.28				
12/28/2021	14246 Ave 384	A	A			Routine	0.55				
11/19/2021	14246 Ave 384	A	A			Routine	0.60				
10/19/2021	14246 Ave 384	A	A			Routine	0.32				
9/28/2021	14246 Ave 384	A	A			Routine	0.51				
8/23/2021	14246 Ave 384	A	A			Routine	0.39				
7/14/2021	14246 Ave 384	A	A			Routine	0.65				
6/21/2021	14246 Ave 384	A	A			Routine	0.09				
5/24/2021	14246 Ave 384	A	A			Routine	0.52				
4/20/2021	14246 Ave 384	A	A			Routine	0.35				
3/12/2021	14246 Ave 384	A	A			Routine	0.69				
2/18/2021	14246 Ave 384	A	A			Routine	0.4				
1/25/2021	14246 Ave 384	A	A			Routine	0.45				
12/21/2020	4246 Ave 384	A	A			Routine	0.73				
11/1/2020	No sample								MR1		Cit 03-24-21C-011
10/26/2020	14246 Ave 384	A	A			Routine	1.07				
9/28/2020	14246 Ave 384	A	A			Routine	0.32				
8/10/2020	Learning Center	A	A			Routine	0.65				
7/8/2020	Cafeteria (high school)	A	A			Routine	1.2				
6/3/2020	14050 Ave 384	A	A			Routine	0.68				
5/13/2020	US Post Office	A	A			Routine			MR9		no chlorine residual on report
4/3/2020	Learning Center	A	A			Routine	1.1				
3/4/2020	Cafeteria - Yettem High	A	A			Routine	0.55				
2/7/2020	14050 Ave 384	A	A			Routine	1.2				
1/7/2020	US Post Office	A	A			Routine			MR9		no chlorine residual on report or coc
12/9/2019	Learning Center	A	A			Routine			MR9		no chlorine residual on report
11/6/2019	Cafeteria (Yettem High)	A	A			Routine			MR9		no chlorine residual on report
10/4/2019	14050 Ave 384	A	A			Routine	1.2				
9/4/2019	US Post Office HB	A	A			Routine	1.0				
8/5/2019	Learning Center	A	A			Routine	1.2				

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
7/10/2019	High School Cafeteria	A	A			Routine	1.9				
6/10/2019	14050 Ave 384	A	A			Routine	0.80				
5/9/2019	US Post Office HB	A	A			Routine	0.95				
4/10/2019	Learning Center	A	A			Routine	0.87				
3/13/2019	Café Yettem High	A	A			Routine	1.8				
2/6/2019	14050 Ave 384	A	A			Routine	1.8				
1/7/2019	Post Office	A	A			Routine	1.5				
12/3/2018	Learning Center	A	A			Routine	1.6				
11/5/2018	Café Yettem High School	A	A			Routine	1.1				
10/1/2018	14050 Ave. 384	A	A			Routine	0.92				
9/4/2018	14026 Ave 384	A	A			Routine	0.72				
8/2/2018	14246 Ave 384	A	A			Routine	0.88				
7/6/2018	14395 Ave 384	A	A			Routine	1.2				
6/5/2018	14050 Ave 389	A	A			Routine	0.40				
5/3/2018	US Post Office	A	A			Routine	0.50				
4/3/2018	Learning Center	A	A			Routine	0.76				
3/22/2018	Learning Center	A	A			Routine	0.88				
2/9/2018	14050 Ave 384	A	A			Routine	0.62				
1/3/2018	Post Office	A	A			Routine	1.9				

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

5403043 Yettem Water System

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
3/6/2023		Wells: 01,02	Well	QTray	<1.0	<1.0				
2/13/2023		Wells: 01,02	Well	QTray	<1.0	<1.0				
1/9/2023		Wells: 01,02	Well	QTray	<1.0	<1.0				
12/12/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
11/7/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
10/24/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
9/22/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
8/9/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
7/15/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
6/9/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
5/16/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
4/25/2022	13:40	Well 01 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
4/25/2022	13:55	Well 02 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
3/21/2022	12:15	Well 01 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
3/21/2022	12:30	Well 02 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
2/10/2022	11:40	Well 01 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
2/10/2022	11:40	Well 01 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
2/10/2022	11:55	Well 02 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
2/10/2022	11:55	Well 02 - Pre NO3 Blend	Well	Qtray	<1.0	<1.0				
1/24/2022	12:40	Well 01	Well	Qtray	<1.0	<1.0				
1/24/2022	13:00	Well 02	Well	Qtray	<1.0	<1.0				
12/28/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
11/19/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
10/19/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
9/28/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
8/23/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
7/14/2021		Wells: 1,2	Well	QTray	<1.0	<1.0				
6/21/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
5/24/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
4/20/2021		Wells: 01,02	Well	Qtray	<1.0	<1.0				
3/12/2021		Wells: 01, 02	Well	MPN	<1.0	<1.0				
2/18/2021		Wells: 1,2	Well	Qtray	<1.0	<1.0				
1/25/2021		Wells: 1,2	Well	Qtray	<1.0	<1.0				
12/21/2020		WellS: 1,2	Well	Qtray	<1	<1				
10/26/2020		Wells: 01,02	Well	Qtray	<1.0	<1.0				
9/28/2020		Wells: 01, 02	Well	Qtray	<1.0	<1.0				

5403043 Yettem Water System

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
8/10/2020		Wells: 01,02	Well	Qtray	<1.0	<1.0				
7/8/2020	13:40	Well 01	Well	Qtray	1	<1.0				
7/8/2020	13:45	Well 02	Well	Qtray	<1.0	<1.0				
6/3/2020		Wells: 01, 02	Well	Qtray	<1.0	<1.0				
5/13/2020		Wells: 01, 02	Well	QTray	<1.0	<1.0				
4/3/2020		Wells; 01,02	Well	QTray	<1.0	<1.0				
3/4/2020		Wells: 01, 02	Well	QTray	<1.0	<1.0				
2/7/2020		Wells: 01, 02	Well	QTray	<1.0	<1.0				
1/7/2020		Wells: 01,02	Well	QTray	<1.0	<1.0				
12/9/2019		Wells: 1,2	Well	QTray	<1.0	<1.0				
11/6/2019		Wells: 1,2	Well	QTray	<1.0	<1.0				
10/4/2019		Wells: 01, 02	Well	QTray	<1.0	<1.0				
9/4/2019		Wells: 01, 02	Well	QTray	<1.0	<1.0				
8/5/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
7/15/2019	12:45	Well 1	Well	QTray	<1.0	<1.0				
7/10/2019	12:15	Well 01	Well	QTray	11	<1.0				
7/10/2019	12:20	Well 02	Well	QTray	<1.0	<1.0				
6/10/2019		Wells: 01, 02	Well	QTray	<1.0	<1.0				
5/9/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
4/10/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
3/13/2019		Wells: 1,2	Well	QTray	<1.0	<1.0				
2/6/2019		Wells: 1,2	Well	QTray	<1.0	<1.0				
1/7/2019		Wells: 1,2	Well	QTray	<1.0	<1.0				
12/3/2018		Wells: 1,2	Well	MPN	<1.1					
11/5/2018		Wells: 1, 2	Well	QTray	<1.0	<1.0				
10/1/2018		Wells: 1, 2	Well	QTray	<1.0	<1.0				
9/4/2018		Wells: 01, 02	Well	QTray	<1.0	<1.0				
8/2/2018		Wells: 01,02	Well	QTray	<1.0	<1.0				
7/6/2018		Wells: 02, 01	Well	QTray	<1.0	<1.0				
6/5/2018		Wells: 1, 2	Well	QTray	<1.0	<1.0				
5/3/2018		Wells; 1, 2	Well	QTray	<1.0	<1.0				
4/3/2018		Wells: 1, 2	Well	QTray	<1.0	<1.0				
3/22/2018		Wells: 1, 2	Well	QTray	<1.0	<1.0				
2/9/2018		Wells: 1, 2	Well	QTray	<1.0	<1.0				
1/3/2018		Wells: 1, 2	Well	MPN	<1.1					

Appendix E:
Lead and Copper Tap Sample Results Reporting Form

State Water Resources Control Board
Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

This form must be submitted by the public water system to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

Report Date: (mm/dd/yyyy)	
Water System Name:	
Water System Number:	
Water System Type:	◯ Community ◯ Non-Transient, Non Community
Monitoring Frequency:	◯ 6-month ◯ Annual ◯ Triennial
# of Samples Required:	
# of Samples Reported:	
	90th Percentile Level (mg/L)
Lead: *Action Level = 0.015 mg/L*	
Copper: *Action Level = 1.3 mg/L*	

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier 1, 2, 3, or R**	**Lead (mg/L)**	**Copper (mg/L)**
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Sampling Site Change

Each round of sampling should be conducted at the same sampling sites. If an original sampling site is not available, you should collect a tap sample from another site meeting the same Tier criteria as the original site.

You must complete/submit the ***Lead and Copper Tap Sampling Site Change*** form.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on ______________________________ by
(date)

☐ Direct Mail
☐ Posting in public area (NTNC systems only)
☐ Other (please specify below)
____

For general information on lead and copper tap sampling, you can refer to the ***SWRCB Lead and Copper Tap Sample Results Guidance Document***. If you have any questions or comments, please contact your regulating entity (Division of Drinking Water District or County Agency).

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

				Result	
	Sample Date	Sample Site Location/Address	Tier 1, 2, 3, or R	Lead (mg/L)	Copper (mg/L)
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
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57					
58					
59					
60					

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

	Sample Date	Sample Site Location/Address	Tier 1, 2, 3, or R	Result	
				Lead (mg/L)	**Copper (mg/L)**
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
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100					

Appendix F:
Guidance Document for the Preparation of an Operations Plan

Water System Operations Plan Guidance

<u>Overview:</u>
The purpose of this document is to provide guidance for a water system when completing a Water System Operations Plan. However, this guidance is not considered an all-inclusive list of items required in an operations plan. A water system's operations plan should be specific and tailored to the water system and must adequately address the physical operation, maintenance, repair, and troubleshooting of water system facilities; routine monitoring, reporting and record keeping; and emergency response. All Operations Plans must be submitted and are subject to District Office comment and approval. The Operations Plan is a living document that should be updated as necessary to provide overview of the current operation of the water system. All updates should be submitted to the Division for review and approval.

I. <u>Title and System Information</u>

The Operation Plan must include title, date, system name, system number, system address, mailing address, contact name, phone number and email.

II. <u>Brief Description of Water System</u>

The Operations Plan should include a description of the following: Water System Type (Community-CWS, Non-transient Noncommunity-NTNC, and Transient Noncommunity-TNC), number of service connections, population served, operating period (seasonal, year-round, etc.), sources, treatment facilities, and distribution facilities (storage, booster pumps, pressure tanks, etc.).

Include maps, as-built drawings, or other schematics as attachments to the Operations Plan.

Example; <u>System Type:</u> *Community-CWS*; <u>Service Connections:</u> *100*; <u>Population:</u> *300*; <u>Operational Period:</u> *Year-round*; <u>System Description:</u> *XYZ water system has one groundwater well (Well No. 1) equipped with a submersible pump capable of producing 300 gallons per minute (gpm). Chlorination is provided using a LMI chemical metering pump. Well No. 1 is pumped directly into a 30,000 gallon storage tank. The booster pump and pressure tanks are used to maintain pressure in the distribution system (40-60 psi). The distribution system consists of 6-inch C900 PVC mains and 1-inch C900 PVC laterals.*

III. <u>Record Keeping and Organization Chart</u>

The Operations Plan should include a water system organization chart detailing the management structure and responsibilities of each staff member as it relates to the operation and oversight of the water system.

The Operations Plan should describe the methods of record keeping (digital and hardcopy) and the retention policy. A multi-tabbed water system file is strongly recommended. The file should include all bacteriological and chemical laboratory results (10 year retention), monitoring requirements and an accompanying calendar schedule for all sampling, correspondence from our Division (e.g., water supply permit), all sampling plans (Bacteriological Sample Siting Plan), water main and valve location maps, the well driller's report and County well construction permit that demonstrates conformance to its well ordinance (schematic documenting adequate horizontal protection of well from sanitary hazards), pump and storage tank information, and their accompanying service records, etc.

IV. Sources

A. Detailed Description

The Operations Plan should include detailed descriptions of sources facilities. Not all information needs to be included in the written description; however, attachments should be included that provide pertinent information about the water system facilities (e.g. DWR well completion report, pump information/manufacturer documentations, maps, As-Built drawings, etc.).

B. Routine Operational Procedures (daily or minimum of weekly)

The Water System conducts source site visits for the following: water leaks that could contaminate well, unscreened or openings where sealants can be applied, electrical hazards, chemical hazards (proper use of chemicals around well head). Verify proper operation of pump and controls. Remove rodent feces, dirt, insects, vegetation, any standing water, control gophers/squirrel burrowing around well head to eliminate potential contamination hazards. Take necessary actions to repair all deficiencies at the source site.

Tip: Maintain a log book for each well site that records maintenance and monthly water production and flow rates, water table depths and any maintenance performed.

C. Monitoring and Reporting

1. Bacteriological Monitoring From Sources

Source bacteriological sampling should be described in the sample siting plan and must be collected from all active raw water sources PRIOR to chlorination. The samples are required to be analyzed using the density method (Most Probable Number-MPN). If any sample is positive, notify Division by telephone, for follow-up investigation. Source sampling frequency is dependent on the water system's classification. A report containing the results must be submitted to the Division by the 10^{th} day of the following month.

2. Chemical Source Monitoring

The Operations Plan should specify all chemical source monitoring required by Drinking Water Regulations, which is based on system and source classification. All results must be submitted to the Division's Water Quality Database electronically (electronic data transfer-EDT) by an ELAP Certified Laboratory. The Operations Plan should indicate each source and their corresponding Primary Station Code (PSCode) so that water quality data can be EDT'd. The Operations Plan should include a copy of the appropriate chemical monitoring schedule for the water system's sources.

System monitoring information available at: https://sdwis.waterboards.ca.gov/PDWW/

3. Water Production

Drinking Water Regulations require each water source to be equipped with a flow meter. Source water production must be monitored and recorded at least monthly. Water production is required to be reported annually to the Division in the Electronic Annual Report.

V. Treatment Facilities

A. Detailed Description

The Operations Plan should include detailed descriptions of treatment facilities (chlorination, surface water treatment, nitrate, arsenic, etc.). Not all information needs to be included in the written description; however, attachments should be included to provide pertinent information about the treatment facilities (e.g. process flow diagram, manufacturer documentation including operational specifications, As-Built drawings, etc.).

B. Routine Operational Procedures (daily or minimum of weekly)

Check treatment facilities for the following; water leaks, electrical hazards, chemical hazards (proper use of chemicals). Verify proper operation of treatment facility (pumps, filters, chemical pumps, etc.), monitoring instruments, and controls. Inspect the chemical reservoirs for concentration and adequate volume for the operational period (record results). Take necessary actions to repair all deficiencies at the treatment facility.

Tip: Maintain a log book for each treatment facility that records maintenance, monthly water production and flow rates, chemical use and dosages, media condition, and any maintenance performed.

C. Monitoring and Reporting

1. Treatment Plant Monitoring

The Operations Plan must specify all treatment plant monitoring required by Drinking Water Regulations, Domestic Water Supply Permit, and Division. The Operations Plan must outline all required routine monitoring of the treatment plant (turbidity, contact time, chlorine residual, chemical concentrations, dosages etc.), all treatment goals and measures to prevent treatment failure, and response plan in the event that the treated effluent exceeds the treatment goal. The Operations Plan must include reporting forms and templates.

All monthly treatment reports must be submitted to the Division by the 10th day of the following month. The Operations Plan must include the appropriate templates of the monthly reporting forms. For treatment plants removing chemical constituents, all results must be submitted to the Division's Water Quality Database electronically, EDT, by an ELAP Certified Laboratory to the treatment facility's PScode.

VI. Distribution Facilities

A. Detailed Description

The Operations Plan should include detailed descriptions of distribution system facilities (storage tanks, distribution lines, pressure tanks, booster pumps, etc.). Not all information needs to be included in the written description; however, attachments should be included to provide pertinent information about the distribution system facilities (e.g. distribution maps and flow diagrams, manufacturer documentation including operational specifications, As-Built drawings, etc.). The water system's cross-connection control program should also be included in this section.

B. Routine Operational Procedures (daily or minimum of weekly)

The following items and their operational procedures should be addressed in the Operations Plan. Corrective action should be taken to remedy any deficiencies found during inspections.

1. Storage Tanks

Check storage tanks for the following; water leaks, structural damage, proper vent and overflow outlet protection (screens, flapper valve, etc.), volume, float operation, etc. Scheduled inspection and cleaning of storage tank (quarterly, semi-annually, annually, etc.). Record the date of the inspection and cleaning and any observations (e.g., remnants of rodents, sediment, corrosion, etc.).

2. Pressure Tanks

Check pressure tanks for the following; water leaks, structural damage, compressor operation, pressure gauge operation, etc.

3. Gauges and Meters

Inspect all gauges and meters for leaks and proper function daily. Repair or replace as needed (keep record of date). Schedule routine calibration checks to ensure accurate readings are being provided.

4. Valves

Inspect valves for leaks (record observations, repair or replace if leaking). Exercise valves on a schedule, as needed (i.e. quarterly, semi-annually, annually, etc.).

5. Cross-Connections

Inspect water system for potential cross connections on a regular basis (i.e. semi-annually, annually, etc.).

6. Backflow Devices/Assemblies

Backflow devices/assemblies are required to be tested at least annually by a certified Backflow Tester.

7. Booster Pumps/Stations

Visually inspect the starter panel, electric motor, pump and related pump system components. Perform necessary running tests (Amp/Voltage readings and system pressure checks) to monitor operational efficiency.

8. Distribution Lines

Visually inspect the distribution system for leaks on a regular basis. Flush dead end mains or lines periodically (quarterly, semi-annually, annually as needed. Record date and observations made during inspection.

Tip: Maintain a log book for the distribution facilities that records the date of the inspection, observations made during the inspection and any maintenance performed.

C. Monitoring and Reporting

1. Bacteriological monitoring from distribution system

The Operations Plan should include the routine bacteriological sampling procedures and sample in accordance with the most recently District approved Bacteriological Sample Siting Plan. Bacteriological sampling results are required to be submitted to the Division by the 10th day of the following month.

2. **Disinfectant Residual Monitoring**
For water systems that chlorinate, monitor and record the results from designated locations which are the same locations as the routine bacteriological sample sites. The residuals must be reported with the bacteriological results at the time the bacteriological sample is collected. These results will also be used by distribution and treatment operators when adjusting chemical dosages at the treatment facility.

3. **Disinfection Byproduct Rule Monitoring**
For community and non-transient noncommunity water systems, the Operations Plan should include the most recently approved Disinfection Byproduct Rule (DBP) Monitoring Plan. The DBP Monitoring Plan should include, at minimum, the frequency of sampling, the required number of samples, and the sampling locations and corresponding PScodes for EDT submittal by an ELAP certified laboratory.

4. **Lead and Copper Monitoring**
For community and non-transient noncommunity water systems, the Operations Plan should include the most recently approved Lead and Copper Rule (LCR) Monitoring Plan. The LCR Monitoring Plan should include, at minimum, the frequency of sampling, the required number of samples, and sampling locations.

VII. Emergency Response

The Operations Plan should include emergency response procedures to be implemented in the event of a contamination event, a natural disaster, treatment failure, etc.

A. Emergency Notification Plan

The Operations Plan must include a copy of the most current Emergency Notification Plan (ENP). **The Division must be notified immediately in the event of an emergency**.

B. List of equipment for emergency repairs

List all equipment, tools and spare parts on hand that would be used for emergency repairs.

C. List of contractors and operators available for emergency repairs

Contractor Name	Address	Phone #	Equipment	Rental/ Contract
			Steel Tank Welder	
			Electrician	
			General Contractor	
			Plumber	
			Chemicals	
			Operator	

D. **List of Sources of needed equipment/supplies not on hand**

Supplier Name	Address	Phone #	Equipment	Rental/ Contract
			Tool Company	
			Digging equipment	
			Generator	
			Chemicals	

E. **List of distributors or suppliers of replacement parts.**

Supplier Name	Address	Phone #	Parts
			PVC pipe, valves, and fittings
			pumps, pressure tank and gauges
			Chlorinator

VIII. Miscellaneous Reporting

A. Electronic Annual Report to the Division of Drinking Water

Outline the process for completing the Electronic Annual Report (EAR) to the Division of Drinking Water. The EAR is located at: http://drinc.ca.gov/ear/home.aspx

B. Consumer Confidence Report

For community and non transient non community water systems, outline the process for completing the Consumer Confidence Report (CCR), the submittal dates (July 1 for customers and October 1 to the Division of Drinking water), and the methods of distribution. Reporting forms should be attached to the Operations Plan. A template is available at:
http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/CCR.shtml.

IX. Contact Information

The Operation Plan should include contact information.

A. Water System Staff

Name	Address	Phone #	Position	Rental/ Contract

B. **Contract Operators**

Name	Address	Phone #	Operator Certifications	Certification Nos.

X. Attachments

The Operations Plan should include all necessary attachments referenced in the Operations Plan. Electronic copies of all forms are available upon request. The following is a list of examples of possible attachments.

A. **Monthly water production reports**
B. **Coliform monitoring report forms**
C. **Treatment Reports**
D. **Bacteriological Sampling Siting Plan Guidance**
E. **Water Quality Monitoring Schedule**
F. **Emergency Notification Plan**
G. **DBP Plan**

Appendix J: Seville 2022 Sanitary Survey

State Water Resources Control Board

Division of Drinking Water

October 17, 2022

Celeste Perez, General Manager
Seville Water Company – CA5400550
5961 S. Mooney Blvd.
Visalia, CA 93277

2022 Sanitary Survey

Dear Ms. Perez:

On July 20, 2022, the State Water Resources Control Board, Division of Drinking Water (Division) conducted a sanitary survey of the Seville Water Company water system (Water System). After evaluation of the Water System and completion of the enclosed Sanitary Survey Report, the Division has identified several outstanding deadlines from previous Sanitary Survey Reports from 2018 and 2020. **The Division does not extend directive deadlines. The following directives are past due and require immediate attention:**

1. The Water System must have a cross connection control survey completed by a certified cross connection control specialist.
2. The Water System must submit an Operations Plan to the Division for review and approval.
3. The Water System must submit a revised Bacteriological Sample Siting Plan (BSSP) to the Division for review and approval.

In addition to the directives above, the following was identified in this Sanitary Survey:

1. By **November 1, 2022**, the Water System must submit an updated emergency notification plan to the Division.

If you have any questions regarding this letter or the Sanitary Survey Report, please contact the Tulare District office at (559) 447-3300 or by email at DWPDIST24@waterboards.ca.gov.

Sincerely,

Kristin Willet Digitally signed by Kristin Willet
Date: 2022.10.17 10:28:30 -07'00'

Water Boards

Kristin Willet, P.E.
Senior Water Resource Control Engineer, Tulare District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

cc: [all email only]
Nilsa Gonzalez
Tulare County Environmental Health Division
NGonzale@tularehhsa.org

Jose Padilla
Contract Operator
Jose_padilla2010@yahoo.com

Cruz Perez
Contract Operator
Cruzperez0323@gmail.com

Small Water System Evaluation and Inspection Report
Drinking Water Field Operations Branch: Tulare District

Seville Water Company
System No. 5400550

Contact:	Ms. Celeste Perez	System Type:	Community Water System
Inspection Date:	July 20, 2022	Inspected by:	Kristin Willet, P.E.

I. INTRODUCTION

On July 20, 2022, the State Water Resources Control Board, Division of Drinking Water (Division) conducted a sanitary survey of the Seville Water Company water system (Water System). Mr. Cruz Perez, contract operator for Seville, assisted the Division with the sanitary survey. The Water System was last inspected by the Division on December 16, 2019, as a routine sanitary survey.

PERMIT STATUS

The Water System currently operates under Domestic Water Supply Permit No. 03-24-20PA-023 issued by the Division on August 26, 2020. A comprehensive list of the permit provisions within the permit amendment are provided below:

1. The Seville Water Company water system shall comply with all the requirements set forth in the California Safe Drinking Water Act, California Health and Safety Code and any regulations, standards or orders adopted there under.

2. The only approved sources of domestic water supply for the Seville Water Company water system are as follows:

Source	PS Code	Status
Well 01 – Raw	CA5400550_001_001	Active
Well 02 – Raw	CA5400550_003_003	Active

3. The only approved treatment for the Seville Water Company water system is continuous chlorination using NSF/ANSI 60 certified sodium hypochlorite solution.

4. No other sources or treatment (as described in provisions No. 2 and 3 above) shall be used by the Seville Water Company water system and no changes, additions, or modifications shall be made to the sources or treatment unless an amended water permit has first been obtained from the Division.

5. All personnel who operate distribution facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The

Seville Water Company water system is classified as a D1 water system and shall be operated by a D1 certified distribution operator or higher.

6. The Seville Water Company water system shall comply with Title 17 of the California Code of Regulations, to prevent the water system from being contaminated from possible cross-connections. The Seville Water Company water system shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

7. The Seville Water Company water system shall submit an electronic Annual Report (EAR) each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

8. The Seville Water Company water system shall record production data from the active sources at least monthly. The monthly water production shall be reported annually to the Division in the EAR.

9. The Seville Water Company water system shall collect monthly raw water samples from each source for analyses of total coliform and fecal coliform or *E. coli* bacteria. The coliform test shall be performed using a density analytical method and the results reported in units of MPN/100mL. The results shall be submitted to the Division by the 10th day of the following month.

10. The Seville Water Company water system shall monitor for coliform bacteria in the distribution system at least monthly and in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The Division shall be notified immediately if any distribution system or source sample shows the presence of *E. coli* bacteria or if more than one bacteriological sample shows the presence of coliform bacteria during a single month.

11. The Seville Water Company water system shall prepare a Consumer Confidence Report (CCR) annually, which must be distributed to customers and a copy provided to the Division by July 1 of each year. The Seville Water Company water system shall also provide the Division with a certification form by October 1 of each year that certifies the report has been distributed to customers.

12. The Seville Water Company water system shall conduct Stage 2 Disinfection Byproduct (DBP) monitoring. The monitoring results must be submitted via electronic data transfer (EDT) to the following PS Code:

ST2 Monitoring Site	PS Code
ST2S1 – 15348 Ave 381	CA5400550_DST_900

13. The Seville Water Company water system shall submit a monthly chlorination log to the Division by the 10th day of the following month.

14. The Seville Water Company water system shall operate the continuous chlorination treatment facility in accordance with a Division-approved Operations Plan. Any changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

It should be noted that phase two of the improvement project will include the addition of a third groundwater source of supply for the Yettem water system and an interconnection between the Yettem and Seville water systems. The interconnection will result in a consolidation of the two water systems to form the Yettem-Seville Community Services District water system.

DESCRIPTION OF SYSTEM

The Water System is owned by the Yettem-Seville Community Services District (CSD). The CSD was formed in June 2020 and ownership of the Water System was transferred to the CSD from Tulare County in July 2022. The Water System is classified as a community water system (CWS), which serves an approximate population of 691 people through 90 service connections. The domestic water supply is obtained from two active groundwater wells identified as Wells 01 and 02. Continuous chlorination is the only treatment provided to the source water. Storage is provided by one 15,000-gallon welded steel storage tank and one 211,000-gallon bolted steel storage tank.

ENFORCEMENT HISTORY

The following enforcement actions have been issued since the last sanitary survey report:

Citation No. 03-24-21C-010; issued January 2021
The Water System failed to collect and report one bacteriological sample during November 2020.

It should be noted that at the time of inspection the Water System had a standing boil water notice since July 11, 2022. The notice was issued after the Water System experienced a water outage due to Wells 01 and 02 failing to meet the demands of the system. Emergency hauled water was provided after the Division and Tulare County Office of Emergency Services were informed of the outage. Hauled water is still being delivered to the Water System on a weekly basis. Nearly all residents, as well as the school that is served by the Water System, are on emergency conservation orders and have been enrolled in the Tulare County bottled water program, funded through the State Water Resources Control Board, Division of Financial Assistance.

SERVICE AREA

The Water System is located approximately 15 miles north of the City of Visalia, CA. The service area for the Water System is comprised of 90 metered service connections consisting primarily of residential housing. The surrounding land use area is largely agricultural. The Yettem Water System is located two miles west of the Water System. A locational map of the Water System is included in Appendix A.

II. INVESTIGATION AND FINDINGS

SOURCES OF SUPPLY

The Water System's source of supply is from two active groundwater sources identified as Well 01 and Well 02. A description of each source is provided below. Photographs of the well sites are included in Appendix A.

Active Sources:

Well 01, Active - Treated, Groundwater, (CA5400550_001_001)

DWR Well Completion Report:	Yes
Date of Well Completion:	January 1960
Well Depth:	125 feet
Sanitary Seal Depth:	Unknown
Well Casing:	16-inch diameter conductor casing to 52 feet and 12-inch diameter steel casing to 118 feet; perforations between 60 and 80 feet.
Flow Meter:	Yes
Pump Type:	Submersible
Pump Make and Model:	Unknown
Pump Size:	7.5-horsepower (hp)
Well Capacity:	10 gallons per minute (gpm)
Source Discharge:	Directly to the 15,000-gallon welded steel storage tank
Source Operation:	Water level in the 15,000-gallon storage tank
Comments:	Well 01 is the Water System's secondary source of supply and is seldomly used due to low production and excessive sanding.

Well 02, Active - Treated, Groundwater, (CA5400550_003_003)

DWR Well Completion Report:	Yes
Date of Well Completion:	August 2014

Well Depth:	300 feet
Sanitary Seal Depth:	85 feet
Well Casing:	8 5/8-inch diameter steel casing to 300 feet; perforations between 80 to 160 feet and 180 to 300 feet.
Flow Meter:	Yes
Pump Type:	Submersible
Pump Make and Model:	Unknown
Pump Size:	10-hp
Well Capacity:	100 gpm
Source Discharge:	Directly to the 15,000-gallon welded steel storage tank
Source Operation:	Water level in the 15,000-gallon storage tank
Comments:	Well 02 is the Water System primary source of supply.

Source Water Assessments

A source water assessment was completed for Well 01 by Tulare County in September 2002. A Possible Contaminating Activities (PCA) Inventory Form was completed for Well 02 by the contract operator, Mr. James Derby, in September 2018. Wells 01 and 02 are considered most vulnerable to known contaminant plumes, agricultural drainage, sewer collection systems, agricultural/irrigation wells, and confirmed leaking underground storage tanks.

WATER PRODUCTION

Based on the information reported to the Division in the 2014 through 2021 electronic Annual Reports, the population, number of service connections, annual production, and maximum month of production is outlined in Table 1 below.

Table 1 - Production Data

Year	Population	Service Connections	Annual Production (Gallons)	Max. Month (Gallons)
2014	400	77	15,469,200[1]	2,596,000 (Jul.)
2015	400	77	25,325,700	4,248,700 (Jul.)
2016	400	77	19,495,030	2,600,500 (Jun.)
2017	400	77	22,132,100	3,108,600 (Jul.)
2018	400	77	21,332,930	2,888,400 (Jul.)
2019	480	90	25,033,000	3,150,000 (Jun.)
2020[2]	691	90	2,491,572	269,700 (Oct.)
2021	691	90	19,077,000	2,660,000 (Jun.)

1. The 2014 annual production value does not include data for the months of January, February, and March.

2. The 2020 EAR reported production data appears to be inaccurate. Demand calculations are not provided below for this year.

ADEQUACY OF SUPPLY

Production data, as reported by the Water System, and peaking factors established in the California Waterworks Standards were used to determine the Water System's Average Day Demand (ADD), Maximum Day Demand (MDD), and Peak Hour Demand (PHD). The adequacy of supply is determined by comparing the Water System's demands with its total source capacity which includes active and standby sources, storage capacity, and emergency interconnections with other water systems. The Water System's ADD, MDD, and PHD for the most recent seven years, except for 2020, and the total source capacity are provided in Tables 2 and 3, respectively below. It should be noted that the capacities listed in Table 3 are estimates provided by the Water System.

Table 2 - Average Day, Maximum Day & Peak Hour Demands

Year	ADD (gpm)	MDD (gpm)	PHD (gpm)
2014	39	87	131
2015	48	143	214
2016	37	90	135
2017	42	104	157
2018	41	97	146
2019	48	109	164
2021	36	92	139

Table 3 - Total Active Source Capacity

Source	Capacity (gpm)
Well 01	10
Well 02	100
Total Capacity	110

The total combined source capacity of the Water System is approximately 110 gpm. Based on the highest reported water usage for 2015, the Water System has adequate source capacity to supply the ADD of 48 gpm. However, the Water System does not have the source capacity to meet the MDD and PHD of 143 gpm and 214 gpm, respectively.

California Waterworks standards require water systems serving less than 1,000 service connections to have storage capacity equal to or greater than MDD, unless the water system can demonstrate that it has an additional source of supply or has an emergency source connection that can meet the MDD requirement. The Water System has a total of 226,000 gallons of storage, which is equivalent to approximately 26 hours of MDD. Again, the Water System is in the process of a water system improvement project that will ultimately consolidate the Seville and Yettem water systems. The Water System is also in the process of applying for funding with the Department of Water Resources to drill a new well for the Seville system while the Phase 2 of the Yettem-Seville consolidation project.

STORAGE

Storage is provided by one 15,000-gallon welded steel storage tank and one 211,000-gallon bolted steel storage tank.

The 15,000-gallon tank was installed in 2014 and is located at the site of Wells 01 and 02. The tank is configured with a top inlet and bottom outlet and is equipped with a screened top vent and overflow pipe. Both Wells 01 and 02 discharge separately to the 15,000-gallon tank and are controlled by the water level in the tank. Well 02 may bypass the tank if needed. Water from the 15,000-gallon tank is boosted through two 900-gallon hydropneumatic pressure tanks using two 7.5-hp vertical centrifugal pumps.

The 211,000-gallon bolted steel storage tank was installed in 2019 and is located in the northwest region of the community. The tank is configured with a bottom inlet and outlet and is equipped with a screened roof vent, overflow pipe, caged ladder, and exterior water level indicator. The tank is filled from the distribution system during off-peak hours. Stored water is discharged out to the distribution system through a 5,000-gallon hydropneumatic pressure tank using two 15-hp centrifugal pumps. A high-flow 40-hp centrifugal pump is also available to keep up with demand and fire flow purposes. The two 15-hp booster pumps are activated at 45 pounds per square inch (psi) and the high-flow booster pump is activated at 35 psi. The 211,000-gallon tank is also equipped with a recirculation line that allows the Water System to exercise the high-flow 40-hp booster pump.

The wells, booster stations, and tanks are controlled with a programmable logic controller (PLC). The PLC has been programmed with several modes and set points that allow the Water System to operate and pressurize the system for various scenarios. The Water System must submit an Operations Plan to the Division that includes details on the tank-fill modes, set points, low/high-level alarms, and any other programmed operational parameters.

The Division recommends that storage tanks be inspected internally at least once every five years to verify the integrity of the tank coating, check the condition of the inside surface of the tank walls, and to clean the tanks as needed. It is unclear when the Water System last cleaned and inspected the interior of the 15,000-gallon storage tank. The 211,000-gallon tank was installed in 2019. As such, the Water System should plan on inspecting and cleaning the tank in 2024.

DISTRIBUTION SYSTEM

The Water System recently installed a new distribution system and sanitary sewer system as part of phase one of the two-phase water system improvement project for the Seville and Yettem water systems. The old distribution system was in poor and failing condition which required the Water System to remain on a long-term Boil Water Notice due to intermittent outages. The new distribution system consists of 8-inch to 6-inch diameter C900 polyvinyl chloride (PVC) mains with 2-inch to 1-inch diameter service laterals. Distribution system pressure is maintained between 40 and 60 psi.

TREATMENT FACILITIES

The Water System provides continuous chlorination treatment to the water produced by Wells 01 and 02. A 12.5% solution of sodium hypochlorite is injected directly into the discharge line of Well 02 upstream of the 15,000-gallon storage tank. Well 01 discharges directly to the storage tank to blend with the chlorinated water from Well 02. The sodium hypochlorite solution is stored at the well site in a 35-gallon polyethylene tank inside a fiberglass enclosure. The chlorination equipment is activated upon startup of Well 02 and consists of an Iwaki (Walchem) E-Class chemical feed pump. The chemical feed pump has a capacity of 0.6 gallons per hour (gph) at 110 psi.

The Water System also provides continuous chlorination treatment at the site of the new 211,000-gallon storage tank. A 12.5% solution of sodium hypochlorite is injected directly to the booster pump manifold line upstream of the 5,000-gallon hydropneumatic pressure tank. The sodium hypochlorite solution is stored at the tank site in a 50-gallon polyethylene drum inside a fiberglass enclosure. The chlorination equipment consists of a Grundfos DDA chemical feed pump. The chemical feed pump has a capacity of 15.8 gph at 145 psi. An emergency eye-wash station is installed adjacent to the chlorination equipment at the new tank site.

The chemical solution tanks and feed pumps appear to be adequately sized. A free chlorine residual of at least 1.0 mg/L is maintained in the distribution system.

III. WATER QUALITY MONITORING

SOURCE MONITORING

A summary of the recent source water quality monitoring results and next due dates is included in Appendix B. Additionally, the current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. Instructions for accessing this information is included in Appendix C.

Bacteriological

Due to continuous chlorination, the untreated well water from Wells 01 and 02 must be sampled monthly for total coliform bacteria at a sample tap located prior to the chlorine injection port. This is required in order to verify that the wells are not producing water that contains coliform bacteria. A summary of source water bacteriological sample results is included in Appendix D.

General Mineral, General Physical, and Inorganic Chemicals

The Water System is required to monitor its active groundwater sources for general mineral (GM), general physical (GP), and inorganic (IO) chemical water quality every three years, except for nitrate which has a different monitoring frequency.

The Water System last sampled Wells 01 and 02 for GM, GP, and IO chemicals in August 2020, except for calcium, hardness, and magnesium which were sampled in July 2021. All GM, GP, and IO chemical monitoring results for both wells were below the respective maximum contaminant levels (MCLs). The Water System is next due to monitor Wells 01 and 02 for GM, GP, IO by the end of 2023.

Nitrate

The Water System is required to monitor active groundwater sources for nitrate (as N) annually if monitoring data indicates nitrate concentrations of less than one-half the MCL of 10 mg/L and quarterly if the concentrations are greater than or equal to one-half the MCL. Both sources produce water with nitrate concentrations greater than 5 mg/L and are on a quarterly monitoring frequency. The nitrate MCL has never been exceeded. Wells 01 and 02 were last sampled in May 2022 and the nitrate result was 8.4 mg/L and 5.9 mg/L, respectively. The next round of nitrate monitoring is scheduled for the third quarter of 2022.

Volatile Organic Chemicals (VOCs)

The Water System submitted a monitoring waiver application for volatile organic chemicals (VOCs) for the 2017-2019 monitoring period. The monitoring waiver was approved for select VOCs. The monitoring schedule was modified to reflect the new due dates and is available online. Well 01 was last sampled for VOCs in 2020. Well 02 was last sampled for VOCs in 2021. The results were all non-detect. The next round of VOC monitoring for both sources is due in the 2023-2025 monitoring period.

Synthetic Organic Chemicals (SOCs)

The Water System is required to sample Wells 01 and 02 at a three-year frequency for synthetic organic chemicals (SOCs). Wells 01 and 02 were last sampled for SOCs in August 2020, except for 1,2,3-trichloropropane (1,2,3-TCP) which was sampled in

October 2021 and dibromochloropropane (DBCP) and ethylene dibromide (EDB) in July 2021. The SOC results were all non-detect. The next round of SOC monitoring for both sources is due in the 2023-2025 monitoring period.

Radiological Monitoring

Initial radiological monitoring is based on the collection of four consecutive quarterly samples of gross alpha and radium-228. If the results from the first two quarters of initial monitoring are below the detection limit for the purposes of reporting (DLR), the final two quarters of initial monitoring may be waived. After initial monitoring is complete, no additional monitoring is required for radium-228. Subsequent monitoring frequencies for gross alpha is based on the results of the last sample collected. It should be noted that if the gross alpha result for any single sample is greater than 5 pCi/L, analysis for uranium in *that same sample* is required.

Triggered Monitoring:

Uranium:
If the GA + (0.84 * CE) for any single sample is greater than 5 pCi/L, analysis for U in that same sample, is required.

Total Radium:
If the GA + (0.84 * CE) - U is greater than 5 pCi/L, analysis for total radium in that same sample, is required.

Triggered monitoring needs to be communicated to the laboratory on the chain of custody at the time the sample is submitted.

The Water System has completed the initial gross alpha and radium-228 monitoring requirements for Wells 01 and 02. As such, the Water System is no longer required to monitor for radium-228. Well 01 was last sampled for gross alpha in August 2014 and the result was 2 pCi/L. Well 02 was last sampled for gross alpha in January 2018 and the result was non-detect. Wells 01 and 02 are currently on a nine-year monitoring frequency for gross alpha. Therefore, the next gross alpha sample from Wells 01 and 02 is scheduled for 2023 and 2027, respectively.

DISTRIBUTION SYSTEM MONITORING

Bacteriological

Based on the population and number of service connections, the Water System is required to collect at least one routine bacteriological sample each month from the distribution system. The sample must be analyzed for total coliform bacteria with results sent to the Division by the 10^{th} day of the following month. A summary of the distribution bacteriological sample results is included in Appendix D.

Bacteriological samples should also be collected in accordance with an approved Bacteriological Sample Siting Plan (BSSP). The current BSSP on file with the Division is dated March 21, 2018. However, the BSSP should be revised to reflect the new designated sample site stations that were installed as part of the Seville and Yettem water system improvement project. Additionally, the revised total coliform rule (rTCR) was adopted in July 2021, requiring all water systems to update their BSSP. **The Water System was directed to provide an updated BSSP in the 2020 sanitary survey. This directive remains outstanding and must be addressed by the Water System immediately. By August 31, 2020, the Water System must submit a revised BSSP to the Division for review and approval.** Guidelines for completing a BSSP are included in Appendix F and an instructional video is also available at https://youtu.be/fc7MFjpEcvU.

Lead and Copper Monitoring

The Water System is required to comply with the Lead and Copper Rule (LCR) and conduct lead and copper tap monitoring during each monitoring period. Compliance with the lead and copper action levels is based on the 90th percentile lead and copper results. The 90th percentile for lead and copper should be less than the lead and copper action levels of 0.015 mg/L and 1.3 mg/L, respectively. A summary of all lead and copper tap monitoring results is outlined in Table 4 below. The next round of lead and copper tap monitoring from the distribution system is due between June 1 and September 30, 2024, see Table 5 below.

Table 4 – Lead and Copper Tap Monitoring Results

Monitoring Period	Sample Date(s)	No. of Samples	Lead 90th Percentile Result (mg/L)	Copper 90th Percentile Result (mg/L)	No. of Samples Exceeding Action Level
3YR2019-2021	7/30/2021	5	0.0	0.0	--
3YR2016-2018	7/27/2018	5	0.0	0.056	--
3YR2013-2015	6/26/2015	5	0.0	0.06	--
3YR2012-2014	6/15/2012	10	0.0	0.037	--
3YR2009-2011	7/29/2009	10	0.005	0.014	1 (Lead)
6M2ND-2000	9/21/2000	10	0.011	0.0	--
6M1ST-2000	4/18/2000	11	0.0	0.0	--

Table 5 – Future Lead and Copper Tap Monitoring Period

Frequency	No. of Samples Required	Monitoring Period	Next Monitoring Period Begin	Next Monitoring Period End	Next Sample Due Date
3 years	5	3YR2022-2024	6/1/2024	9/30/2024	9/30/2024

The Division has established electronic reporting of the lead and copper data via CLIP using the PS Code **CA5400550_DST_LCR**. The Water System must complete and submit a Lead and Copper Tap Sample Results Reporting Form with all subsequent lead and copper monitoring results. A Lead and Copper Tap Sample Results Reporting Form is included in Appendix E.

Disinfection Byproduct (DBP) Monitoring

Due to the implementation of continuous chlorination, the Water System is required to comply with the Stage 2 Disinfection Byproduct Monitoring Rule (DBPR). To comply with Stage 2 DBPR monitoring requirements, the Water System is required to collect one DBP sample from the distribution system every three years during a month of the warmest water temperature. The sample must be analyzed for total trihalomethanes (TTHMs) and haloacetic acids (HAA5s). The results of the Stage 2 DBP monitoring must be sent to the Division electronically using the PS Code listed in Table 6 below.

Table 6 – Stage 2 DBP Monitoring Site

ST2 DBP Monitoring Site	PS Code
ST2S1-15348 Ave 381	CA5400550_DST_900

The last Stage 2 DBP sample was collected in July 2020. The results for TTHMs and HAA5s were 0.011 mg/L and non-detect, respectively. The Water System must monitor again for Stage 2 DBP in July 2023.

Asbestos

Asbestos monitoring from the distribution system is not required since the system does not have any asbestos cement distribution piping.

IV. OPERATIONS AND MAINTENANCE

Operator Certification

The Water System's distribution system is classified as a D1 distribution system and requires a certified distribution system operator with a minimum D1 certification. Mr. Jose Padilla is the Water System's designated operator. Mr. Jose Padilla is a certified D1 distribution operator (Certification No. 27640) and T2 treatment operator (Certification No. 25926). Per Title 22, Section 63770, California Code of Regulations, water systems shall utilize only certified distribution operators to make decisions addressing the following operational activities:

1) Install, tap, re-line, disinfect, test and connect water mains and appurtenances.
2) Shutdown, repair, disinfect and test broken water mains.
3) Oversee the flushing, cleaning, and pigging of existing water mains.
4) Pull, reset, rehabilitate, disinfect and test domestic water wells.
5) Stand-by emergency response duties for after hours distribution system operational emergencies.
6) Drain, clean, disinfect, and maintain distribution reservoirs.

The Water System shall utilize either certified distribution operators or treatment operators that have been trained to make decisions addressing the following operational activities:

1) Operate pumps and related flow and pressure control and storage facilities manually or by using a system control and data acquisition (SCADA) system.
2) Maintain and/or adjust system flow and pressure requirements, control flows to meet consumer demands including fire flow demands and minimum pressure requirements.

The Water System shall utilize either certified distribution operators or treatment operators to make decisions addressing the following operational activities:

1) Determine and control proper chemical dosage rates for wellhead disinfection and distribution residual maintenance.
2) Investigate water quality problems in the distribution system.

Cross Connection Control

Based on the 2021 electronic Annual Report, the Water System does not have a cross connection control program coordinator. The Water System is required to maintain a Cross Connection Control Program which shall include the following elements (as applied from Title 17, California Code of Regulations, Section 7584):

1) The conducting of surveys to identify water user premises or locations where cross connections are likely to occur,
2) The provisions of backflow protection by the water user at the user's connection or within the user's premises or both,
3) The provision of at least one person trained in cross connection control to carry out the cross-connection program,
4) The establishment of a procedure or system for annual testing of backflow preventers, and
5) The maintenance of records of locations, tests, and repairs of backflow preventers.

Backflow Prevention Device Testing

Regulation requires all backflow prevention devices to be tested annually. Copies of the testing records must be kept on file with the Water System for a minimum of three years.

The Water System was directed to complete a cross connection control survey or submit a timeline to the Division for having one completed in the 2018 Sanitary Survey Report. **This directive remains outstanding and the water system is still required to have a cross connection control survey completed by a certified cross connection control specialist.** A cross-connection control guidance document for CWSs is included in Appendix G.

Complaints

The Water System must keep records of all complaints received and actions taken to correct the problems related to the complaints. According to the 2021 electronic Annual Report, the Water System received no customer complaints.

Operations Plan

The Division does not have an approved Operations Plan on file for the Water System. The Water System was directed to complete and submit an Operations Plan to the Division in the 2018 Sanitary Survey Report. **This directive remains outstanding, and the Water System is still required to submit an Operations Plan to the Division for review and approval.** Again, the Operations Plan should include details on the tank-fill modes, set points, low/high-level alarms, and any other programmed operational parameters.

Emergency Notification Plan (ENP)

The current Emergency Notification Plan (ENP) on file with the Division is dated August 23, 2019. The ENP specifies that customers will be notified of an emergency via door-to-door delivery, posted notification, and an emergency notification message system.

The Division has updated contacts for the Tulare District and requires an updated ENP from the Water System. The updated ENP template is provided in Appendix H. **By November 1, 2022, the Water System must submit an updated ENP to the Division.**

Consumer Confidence Report (CCR)

The Water System is required to complete a Consumer Confidence Report (CCR) on an annual basis and provide a copy to all residents and the Division by July 1 of each year. In addition, the Water System is required to provide the Division with a CCR Certification Form by October 1 of each year certifying that the CCR has been distributed to customers. The Water System submitted the 2021 CCR and certification form in June 2022.

Electronic Annual Report (EAR)

All public water systems are required to provide updated water system information to the Division annually in the electronic Annual Report (EAR). Several portions of the 2021 EAR were lacking pertinent information. In the future, the Water System must ensure that all required fields are completed, and information submitted is accurate.

Water System Resiliency and Preparedness

The effects of climate change on CWS facilities and operations is a concern and priority of the Division, which is documented in its Comprehensive Climate Change Resolution No. 2017-12, adopted in March 2017. The Division is reviewing each water system’s preparedness for climate change with the goal to increase awareness and familiarization to the effects of climate change to facilities and operations, encourage the use of EPA’s Climate Resilience Evaluation and Awareness Tool (CREAT) or equivalent, and to document and the CWS’ efforts in climate change.

As part of the 2021 EAR, CWSs were asked to identify their vulnerabilities, and rank them as either high, medium or low sensitivity, and proposed or implemented projects to prepare for the impacts from climate change. The Water System provided responses to these questions and has no sensitivity to low sensitivity to the potential climate-related impacts. The Water System indicated that they were aware of the CREAT tool developed by USEPA for identifying climate change vulnerabilities. It is unclear if the Water System has had an opportunity to use the CREAT (or similar tool) to identify vulnerabilities to the water system sources and facilities. The Division strongly encourages utilities to evaluate climate change vulnerabilities using tools such as CREAT and engaging in a conversation both within your water system organization and with customers on how to plan and prepare for being resilient to provide clean and safe water reliably and adequately under all current and future conditions.

As previously described, the Water System is in the process of consolidating with Yettem, as well as pursuing funding for a new well that will serve Seville in the meantime. In July 2022, the Water System experienced water outages due to lack of source capacity to meet demand. The Water System implemented emergency conservation measures including no outdoor watering. Additionally, the Water System began billing customers based on meter readings in September 2022.

V. APPRAISAL OF SANITARY HAZARDS & PUBLIC HEALTH SAFEGUARDS

The Seville Water Company water system relies primarily on Well 02 to supply the demands of the system and has Well 01 as a backup source for redundancy. The total source capacity of the system is approximately 110 gpm. The total storage capacity of the system is 226,000 gallons.

The Water System recently replaced the distribution system piping and added a 211,000-gallon bolted steel storage tank and booster station as part of a two-phase water system improvement project for the Seville and Yettem water systems. An interconnection between the two water systems and eventual consolidation is forthcoming (Phase two). The Water System was under a long-term Boil Water Notice due to intermittent outages from failing mains (issued June 2015). The Boil Water Notice was rescinded in May 2020. A Boil Water Notice was issued again in July 2022 due to water outages. Wells 01 and 02 were unable to meet demands of the system. The Water System received emergency services to provide bottled water for potable use and hauled water for the distribution system for sanitary purposes.

Wells 01 and 02 produce water with nitrate concentrations greater than one-half the nitrate MCL. The Water System must continue to monitor both sources quarterly for nitrate. The current water quality monitoring schedule and water quality monitoring results can be accessed through the public version of Drinking Water Watch at https://sdwis.waterboards.ca.gov/PDWW/. Overall, the water supply facilities are in good condition and appear to be operating satisfactorily under competent supervision.

The following items need to be addressed by the Water System:

1. By **November 1, 2022**, the Water System must submit an updated emergency notification plan to the Division.

Outstanding directives from the 2018 and 2020 Sanitary Survey Report:

1. The Water System must have a cross connection control survey completed by a certified cross connection control specialist.

2. The Water System must submit an Operations Plan to the Division for review and approval.

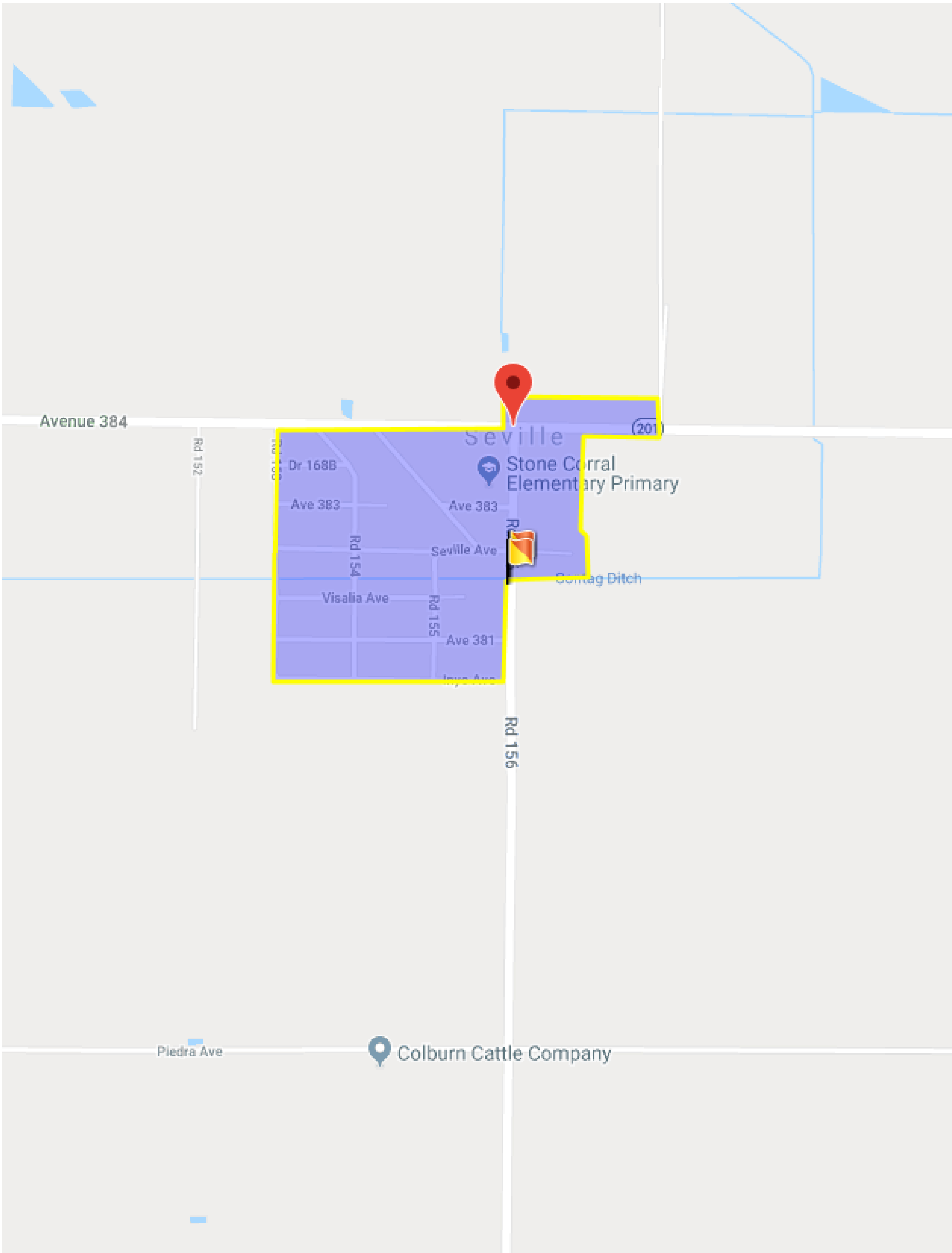
3. The Water System must submit a revised Bacteriological Sample Siting Plan (BSSP) to the Division for review and approval.

<u>Appendices</u>

Appendix A: Location Map & Photo Index
Appendix B: Last Sample & Next Due Date Summary Reports
Appendix C: Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data
Appendix D: Source Water and Distribution System Bacteriological Monitoring Reports
Appendix E: Lead and Copper Tap Sample Results Reporting Form
Appendix F: Guidelines for Completing a Bacteriological Sample Siting Plan (BSSP)
Appendix G: Cross Connection Control Guidance for Community Water Systems
Appendix H: Emergency Notification Plan Template (ENP)
Appendix I: Water System Operations Plan Guidance

Appendix A:
Location Map & Photo Index

Appendix A
Seville Water Company - CA5400550
Location Map



Appendix A
Seville Water Company - CA5400550
Sanitary Survey Photographs

Well 01 (CA5400550_001_001):

- Date Drilled: January 1960
- Depth: 125 feet
- Type: Submersible
- Pump Size: 7.5-hp
- Capacity: 10 gpm

Well 02 (CA5400550_003_003):

- Date Drilled: August 2014
- Depth: 300 feet
- Type: Submersible
- Pump Size: 10-hp
- Capacity: 100 gpm

Chlorination Equipment (1):

- Location: Chlorine solution is injected to the discharge line of Well 02 and blended in the 15,000 gallon storage tank with water from Well 01.
- Storage: 35 gallon poly. tank
- Chemical Pump:
  - ◊ Make: Walchem E-Class
  - ◊ Capacity: 0.6 gph/150 psi

Appendix A
Seville Water Company - CA5400550
Sanitary Survey Photographs

Storage Tank (1):

- Location: Downstream of Wells 01 and 02
- Volume: 15,000 gallons
- Material: Welded steel

Booster Station (1):

Downstream of 15,000 gallon storage tank

Pumps:

- Type: Centrifugal
- Size: 2 x 7.5-hp

Pressure Tanks:

- Volume: 2 x 900 gallons
- Material: Steel

Storage Tank (2):

- Location: Northwestern service area of the distribution system.
- Volume: 211,000 gallons
- Material: Bolted steel

Appendix A
Seville Water Company - CA5400550
Sanitary Survey Photographs

Booster Station (2) — Pumps:

- Location: Downstream of 211,000 gallon storage tank
- Type: Centrifugal
- Size:
  - ◊ Regular Duty: 2 x 15-hp
  - ◊ High-Flow: 1 x 40-hp

Booster Station (2) — Pressure Tank:

- Location: Downstream of booster pumps
- Volume: 5,000 gallons
- Material: Steel

Chlorination Equipment (2):

- Location: Chlorine solution is injected to the discharge line of the booster pumps, upstream of the 5,000 gallon pressure tank.
- Storage: 50 gallon poly. tank
- Chemical Pump:
  - ◊ Make: Grundfos DDA
  - ◊ Capacity: 15.8 gph/145 psi

Appendix B:
Last Sample & Next Due Date Summary Report

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_001_001		SEVILLE WATER COMPANY						WELL 01 - RAW												
	GP	SECONDARY/GP																		
		1928	ALKALINITY, BICARBONATE	170.000		0.000		MG/L	------	-----	8/19/2020	16	36		2023/08		753100120081912456	1371	MOORE TWINING ASSOCIATES, INC.	
		1919	CALCIUM	35.000		0.000		MG/L	------	-----	7/14/2021	49	36		2024/07		75310012107141300G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1929	ALKALINITY, CARBONATE		<	0.000		MG/L	------	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1017	CHLORIDE	27.000		0.000		MG/L	500	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1905	COLOR		<	0.000		UNITS	15	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1022	COPPER, FREE		<	50.000		UG/L	1000	50	8/19/2020	16	36		2023/08		75310012008191245L	1371	MOORE TWINING ASSOCIATES, INC.	
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.000		MG/L	0.5	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1915	HARDNESS, TOTAL (AS CACO3)	157.000		0.000		MG/L	------	-----	7/14/2021	16	36		2024/07		75310012107141300G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	0.000		MG/L	------	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1028	IRON		<	100.000		UG/L	300	100	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1031	MAGNESIUM	17.000		0.000		MG/L	------	-----	7/14/2021	49	36		2024/07		75310012107141300G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1032	MANGANESE		<	20.000		UG/L	50	20	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY   COUNTY: TULARE

Sample Point: WELL 01 - RAW   CLASS: DCSGA   STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_001_001	GP	SECONDARY/GP																		
		1920	ODOR	1.000		1.000		TON	3	1	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1925	PH	8.100		0.000			------	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1050	SILVER		<	10.000		UG/L	100	10	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1052	SODIUM	31.000		0.000		MG/L	------	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	450.000		0.000		UMHO/CM	1600	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1055	SULFATE	24.000		0.500		MG/L	500	0.5	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1930	TDS	300.000		0.000		MG/L	1000	-----	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		0100	TURBIDITY	0.180		0.100		NTU	5	0.1	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
		1095	ZINC		<	50.000		UG/L	5000	50	8/19/2020	16	36		2023/08		75310012008191245G	1371	MOORE TWINING ASSOCIATES, INC.	
	IO	INORGANIC																		
		1002	ALUMINUM	9.100		50.000		UG/L	1000	50	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1005	ARSENIC	1.500		2.000		UG/L	10	2	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	

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System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_001_001	IO	INORGANIC																		
		1010	BARIUM	62.000		100.000		UG/L	1000	100	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1015	CADMIUM		<	1.000		UG/L	5	1	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1020	CHROMIUM		<	10.000		UG/L	50	10	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1025	FLUORIDE	0.170		0.100		MG/L	2	0.1	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1035	MERCURY		<	1.000		UG/L	2	1	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1036	NICKEL		<	10.000		UG/L	100	10	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1039	PERCHLORATE		<	4.000		UG/L	6	4	8/19/2020	100	36		2023/08		75310012008191245I	1186	BC LABORATORIES	
		1045	SELENIUM	1.000		5.000		UG/L	50	5	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	8/19/2020	16	36		2023/08		75310012008191245I	1371	MOORE TWINING ASSOCIATES, INC.	
	NI	NITRATE/NITRITE																		
		1040	NITRATE	6.700		0.400		MG/L	10	0.4	8/9/2022	25	3	Interval	2022/11		VI 2246083-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00
		1041	NITRITE		<	0.400		MG/L	1	0.4	8/19/2020	16	36		2023/08		75310012008191245N	1371	MOORE TWINING ASSOCIATES, INC.	

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System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_001_001	**RA**	**RADIOLOGICAL**																		
		4109	GROSS ALPHA PARTICLE ACTIVITY	2.000		2.000	0.600	PCI/L	15	3	8/18/2014	49	108	Interval	2023/08		75310011408181440R	2920	EUROFINS EATON ANALYTICAL (SOUTH BEND)	
	S1	**REGULATED VOC**																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	8/19/2020	9	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		75310012008191245V	1371	MOORE TWINING ASSOCIATES, INC.	

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System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_001_001	S1	REGULATED VOC																		
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	8/19/2020	9	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2990	BENZENE		<	0.500		UG/L	1	0.5	8/19/2020	9	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	8/19/2020	9	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	8/19/2020	9	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	8/19/2020	36	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2996	STYRENE		<	0.500		UG/L	100	0.5	8/19/2020	9	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2991	TOLUENE		<	0.500		UG/L	150	0.5	8/19/2020	25	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	

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System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 01 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_001_001	**S1**	2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2984	TRICHLORO ETHYLENE		<	0.500		UG/L	5	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2218	TRICHLORO FLUOROMETHANE		<	5.000		UG/L	150	5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2904	TRICHLORO TRIFLUORO ETHANE		<	10.000		UG/L	1200	10	8/19/2020	9	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	8/19/2020	16	36		2023/08		7531001200819124 5V	1371	MOORE TWINING ASSOCIATES, INC.	
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLORO PROPANE		<	0.005		UG/L	0.005	0.005	10/19/2021	36	36		2024/10		VI 2148263-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SRL 524M-TCP
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	8/19/2020	25	36		2023/08		7531001200819124 5S	1371	MOORE TWINING ASSOCIATES, INC.	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	8/19/2020	25	36		2023/08		7531001200819124 5S	1371	MOORE TWINING ASSOCIATES, INC.	
		2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.000		UG/L	0.2	0.01	7/14/2021	16	36		2024/07		7531001210714130 0S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2946	ETHYLENE DIBROMIDE		<	0.000		UG/L	0.05	0.02	7/14/2021	16	36		2024/07		7531001210714130 0S	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2037	SIMAZINE		<	1.000		UG/L	4	1	8/19/2020	25	36		2023/08		7531001200819124 5S	1371	MOORE TWINING ASSOCIATES, INC.	

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System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 02 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_003_003		**SEVILLE WATER COMPANY**						**WELL 02 - RAW**												
	GP	**SECONDARY/GP**																		
		1928	ALKALINITY, BICARBONATE	160.000		0.000		MG/L	------	-----	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1919	CALCIUM	58.000		0.000		MG/L	------	-----	7/14/2021	36	36		2024/07		7531003210714131 0G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1929	ALKALINITY, CARBONATE		<	0.000		MG/L	------	-----	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1017	CHLORIDE	75.000		0.000		MG/L	500	-----	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1905	COLOR		<	0.000		UNITS	15	-----	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1022	COPPER, FREE		<	50.000		UG/L	1000	50	8/19/2020	9	36		2023/08		7531003200819125 0L	1371	MOORE TWINING ASSOCIATES, INC.	
		2905	FOAMING AGENTS (SURFACTANTS)		<	0.000		MG/L	0.5	-----	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1915	HARDNESS, TOTAL (AS CACO3)	211.000		0.000		MG/L	------	-----	7/14/2021	9	36		2024/07		7531003210714131 0G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1021	HYDROXIDE AS CALCIUM CARBONATE		<	0.000		MG/L	------	-----	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1028	IRON		<	100.000		UG/L	300	100	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	
		1031	MAGNESIUM	16.000		0.000		MG/L	------	-----	7/14/2021	36	36		2024/07		7531003210714131 0G	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		1032	MANGANESE	17.000		20.000		UG/L	50	20	8/19/2020	9	36		2023/08		7531003200819125 0G	1371	MOORE TWINING ASSOCIATES, INC.	

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Sample Point: WELL 02 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_003_003	**GP**	**SECONDARY/GP**																		
		1920	ODOR	1.000		1.000		TON	3	1	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1925	PH	8.000		0.000			------	-----	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1050	SILVER		<	10.000		UG/L	100	10	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1052	SODIUM	42.000		0.000		MG/L	------	-----	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1064	CONDUCTIVITY @ 25 C UMHOS/CM	540.000		0.000		UMHO/CM	1600	-----	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1055	SULFATE	22.000		0.500		MG/L	500	0.5	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1930	TDS	330.000		0.000		MG/L	1000	-----	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		0100	TURBIDITY	0.140		0.100		NTU	5	0.1	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
		1095	ZINC		<	50.000		UG/L	5000	50	8/19/2020	9	36		2023/08		75310032008191250G	1371	MOORE TWINING ASSOCIATES, INC.	
	IO	**INORGANIC**																		
		1002	ALUMINUM	4.900		50.000		UG/L	1000	50	8/19/2020	9	36		2023/08		75310032008191250I	1371	MOORE TWINING ASSOCIATES, INC.	
		1074	ANTIMONY, TOTAL		<	6.000		UG/L	6	6	8/19/2020	9	36		2023/08		75310032008191250I	1371	MOORE TWINING ASSOCIATES, INC.	
		1005	ARSENIC	1.800		2.000		UG/L	10	2	8/19/2020	9	36		2023/08		75310032008191250I	1371	MOORE TWINING ASSOCIATES, INC.	

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Sample Point: WELL 02 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_003_003	IO	INORGANIC																		
		1010	BARIUM	76.000		100.000		UG/L	1000	100	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1075	BERYLLIUM, TOTAL		<	1.000		UG/L	4	1	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1015	CADMIUM		<	1.000		UG/L	5	1	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1020	CHROMIUM	3.900		10.000		UG/L	50	10	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1025	FLUORIDE		<	0.100		MG/L	2	0.1	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1035	MERCURY		<	1.000		UG/L	2	1	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1036	NICKEL	3.000		10.000		UG/L	100	10	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1039	PERCHLORATE		<	4.000		UG/L	6	4	8/19/2020	16	36		2023/08		7531003200819125 0I	1186	BC LABORATORIES	
		1045	SELENIUM	1.600		5.000		UG/L	50	5	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
		1085	THALLIUM, TOTAL		<	1.000		UG/L	2	1	8/19/2020	9	36		2023/08		7531003200819125 0I	1371	MOORE TWINING ASSOCIATES, INC.	
	NI	NITRATE/NITRITE																		
		1040	NITRATE	6.000		0.400		MG/L	10	0.4	8/9/2022	29	3	Interval	2022/11		VI 2246083-002	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SM 4500-NO3-F-00
		1041	NITRITE		<	0.400		MG/L	1	0.4	8/19/2020	9	36		2023/08		7531003200819125 0N	1371	MOORE TWINING ASSOCIATES, INC.	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 02 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_003_003	RA	RADIOLOGICAL																		
		4109	GROSS ALPHA PARTICLE ACTIVITY		<	2.100	2.000	PCI/L	15	3	1/15/2018	64	108	Interval	2027/01		75310031801151230R	2920	EUROFINS EATON ANALYTICAL (SOUTH BEND)	
	S1	REGULATED VOC																		
		2981	1,1,1-TRICHLOROETHANE		<	0.500		UG/L	200	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2988	1,1,2,2-TETRACHLOROETHANE		<	0.500		UG/L	1	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2985	1,1,2-TRICHLOROETHANE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2978	1,1-DICHLOROETHANE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2977	1,1-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2378	1,2,4-TRICHLOROBENZENE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2968	O-DICHLOROBENZENE		<	0.500		UG/L	600	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2980	1,2-DICHLOROETHANE		<	0.500		UG/L	0.5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2983	1,2-DICHLOROPROPANE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 02 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_003_003	S1	REGULATED VOC																		
		2413	1,3-DICHLOROPROPENE		<	0.500		UG/L	0.5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2969	P-DICHLOROBENZENE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2990	BENZENE		<	0.500		UG/L	1	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2982	CARBON TETRACHLORIDE		<	0.500		UG/L	0.5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2380	CIS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	6	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2964	DICHLOROMETHANE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2992	ETHYLBENZENE		<	0.500		UG/L	300	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2251	METHYL TERT-BUTYL ETHER		<	3.000		UG/L	13	3	8/9/2022	11	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2989	CHLOROBENZENE		<	0.500		UG/L	70	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2996	STYRENE		<	0.500		UG/L	100	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2987	TETRACHLOROETHYLENE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2991	TOLUENE		<	0.500		UG/L	150	0.5	8/9/2022	7	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: WELL 02 - RAW CLASS: DCSGA STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_003_003	**S1**	2979	TRANS-1,2-DICHLOROETHYLENE		<	0.500		UG/L	10	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2984	TRICHLOROETHYLENE		<	0.500		UG/L	5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2218	TRICHLOROFLUOROMETHANE		<	5.000		UG/L	150	5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2904	TRICHLOROTRIFLUOROETHANE		<	10.000		UG/L	1200	10	8/9/2022	4	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2976	VINYL CHLORIDE		<	0.500		UG/L	0.5	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
		2955	XYLENES, TOTAL		<	0.500		UG/L	1750	0.5	8/9/2022	5	36		2025/08		VI 2246084-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	EPA 524.2
	S2	**REGULATED SOC**																		
		2414	1,2,3-TRICHLOROPROPANE		<	0.005		UG/L	0.005	0.005	10/19/2021	36	36		2024/10		VI 2148264-001	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	SRL 524M-TCP
		2051	LASSO (ALACHLOR)		<	1.000		UG/L	2	1	8/19/2020	9	36		2023/08		7531003200819125OS	1371	MOORE TWINING ASSOCIATES, INC.	
		2050	ATRAZINE		<	0.500		UG/L	1	0.5	8/19/2020	9	36		2023/08		7531003200819125OS	1371	MOORE TWINING ASSOCIATES, INC.	
		2931	1,2-DIBROMO-3-CHLOROPROPANE		<	0.000		UG/L	0.2	0.01	7/14/2021	9	36		2024/07		7531003210714131OS	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2946	ETHYLENE DIBROMIDE		<	0.000		UG/L	0.05	0.02	7/14/2021	9	36		2024/07		7531003210714131OS	1573	FGL ENVIRONMENTAL (SANTA PAULA, CA)	
		2037	SIMAZINE		<	1.000		UG/L	4	1	8/19/2020	9	36		2023/08		7531003200819125OS	1371	MOORE TWINING ASSOCIATES, INC.	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY COUNTY: TULARE

Sample Point: ST2S1-15348 AVE 381 CLASS: DBPT STATUS: Active

PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_DST_900		SEVILLE WATER COMPANY						ST2S1-15348 AVE 381												
	DBP	DISINFECTION BYPRODUCTS																		
		2943	BROMODICHLOROMETHANE	2.200		1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2942	BROMOFORM	4.000		1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2941	CHLOROFORM	1.500		1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2454	DIBROMOACETIC ACID		<	1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2944	DIBROMOCHLOROMETHANE	3.700		1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2451	DICHLOROACETIC ACID		<	1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2456	TOTAL HALOACETIC ACIDS (HAA5)		<	0.000		UG/L	60	-----	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2453	MONOBROMOACETIC ACID		<	1.000		UG/L	------	1	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2450	MONOCHLOROACETIC ACID		<	2.000		UG/L	------	2	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	
		2950	TTHM	11.000		0.000		UG/L	80	-----	7/10/2020	16	36		2023/07		7531900200710113 0D	1371	MOORE TWINING ASSOCIATES, INC.	

"Mod" field: "Interval", formerly seen as "M", means the sample Frequency was modified. "Date", formerly seen as "I", means the Next Required sample date was modified.

System: SEVILLE WATER COMPANY COUNTY:

Sample Point: CLASS: DBPT STATUS:

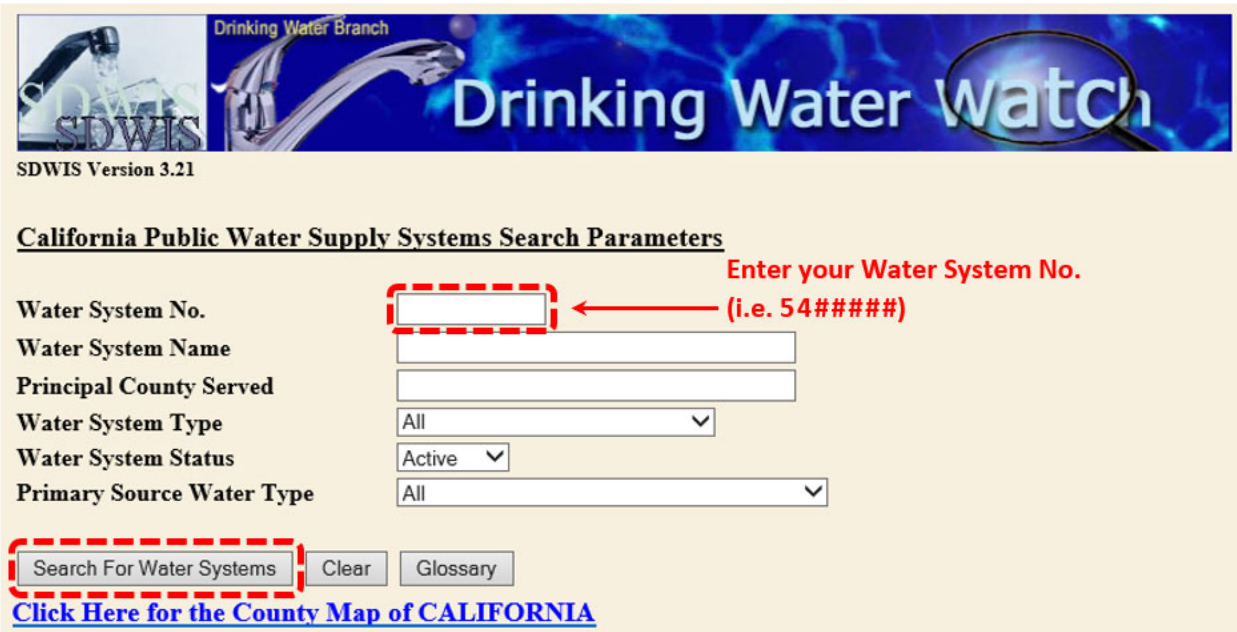
PSCODE	GC	GROUP/ANALYTE		LAST RESULT	LESS THAN	REPORTING LEVEL	COUNTING ERROR (±)	UOM	MCL	DLR	LAST SAMPLE	COUNT OF RESULTS	FREQ MONTHS	MOD	NEXT SAMPLE DUE	NOTES	SAMPLE ID	LAB ID	LAB NAME	METHOD
CA5400550_DST_900	**DBP**	2452	TRICHLORO ACETIC ACID		<	1.000		UG/L	------	1	7/10/2020	16	36		2023/07		75319002007101130D	1371	MOORE TWINING ASSOCIATES, INC.	

Appendix C:
Instructions for Accessing Individual Water System's Water Monitoring Schedule and Water Quality Data

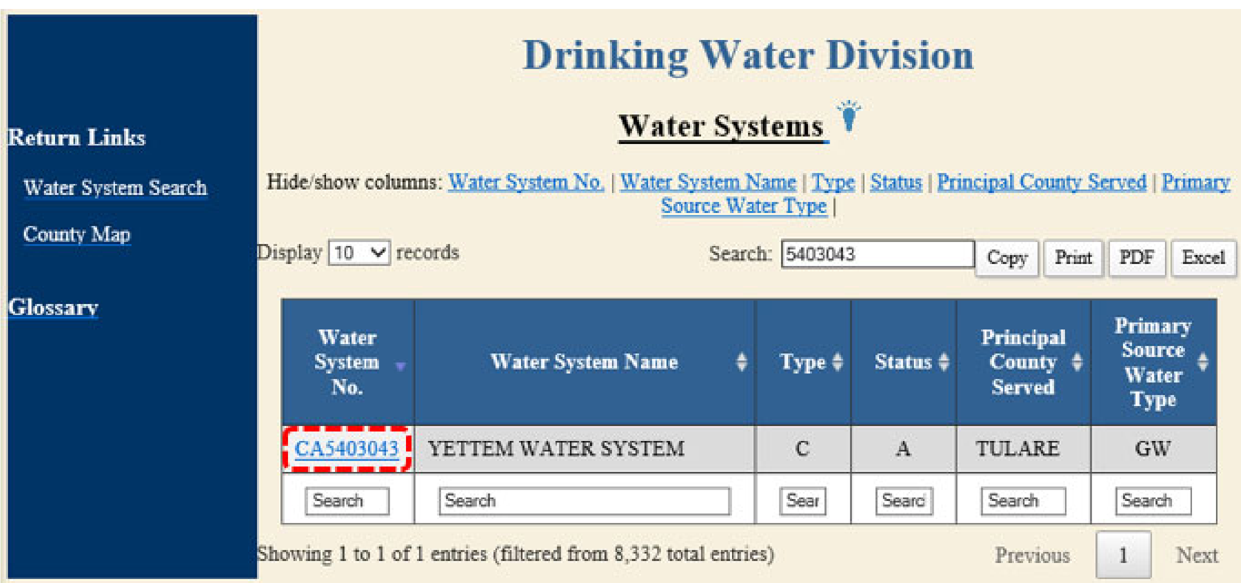
How To Access Individual System's Drinking Water Monitoring Schedule & Water Quality Data

1. Place the following link in the internet address bar:
   https://sdwis.waterboards.ca.gov/PDWW/

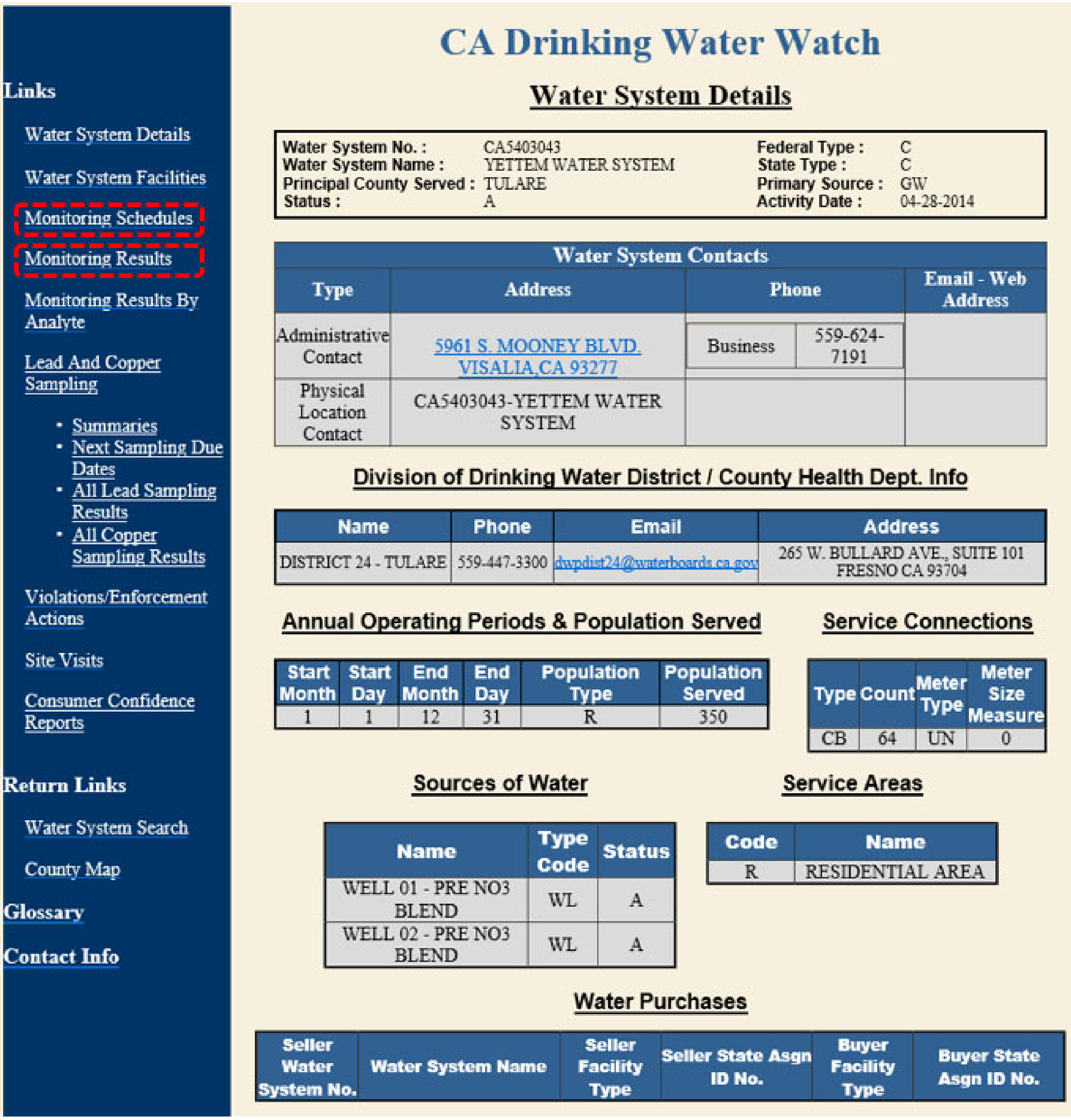
2. Enter your Water System No. and select "Search For Water Systems"



3. Click on your Water System No. (Link in blue text).



4. On the left side of the screen, select ***Monitoring Schedules*** for source monitoring schedule (last sample and next due dates) *or* ***Monitoring Results*** for water quality results.



Links

- Water System Details
- Water System Facilities
- Monitoring Schedules
- Monitoring Results
- Monitoring Results By Analyte
- Lead And Copper Sampling
  - Summaries
  - Next Sampling Due Dates
  - All Lead Sampling Results
  - All Copper Sampling Results
- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports

Return Links

- Water System Search
- County Map

Glossary

Contact Info

CA Drinking Water Watch

Water System Details

Water System No. :	CA5403043	Federal Type :	C
Water System Name :	YETTEM WATER SYSTEM	State Type :	C
Principal County Served :	TULARE	Primary Source :	GW
Status :	A	Activity Date :	04-28-2014

Water System Contacts

Type	Address	Phone		Email - Web Address
Administrative Contact	5961 S. MOONEY BLVD. VISALIA,CA 93277	Business	559-624-7191	
Physical Location Contact	CA5403043-YETTEM WATER SYSTEM			

Division of Drinking Water District / County Health Dept. Info

Name	Phone	Email	Address
DISTRICT 24 - TULARE	559-447-3300	dwpdist24@waterboards.ca.gov	265 W. BULLARD AVE., SUITE 101 FRESNO CA 93704

Annual Operating Periods & Population Served

Start Month	Start Day	End Month	End Day	Population Type	Population Served
1	1	12	31	R	350

Service Connections

Type	Count	Meter Type	Meter Size Measure
CB	64	UN	0

Sources of Water

Name	Type Code	Status
WELL 01 - PRE NO3 BLEND	WL	A
WELL 02 - PRE NO3 BLEND	WL	A

Service Areas

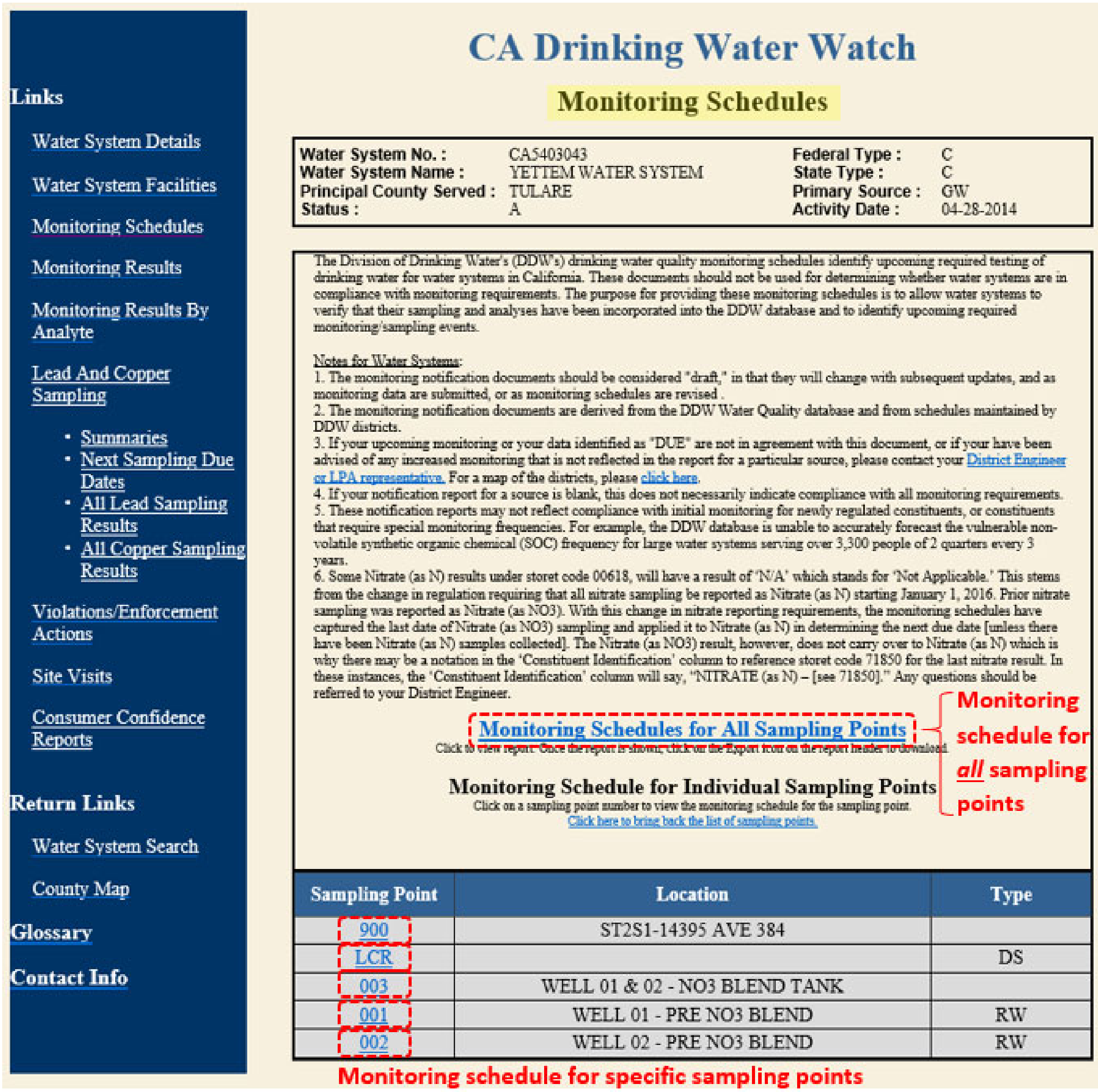
Code	Name
R	RESIDENTIAL AREA

Water Purchases

Seller Water System No.	Water System Name	Seller Facility Type	Seller State Asgn ID No.	Buyer Facility Type	Buyer State Asgn ID No.

5. Select Sampling Point corresponding to the source (Link in blue text and is a number).

5A. *Monitoring Schedules*



Links

Water System Details

Water System Facilities

Monitoring Schedules

Monitoring Results

Monitoring Results By Analyte

Lead And Copper Sampling

- Summaries
- Next Sampling Due Dates
- All Lead Sampling Results
- All Copper Sampling Results

Violations/Enforcement Actions

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Consumer Confidence Reports

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Contact Info

CA Drinking Water Watch

Monitoring Schedules

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

The Division of Drinking Water's (DDW's) drinking water quality monitoring schedules identify upcoming required testing of drinking water for water systems in California. These documents should not be used for determining whether water systems are in compliance with monitoring requirements. The purpose for providing these monitoring schedules is to allow water systems to verify that their sampling and analyses have been incorporated into the DDW database and to identify upcoming required monitoring/sampling events.

Notes for Water Systems:

1. The monitoring notification documents should be considered "draft," in that they will change with subsequent updates, and as monitoring data are submitted, or as monitoring schedules are revised .
2. The monitoring notification documents are derived from the DDW Water Quality database and from schedules maintained by DDW districts.
3. If your upcoming monitoring or your data identified as "DUE" are not in agreement with this document, or if your have been advised of any increased monitoring that is not reflected in the report for a particular source, please contact your District Engineer or LPA representative. For a map of the districts, please click here.
4. If your notification report for a source is blank, this does not necessarily indicate compliance with all monitoring requirements.
5. These notification reports may not reflect compliance with initial monitoring for newly regulated constituents, or constituents that require special monitoring frequencies. For example, the DDW database is unable to accurately forecast the vulnerable non-volatile synthetic organic chemical (SOC) frequency for large water systems serving over 3,300 people of 2 quarters every 3 years.
6. Some Nitrate (as N) results under storet code 00618, will have a result of 'N/A' which stands for 'Not Applicable.' This stems from the change in regulation requiring that all nitrate sampling be reported as Nitrate (as N) starting January 1, 2016. Prior nitrate sampling was reported as Nitrate (as NO3). With this change in nitrate reporting requirements, the monitoring schedules have captured the last date of Nitrate (as NO3) sampling and applied it to Nitrate (as N) in determining the next due date [unless there have been Nitrate (as N) samples collected]. The Nitrate (as NO3) result, however, does not carry over to Nitrate (as N) which is why there may be a notation in the 'Constituent Identification' column to reference storet code 71850 for the last nitrate result. In these instances, the 'Constituent Identification' column will say, "NITRATE (as N) – [see 71850]." Any questions should be referred to your District Engineer.

Monitoring Schedules for All Sampling Points

Click to view report. Once the report is shown, click on the Export icon on the report header to download.

Monitoring schedule for *all* sampling points

Monitoring Schedule for Individual Sampling Points

Click on a sampling point number to view the monitoring schedule for the sampling point.

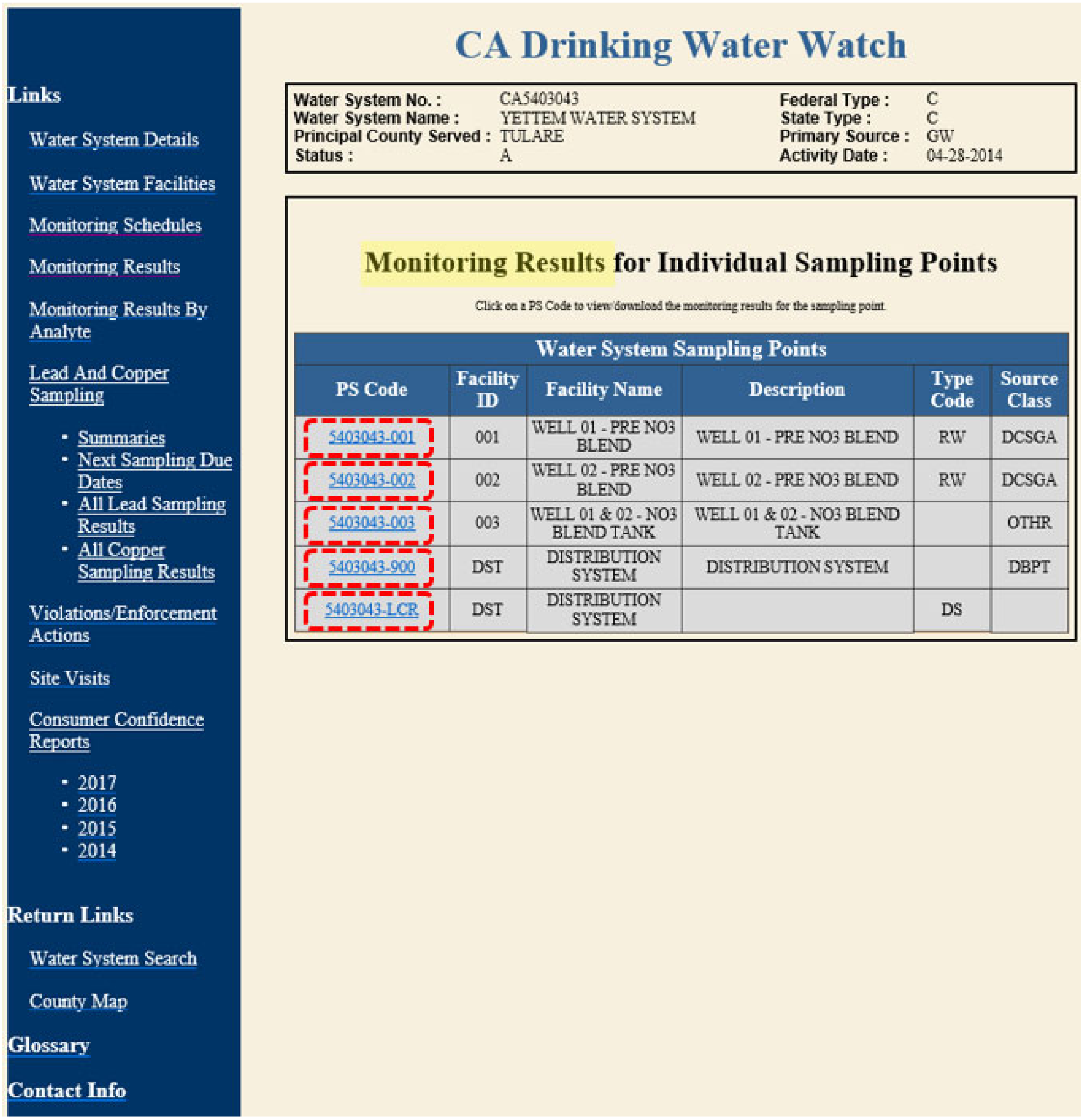
Click here to bring back the list of sampling points.

Sampling Point	Location	Type
900	ST2S1-14395 AVE 384	
LCR		DS
003	WELL 01 & 02 - NO3 BLEND TANK	
001	WELL 01 - PRE NO3 BLEND	RW
002	WELL 02 - PRE NO3 BLEND	RW

Monitoring schedule for specific sampling points

NOTE: Any *past due* monitoring will have "DUE NOW" in the far-right column. **Please schedule this monitoring as soon as possible.**

5B. ***Monitoring Results***



CA Drinking Water Watch

Links

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  - Summaries
  - Next Sampling Due Dates
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- Violations/Enforcement Actions
- Site Visits
- Consumer Confidence Reports
  - 2017
  - 2016
  - 2015
  - 2014

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- Water System Search
- County Map

Glossary

Contact Info

Water System No. :	CA5403043	**Federal Type :**	C
Water System Name :	YETTEM WATER SYSTEM	**State Type :**	C
Principal County Served :	TULARE	**Primary Source :**	GW
Status :	A	**Activity Date :**	04-28-2014

Monitoring Results for Individual Sampling Points

Click on a PS Code to view/download the monitoring results for the sampling point.

Water System Sampling Points

PS Code	Facility ID	Facility Name	Description	Type Code	Source Class
5403043-001	001	WELL 01 - PRE NO3 BLEND	WELL 01 - PRE NO3 BLEND	RW	DCSGA
5403043-002	002	WELL 02 - PRE NO3 BLEND	WELL 02 - PRE NO3 BLEND	RW	DCSGA
5403043-003	003	WELL 01 & 02 - NO3 BLEND TANK	WELL 01 & 02 - NO3 BLEND TANK		OTHR
5403043-900	DST	DISTRIBUTION SYSTEM	DISTRIBUTION SYSTEM		DBPT
5403043-LCR	DST	DISTRIBUTION SYSTEM		DS	

6. Please contact the Tulare District Office at (559) 447-3300 or DWPDIST24@waterboards.ca.gov if you have any questions.

Appendix D:
Source Water and Distribution System Bacteriological Monitoring Reports

Bacteriological Distribution Monitoring Report

5400550 Seville Water Company

Distribution System Freq: 1/M

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
9/22/2022	Stone Corral SP	A	A			Routine	1.31				
8/9/2022	Stone Corral SP	A	A			Routine	0.83				
7/15/2022	Stone Corral SP	A	A			Routine	0.75				
7/11/2022	See Notes										BWN issued per KW-TW (water outage).
6/13/2022	Stone Corral SP	A	A			Routine	0.96				
5/16/2022	Stone Corral SP	A	A			Routine	1.03				
4/25/2022	Stone Corral Sample Point	A	A			Routine	1.13				
3/28/2022	Stone Corral Sample Point	A	A			Routine	0.45				
2/10/2022	Stone Corral SP	A	A			Routine	0.40				
1/24/2022	Stone Corral SP	A	A			Routine	1.16				
12/28/2021	Sample Point	A	A			Routine	1.09				
11/19/2021	Stone Corral Sample Point	A	A			Routine	0.29				
10/19/2021	Stone Corral Sample Point	A	A			Routine	0.6				
9/28/2021	Stone Corral Sample Point	A	A			Routine	0.33				
9/28/2021	Stone Corral Sample Point	A	A			Routine	0.33				
8/23/2021	Stone Corral Sampling Point	A	A			Routine	1.09				
7/14/2021	Stone Corral SP	A	A			Routine	0.85				
6/21/2021	Stone Corral SP	A	A			Routine	0.29				
5/26/2021	Wells: 01,02	<1.0	<1.0			Source Repeat				Yes	GWR satisfied
5/26/2021	Tank	<1.0	<1.0			Repeat	0.84				
5/26/2021	Stone Corral SP	<1.0	<1.0			Repeat	1.32				
5/26/2021	15455 Ave 381	<1.0	<1.0			Repeat	1.41				
5/26/2021	38111 Rd 155	<1.0	<1.0			Repeat	1.27				
5/24/2021	Stone Corral SP	A	A			Routine	1.32				
4/20/2021	Stone Corral Sample Point	A	A			Routine	0.45				
3/12/2021	Stone Corral SP	A	A			Routine	0.44				
2/18/2021	Stone Corral SP	A	A			Routine	0.57				
1/18/2021	Stone Corral SP	A	A			Routine	0.58				
12/21/2020	Stone Corral Sample Point	A	A			Routine	0.41				
11/1/2020	No sample								MR1		Cit 03-24-21C-010
10/26/2020	Stone Corral SP	A	A			Routine	0.42				
9/28/2020	Stone corral sample point	A	A			Routine	1.52				
8/14/2020	38256 Rd 156 HB	A	A			Routine	0.74				
7/16/2020	4 samples	<1.0	<1.0			Other	1.4-1.7				
7/10/2020	15361 Ave 383	A	A			Routine	0.64				
7/8/2020	5 samples	<1.0	<1.0			Other					
7/8/2020	5 samples	<1.0	<1.0			Other	0.46-0.96				
7/1/2020	See Notes										BWN issued per BP (intermittent outages)
6/5/2020	15491 Visalia HB	A	A			Routine	1.1				
5/27/2020	5 samples	<1.0	<1.0			Other	0.42-0.61				special samples/Stone Corral Elementary Scho

Sample Date	Location	T Coli	E Coli	F Coli	HPC	Type	Cl2	Cl2 Avg	Viol. Type	GWR Satisfied?	Comments
5/15/2020	See Comments										BWN (2015-6) Cancelled, per BGP
5/13/2020	15316 Ave 383	<1.0	<1.0			Other	0.63				
5/13/2020	Seville/Rd 153	<1.0	<1.0			Other	0.81				
5/13/2020	Inyo Ave/Rd154	<1.0	<1.0			Other	0.74				
5/13/2020	Visalia/Rd 155	<1.0	<1.0			Other	0.61				
5/13/2020	Ave 384/Rd156	<1.0	<1.0			Other	0.61				
5/11/2020	15361 Ave 383	<1.0	<1.0			Other	0.83				
5/11/2020	Seville Ave Rd 153	<1.0	<1.0			Other	0.79				
5/11/2020	Inya Ave Rd 154	<1.0	<1.0			Other	0.84				
5/11/2020	Visalia Ave Rd 155	<1.0	<1.0			Other	0.87				
5/11/2020	Ave 383/Rd 156	<1.0	<1.0			Other	0.88				
5/5/2020	Stone Corral Rm 5	A	A			Routine	0.75				
4/3/2020	15491 Visalia Ave	A	A			Routine	0.77				
3/4/2020	15361 Front HB	A	A			Routine	0.63				
2/7/2020	15491 Visalia Ave	A	A			Routine	0.51				
1/10/2020	New Storage Tank	<1.0	<1.0			Other	1.6				
1/3/2020	Stone Corral Elem Rm 5	A	A			Routine					
12/6/2019	38256 Rd 156	A	A			Routine			MR9		
11/25/2019	5 samples	<1.0	<1.0			Other	0.89-1.46				
10/17/2019	13 samples	A	A			Other	2.00-2.06				Special distribution system samples during construction.
10/16/2019	13 samples	A	A			Other	2.00-2.06				Special distribution system samples during construction.
10/4/2019	15491 Visalia Ave	A	A			Routine	1.5				
9/4/2019	Stone Corral Elem Room 5	A	A			Routine	0.40				
8/9/2019	38256 Rd 156 HB	A	A			Routine					
7/15/2019	15361 Ave 383	A	A			Routine	0.97				
6/20/2019	15515 Ave 381	A	A			Other	0.91				Line repair sample
6/20/2019	38256 Rd 156	A	A			Other	0.87				Line repair sample
6/20/2019	Stone Corral Rm 5	A	A			Other	0.96				Line repair sample
6/7/2019	15491 Visalia Ave	A	A			Routine	0.41				
5/9/2019	Stone Corral Elem Room #5	A	A			Routine	0.84				
4/12/2019	38256 Rd 156	A	A			Routine			MR9		Chlorine residual not on report
3/13/2019	15362 Ave 383	A	A			Routine	0.68				
2/4/2019	15491 Visalia Ave	A	A			Routine	0.35				
1/23/2019	Stone Corral Room #5	A	A			Routine	0.78				

Violation Key

MCL	Exceeds the maximum contaminant level	MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR1	No monthly sample for the report month	MR6	No source sample
MR2	No quarterly sample for the report month	MR7	No summary report submitted
MR3	Incorrect number of routine samples for the report month	MR8	Other comments and/or info
MR4	Did not collect 5 routine samples for previous month's positive sample	MR9	Cl2 not reported

Source Bacteriological Monitoring Report

5400550 Seville Water Company

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
9/22/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
8/9/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
7/15/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
6/13/2022		Wells; 01,02	Well	QTray	<1.0	<1.0				
5/16/2022		Wells: 01,02	Well	QTray	<1.0	<1.0				
4/25/2022	14:40	Well 02 - Raw	Well	Qtray	<1.0	<1.0				
4/25/2022	14:50	Well 01 - Raw	Well	Qtray	<1.0	<1.0				
3/21/2022	13:15	Well 01 Raw	Well	Qtray	<1.0	<1.0				
3/21/2022	13:20	Well 02 Raw	Well	Qtray	<1.0	<1.0				
2/10/2022	13:00	Well 01	Well	Qtray	<1.0	<1.0				
2/10/2022	13:10	Well 02	Well	Qtray	<1.0	<1.0				
1/24/2022		Wells: 1,2	Well	QTray	<1.0	<1.0				
12/28/2021	11:20	Well 01	Well	Qtray	<1.0	<1.0				
12/28/2021	11:30	Well 02	Well	Qtray	<1.0	<1.0				
11/19/2021	12:45	Well 01	Well	Qtray	<1.0	<1.0				
11/19/2021	12:55	Well 02	Well	Qtray	<1.0	<1.0				
10/19/2021	12:50	Well 01 RAW	Well	Qtray	2	<1				
10/19/2021	13:00	Well 02 RAW	Well	Qtray	<1	<1				
9/28/2021	12:50	Well 01	Well	Qtray	<1.0	<1.0				
9/28/2021	12:50	Well 01	Well	Qtray	<1.0	<1.0				
9/28/2021	12:55	Well 02	Well	Qtray	<1.0	<1.0				
9/28/2021	12:55	Well 02	Well	Qtray	<1.0	<1.0				
8/23/2021	13:25	Well 02- Raw	Well	Qtray	<1.0	<1.0				
8/23/2021	13:30	Well 01- Raw	Well	Qtray	<1.0	<1.0				
7/14/2021		Wells: 01,02	Well	QTray	<1.0	<1.0				
6/21/2021		Wells: 01, 02	Well	QTray	<1.0	<1.0				
5/26/2021		Wells: 01,02	GWR Well	QTray	<1.0	<1.0				
5/24/2021	14:15	Well 01	Well	QTray	9.9	<1.0				
5/24/2021	14:25	Well 02	Well	QTray	>200.5	<1.0				
4/20/2021		Wells: 01,02	Well	Qtray	<1.0	<1.0				
3/12/2021		Wells: 1,2	Well	Qtray	<1.0	<1.0				
2/18/2021		Wells: 01,02	Well	Qtray	<1.0	<1.0				
1/18/2021		Wells: 1,2	Well	QTray	<1.0	<1.0				
12/21/2020	10:00	Wells: 1,2	Well	Qtray	<1	<1				
10/26/2020		Wells: 1,2	Well	Qtray	<1.0	<1.0				
9/28/2020		Wells: 01, 02	Well	Qtray	<1.0	<1.0				
8/14/2020		Wells: 1,2	Well	Qtray	<1.0	<1.0				
7/10/2020		Wells: 1,2	Well	Qtray	<1.0	<1.0				
6/5/2020		Wells: 01, 02	Well	Qtray	<1.0	<1.0				
5/5/2020		Wells; 01, 02	Well	QTray	<1.0	<1.0				
4/3/2020		Wells: 01, 02	Well	QTray	<1.0	<1.0				

5400550 Seville Water Company

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
3/4/2020		Wells: 1,2	Well	QTray	<1.0	<1.0				
2/7/2020		Wells: 01, 02	Well	QTray	<1.0	<1.0				
1/3/2020	10:40	Wells: 01, 02	Well	QTray	<1.0	<1.0				
12/6/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
10/4/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
9/4/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
8/9/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
7/15/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
6/7/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
5/9/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
4/12/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
3/13/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
2/4/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				
1/23/2019		Wells: 01,02	Well	QTray	<1.0	<1.0				

Appendix E:
Lead and Copper Tap Sample Results Reporting Form

State Water Resources Control Board

Division of Drinking Water

Lead and Copper Tap Sample Results Reporting Form

This form must be submitted to the regulating entity (DDW District Office or County Agency) for each round of lead and copper sampling

		Sampling Site Change
Report Date: (mm/dd/yyyy)		
Water System Name:		***If any sampling sites were changed, please list the old site, new site, and reason for the change in the box below.***
Water System Number:		
Sample Schedule:	◯ 6-month ◯ Annual ◯ Triennial	
# of Samples Required:		
# of Samples Reported:		
	90th Percentile Level (mg/L)	
Lead:		
Copper:		

	Sample Date	Sample Site Location/Address	Tier 1, 2 or 3	Result Lead (mg/L)	Result Copper (mg/L)
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					

Number of Tap Sample Sites Required

The number of tap sample sites required is based on the number of people served (system size) by your water system and also whether you are performing Standard or Reduced Monitoring (*CCR §64675*).

System Size	**Minimum Number of Sites**	
	Standard Tap Sampling	Reduced Tap Sampling
> 100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
< 101	5	5

Determining the 90th Percentile Lead and Copper Level

Number of Tap Samples Collected	**Determination of 90th Percentile Lead or Copper Level**
5	Average the 4th and 5th highest sample results to get the 90th percentile level
More than 5	Place results in ascending order and assign each sample a number, 1 for the lowest concentration. Multiply the total number of samples by 0.9. Round down to the nearest whole number if the decimal is 0.4 or lower and round up if the decimal is 0.5 or higher. The sample result that corresponds with the nearest whole number is the 90th percentile.

Notification of Results

As required by *40 Code of Federal Regulations Section 141.85(d)*, within 30 days of learning of the tap monitoring results, I notified the participants, by mailing or by another method approved by the State, of the lead sample results from their individual taps, provided an explanation of the health effects of lead, listed steps the consumer could take to reduce exposure to lead, provided contact information for the water utility, the maximum contaminant level goal for lead, action level for lead, and any definitions.

Notification was done on: ______________________________ (date)

SIGNATURE:	**DATE:**
NAME (Print):	**TITLE:**

Division of Drinking Water
Lead and Copper Tap Sample Results Reporting Form

Additional Samples

				Result	
	Sample Date	**Sample Site Location/Address**	**Tier** 1, 2 or 3	**Lead (mg/L)**	**Copper (mg/L)**
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
31					
32					
33					
34					
35					
36					
37					
38					
39					
40					
41					
42					
43					
44					
45					
46					
47					
48					
49					
50					

Appendix F:
Bacteriological Sample Siting Plan Template

Division of Drinking Water
Tulare District

GUIDELINES FOR COMPLETING THE BACTERIOLOGICAL SAMPLE SITING PLAN FOR SMALL WATER SYSTEMS

The total coliform regulation requires the water supplier to submit a bacteriological sample siting plan to the Division of Drinking Water (Division), District Office for review and approval. The locations where samples are to be collected must be written down and formally approved by the District Office. These guidelines and Attachment 1, "Bacteriological Sample Siting Plan" Form, are to assist you in complying with these requirements.

To comply with the requirements for submitting a Bacteriological Sample Siting Plan, two (2) items must be submitted to the District Office at this time.

1. A system map, street map, or system schematic showing all sampling locations must be submitted. The map can be prepared by any system representative. It <u>does not have to be prepared by an engineer</u>. The following are also to be shown on the map:

    - Water Sources (i.e., well or spring)
    - Treatment Facilities (i.e., chlorination)
    - Storage Tanks
    - Pressure Reducing Stations
    - Booster Stations
    - Pressure Zones
    - Dead Ends
    - Service Area Boundaries
    - Routine Sample Sites
    - Repeat Sample Sites
    - Special Sample Sites

2. Complete Attachment 1, the "Bacteriological Sample Siting Plan" form, and **return the system map and form to the District Office for review and approval**.

    Once the Bacteriological Sample Siting Plan has been approved by the Division, copies should be provided to the person responsible for sample collection, the laboratory and the person responsible for reporting coliform-positive samples to the Division.

<u>Selection of Sampling Sites</u>

The routine sampling sites chosen must be representative of the water distribution system including all pressure zones, areas supplied by each water source and distribution reservoir.

<u>Looped Systems</u>: If your entire water distribution system is looped, then one routine sample point may be representative of your system, assuming valves are open.

<u>Pressure Zones</u>: You should only be concerned about sampling in different pressure zones if your water system serves different areas of varying elevations, for example in mountainous areas.

How many routine sampling sites are required?

The minimum number of samples for the water system shall be based on the known population served or the total number of service connections, whichever results in the greater number of samples, as shown in Table 64423-A. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

Table 64423-A

Minimum Number of Routine Total Coliform Samples

Monthly Population Served1	*Service Connections*	*Minimum Number of Samples Per Month*
25 to 1000	15 to 400	1
1,001 to 2,500	401 to 890	2
2,501 to 3,300	891 to 1,180	3
3,301 to 4,100	1,181 to 1,460	4
4,101 to 4,900	1,461 to 1,750	5
4,901 to 5,800	1,751 to 2,100	6
5,801 to 6,700	2,101 to 2,400	7
6,701 to 7,600	2,401 to 2,700	8
7,601 to 8,500	2,701 to 3,000	9
8,501 to 12,900	3,001 to 4,600	10
12,901 to 17,200	4,601 to 6,100	15
17,201 to 21,500	6,101 to 7,700	20
21,501 to 25,000	7,701 to 8,900	25
25,001 to 33,000	8,901 to 11,800	30
33,001 to 41,000	11,801 to 14,600	40
41,001 to 50,000	14,601 to 17,900	50
50,001 to 59,000	17,901 to 21,100	60
59,001 to 70,000	21,101 to 25,000	70

1 For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

How many repeat sampling sites are required?

A repeat sample set consists of three samples to be collected from the following locations:

- One repeat sample from the same routine location.
- One repeat sample from an *upstream location* (within 5 connections of the routine site).
- One repeat sample from a *downstream location* (within 5 connections of the routine site).

Each routine sample site must have identified repeat sample sites.

Ground Water Rule Compliance: All active groundwater sources in operation at the time of the coliform-positive sample must also be sampled along with the repeat sample set.

What if the water system does not have enough locations to select the required number of routine and repeat sample sites?

If the water system does not have enough sample locations to identify the required routine and repeat sample sites, contact the District Office for further guidance.

Pointers for Sample Site Selection

- When selecting a routine sample site you should be able to select a site upstream and a site downstream for repeat sampling.
- Select a site where the water is used continuously all year round.
- Pick a site that is easily accessible, i.e., a fenced yard with a locked gate and vicious dog is not a good selection.
- When choosing a sampling tap you should consider these factors:
  The sampling tap should be located in as clean an environment as possible. It should be protected from contamination by humans, animals, airborne materials or other sources of contamination.

  If you choose an outside private tap, it should be one that is in frequent use, clean, and at least 1½ feet (18 inches) above the ground. The sample tap should discharge downward.

  If you choose an inside tap, be sure that you are not sampling from drinking fountains; taps that have aerators or strainers, or swivel faucets; or taps off of individual homeowner treatment units.

  Do not choose a fire hydrant as sampling tap.

  Avoid taps that are surrounded by excessive foliage or taps that are dirty or corroded.

  Avoid taps that leak, have fittings with packing, or have permanent hoses or attachments fastened to the tap (<u>Never collect a sample from a hose</u>).

  Avoid the use of dead ends for routine sample collection, and use them for repeat samples only of no other sample sites are available and if there is continuous water use from a service off the dead-end.

Instructions for Completing the Bacteriological Sample Siting Plan Form

This form has been designed to include all the requirements for the Bacteriological Sample Siting Plan.

- **Public Water System Classification**
  The public water system (PWS) classification for your water system is either community, nontransient noncommunity or transient noncommunity. If you are uncertain of your classification, contact the District Office.

- **Month/Daily Users**
  The monthly population determines the frequency of bacteriological sample collection for community water systems and nontransient noncommunity systems. For a transient-noncommunity water system, monthly population served shall be based on the average number of persons served per day in a month.

- **Active Service Connections (Community water systems only)**
  This is the number of active hook-ups served by the system. If your system has a hook-up to a vacant lot, do not count this as an active connection. If a vacant lot has a right to a future connection, do not count this an active connection. If a residence is connected to the system, but the residence is vacant, count this as an active hook-up.

- **Sampling Frequency**
  This is the minimum number of routine bacteriological samples required at the frequency specified. If any routine sample is positive for coliform bacteria, additional repeat samples will be required. Repeat samples are in addition to the required routine samples. If you are uncertain of the routine sampling frequency for your water system, contact the District Office.

- **Trained Sampler**
  The person collecting samples must be trained.

  Sampling Service: Water systems utilizing a certified laboratory or other sampling service for water sample collection will be considered to have trained samplers. Enter the name of the laboratory or sampling service collecting your samples. A copy of the approved Bacteriological Sample Siting Plan should be provided to the laboratory or sampling service, if one is used.

  Other Trained Samplers: Any person receiving a certificate from AWWA for attendance of the Water Sampling Training should submit a copy of their certificate along with the completed form. Any other samplers should submit a statement of their experience and training to this office for approval.

- **Analyzing Lab**
  Enter the state-certified laboratory, which will be analyzing your water samples.

- **Person Responsible to Report Coliform-Positive Samples to the Division**
  This should be the person that the laboratory is required to contact when a sample is total or fecal coliform positive. This person must notify the Division within 24 hours of a violation of the total coliform standard (more than one positive sample in a month) or when any sample is fecal or *E. coli* positive. This person should have the authority to take corrective action as required by regulation and the Division. This should be the same person listed on your Emergency Notification Plan.

- **Day/Evening Phone Number**
  The Division requires that the water system provide the phone numbers of the person listed above so that they can be contacted by the laboratory or the Division at any time during the day or evening in the event of a bacteriological emergency.

- **Signature and Date**

The person preparing the Sample Siting Plan should sign and date the plan. If the Division has questions regarding the sampling plan, this is the person to be contacted.

- **Sample ID**
  This should be entered on the laboratory slip when the sample is turned into the laboratory. This is the unique identifier for the water sample location, or the location address may also be used. For systems, which have no more than five (5) routine locations, these routine sites will be 1-ROU, 2-ROU, 3-ROU, 4-ROU, and 5-ROU.

  Each routine sample site must have two repeat sampling sites. Repeat sample sites are to be located within five (5) service connections upstream and downstream of the routine sample site.

  All sample locations should be marked in some way with the Sample ID or location address , i.e., the code painted on the sampling location or tagged with a water proof tag so the person collecting the water sample is sure to collect the water from the correct sample locations.

- **Sample Type**
  This describes what type of sample (routine or repeat) is to be collected at this location.

- **Sample Point**
  This is the type of the sample location. Use the following abbreviations, when appropriate: HB - Hose Bib (exterior), SF - Sink Faucet, PC - Goose Neck Type Copper Tube with Pet Cock

- **Location of Sample Point**
  This is the description of the area in the distribution that the sample site is located. Routine sample sites shall not be located at dead ends. Use the following abbreviations, when appropriate: DE - Dead End (Not Recommended), PZ - Pressure Zone, RD - Representative Distribution

- **Location Address**
  This is the actual physical location where the water sample is to be collected. If possible use a street address, i.e., 103 Good Street. If the location does not have a street address, use the nearest crossroads or use the last name of the resident, i.e., “Brown Residence.” If the location is a business, please list the business name and address.

  When describing the location, keep in mind that the person collecting water samples must be able to locate the sample site from your description.

- **Months Sample Collected at This Location**
  This is the schedule for routine samples to be collected. For example, suppose two (2) sites are representative of your systems. Site No. 1 will be sampled in January, March, May, July, September, and November. Site No. 2 will be sampled in February, April, June, August, October, and December. All routine sites identified should be rotated to allow sampling at least every 3 months.

BACTERIOLOGICAL SAMPLE SITING PLAN (BSSP) FOR SMALL WATER SYSTEMS

System No.:	**System Name:**	**PWS Classification:**

No. of Monthly Users:	**No. of Daily Users:**	**No. Active Service Connections:**	**Cl2 Treatment:**

Sampling Frequency: __ per month	**Seasonal System:**	**Period of Operation:**
Name of Trained Sampler:	**Analyzing Lab:**	**Analyzing Lab:**

Person Responsible to Report Positive Samples to the Division:	**Day/Evening Phone No:**
<u>Signature of Water System Representative:</u>	**Date:**

Sample ID	Sample Type	Sample Point	Location of Sample Point	Address of Sample Point	Months Sample Collection at this Location
1-ROU	Routine				
1-REP1	*Repeat*				*Repeat Sample Only*
1-REP2	*Repeat*				*Repeat Sample Only*

In the event of a routine positive sample, a sample(s) will be collected from the well(s) in use for Ground Water Rule compliance.

If continuous chlorination is provided, raw water samples are taken **<u>monthly.</u>**

The SWRCB-Division of Drinking Water or Local Primacy Agency has reviewed and approved this BSSP. Any plans on file dated prior to approval date below are void. The water system must sample their distribution system and raw water special purpose source samples for bacteriological quality in accordance with the approved BSSP beginning _________________. Per the California Code of Regulations-Title 22 §64422, a water system is required to submit an updated plan to the State Board at least once every ten years and at any time the plan no longer ensures representative monitoring of the system.

District Office Representative Name: ____________________________ Title: _____________________ District Name: <u>Tulare District</u>

Signature:____ Date: ________________

Appendix G: Cross Connection Control Survey Guidance for Community Water Systems

Cross-Connection Control for Small Community Water Systems
Division of Drinking Water – Tulare District

Purpose of Cross-Connection Control Program: Water provided by a public water system may be contaminated via cross-connections within the distribution system. The purpose of the cross-connection control program is to reduce the hazard of contamination of the public water system by identifying actual and potential cross-connections and taking action to protect the system from these hazards. This is accomplished by installing backflow prevention assemblies where hazards are identified; or ensuring that water-using equipment on the premises is installed in accordance with plumbing code requirements and good practice.

What are cross-connections?

Cross-connections are actual and potential unprotected connections between a potable water system and any source or system containing unapproved water or a substance which is not safe. Examples of cross-connections include:

1. Improperly installed irrigation systems that may allow backsiphonage of stagnant, bacteriologically unsafe water into the piping system.
2. Improperly plumbed water-using devices such as hot-tubs, boilers or commercial dishwashers which may allow unsafe water back into the domestic piping system.
3. Irrigation systems served by an auxiliary source, such as a private well or creek. Such systems create a potential for major contamination of the public water system via interties with the domestic piping system.
4. Interconnections between the potable system and a non-potable system.

What the Regulations Require

Section 7584 of the California Code of Regulations requires that each public water system have a cross connection control program that includes these elements:

1. The adoption of operating rules or ordinances to implement the cross-connection program.
2. The conducting of surveys to identify water user premises where cross connections exist or are likely to occur.
3. The provisions of backflow protection by the water user at all connections where a cross connection hazard has been identified.
4. The provision of at least one person trained in cross connection control to carry out the program.
5. The establishment of a procedure or system for testing backflow prevention assemblies.
6. The maintenance of records of locations, tests, and repairs of backflow prevention assemblies within each water supplier's distribution system.

Getting Started

For small community water systems, the initial elements of the program consist of the following:

1. Adopting an ordinance or set of rules to implement the cross-connection control program. The ordinance or set of rules is important since it establishes the legal authority to carry out the program.
2. Conducting a system survey to identify actual and potential cross-connection hazards.
3. Ensuring that hazards are abated by the installation of backflow prevention assemblies at the meter, eliminating the hazard in conjunction with the owner of the property or providing internal cross-connection protection.

System Survey

The system survey consists of a preliminary survey and, if necessary, a more detailed second survey. For most small systems, the initial survey may consist of a questionnaire sent to each customer asking whether the customer has specific potential hazards. Documentation of the system survey is to be submitted to the Division. Attached is a summary form for documentation of the system survey.

Residential areas

Customers should be asked if any of the following are located on-site:

1. Auxiliary water supply (i.e. either a well or a creek pump) - backflow prevention device is mandatory.
2. Irrigation systems - backflow prevention device not required if system is installed in accordance with plumbing codes with appropriate vacuum breakers.
3. Swimming pool, hot tub or spa - backflow prevention device not required if system is installed in accordance with plumbing codes.
4. Solar hot water heating panels - backflow prevention device not required if system is installed in accordance with plumbing codes.
5. Gray water systems - backflow prevention assemblies may not be required if the system is installed in accordance with the Uniform Plumbing Code.

If these or other potential hazards are located on site, the water system is to determine whether the equipment has been installed in accordance with plumbing codes and/or good practice in order to minimize the risk of backflow.

Commercial customers: A more detailed questionnaire and survey is necessary. Small community systems, which also serve commercial customers, should review the Department of Health Service's "Manual of Cross-Connection Control - Procedures and Practices". A system survey of commercial users as specified in the Manual is to be performed. As an alternative, the system may decide to require backflow prevention assemblies' at all commercial service connections where hazards are likely to exist.

Wastewater and Hazardous Wastes: A service connection which handles wastewater or dangerous chemicals requires special evaluation and protection from cross-connection hazards. For additional information on evaluating this type of facility, please contact the appropriate regulatory agency and a cross-connection control specialist.

ELEMENTS OF A CROSS-CONNECTION CONTROL PROGRAM
DDW – Tulare District

When implementing a Cross-Connection Control Program, the water supplier or health agency should follow an organized plan. The following items should be included as a minimum. The items **explain the Department of Health Services' policy regarding the regulations.**

7584. Responsibility and Scope of Program

The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program. The program, or any portion thereof, may be implemented directly by the water supplier or by means of a contract with the local health agency, or with another agency approved by the health agency. The water supplier's cross-connection control program shall for the purpose of addressing the requirements of Sections 7585 through 7605 include, but not limited to, the following elements:

(1) The adoption of operating rules or ordinances to implement the cross-connection program.

A public water supplier shall enact an ordinance or rule of service outlining the cross-connection control program and providing enforcement authority.

(2) The conducting of surveys to identify places where cross-connections are likely to occur.

Water utilities do not have any responsibility for controlling or abating cross-connections on a user's premises. All existing facilities where potential cross-connections are suspected, however, shall be listed and inspected or reinspected on a priority basis, where feasible. All applications for new services or for enlarging existing services or changing of occupant shall be reviewed or screened for cross-connect1ons hazards

(3) The provision of backflow protection at the user's connection or within the user's premises or both.

Adequate provisions for implementation and enforcement of backflow protection where needed including the shutting off service when necessary

4) The provision of at least one person trained in cross-connection control to carry out the cross-connection program.

Specific units of the health agency and/or water supplier should be designated to organize and carry out the cross-connection control program. The personnel in those units should be trained as to the causes and hazards of unprotected cross-connections.

(5) The establishment of a procedure or system for testing backflow preventers.

A list of approved backflow preventers and list of certified testers should be made available to each water user required to provide backflow protection.

The list may include backflow devices approved by University of Southern California, Foundation for Cross-Connection Control and IAPMO, which may be found on the SWRCB website at the following address:

http://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/Publications.shtml

The List of certified testers may be lists developed by the American Water Works Association and local county health agencies.

Backflow preventers should be tested at least yearly or more often as required by the health agency or water supplier.

(6) The maintenance of records of locations, tests and repairs of backflow preventers

Adequate records should be kept and filed for reference. These records should include, in addition to the name of the owner of the premises, the:

a) Date of inspection
b) Results of inspection
c) Required protection
d) List of all backflow preventer devices in the system
e) Test and maintenance reports
f) All correspondence between the water supplier, the local health authority, and the consumer
g) Records must be maintained for a minimum of three years

Records of inspection and testing should be evaluated to determine if:

a) Devices are frequently or sufficiently reviewed to detect failure.
b) There are unusual feature of a particular model of device or component.
c) Cause of failure can be eliminated.

A program should be established to notify the water user when his backflow preventer must be tested. (A minimum of once each year is required.) After installation or repair, a backflow preventer should be tested and approved before it is accepted.

7605. Testing and Maintenance of Backflow Preventers

Regulations require the following regarding testing and maintenance of backflow prevention devices:

(a) The water supplier shall assure that adequate maintenance and periodic testing are provided by the water user to ensure their proper operation.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the water supplier or health agency.

(c) Backflow preventers shall be tested at least annually or more frequently if determined to be necessary by the health agency or water supplier. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this Chapter.

(d) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required.

(e) The water supplier shall notify the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

(f) Reports of testing and maintenance shall be maintained by the water supplier for a minimum of three years.

Cross-Connection Survey Summary Form-Small Community Water Systems

Name of System ___________________________________ System Number ___________

Description of Survey Procedures-How survey was conducted, (include copy of survey form):
Person conducting survey (List name and qualifications):

____

____

Procedures for Residential Connections:

____

____

____

____

Procedures for Commercial Connections:

____

____

____

____

Total number of service connections _______ Number of service connections surveyed ______
Number of connections with auxiliary sources (i.e. wells or creek pumps) ___________
Number of connections with other hazards ___________
Total number of backflow prevention devices ___________

Type of Hazard Identified(i.e. private well, hot tub, irrigation system, swimming pool, etc)	**Number of connections with hazard**	**Number of devices installed**	**Number where device not necessary**

Describe follow-up for service connections that did not respond to the survey:

____

____

____

____

____

Long-term (Describe on-going cross-connection protection & testing of backflow prevention assemblies)

____

____

____

____

____

Submitted by (signature) ____ Date _________

Appendix H:
Emergency Notification Plan Template

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

State Water Resources Control Board

System No. ____________________

DIVISION OF DRINKING WATER – TULARE DISTRICT
WATER QUALITY EMERGENCY NOTIFICATION PLAN

Water System Name: ______________________________

Physical Location Address: ______________________________

The following persons have been designated to implement the Plan upon notification by the Division of Drinking Water that an imminent danger to the health of the water users exists:

	Contact Name & Title	Email Address	Home/Office	Cell
1.				
2.				
3.				

The implementation of the plan will be carried out with the following Division of Drinking Water and County Health personnel:

	Contact Name & Title	Email Address	Office	Cell
1.	Kristin Willet, Tulare District Engineer Division of Drinking Water	kristin.willet@waterboards.ca.gov	(559) 447-3300	(559) 280-6363
2.	Tricia Wathen, Supervising Sanitary Engineer Division of Drinking Water	tricia.wathen@waterboards.ca.gov	(559) 447-3300	(559) 696-8506
3.	Nilsa Gonzalez, Director Tulare County Environmental Health Division Manager	ngonzale@tularehhsa.org	(559) 624-7400	(559) 285-2440

4. If the above personnel cannot be reached, contact:

Office of Emergency Services (24 Hrs.) (800) 852-7550 or (916) 845-8911
Ask for "Division of Drinking of Drinking Water, Duty Officer"

NOTIFICATION PLAN

Community and Nontransient Noncommunity
(Must identify three methods)
☐ Door to Door Delivery ☐ Posted Notification
☐ Social Media ☐ Reverse 911/Telephone
☐ News Media (TV, Radio, Newspaper) ☐ Email
☐ Other: personal phone call

Transient Noncommunity
☐ Water system must post notification. Hand delivered notification must be provided to any residential/overnight customers.

***SYSTEMS SERVING MORE THAN 200 SERVICE CONNECTIONS MUST PROVIDE A CUSTOM PLAN.**

APPROXIMATE TIME TO ISSUE NOTICE:_______ HRS

Report prepared by:

______________________________ ______________________________
Signature and Title Date

Appendix K: Groundwater Quality Data Summary

YETTEM WELL 01 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	2	11.4	11.5	11.5
ALKALINITY, BICARBONATE AS CACO3	MG/L	6	170	180	210
ALKALINITY, CARBONATE	MG/L	6	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	6	140	147	170
ALUMINUM	UG/L	5	0	33.4	120
ANTIMONY, TOTAL	UG/L	5	0	0	0
ARSENIC	UG/L	5	2.8	2.92	3
BARIUM	UG/L	5	0	52.4	98
BERYLLIUM, TOTAL	UG/L	5	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	5	0	0	0
CALCIUM	MG/L	8	20	23.3	28
CHLORIDE	MG/L	6	16	22.2	29
CHROMIUM, HEX	UG/L	1	0	0	0
CHROMIUM, TOTAL	UG/L	5	0	0.26	1.3
COLOR	UNITS	6	0	0.833	5
COPPER, FREE	UG/L	7	0	1.36	5.9
FLUORIDE	MG/L	5	0	0.104	0.18
FOAMING AGENTS (SURFACTANTS)	MG/L	7	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	5	110	123	150
HYDROXIDE AS CALCIUM CARBONATE	MG/L	6	0	0	0
IRON	UG/L	12	0	82.7	480
LANGELIER INDEX @ SOURCE TEMP	LANG	3	-0.4	-0.0133	0.22
LEAD	UG/L	5	0	0	0
MAGNESIUM	MG/L	8	14	17.3	21
MANGANESE	UG/L	7	0	8.29	40
MERCURY	UG/L	5	0	0	0
NICKEL	UG/L	5	0	0	0
NITRATE (AS N)	MG/L	200	4.2	8.87	12.2
NITRATE + NITRITE (AS N)	MG/L	5	10	10.6	12
NITRITE (AS N)	MG/L	7	0	0	0
ODOR THRESHOLD	TON	6	0	0.667	2
PERCHLORATE	UG/L	9	0	0	0
PH, LAB	pH	5	7.4	7.86	8.2
POTASSIUM	MG/L	4	0	0.875	1.3
SELENIUM	UG/L	5	0	0	0
SILVER	UG/L	6	0	0	0
SODIUM	MG/L	6	40	42.2	44
SPECIFIC CONDUCTANCE	UMHO/CM	7	400	459	530
SULFATE	MG/L	7	11	14.7	18
TDS	MG/L	7	250	277	300
THALLIUM, TOTAL	UG/L	5	0	0	0
TURBIDITY, LAB	NTU	6	0.1	0.657	1.9
ZINC	UG/L	7	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	9	0	1.32	3.07
RADIUM-228	PCI/L	4	0	0.30	1.2
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	8	0	0	0
DIBROMOCHLOROPROPANE	UG/L	5	0	0	0

EAST OROSI WELL 01 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	4	10.6	11.7	12.4
ALKALINITY, BICARBONATE AS CACO3	MG/L	4	110	173	240
ALKALINITY, CARBONATE	MG/L	4	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	4	90	150	200
ALUMINUM	UG/L	4	0	0	0
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	0	0.5	2
BARIUM	UG/L	4	0	46.3	130
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	4	31	46.5	69
CHLORIDE	MG/L	4	16	21.5	30
CHROMIUM, HEX	UG/L	2	0	0.235	0.47
CHROMIUM, TOTAL	UG/L	4	0	0	0
COLOR	UNITS	5	0	1	5
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0.1	0.155	0.3
FOAMING AGENTS (SURFACTANTS)	MG/L	4	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	4	139	201	296
HYDROXIDE AS CALCIUM CARBONATE	MG/L	4	0	0	0
IRON	UG/L	17	0	153	1300
LANGELIER INDEX @ SOURCE TEMP	LANG	2	-1.2	-0.3	0.6
LEAD	UG/L	4	0	0.275	1.1
MAGNESIUM	MG/L	5	15	20.8	30
MANGANESE	UG/L	17	0	15.7	210
MERCURY	UG/L	4	0	0	0
NICKEL	UG/L	4	0	0	0
NITRATE (AS N)	MG/L	44	0.43	10.0000	14.4
NITRATE + NITRITE (AS N)	MG/L	4	8.8	10.2	12.8
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	5	0	0	0
PERCHLORATE	UG/L	5	0	1.36	4
PH, LAB	pH	4	6.8	7.58	8
POTASSIUM	MG/L	4	3	3.58	4
SELENIUM	UG/L	4	0	0	0
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	4	19	20.5	24
SPECIFIC CONDUCTANCE	UMHO/CM	6	397	500	713
SULFATE	MG/L	4	19	30.2	58
TDS	MG/L	6	240	330	450
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	18	0	0.673	6.9
ZINC	UG/L	4	0	7.5	30
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	5	0.283	1.83	3.38
RADIUM-228	PCI/L	5	0	0.01	0.07
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	8	0	0.00075	0.006
DIBROMOCHLOROPROPANE	UG/L	4	0	0	0

MONSON WELL 01 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	2	11.9	12	12
ALKALINITY, BICARBONATE AS CACO3	MG/L	3	140	150	160
ALKALINITY, CARBONATE	MG/L	3	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	3	120	123	130
ALUMINUM	UG/L	2	0	0	0
ANTIMONY, TOTAL	UG/L	2	0	0	0
ARSENIC	UG/L	2	3	3.6	4.2
BARIUM	UG/L	2	0	17.5	35
BERYLLIUM, TOTAL	UG/L	2	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	2	0	0	0
CALCIUM	MG/L	4	19	27	43
CHLORIDE	MG/L	3	21	22	23
CHROMIUM, HEX		0	0	0	0
CHROMIUM, TOTAL	UG/L	2	0	0	0
COLOR	UNITS	2	0	2.5	5
COPPER, FREE	UG/L	3	0	0	0
FLUORIDE	MG/L	3	0.1	0.143	0.2
FOAMING AGENTS (SURFACTANTS)	MG/L	3	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	3	83.7	112	165
HYDROXIDE AS CALCIUM CARBONATE	MG/L	3	0	0	0
IRON	UG/L	3	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	1	0.1	0.1	0.1
LEAD	UG/L	2	0	0	0
MAGNESIUM	MG/L	4	5.9	8.48	14
MANGANESE	UG/L	3	0	0	0
MERCURY	UG/L	2	0	0	0
NICKEL	UG/L	2	0	0	0
NITRATE (AS N)	MG/L	7	0	1.44	3.1
NITRATE + NITRITE (AS N)	MG/L	4	2.6	2.83	3.1
NITRITE (AS N)	MG/L	3	0	0	0
ODOR THRESHOLD	TON	2	0	0.5	1
PERCHLORATE	UG/L	10	0	0	0
PH, LAB	pH	2	7.9	8	8.1
POTASSIUM	MG/L	3	1.9	2.97	4
SELENIUM	UG/L	2	0	0	0
SILVER	UG/L	2	0	0	0
SODIUM	MG/L	3	32	37.7	43
SPECIFIC CONDUCTANCE	UMHO/CM	3	340	347	350
SULFATE	MG/L	3	4.2	4.57	5
TDS	MG/L	3	200	220	230
THALLIUM, TOTAL	UG/L	2	0	0	0
TURBIDITY, LAB	NTU	2	0.58	0.94	1.3
ZINC	UG/L	3	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	18	0	0.79	3.64
RADIUM-228	PCI/L	7	0	0.38	1.97
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	12	0	0	0
DIBROMOCHLOROPROPANE	UG/L	8	0	0	0

SEVILLE WELL 01 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	1	10.9	10.9	10.9
ALKALINITY, BICARBONATE AS CACO3	MG/L	5	160	180	200
ALKALINITY, CARBONATE	MG/L	5	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	5	130	146	160
ALUMINUM	UG/L	5	0	409	2000
ANTIMONY, TOTAL	UG/L	5	0	0	0
ARSENIC	UG/L	5	0	1.08	1.5
BARIUM	UG/L	5	0	54.4	77
BERYLLIUM, TOTAL	UG/L	5	0	0	0
BORON	UG/L	1	0	0	0
CADMIUM	UG/L	5	0	0	0
CALCIUM	MG/L	9	22	34.9	44
CHLORIDE	MG/L	5	15	32	66
CHROMIUM, HEX	UG/L	2	0	1	2
CHROMIUM, TOTAL	UG/L	5	0	0.4	2
COLOR	UNITS	5	0	1.4	5
COPPER, FREE	UG/L	5	0	0	0
FLUORIDE	MG/L	5	0	0.108	0.17
FOAMING AGENTS (SURFACTANTS)	MG/L	5	0	0.024	0.12
HARDNESS, TOTAL AS CACO3	MG/L	6	120	154	200
HYDROXIDE AS CALCIUM CARBONATE	MG/L	5	0	0	0
IRON	UG/L	5	0	400	2000
LANGELIER INDEX @ SOURCE TEMP	LANG	2	0.17	0.235	0.3
LEAD	UG/L	4	0	0	0
MAGNESIUM	MG/L	9	15	17	22
MANGANESE	UG/L	5	0	19.4	72
MERCURY	UG/L	5	0	0.04	0.2
NICKEL	UG/L	5	0	13.5	66
NITRATE (AS N)	MG/L	72	2.2	7.80	9.71
NITRATE + NITRITE (AS N)	MG/L	3	5.7	7.4	8.6
NITRITE (AS N)	MG/L	5	0	0	0
ODOR THRESHOLD	TON	5	0	1	2
PERCHLORATE	UG/L	11	0	0	0
PH, LAB	pH	4	7.8	7.95	8.1
POTASSIUM	MG/L	3	1	1.53	2
SELENIUM	UG/L	5	0	0.2	1
SILVER	UG/L	5	0	0	0
SODIUM	MG/L	5	31	35.4	47
SPECIFIC CONDUCTANCE	UMHO/CM	5	440	487	580
SULFATE	MG/L	5	20	22.7	26
TDS	MG/L	5	270	324	370
THALLIUM, TOTAL	UG/L	5	0	0	0
TURBIDITY, LAB	NTU	5	0	3.56	16
ZINC	UG/L	5	0	13	40
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	8	-0.33	0.67	2
RADIUM-228	PCI/L	3	-0.14	0.05	0.28
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	6	0	0	0
DIBROMOCHLOROPROPANE	UG/L	5	0	0	0

YETTEM WELL 02 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	1	11.5	11.5	11.5
ALKALINITY, BICARBONATE AS CACO3	MG/L	7	170	177	190
ALKALINITY, CARBONATE	MG/L	7	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	7	140	141	150
ALUMINUM	UG/L	6	0	6	17
ANTIMONY, TOTAL	UG/L	6	0	0	0
ARSENIC	UG/L	6	2.3	2.68	3
BARIUM	UG/L	6	0	70.5	92
BERYLLIUM, TOTAL	UG/L	6	0	0	0
BORON	UG/L	1	0	0	0
CADMIUM	UG/L	6	0	0	0
CALCIUM	MG/L	8	16	18.3	22
CHLORIDE	MG/L	7	15	17	18
CHROMIUM, HEX	UG/L	1	0	0	0
CHROMIUM, TOTAL	UG/L	6	0	0.383	1.2
COLOR	UNITS	7	0	0.714	5
COPPER, FREE	UG/L	7	0	0	0
FLUORIDE	MG/L	6	0	0.117	0.19
FOAMING AGENTS (SURFACTANTS)	MG/L	7	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	7	93.4	105	120
HYDROXIDE AS CALCIUM CARBONATE	MG/L	7	0	0	0
IRON	UG/L	12	0	81.5	430
LANGELIER INDEX @ SOURCE TEMP	LANG	4	-0.3	0.0125	0.35
LEAD	UG/L	6	0	0	0
MAGNESIUM	MG/L	8	13	14.6	16
MANGANESE	UG/L	7	0	0.971	6.8
MERCURY	UG/L	6	0	0	0
NICKEL	UG/L	6	0	0.483	1.6
NITRATE (AS N)	MG/L	175	3.8	5.72	9.8
NITRATE + NITRITE (AS N)	MG/L	5	5.5	5.68	5.8
NITRITE (AS N)	MG/L	8	0	0	0
ODOR THRESHOLD	TON	7	0	0.714	2
PERCHLORATE	UG/L	8	0	0	0
PH, LAB	pH	7	7.5	7.97	8.3
POTASSIUM	MG/L	3	0	0.733	1.1
SELENIUM	UG/L	6	0	0	0
SILVER	UG/L	7	0	0	0
SODIUM	MG/L	7	39	42.7	46
SPECIFIC CONDUCTANCE	UMHO/CM	7	380	414	430
SULFATE	MG/L	7	13	14	15.1
TDS	MG/L	7	230	243	260
THALLIUM, TOTAL	UG/L	6	0	0	0
TURBIDITY, LAB	NTU	7	0	0.706	3.1
ZINC	UG/L	7	0	0.971	6.8
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	9	0	1.04	1.98
RADIUM-228	PCI/L	4	0	0.28	1.1
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	7	0	0	0
DIBROMOCHLOROPROPANE	UG/L	6	0	0	0

EAST OROSI WELL 02 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	3	12	12.4	13
ALKALINITY, BICARBONATE AS CACO3	MG/L	3	170	210	230
ALKALINITY, CARBONATE	MG/L	3	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	3	140	187	230
ALUMINUM	UG/L	3	0	0	0
ANTIMONY, TOTAL	UG/L	3	0	0	0
ARSENIC	UG/L	3	0	1.47	2.4
BARIUM	UG/L	3	0	60.6	130
BERYLLIUM, TOTAL	UG/L	3	0	0	0
BORON	UG/L	1	0	0	0
CADMIUM	UG/L	3	0	0	0
CALCIUM	MG/L	3	41	58.3	74
CHLORIDE	MG/L	3	16	23.7	29
CHROMIUM, HEX	UG/L	2	0	0.225	0.45
CHROMIUM, TOTAL	UG/L	3	0	0	0
COLOR	UNITS	3	0	1.67	5
COPPER, FREE	UG/L	3	0	0	0
FLUORIDE	MG/L	3	0.12	0.15	0.2
FOAMING AGENTS (SURFACTANTS)	MG/L	3	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	3	176	252	320
HYDROXIDE AS CALCIUM CARBONATE	MG/L	3	0	0	0
IRON	UG/L	3	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	1	0.2	0.2	0.2
LEAD	UG/L	3	0	0	0
MAGNESIUM	MG/L	3	18	26.3	34
MANGANESE	UG/L	3	0	0	0
MERCURY	UG/L	3	0	0	0
NICKEL	UG/L	3	0	0	0
NITRATE (AS N)	MG/L	59	0	10.80	14.3
NITRATE + NITRITE (AS N)	MG/L	3	9.1	11	12
NITRITE (AS N)	MG/L	3	0	0	0
ODOR THRESHOLD	TON	3	0	0	0
PERCHLORATE	UG/L	4	0	0.9	3.6
PH, LAB	pH	3	7.9	7.9	7.9
POTASSIUM	MG/L	3	3	4.27	5.4
SELENIUM	UG/L	3	0	0	0
SILVER	UG/L	3	0	0	0
SODIUM	MG/L	3	17	23.3	28
SPECIFIC CONDUCTANCE	UMHO/CM	3	456	609	760
SULFATE	MG/L	3	16	41.7	66
TDS	MG/L	3	310	393	470
THALLIUM, TOTAL	UG/L	3	0	0	0
TURBIDITY, LAB	NTU	3	0	0.143	0.26
ZINC	UG/L	3	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	4	0.823	2.35	5.54
RADIUM-228	PCI/L	16	0	0.19	1.05
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	9	0	0.000889	0.008
DIBROMOCHLOROPROPANE	UG/L	4	0	0.0163	0.065

SEVILLE WELL 02 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	1	11	11	11
ALKALINITY, BICARBONATE AS CACO3	MG/L	4	150	168	200
ALKALINITY, CARBONATE	MG/L	4	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	4	130	138	160
ALUMINUM	UG/L	4	0	505	2000
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	1.2	1.73	2
BARIUM	UG/L	4	0	59.5	97
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	1	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	8	35	43.3	58
CHLORIDE	MG/L	4	15	68.8	100
CHROMIUM, HEX	UG/L	1	0.38	0.38	0.38
CHROMIUM, TOTAL	UG/L	4	0	1.28	3.9
COLOR	UNITS	4	0	1.25	5
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0	0.0575	0.13
FOAMING AGENTS (SURFACTANTS)	MG/L	4	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	5	160	177	211
HYDROXIDE AS CALCIUM CARBONATE	MG/L	4	0	0	0
IRON	UG/L	4	0	500	2000
LANGELIER INDEX @ SOURCE TEMP	LANG	1	0.3	0.3	0.3
LEAD	UG/L	3	0	0	0
MAGNESIUM	MG/L	8	14	16.3	19
MANGANESE	UG/L	4	17	38.5	72
MERCURY	UG/L	4	0	0.05	0.2
NICKEL	UG/L	4	0	17.6	66
NITRATE (AS N)	MG/L	88	0	6.26	8.1
NITRATE + NITRITE (AS N)	MG/L	3	5.5	5.63	5.8
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	4	0	1	2
PERCHLORATE	UG/L	5	0	0	0
PH, LAB	pH	3	7.8	7.93	8
POTASSIUM	MG/L	2	2	2	2
SELENIUM	UG/L	4	0	0.4	1.6
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	4	31	43	50
SPECIFIC CONDUCTANCE	UMHO/CM	4	440	559	635
SULFATE	MG/L	4	14.3	19.3	23
TDS	MG/L	4	330	360	390
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	4	0	4.1	16
ZINC	UG/L	4	0	12	40
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	8	0	1.36	3.6
RADIUM-228	PCI/L	7	0	0.52	1.2
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	6	0	0	0
DIBROMOCHLOROPROPANE	UG/L	4	0	0	0

SULTANA WELL 02 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	2	11.6	11.8	12
ALKALINITY, BICARBONATE AS CACO3	MG/L	2	230	230	230
ALKALINITY, CARBONATE	MG/L	2	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	2	190	190	190
ALUMINUM	UG/L	2	0	0	0
ANTIMONY, TOTAL	UG/L	2	0	0	0
ARSENIC	UG/L	3	0	0	0
BARIUM	UG/L	2	0	35.4	70.8
BERYLLIUM, TOTAL	UG/L	2	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	2	0	0	0
CALCIUM	MG/L	2	53	54.5	56
CHLORIDE	MG/L	2	16	17.5	19
CHROMIUM, HEX	UG/L	1	0.8	0.8	0.8
CHROMIUM, TOTAL	UG/L	2	0	0.5	1
COLOR	UNITS	2	0	3	6
COPPER, FREE	UG/L	2	0	0	0
FLUORIDE	MG/L	2	0	0.05	0.1
FOAMING AGENTS (SURFACTANTS)	MG/L	2	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	2	206	212	218
HYDROXIDE AS CALCIUM CARBONATE	MG/L	2	0	0	0
IRON	UG/L	2	0	130	260
LANGELIER INDEX @ SOURCE TEMP	LANG	2	-0.3	-0.05	0.2
LEAD	UG/L	2	0	0	0
MAGNESIUM	MG/L	2	18	18.5	19
MANGANESE	UG/L	2	0	5	10
MERCURY	UG/L	2	0	0	0
NICKEL	UG/L	2	0	0	0
NITRATE (AS N)	MG/L	14	4.5	8.48	11.7
NITRATE + NITRITE (AS N)	MG/L	2	9.8	9.85	9.9
NITRITE (AS N)	MG/L	2	0	0	0
ODOR THRESHOLD	TON	2	0	0	0
PERCHLORATE	UG/L	2	0	0	0
PH, LAB	pH	2	7.2	7.4	7.6
POTASSIUM	MG/L	2	2	2.5	3
SELENIUM	UG/L	2	0	0	0
SILVER	UG/L	2	0	0	0
SODIUM	MG/L	2	27	28	29
SPECIFIC CONDUCTANCE	UMHO/CM	2	545	550	554
SULFATE	MG/L	2	30	30.6	31.2
TDS	MG/L	2	360	370	380
THALLIUM, TOTAL	UG/L	2	0	0	0
TURBIDITY, LAB	NTU	2	0.3	1.85	3.4
ZINC	UG/L	2	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	2	0	0.28	0.561
RADIUM-228	PCI/L	4	0	0.0000	0
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	6	0	0	0
DIBROMOCHLOROPROPANE	UG/L	7	0.45	0.536	0.71

SULTANA WELL 03 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	4	11.2	11.7	12.1
ALKALINITY, BICARBONATE AS CACO3	MG/L	4	160	178	200
ALKALINITY, CARBONATE	MG/L	4	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	4	130	145	160
ALUMINUM	UG/L	4	0	0	0
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	2	2	2
BARIUM	UG/L	4	0	27.4	55.9
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	4	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	4	37	44	55
CHLORIDE	MG/L	4	35	41.5	46
CHROMIUM, HEX	UG/L	1	0.8	0.8	0.8
CHROMIUM, TOTAL	UG/L	4	0	0.25	1
COLOR	UNITS	4	0	0	0
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0.1	0.15	0.2
FOAMING AGENTS (SURFACTANTS)	MG/L	3	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	4	133	159	199
HYDROXIDE AS CALCIUM CARBONATE	MG/L	4	0	0	0
IRON	UG/L	4	0	7.5	30
LANGELIER INDEX @ SOURCE TEMP	LANG	3	-0.7	-0.2	0.2
LEAD	UG/L	4	0	0	0
MAGNESIUM	MG/L	4	10	12	15
MANGANESE	UG/L	4	0	0	0
MERCURY	UG/L	4	0	0	0
NICKEL	UG/L	4	0	0	0
NITRATE (AS N)	MG/L	17	2.03	3.46	6.4
NITRATE + NITRITE (AS N)	MG/L	4	2.3	4.05	6.4
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	4	0	2.5	8
PERCHLORATE	UG/L	6	0	0	0
PH, LAB	pH	3	6.9	7.5	8
POTASSIUM	MG/L	4	2	2.25	3
SELENIUM	UG/L	4	0	0.5	1
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	4	33	35.3	38
SPECIFIC CONDUCTANCE	UMHO/CM	4	442	479	530
SULFATE	MG/L	4	6	13.8	24
TDS	MG/L	4	290	313	330
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	4	0	0.125	0.3
ZINC	UG/L	4	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	11	0	0.50	1.41
RADIUM-228	PCI/L	9	0	0.23	1.15
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	6	0	0	0
DIBROMOCHLOROPROPANE	UG/L	5	0.02	0.043	0.065

OROSI WELL 04 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	4	12	12	12
ALKALINITY, BICARBONATE AS CACO3	MG/L	4	170	195	210
ALKALINITY, CARBONATE	MG/L	4	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	4	160	170	180
ALUMINUM	UG/L	4	0	0	0
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	0	1.73	2.6
BARIUM	UG/L	4	0	48.5	100
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	4	44	45.8	47
CHLORIDE	MG/L	4	18	18.5	19
CHROMIUM, HEX	UG/L	1	0	0	0
CHROMIUM, TOTAL	UG/L	4	0	0	0
COLOR	UNITS	4	0	2.5	10
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0.1	0.123	0.14
FOAMING AGENTS (SURFACTANTS)	MG/L	4	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	4	190	190	190
HYDROXIDE AS CALCIUM CARBONATE	MG/L	4	0	0	0
IRON	UG/L	4	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	4	0.29	0.475	0.56
LEAD	UG/L	4	0	0	0
MAGNESIUM	MG/L	4	17	17.8	18
MANGANESE	UG/L	4	0	0	0
MERCURY	UG/L	4	0	0	0
NICKEL	UG/L	4	0	0	0
NITRATE (AS N)	MG/L	55	4.2	5.73	6.5
NITRATE + NITRITE (AS N)	MG/L	3	5.5	5.7	5.9
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	4	0	0	0
PERCHLORATE	UG/L	6	0	0.267	1.6
PH, LAB	pH	4	8	8.13	8.2
POTASSIUM	MG/L	4	3.3	3.38	3.4
SELENIUM	UG/L	4	0	0	0
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	4	22	22.8	24
SPECIFIC CONDUCTANCE	UMHO/CM	9	430	456	510
SULFATE	MG/L	4	13	13.8	14
TDS	MG/L	4	300	315	330
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	4	0	0.025	0.1
ZINC	UG/L	4	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	18	0	0.85	3.35
RADIUM-228	PCI/L	2	0.08	0.27	0.46
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	98	0	0.0000148	0.00074
DIBROMOCHLOROPROPANE	UG/L	5	0	0	0

CUTLER WELL 05 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	4	12	12.3	13
ALKALINITY, BICARBONATE AS CACO3	MG/L	5	220	254	270
ALKALINITY, CARBONATE	MG/L	5	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	5	210	216	220
ALUMINUM	UG/L	5	0	0	0
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	0	0.525	2.1
BARIUM	UG/L	4	150	163	180
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	1	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	5	62	63.8	66
CHLORIDE	MG/L	5	30	37	42
CHROMIUM, HEX	UG/L	2	0	0	0
CHROMIUM, TOTAL	UG/L	4	0	0	0
COLOR	UNITS	4	0	1.25	5
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0.14	0.15	0.16
FOAMING AGENTS (SURFACTANTS)	MG/L	4	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	5	250	254	260
HYDROXIDE AS CALCIUM CARBONATE	MG/L	5	0	0	0
IRON	UG/L	5	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	4	0.4	0.52	0.68
LEAD	UG/L	4	0	0	0
MAGNESIUM	MG/L	5	23	23	23
MANGANESE	UG/L	5	0	18	33
MERCURY	UG/L	4	0	0	0
NICKEL	UG/L	4	0	0	0
NITRATE (AS N)	MG/L	173	7.91	9.17	11
NITRATE + NITRITE (AS N)	MG/L	3	8.8	9	9.4
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	4	0	0	0
PERCHLORATE	UG/L	6	0	0.467	2.8
PH, LAB	pH	5	7.8	7.94	8.1
POTASSIUM	MG/L	5	3.4	3.7	3.9
SELENIUM	UG/L	4	0	0	0
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	5	33	36.4	39
SPECIFIC CONDUCTANCE	UMHO/CM	11	580	637	680
SULFATE	MG/L	5	27	29.6	32
TDS	MG/L	5	410	434	460
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	4	0.1	0.313	0.83
ZINC	UG/L	4	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	25	0	1.28	2.94
RADIUM-228	PCI/L	4	-0.11	-0.03	0
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	50	0	0.00392	0.0087
DIBROMOCHLOROPROPANE	UG/L	146	0.019	0.0793	0.13

OROSI WELL 05A WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	4	12	12	12
ALKALINITY, BICARBONATE AS CACO3	MG/L	4	150	168	180
ALKALINITY, CARBONATE	MG/L	4	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	4	130	143	150
ALUMINUM	UG/L	4	0	0	0
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	0	1.58	3.4
BARIUM	UG/L	4	0	17.5	70
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	4	32	36.5	39
CHLORIDE	MG/L	4	12	13	14
CHROMIUM, HEX	UG/L	1	0	0	0
CHROMIUM, TOTAL	UG/L	4	0	0	0
COLOR	UNITS	4	0	1.25	5
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0.1	0.118	0.14
FOAMING AGENTS (SURFACTANTS)	MG/L	4	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	4	140	153	160
HYDROXIDE AS CALCIUM CARBONATE	MG/L	4	0	0	0
IRON	UG/L	4	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	4	0.17	0.283	0.4
LEAD	UG/L	4	0	0	0
MAGNESIUM	MG/L	4	13	14	15
MANGANESE	UG/L	4	0	0	0
MERCURY	UG/L	4	0	0	0
NICKEL	UG/L	4	0	0	0
NITRATE (AS N)	MG/L	38	3.84	5.23	9
NITRATE + NITRITE (AS N)	MG/L	3	4.4	4.93	5.2
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	4	0	0.25	1
PERCHLORATE	UG/L	6	0	0.3	1.8
PH, LAB	pH	4	8	8.13	8.2
POTASSIUM	MG/L	4	2.8	2.9	3
SELENIUM	UG/L	4	0	0	0
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	4	19	19.8	20
SPECIFIC CONDUCTANCE	UMHO/CM	9	320	363	410
SULFATE	MG/L	4	5.7	7.3	8.6
TDS	MG/L	4	250	270	290
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	4	0	0.09	0.18
ZINC	UG/L	4	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	18	-1.06	0.35	2
RADIUM-228	PCI/L	2	0.29	0.38	0.47
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	100	0	0.00056	0.005
DIBROMOCHLOROPROPANE	UG/L	5	0	0	0

CUTLER WELL 06 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX		0	0	0	0
ALKALINITY, BICARBONATE AS CACO3	MG/L	10	170	209	270
ALKALINITY, CARBONATE		0	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	10	150	174	220
ALUMINUM	UG/L	7	0	2.86	20
ANTIMONY, TOTAL	UG/L	6	0	0	0
ARSENIC	UG/L	10	2.3	3.61	5
BARIUM	MG/L	10	0	0.055	0.2
BERYLLIUM, TOTAL	UG/L	7	0	0.143	1
BORON	MG/L	2	0.024	0.062	0.1
CADMIUM	UG/L	11	0	0.409	1
CALCIUM	MG/L	10	29	43	60
CHLORIDE	MG/L	10	12	18.8	29
CHROMIUM, HEX	UG/L	2	0	0.5	1
CHROMIUM, TOTAL	UG/L	13	0	3.23	10
COLOR		0	0	0	0
COPPER, FREE	MG/L	11	0	0.0227	0.05
FLUORIDE	MG/L	10	0	0.159	0.21
FOAMING AGENTS (SURFACTANTS)	MG/L	10	0	0.025	0.05
HARDNESS, TOTAL AS CACO3	MG/L	10	120	181	250
HYDROXIDE AS CALCIUM CARBONATE		0	0	0	0
IRON	UG/L	11	0	66.4	220
LANGELIER INDEX @ SOURCE TEMP		0	0	0	0
LEAD	UG/L	10	0	2	5
MAGNESIUM	MG/L	10	12	17.7	25
MANGANESE	UG/L	11	0	22.7	110
MERCURY	UG/L	11	0	0.336	1
NICKEL	UG/L	7	0	1.43	10
NITRATE (AS N)	MG/L	170	0	4.13	13
NITRATE + NITRITE (AS N)		0	0	0	0
NITRITE (AS N)	MG/L	8	0	0.05	0.4
ODOR THRESHOLD		0	0	0	0
PERCHLORATE	UG/L	9	0	1.44	4
PH, LAB	PH UNITS	9	7	7.73	8.2
POTASSIUM	MG/L	8	3	6.1	25
SELENIUM	UG/L	11	0	1.18	5
SILVER	UG/L	11	0	3.36	20
SODIUM	MG/L	10	3	25.4	31
SPECIFIC CONDUCTANCE	UMHOS/CM	13	330	460	540
SULFATE	MG/L	10	5	13.3	26
TDS	MG/L	10	260	306	370
THALLIUM, TOTAL	UG/L	7	0	0.143	1
TURBIDITY, LAB		0	0	0	0
ZINC	MG/L	11	0	0.0782	0.66
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	pCi/L	23	-0.59	0.928	3.39
RADIUM-228	pCi/L	4	-0.22	0.445	1
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	23	0	0	0
DIBROMOCHLOROPROPANE	UG/L	141	0	0.179	0.36

OROSI WELL 07 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	2	13	13	13
ALKALINITY, BICARBONATE AS CACO3	MG/L	2	240	250	260
ALKALINITY, CARBONATE	MG/L	2	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	2	200	205	210
ALUMINUM	UG/L	2	0	0	0
ANTIMONY, TOTAL	UG/L	2	0	0	0
ARSENIC	UG/L	2	0	0	0
BARIUM	UG/L	2	100	105	110
BERYLLIUM, TOTAL	UG/L	2	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	2	0	0	0
CALCIUM	MG/L	2	52	53.5	55
CHLORIDE	MG/L	2	23	23	23
CHROMIUM, HEX	UG/L	1	0	0	0
CHROMIUM, TOTAL	UG/L	2	0	0	0
COLOR	UNITS	2	0	0	0
COPPER, FREE	UG/L	2	0	0	0
FLUORIDE	MG/L	2	0	0.065	0.13
FOAMING AGENTS (SURFACTANTS)	MG/L	2	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	2	220	225	230
HYDROXIDE AS CALCIUM CARBONATE	MG/L	2	0	0	0
IRON	UG/L	2	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	2	0.57	0.64	0.71
LEAD	UG/L	2	0	0	0
MAGNESIUM	MG/L	2	22	22	22
MANGANESE	UG/L	2	0	0	0
MERCURY	UG/L	2	0	0	0
NICKEL	UG/L	2	0	0	0
NITRATE (AS N)	MG/L	50	5.3	8.66	13
NITRATE + NITRITE (AS N)	MG/L	5	0	5.34	8.3
NITRITE (AS N)	MG/L	2	0	0	0
ODOR THRESHOLD	TON	2	0	0	0
PERCHLORATE	UG/L	4	0	0	0
PH, LAB	pH	2	8.1	8.15	8.2
POTASSIUM	MG/L	2	3.3	3.45	3.6
SELENIUM	UG/L	2	0	0	0
SILVER	UG/L	2	0	0	0
SODIUM	MG/L	2	26	26	26
SPECIFIC CONDUCTANCE	UMHO/CM	6	540	573	640
SULFATE	MG/L	2	21	23	25
TDS	MG/L	2	370	375	380
THALLIUM, TOTAL	UG/L	2	0	0	0
TURBIDITY, LAB	NTU	2	0	0.05	0.1
ZINC	UG/L	2	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	16	0	2.73	6.18
RADIUM-228	PCI/L	2	0.06	0.38	0.7
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	92	0	0.0067	0.01
DIBROMOCHLOROPROPANE	UG/L	4	0.021	0.0428	0.059

OROSI WELL 08 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	5	12	12	12.1
ALKALINITY, BICARBONATE AS CACO3	MG/L	5	140	164	190
ALKALINITY, CARBONATE	MG/L	5	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	5	140	146	160
ALUMINUM	UG/L	5	0	0	0
ANTIMONY, TOTAL	UG/L	5	0	0	0
ARSENIC	UG/L	5	0	2.04	2.8
BARIUM	UG/L	5	0	26.2	66
BERYLLIUM, TOTAL	UG/L	5	0	0	0
BORON	UG/L	2	0	0	0
CADMIUM	UG/L	5	0	0	0
CALCIUM	MG/L	5	36	37.4	40
CHLORIDE	MG/L	5	15	16.4	19
CHROMIUM, HEX	UG/L	2	0	0.315	0.63
CHROMIUM, TOTAL	UG/L	5	0	0	0
COLOR	UNITS	5	0	0	0
COPPER, FREE	UG/L	5	0	0	0
FLUORIDE	MG/L	5	0.14	0.152	0.17
FOAMING AGENTS (SURFACTANTS)	MG/L	5	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	5	140	148	160
HYDROXIDE AS CALCIUM CARBONATE	MG/L	5	0	0	0
IRON	UG/L	5	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	5	0.11	0.214	0.37
LEAD	UG/L	5	0	0	0
MAGNESIUM	MG/L	5	13	13.2	14
MANGANESE	UG/L	5	0	0	0
MERCURY	UG/L	5	0	0	0
NICKEL	UG/L	5	0	0	0
NITRATE (AS N)	MG/L	55	3.84	4.99	7
NITRATE + NITRITE (AS N)	MG/L	4	4.3	4.65	5
NITRITE (AS N)	MG/L	5	0	0	0
ODOR THRESHOLD	TON	5	0	0	0
PERCHLORATE	UG/L	6	0	0.267	1.6
PH, LAB	pH	5	8	8.04	8.2
POTASSIUM	MG/L	5	2.8	2.86	2.9
SELENIUM	UG/L	5	0	0	0
SILVER	UG/L	5	0	0	0
SODIUM	MG/L	5	20	20.8	22
SPECIFIC CONDUCTANCE	UMHO/CM	6	360	398	490
SULFATE	MG/L	5	8.8	10.4	13
TDS	MG/L	5	260	270	280
THALLIUM, TOTAL	UG/L	5	0	0	0
TURBIDITY, LAB	NTU	5	0	0.092	0.18
ZINC	UG/L	5	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	10	-0.44	1.20	2.39
RADIUM-228	PCI/L	2	0.06	0.24	0.41
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	101	0	0	0
DIBROMOCHLOROPROPANE	UG/L	5	0	0.0142	0.024

CUTLER WELL 09 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	4	12	12	12
ALKALINITY, BICARBONATE AS CACO3	MG/L	5	150	180	190
ALKALINITY, CARBONATE	MG/L	5	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	5	150	156	160
ALUMINUM	UG/L	7	0	0	0
ANTIMONY, TOTAL	UG/L	4	0	0	0
ARSENIC	UG/L	4	0	1.58	2.3
BARIUM	UG/L	4	0	49.3	100
BERYLLIUM, TOTAL	UG/L	4	0	0	0
BORON	UG/L	1	0	0	0
CADMIUM	UG/L	4	0	0	0
CALCIUM	MG/L	5	36	39.4	42
CHLORIDE	MG/L	5	20	21.8	23
CHROMIUM, HEX	UG/L	1	0	0	0
CHROMIUM, TOTAL	UG/L	4	0	0	0
COLOR	UNITS	4	0	1.25	5
COPPER, FREE	UG/L	4	0	0	0
FLUORIDE	MG/L	4	0.14	0.153	0.16
FOAMING AGENTS (SURFACTANTS)	MG/L	4	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	5	150	160	170
HYDROXIDE AS CALCIUM CARBONATE	MG/L	5	0	0	0
IRON	UG/L	5	0	0	0
LANGELIER INDEX @ SOURCE TEMP	LANG	4	0.097	0.247	0.42
LEAD	UG/L	4	0	0	0
MAGNESIUM	MG/L	5	14	15	16
MANGANESE	UG/L	5	0	0	0
MERCURY	UG/L	4	0	0	0
NICKEL	UG/L	4	0	0	0
NITRATE (AS N)	MG/L	53	4.2	4.74	5.3
NITRATE + NITRITE (AS N)	MG/L	3	4.5	4.73	5
NITRITE (AS N)	MG/L	4	0	0	0
ODOR THRESHOLD	TON	4	0	0	0
PERCHLORATE	UG/L	5	0	0	0
PH, LAB	pH	5	7.9	8.02	8.2
POTASSIUM	MG/L	5	2.7	2.88	3.1
SELENIUM	UG/L	4	0	0	0
SILVER	UG/L	4	0	0	0
SODIUM	MG/L	5	25	26.2	27
SPECIFIC CONDUCTANCE	UMHO/CM	10	400	430	450
SULFATE	MG/L	5	9.2	11	12
TDS	MG/L	5	290	298	310
THALLIUM, TOTAL	UG/L	4	0	0	0
TURBIDITY, LAB	NTU	4	0	0.09	0.23
ZINC	UG/L	4	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	8	0	0.88	5.21
RADIUM-228	PCI/L	5	0	0.22	1.1
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	40	0	0	0
DIBROMOCHLOROPROPANE	UG/L	30	0	0	0

OROSI WELL 010 WATER QUALITY SUMMARY					
ANALYTE	UNITS	DATA POINTS AVAILABLE	MIN	AVERAGE	MAX
GENERAL					
AGGRESSIVE INDEX	AGGR	5	11.9	12	12
ALKALINITY, BICARBONATE AS CACO3	MG/L	5	120	138	150
ALKALINITY, CARBONATE	MG/L	5	0	0	0
ALKALINITY, TOTAL AS CACO3	MG/L	5	120	124	130
ALUMINUM	UG/L	5	0	0	0
ANTIMONY, TOTAL	UG/L	5	0	0	0
ARSENIC	UG/L	5	0	2.22	3.3
BARIUM	UG/L	5	0	23.2	59
BERYLLIUM, TOTAL	UG/L	5	0	0	0
BORON		0	0	0	0
CADMIUM	UG/L	5	0	0	0
CALCIUM	MG/L	5	28	28.8	30
CHLORIDE	MG/L	5	11	11.8	14
CHROMIUM, HEX	UG/L	2	0	0.395	0.79
CHROMIUM, TOTAL	UG/L	5	0	0	0
COLOR	UNITS	5	0	0	0
COPPER, FREE	UG/L	5	0	0	0
FLUORIDE	MG/L	5	0.13	0.144	0.16
FOAMING AGENTS (SURFACTANTS)	MG/L	5	0	0	0
HARDNESS, TOTAL AS CACO3	MG/L	5	110	120	130
HYDROXIDE AS CALCIUM CARBONATE	MG/L	5	0	0	0
IRON	UG/L	5	0	8.4	42
LANGELIER INDEX @ SOURCE TEMP	LANG	5	-0.14	-0.0142	0.13
LEAD	UG/L	5	0	0	0
MAGNESIUM	MG/L	5	11	11.6	12
MANGANESE	UG/L	5	0	0	0
MERCURY	UG/L	5	0	0	0
NICKEL	UG/L	5	0	0	0
NITRATE (AS N)	MG/L	39	2.5	3.06	3.7
NITRATE + NITRITE (AS N)	MG/L	4	2.8	3.03	3.4
NITRITE (AS N)	MG/L	5	0	0	0
ODOR THRESHOLD	TON	5	0	0	0
PERCHLORATE	UG/L	6	0	0.267	1.6
PH, LAB	pH	5	7.9	7.98	8.1
POTASSIUM	MG/L	5	2.6	2.72	2.8
SELENIUM	UG/L	5	0	0	0
SILVER	UG/L	5	0	0	0
SODIUM	MG/L	5	17	17.4	18
SPECIFIC CONDUCTANCE	UMHO/CM	7	280	300	320
SULFATE	MG/L	5	2.8	3.26	4.2
TDS	MG/L	5	220	230	250
THALLIUM, TOTAL	UG/L	5	0	0	0
TURBIDITY, LAB	NTU	5	0	0.126	0.38
ZINC	UG/L	5	0	0	0
RADIOACTIVE					
GROSS ALPHA PARTICLE ACTIVITY	PCI/L	6	0	0.29	1.51
RADIUM-228	PCI/L	4	0	0.0000	0
ORGANIC					
1,2,3-TRICHLOROPROPANE	UG/L	102	0	0	0
DIBROMOCHLOROPROPANE	UG/L	7	0	0	0

Appendix L: COSWPA MOU Agreement No 29795

BEFORE THE BOARD OF SUPERVISORS
COUNTY OF TULARE, STATE OF CALIFORNIA

IN THE MATTER OF CUTLER OROSI SURFACE WATER PROJECT AUTHORITY MEMORANDUM OF UNDERSTANDING	))))	**Resolution No. 2020-0496** **Agreement No. 29795**

UPON MOTION OF SUPERVISOR TOWNSEND, SECONDED BY SUPERVISOR SHUKLIAN, THE FOLLOWING WAS ADOPTED BY THE BOARD OF SUPERVISORS, AT AN OFFICIAL MEETING HELD AUGUST 18, 2020, BY THE FOLLOWING VOTE:

AYES: SUPERVISORS CROCKER, VANDER POEL, SHUKLIAN, VALERO AND TOWNSEND
NOES: NONE
ABSTAIN: NONE
ABSENT: NONE

ATTEST: JASON T. BRITT
COUNTY ADMINISTRATIVE OFFICER/
CLERK, BOARD OF SUPERVISORS

BY: ______________________
Deputy Clerk

* * * * * * * * * * * * * * * * * * *

Approved a Memorandum of Understanding with the Cutler Orosi Surface Water Project Joint Powers Authority for participation in the Cutler Orosi Surface Water Project for water supply for communities and residents in the north County.

CAO

08/18/2020
ML

Memorandum of Understanding
Water Supply Feasibility

This Memorandum of Understanding ("MOU") is made and entered into effective August 18, 2020 (the "Effective Date") by and among the Cutler-Orosi Surface Water Plant Authority ("COSWPA"), a joint powers agency, and the County of Tulare, ("Tulare County") collectively referred to herein as the "Parties."

Recitals

A. The Parties have concerns over water quality and water supply. The Parties are interested in developing a surface water supply to be used solely or in conjunction with existing groundwater wells to create a stable and potable water supply.

B. The COSWPA was formed between the Cutler Public Utility District "CPUD" and the Orosi Public Utility District "OPUD" to seek grant funding to construct and operate a surface water treatment plant.

C. By this MOU, the COSWPA and Tulare County are stating their joint interest and intent to participate in the planning for the construction and operation of such a plant.

NOW THEREFORE, the Parties agree as follows:

1. Funding. The Parties agree that they will share the preliminary costs as specified in this MOU based on the following proposed division:

COSWPA – 93.41%
Tulare County – 6.59% - Representing estimated capacity for the unincorporated communities of Yettem, Seville (4.39%), and potential users along the planned pipeline routes (2.2%) that would be able to receive treated surface water.

This cost allocation may be modified by separate amendment signed by both parties. The cost allocation is based on the approximate estimate of water each represented community would receive from the surface water treatment plant and the amount of water that would be reserved for use by Tulare County residents in areas adjacent to supply lines that could receive treated surface water.

All costs spent under this MOU shall be tracked by the Parties. Costs may be advanced by one Party on behalf of another Party by separate agreement. However, Parties will be responsible for reimbursing their respective share of all costs incurred.

Parties agree that interest will not be charged on the amounts owed but that they will make best efforts to reimburse the amounts owed as soon as possible.

Prior to adding additional parties, the Parties shall be required to agree in writing to the revised amount of costs owed. Cost responsibilities include amounts that will be incurred

TULARE COUNTY AGREEMENT NO. 29795

moving forward and allocations of amounts previously spent that shall be considered an advanced cost and that will be subject to reimbursement from the additional parties.

2. Grant Funding and Reimbursement. Parties hereby state that it is the intention of the Parties to apply for and obtain grant funding for the construction of the surface water treatment plant, and to apply for and obtain grant funding to reimburse preliminary project costs incurred under this MOU. Parties agree that any eligible grant funding received shall be used to reduce the total amount incurred prior to dividing the applicable share of costs according to the cost share percentages stated in this MOU.

3. Term and Termination of MOU

a. The term of this MOU shall commence on the Effective Date and continue until terminated by a party or for thirty years as allowed under Public Utilities Code section 16885.

b. Each Party reserves the right to terminate this MOU upon sixty (60) days written notice to other party. The obligation to pay or reimburse for agreed-upon costs incurred under this MOU will survive the termination of this MOU and Parties agree to complete such reimbursement within five (5) years from the date of termination.

c. The agree that this MOU does not include the costs of construction, operation, or maintenance of a surface water treatment plant. Parties acknowledge that this MOU is intended to terminate prior to the commitment to fund construction of a surface water treatment plant, so that the Parties will have the opportunity to review the preliminary cost estimates of operating and maintaining the surface water treatment plant before being committed to additional costs. Should any or all Parties agree to jointly move forward with the construction, operation, and maintenance of a surface water treatment then that would be memorialized in a separate agreement, such as a Joint Powers Agreement, between the Parties and any other participating agencies. If no agreement can be reached involving all Parties, then COSWPA or any other Party may move forward with the surface water plant independently or with other participating agencies.

d. Parties agree that if a scheduling conflict occurs concerning the time to finalize any grant application that the COSWPA may decide whether to pursue the grant application, and such application would not be binding on another Participating Agency without that agency's separate approval.

4. Meetings. Any joint meetings of Parties shall be subject to the requirements of the Ralph M. Brown Act and all other California laws regarding open meetings and public records.

5. Costs Subject to Division. Under this MOU the Parties agree to divide the following types of costs based on the applicable cost share percentages listed above:

a. Environmental review of potential site locations.
b. Engineering review, including preparation of a preliminary engineering study of the proposed surface water treatment plant, this also includes geotechnical review of potential site locations.
c. Preliminary discussions with property owner(s) – costs of right of way consultant, including costs to review title, appraisal costs, negotiations over a right of entry and site locations for the plant with the owner of land where site is currently being considered, may also include costs to negotiate an option to purchase the land.
d. Costs to prepare and submit grant or loan applications for the surface water treatment plant.

This would include costs incurred prior to the Effective Date of this MOU.

Parties agree that prior to paying a negotiated amount for an option to purchase land that they would meet to discuss potential ownership and cost responsibility of purchase option if the grant application for construction has not been submitted and the membership of the JPA has not been modified to specifically address the ownership and operation of the plant by the additional communities participating in the grant application.

The costs to form and operate the COSWPA would not be included under this MOU.

6. Data, Studies, and Related Information. Parties agree to provide all data, studies, and related information for the construction of the surface water treatment and to provide such documents upon request between the Parties. All documents prepared or data gathered during the project shall belong equally and shall be shared between the Parties.

7. Notices. All notices relative to this MOU shall be given in writing and shall be personally served or sent by first class mail and be effective upon personal service or by depositing such notice in the United States mail. The Parties shall be addressed as follows, or at any other address as later designated by a Party:

COSWPA:	Cutler-Orosi Surface Water Plant Authority Attn: Dennis Keller, Board Secretary P.O. Box 911 Visalia, CA 93279
Tulare County:	County of Tulare Attn: Denise England 2800 W. Burrel Avenue Visalia, CA 93291

Any party may change its address for the purpose of this Paragraph by giving written notice of such change to the other Participating Agencies in the manner provided for in this Paragraph.

9. Entire MOU. This MOU sets forth the entire agreement among the Participating Agencies and supersedes all other oral or written representations. This MOU may be modified only in a writing approved by all Parties. All exhibits and recitals to this MOU are herein incorporated by this reference

10. No Joint Powers Agreement. No Party or employee of any Party is an agent or employee of any other Participating Agency for any purpose and is not entitled to any of the benefits provided by a Party to its employees. This MOU shall not be construed as forming a partnership or any of other association or separate joint powers agency among the Parties or a separate special district.

11. Dispute Resolution. If a dispute arises between the Parties, then they agree to meet and confer in an attempt to resolve the matter. If no resolution is reached, then parties agree to seek non-binding mediation of the dispute. If resolution is still not reached, then parties may seek formal arbitration or have the matter heard by a court of appropriate jurisdiction.

IN WITNESS WHEREOF, the Parties hereto have executed this agreement to be effective as of the date all parties have executed this agreement.

Cutler-Orosi Surface Water Plant Authority

Johnny Samuel
Board President

Dated 8-10-20

County of Tulare

Chairman. Board of Supervisors

Dated 8/18/2020

APPROVED
By Marit C. Erickson at 12:43 pm, Aug 11, 2020

Approved as to Form
Tulare County Counsel

Dated______________

Appendix M: Orange Cove Permit 03-23-20P-001

State Water Resources Control Board

Division of Drinking Water

January 29, 2020

Mr. Rudy Hernandez, Interim City Manager
City of Orange Cove - 1010023
633 Sixth Street
Orange Cove, CA 93646

REVISED PERMIT NO. 03_23_20P_001

Dear Mr. Hernandez:

On January 11, 2018, Ms. Cristina Knudsen with the State Water Resources Control Board, Division of Drinking Water (Division) conducted an inspection of the City of Orange Cove water system (Water System). The findings of this inspection are detailed in the enclosed engineering report and include a list of deficiencies the City must address by specified timelines. Also enclosed is a Revised Domestic Water Supply Permit approving the use of the new backwash recycling facilities.

A public water system may file with the State Water Resources Control Board (State Water Board) a petition for reconsideration of a decision by the Deputy Director to issue, deny or amend a permit. Petitions must be received by the State Water Board within 30 calendar days of the issuance of the permit, permit amendment or decision. The date of issuance is the date when the Division of Drinking Water mails or serves a copy of the permit, permit amendment, or decision, whichever occurs first. If the 30th day falls on a Saturday, Sunday, or state holiday, the petition is due the following business day. Petitions must be received by 5:00 p.m. Information regarding filing petitions may be found at:

http://www.waterboards.ca.gov/drinking_water/programs/petitions/index.shtml

Please acknowledge in writing by **February 15, 2020,** receipt of this permit. If you have any questions regarding this letter, please contact the Fresno District office at (559) 447-3300.

Sincerely,

José A. Robledo, P.E.
Senior Water Resource Control Engineer, Fresno District
SOUTHERN CALIFORNIA BRANCH
DRINKING WATER FIELD OPERATIONS

JAR/CK
Enclosures

cc: Fresno County Division of Environmental Health
Mr. Andy Valencia, Chief Operator, 602 2nd Street, Orange Cove, CA 93646

STATE WATER RESOURCES CONTROL BOARD

DIVISION OF DRINKING WATER

Certificate of Issuance

OF A

WATER SUPPLY PERMIT

ISSUED TO

City of Orange Cove
For The Operation of The
City of Orange Cove Water System
System No. 1010023

This is to certify that a water supply permit **03-23-20P-001** has been issued to, City of Orange Cove for the Operation of the City of Orange Cove Water System, on **January 29, 2020,** to supply water for domestic purposes to the City of Orange Cove Water System. The permit was issued by the State Water Resources Control Board, pursuant to the provisions of Division 104, Part 12, Chapter 4, Article 7, of the California Health and Safety Code. The permit is subject to the requirements of Title 22, California Code of Regulations, and to the conditions provided in the water supply permit.

A copy of the water supply permit is on file with the City of Orange Cove Water System or may be obtained by contacting the State Water Resources Control Board, Division of Drinking Water, Fresno District at 265 W. Bullard Ave., Ste. 101, Fresno, CA 93704.

José A. Robledo, P.E. – Fresno District Senior Sanitary Engineer

STATE OF *CALIFORNIA*

REVISED
DOMESTIC WATER SUPPLY PERMIT

Issued To
City of Orange Cove

Public Water System No. 1010023

By The

State Water Resources Control Board
Division of Drinking Water

PERMIT NUMBER: 03-23-20P-001 **DATE:** January 29, 2020

WHEREAS:

1. The City of Orange Cove submitted an application to the State Water Resources Control Board, Division of Drinking Water (Division) on November 29, 2016 for a permit amendment to the Domestic Water Supply Permit issued to the City of Orange Cove on February 25, 1999. The application was submitted for the addition of a backwash reclaim system, in accordance with California Health and Safety Code, Section 116525. The existing domestic water supply permit is greater than 10 years old and is no longer representative of the system. Therefore, the State Water Resources Control Board, Division of Drinking Water (Division) is issuing a revised water supply permit.

2. This public water system is known as the City of Orange Cove Water System (City) whose headquarters is located at 633 Sixth Street, Orange Cove, CA 93646.

3. The legal owner of the water system is the City of Orange Cove. The City, therefore, is responsible for compliance with all statutory and regulatory drinking water requirements and the conditions set forth in this permit.

4. The public water system for which the permit application has been submitted is as described briefly below (a more detailed description of the permitted system is described in the attached Engineering Report):

   The City owns and operates a community water system. It treats surface water obtained from the Friant-Kern Canal at it's Surface Water Treatment Facility comprised of two treatment plants; Plant A and Plant B. Treatment Plant A utilizes conventional treatment and has a design capacity of 1.5 million gallons per day (MGD). Treatment Plant B utilizes an alternative filtration and has a design capacity of 1.5 MGD. Following treatment, the water is chlorinated and is also treated with zinc orthophosphate for corrosion control. Treated water is sent to a 2.0-MG clearwell tank and is then sent to distribution.

And WHEREAS:

1. The City has submitted all of the required information relating to the proposed operation of the City's Water System.

2. The Division has evaluated all of the information submitted by the City and has conducted a physical investigation of the existing Water System.

3. The Division has the authority to issue domestic water supply permits pursuant to Health and Safety Code Section 116540.

THEREFORE: The Division has determined the following:

1. The *City's* Water System meets the criteria for and is hereby classified as a *community* water system.

2. The design of the proposed water system complies with the Water Works Standards and all applicable regulations.

4. The applicant has demonstrated adequate technical, managerial, and financial capacity to operate reliably the proposed water system.

5. Provided the following conditions are complied with, the *City's* Water System should be capable of providing water to consumers that is pure, wholesome, and potable and in compliance with statutory and regulatory drinking water requirements at all times.

THE CITY OF ORANGE COVE IS HEREBY ISSUED THIS DOMESTIC WATER SUPPLY PERMIT TO OPERATE THE CITY'S WATER SYSTEM.

The City's Water System shall comply with the following permit conditions:

1. The only sources approved for potable water supply are as follows:

Approved Sources

Source	PSCode	Status
FRIANT KERN CANAL - RAW	1010023 – 002	ACTIVE

2. The only approved treatment for the City includes the following processes:

Approved Treatment

Source	PSCode	Treatment
ORANGE COVE WTP - TREATED	1010023 – 007	SURFACE WATER TREATMENT & DISINFECTION
TRT PLNT – CORROSION CONTROL	1010023 – 011	CORROSION CONTROL

3. No changes, additions, or modifications shall be made to the sources or treatment mentioned in Conditions No. 1 and 2 unless an amended water permit has first been obtained from the Division.

4. The City shall not allow water intended for drinking water purposes to bypass any required treatment process, at any time.

5. All water supplied by the City for domestic purposes shall meet all applicable Maximum Contaminant Levels (MCLs) established by the California Division of Drinking Water. If the water quality does not comply with the California Drinking Water Standards, treatment shall be provided to meet standards, subject to permit approval.

6. All personnel who operate the distribution and treatment facilities shall be certified in accordance with Title 22, Sections 63765 and 63770, California Code of Regulations. The Water System shall be operated by a D2 certified distribution operator or higher and T3 certified treatment operator or higher.

7. The City shall comply with Title 17 of the California Code of Regulations, to prevent the water system and treatment facilities from being contaminated from possible cross-connections. The City shall maintain a program for the protection of the domestic water system against backflow from premises having dual or unsafe water systems in accordance with Title 17. All backflow prevention devices shall be tested annually.

8. The Water System shall submit an electronic Annual Report (eAR) to the Division of Drinking Water each year, documenting specific water system information for the prior year. The report shall be in the format specified by the Division.

9. The Water System shall maintain an up-to-date Emergency Notification Plan (ENP) identifying how customers will be notified in the event of a water quality emergency. The Water System shall refer to the ENP for phone numbers to contact the Division after normal business hours in the event of a water quality emergency.

10. The Water System shall prepare a Consumer Confidence Report on an annual basis, which must be distributed to customers and a copy provided to the Division by July 1 of each year.

11. All chemicals used in the water system, including chlorine, shall be certified under NSF/ANSI Standard 60. All water system equipment and materials that come into contact with the drinking water shall be certified under NSF/ANSI Standard 61 to demonstrate the material does not leach any contaminants into the drinking water.

12. The City's surface water treatment facility shall be operated in accordance with an approved Operations Plan and permit provisions cited in this permit. Any proposed changes to the Operations Plan shall be submitted to the Division for review and approval prior to implementation.

13. The water system shall continuously provide a minimum of 2-logs (99%) of Cryptosporidium reduction, 3-logs (99.9%) of Giardia lamblia reduction and 4-logs (99.99%) of virus reduction through filtration and disinfection at the City's surface water treatment plant (SWTPs), Plant A and Plant B. Compliance with this requirement is defined by California Code of Regulations (CCR) Title 22 Sections 64652, 64653, 64654, 64655, 64656, 64660 and 64664.

CONVENTIONAL TREATMENT

14. The City is permitted to operate Plant A, the original conventional treatment plant, provided that compliance is maintained with the turbidity performance standards outlined in the Surface Water Treatment Rule of the California Code of Regulations (CCR), Title 22, Chapter 17. In addition, the City shall monitor the clarified and filtered water turbidity daily from Plant A. The water turbidity data shall be reported to the Division in the monthly SWTP report.

15. Plant A is approved for a maximum operating capacity of 1.5 MGD. This SWTP shall not be operated at a maximum flow in excess of the total permitted capacity without first applying for and obtaining an amended permit from the Division.

16. The conventional SWTP, operated in compliance with the Title 22 sections listed in Provision 13 above and a Division approved Operations Plan, shall be credited with 2-logs of *Cryptosporidium* reduction, 2.5-logs of *Giardia lamblia cyst* reduction and 2-

logs of virus reduction through filtration. The remaining reduction of Giardia lamblia and virus shall be achieved through disinfection.

17. The water system shall monitor the turbidity of the raw water and settled water pursuant to CCR Title 22 Section 64654.8(b)(1)(2). The water system shall continuously monitor the turbidity of each Individual Filter Effluent (IFE), and Combined Filter Effluent (CFE) pursuant to CCR Title 22 Section 64655. The results of the IFE and CFE monitoring shall be recorded at least once every 15 minutes while the plant is in operation. If there is a failure of the IFE and CFE continuous monitoring equipment, the water system shall collect grab samples for turbidity every four hours, but continuous monitoring shall be reinitiated within 48 hours of system failure or maintenance interruption for the CFE turbidimeters and within five (5) working days for the IFE turbidimeters.

18. The Plant A shall be operated in accordance with the following CFE turbidity criteria while the plant is in operation:

    a. Be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month;
    b. Not exceed 1 NTU for more than one continuous hour;
    c. Not exceed 1 NTU at four-hour intervals; and
    d. Not exceed 1.0 NTU for more than eight consecutive hours.

ALTERNATIVE FILTRATION

19. Plant B is approved for a maximum operating capacity of 1.5 MGD. This SWTP shall not be operated at a maximum flow in excess of the total permitted capacity without first applying for and obtaining an amended permit from the Division.

20. The City is permitted to operate Plant B, the package water treatment plant, provided that the filtered water turbidity remains below 0.2 NTU in 95 percent of monthly samples collected in 15-minute intervals. Plant B is credited with 2.0 logs of *Giardia cysts* removal and 1.0 log of virus removal when the effluent turbidity ranges from 0.2 to 0.3 NTU. For effluent turbidity levels less than 0.2 NTU, Plant B will be credited with 2.5 logs of *Giardia cysts* removal and 2.0 logs of virus removal. The City is required to monitor the effluent turbidity in accordance with the Surface Water Treatment Rule of the CCR, Title 22, Chapter 17. In addition, the City shall monitor daily the clarified water turbidity form Plant B. The clarified water turbidity data shall be reported to the Division in the Monthly SWTP report.

21. The IFE turbidimeters at Plants A and B and CFE used for compliance reporting shall be calibrated using the procedure specified by the turbidimeter manufacturer. The procedure and frequency for verifying and calibrating turbidimeters shall be included in the water system's Division approved Operations Plan. Turbidimeter calibration

records, including date, model, location of turbidimeter, and procedures used shall be maintained.

RECYCLED FLOW

22. Return all recycled flows to the headworks of the treatment facility. The recycled water flows shall not exceed 10 percent of the raw water flow into either Plant A or Plant B.

23. The City shall handle water treatment plant recycled flows per a Division approved Operations Plan.

CORROSION CONTROL

24. The City is approved to use Zinc Orthophosphate for corrosion control.

25. The City must submit a revised Operations Plan for Division review and approval which describes the corrosion control treatment utilized by the City. The Operations Plan is due by **March 31, 2020** specifying an operational pH level range and optimal pH level.

MONITORING, RECORDKEEPING, AND REPORTING

26. In accordance with the California Waterworks Standards (Section 64561, California Code of Regulations), monthly water production records shall be maintained for each active source and shall be reported to the Division annually on the Annual Report to the drinking Water Program.

27. All source chemical water quality monitoring shall be reported to the Division electronically by the analyzing laboratory using the assigned primary station codes as shown in Provision 2 above.

28. The City shall monitor the raw surface water source, before chlorination, monthly for total coliform and *E. coli* bacteria. The coliform tests shall be performed using a density analytical method and results reported in units of MPN/100 mL. The results from the source monitoring shall be submitted monthly to the Division by the 10th day of the following month.

29. The Water System shall monitor for coliform bacteria in the distribution system in accordance with the approved Bacteriological Sample Siting Plan. The Water System shall follow the Bacteriological Monitoring Requirements whenever any distribution system sample shows the presence of total coliform bacteria. The Division shall be notified immediately if either of the following occur:

    - Any distribution system or source sample shows the presence of E. coli bacteria

- The water system exceeds the maximum contaminant level for total coliform bacteria, in which more than one sample shows the presence of coliform bacteria during a month.

30. The disinfectant residual concentration of the water delivered to the distribution system shall be measured and recorded continuously pursuant to CCR Title 22 Sections 64656 (c)(e). The water entering the distribution system shall not contain a disinfectant residual less than 0.2 mg/L for more than four hours in any 24-hour period.

31. The City shall submit a monthly surface water treatment plant report, signed by a person directly responsible for plant operation, on the operation of the SWTPs, Plants A and B, by the 10th day of the following month that includes, but not limited to, daily amount of water treated, average raw water turbidity results, daily combined filter effluent turbidity levels collected in 15 minute intervals, daily disinfection contact time calculations.

32. Following the corrosion control treatment process, the City is required to monitor each treated water entry point at least once every two weeks for pH and orthophosphate levels (dosage rate and concentration). In addition, the City is required to monitor at least two taps for pH, alkalinity and orthophosphate levels every six months.

33. As part of the monthly SWTP Report, the City must submit the following:

    a. Daily recycled flows and the frequency with which recycled flows are returned
    b. The average and maximum flow rates through the filters;
    c. The average durations of the filter backwash process in minutes;
    d. Daily maximum turbidity readings.

34. The City shall include in the monthly report to the Division the following information;

    a. Total volume treated with zinc orthophosphate during the month;
    b. pH field results summarized in a table;
    c. Orthophosphate results summarized in a table;
    d. Results of any special investigations related to the treatment system and emergency and scheduled interruptions.

This permit supersedes all previous domestic water supply permits and permit amendments issued for this public water system, except for Permit Amendment 2017PA-SCHOOLS issued on January 17, 2017, which is expressly incorporated by reference herein and which continues to be in full force and effect from the date of issuance. This permit shall remain in effect unless and until it is amended, revised, reissued, or declared to be null and void by the Division. This permit is non-transferable. Should the *City* undergo a change of ownership, the new owner must apply for and receive a new domestic water supply permit.

Any change in the source of water for the water system, any modification of the method of treatment as described in the Engineering Report, or any addition of distribution system storage reservoirs shall not be made unless an application for such change is submitted to the Division.

This permit shall be effective as of the date shown below.

FOR THE STATE WATER RESOURCES CONTROL BOARD

José A. Robledo, P.E.
Fresno District Engineer

Dated: 1/29/2020

Engineering Report
For the Consideration of a Permit Amendment for
City of Orange Cove
System No. 1010032
Fresno County
January 2020

State Water Resources Control Board
Division of Drinking Water
Cristina Knudsen, P.E., Water Resource Control Engineer

A. INTRODUCTION

In November 2016, the City of Orange Cove (City) submitted a permit amendment application to the State Water Resources Control Board, Division of Drinking Water (Division) to install and operate a backwash reclaim system at the City's existing surface water treatment facility. The purpose of the following engineering report is to describe the facilities and operational practices, as they exist today and to make a recommendation for the issuance of a revised domestic water supply permit to the Water System that will include the approval of the newly installed backwash reclaim system.

The City currently operates a domestic water system under the existing Water Supply Permit No. 03-11-99P-001 issued by the State Water Resources Control Board, Division of Drinking Water (formerly the California Department of Health Services) on February 25, 1999. The existing permit allows for the operation of two surface water treatment plants: Plant A (conventional) and Plant B (alternative filtration technology). Some of the permit provisions are no longer applicable, since the groundwater sources are no longer active.

On January 11, 2018, State Water Resources Control Board, Division of Drinking Water (Division) staff conducted an inspection of City of Orange Cove's (City) drinking water supply system. Mr. Andy Valencia, Chief Operator, Mr. David Lopez, Water Operator with the City were in attendance. Also, in attendance was Mr. Alfonso Manrique, the City's contract engineer, with AM Consulting Engineers. The last inspection was conducted by Arnold Hatai on December 18, 2013.

The findings listed in the 2013 inspection are provided below and are followed by the status for each item:

1. The Friant Water Authority (FWA) is planning a full flow treatment of the Friant-Kern Canal in Spring 2014. On December 18, 2013, we sent an email to Eric Quinley with the FWA regarding this issue. The City will need to take all necessary measures to maintain adequate source capacity and water quality during any herbicide treatment.

    Status: Source capacity is an ongoing concern, particularly during times of drought or when the canal is chemically treated, sometimes making the surface water unusable for an extended period of time. The City has been awarded a funding agreement through the SWRCB Drinking Water State Revolving Fund for a basin lining project to help assure the existing basins can hold water during planned water outages. Currently, the existing basins cannot hold water for more than 30 days. Ultimately, the City will need to construct an additional fourth basin to meet source water capacity during times when *the Friant-Kern Canal is shut down for extended periods of time for maintenance and repair.*

2. The City has been directed to provide quarterly updates on its progress to increase source capacity for any new developments before they can be approved. In the next update, please include a list of plant improvements that should be in the next major capital improvement project. The City's water meter project is proceeding and requires the City perform a water rate review. As a result of our inspection, it is recommended that the following items be addressed in any project to increase capacity:

   a. Add a raw water turbidity alarm due to the turbidity spikes that originate from storm water discharges that can adversely affect Plant B, which is an alternative technology and is required to meet a lower turbidity performance standard of 0.2 NTU in 95 percent of monthly samples collected at 15-minute intervals.

      Status: The City has been awarded a funding agreement that will include some improvements to Plant B to address some operational needs.

   b. Upgrade the backwash solids settling capacity and drying bed capacity to accommodate the higher plant demands. During the last upgrade, the capacity was not increased. Recycling of the backwash water should be evaluated and our office contacted regarding the requirements of the Filter Backwash Rule requirements (flow and turbidity monitoring requirements).

      Status: A new backwash reclaim system has been installed and is now in operation and recycles clarified backwash water back to the headworks of the two treatment plants.

   c. Evaluation and rehabilitation of the Plant A upflow contact clarifier. It continues to provide little, if any, turbidity reduction.

      Status: The City has been awarded funding to add a new surface water treatment plant to replace Plant A. The City has submitted both design plans and specifications to the Division for review and approval.

   d. Capability to adjust chlorination dosages entering and leaving the clearwell based on any changes in chlorine demand.

      Status: Currently, the City is having to manually adjust the chemical metering pump for chlorination.

   e. Upgrade the SCADA system to accommodate the needs for above items.

      Status: An upgraded SCADA system is still needed.

3. The City schedules regular contract inspections of the filters. The filter media was replaced in 2011 in Plant B and 2012 in Plant A. The City operators have conducted inspections in-house annually, but it is recommended that a full inspection by a qualified contractor be conducted at least every 5 years or earlier if there is reduction in filter

performance or any evidence of problems during operator examinations (excessive media loss, reduced filter runs, etc.). The inspections should be based on the time period the media was replaced.

Status: On-going

4. As a drought mitigation measure, we understand the City plans to recirculate its backwash water, but this requires capital improvements to the pond system. The existing backwash ponds do not provide adequate settling to comply with the operational requirements. Please contact our office when the design of the system is under development for our review and comments.

   Status: Completed. A new backwash handling facility has been installed.

5. The City is encouraged to make efforts to enforce its water service ordinance and connect private homes within its service area given the known water quality problems in the areal groundwater. Also, to make efforts to serve existing private residences when new water mains are installed.

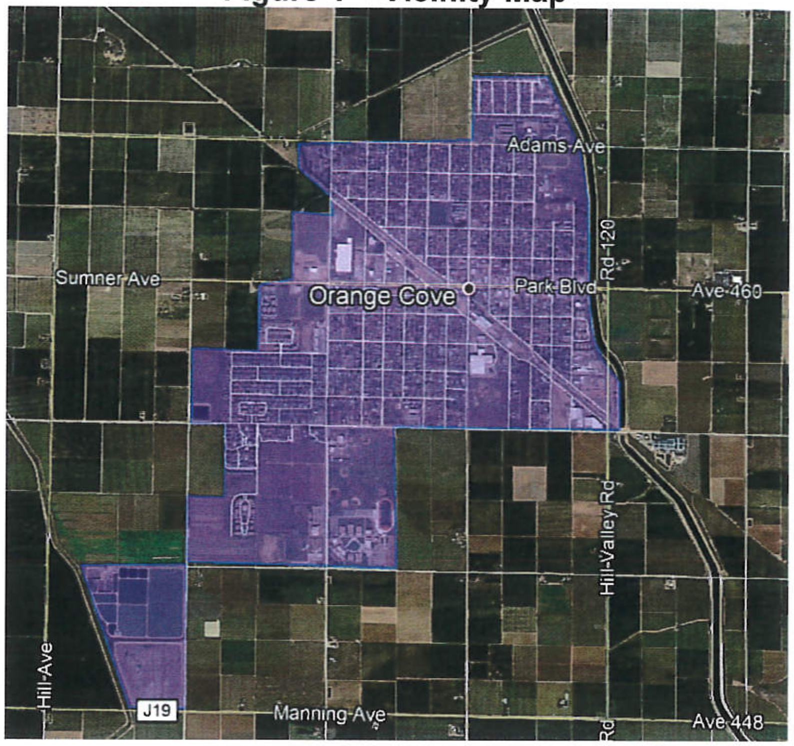
   Status: Due to inadequate source capacity, the Division does not approve any additional development within the City where additional water service is needed.

B. BRIEF DESCRIPTION OF SYSTEM

The City's water system is classified as a community water system, serving a permanent population of about 9,780 people through 1,694 service connections. It is located approximately 35 miles southeast of the City of Fresno within Fresno County. See Figure 1 for a vicinity map of the City.

Raw surface water from the Friant-Kern Canal serves as the City's single source of supply. Raw water is treated at the City's surface water treatment facility comprised of two treatment plants (Plants A and B) owned and operated by the City. Plant A is a conventional treatment plant and Plant B is considered an alternative filtration technology. Filtered water is disinfected prior to entering the two million-gallon clearwell. The clearwell is used to achieve the required chlorine contact time prior to entry into the distribution system. A backwash return system has recently been added to the treatment facility. The return system recycles less than 10 percent of the spent backwash water to the headworks, only when the filtration plants are operating.

Figure 1 – Vicinity Map



During times when the Friant-Kern Canal is taken down for maintenance (i.e. herbicide application by the Friant Water Authority), the City relies on three existing basins to temporarily store raw water for treatment. The basins are not sufficiently lined and allow water to slowly percolate into the subsurface. It is estimated that these basins hold less than a 30 day of supply. This poses an issue for the City during times when the Friant Water Authority plans routine maintenance on the canal for extended periods of time.

Water service rates are currently billed using a flat base-rate. Water meters have been installed however a tiered water rate structure has not been implemented to date. The City owns and operates a wastewater treatment facility that services water users within the City's service boundaries.

C. ENFORCEMENT HISTORY

The City has been issued four (4) enforcement actions since the last sanitary survey was completed in 2013. More recently, the City was issued a revised Compliance Order 03_23_17R_001 in February 27, 2017 for noncompliance with the source capacity requirement. This compliance order remains in effect today. Table 1 summarizes the enforcement actions since year 2013 and provides a brief discussion for each action.

Table 1: Summary of Recent Enforcement Actions

Enforcement Action	ID	Date	Violation
Enforcement Letter	03-23-15E-034	02/04/15	LCR Monitoring & Reporting
Compliance Order	03_23_17R_001	02/27/17	Source Capacity
Citation	03-23-18C-056	04/20/18	LCR Monitoring & Reporting
Notice of Violation	03-23-19N-025	03/13/19	1,2,3-TCP Monitoring & Reporting

Enforcement Letter No. 03-23-15E-034, Issued on February 4, 2015
This enforcement letter was issued to the City for failing to conduct the triennial lead and copper tap sampling that was due to the Division by September 30, 2014. The City was required to conduct tap sampling at 20 monitoring sites.

Status: Sample tap monitoring was conducted in August 2014 and the results were submitted to the Division. The City was returned to compliance with the lead and copper rule.

Compliance Order No. 03_23_17R_001 (Revised), Issued on February 27, 2017
This revised compliance order was issued to the City for failure to ensure that sufficient water is available from the water source and distribution reservoirs to adequately, dependably, and safely supply all users under maximum day demand conditions. The revision was issued to correct the compliance deadline of March 31, 2020.

Status: The Compliance Order remains in effect.

Citation No. 03-23-18C-056, Issued on April 20, 2018
This citation was issued to the City for failing to conduct the triennial lead and copper tap sampling that was due to the Division by September 30, 2017. The City was required to conduct tap sampling at 20 monitoring sites.

Status: Sample tap monitoring was conducted in September 2018 and results were submitted to the Division. The City was returned to compliance with the lead and copper rule.

Notice of Violation No. 03-23-19N-025, Issued on March 13, 2019
1,2,3-trichloropropane (1,2,3-TCP) is a newly regulated contaminant, falling under the synthetic organic chemical (SOC) group of constituents. As with all newly regulated SOCs, Water Systems must satisfy the initial monitoring requirements comprised of four consecutive quarters of monitoring for 1,2,3-TCP to determine compliance with the maximum contaminant level of 0.000005 mg/L. A Notice of Violation was issued to the City for failure to conduct 1,2,3-TCP monitoring of the raw water source during the fourth quarter of the 2018 calendar year.

Status: The City monitored for 1,2,3-TCP on March 13, 2019, thereby satisfying the initial monitoring requirements. The violation has been returned to compliance.

D. SOURCE OF SUPPLY

Surface water from the Friant-Kern Canal is the City's only source of supply. Raw water enters the City's surface water treatment facility through an intake structure where water is pumped from a concrete vault into two surface water treatment plants; Plant A and Plant B. These plants are standalone plants that typically operate in a parallel configuration. The combined filtered effluent is disinfected and sent to a clearwell prior to delivery to customers. For more discussion about the treatment plants, see Section F – Treatment. Table 2 provides the Primary Station Codes (PSCode) assigned to the approved raw water source and associated treated water source.

Table 2: Approved Raw and Treated Sources

Source Name	PSCode	Status
FRIANT KERN CANAL - RAW	1010023-002	Active
ORANGE COVE WTP - TREATED	1010023-007	Active

ACTIVE SOURCE

The Friant-Kern Canal (Canal) is an element of the Central Valley Project managed by the U.S. Bureau of Reclamation (USBR). The Friant Water Authority, through contract with the USBR, is responsible for the operation and maintenance of the Canal. The Canal runs approximately 152 miles from the town of Friant to the Kern River in Bakersfield. It receives water from Millerton Lake, an impoundment of the San Joaquin River, that ultimately collects drainage from the western slopes of the Sierra Nevada Mountain Range. The Friant Water Authority manages delivery of the San Joaquin River water supply via the Friant-Kern Canal, on behalf of the Friant Division Contractors of the Federal Central Valley Project.

The City has a water contract with the USBR allocating 1,400 acre-feet (ac-ft) per year or roughly 456 million gallons (MG) per year. To provide for future growth, the City entered a long-term Friant-Kern Canal water transfer agreement with the Lower Tule Irrigation District for an additional 2,000 ac-ft of water. It provides for a series of 500 ac-ft options that require a one-time payment of $250,000 per increment. The City has exercised its first 500 ac-ft option and now has an annual allotment of 1,900 act-ft as a long-term right. However, this right is dependent on drought conditions and can be reduced during years with low snowpack. The City anticipates increasing its surface water allotment, as recommended by the City's engineering consultant for the planned surface water treatment plant expansion.

Watershed Sanitary Survey – A sanitary survey was prepared for the watershed but was divided into two segments; the upper watershed that feeds the Friant-Kern Canal and the areas along the canal. The 2008 Updates to the watershed sanitary surveys are on file at the Fresno District office. The reports were prepared and implemented by a joint Memorandum of Understanding (MOU) between ten water suppliers: Bass Lake Water Company, County of Madera, Fresno County Waterworks No. 18, City of Orange Cove, City of Lindsay, Lindsay-Strathmore Irrigation District, Strathmore Public Utilities District, Terra Bella Irrigation District, Kern County Water Agency and City of Fresno. Watershed sanitary surveys are to be conducted every five years with completed reports submitted to the Division for review and approval. The same water suppliers, with the addition of County of Fresno, coordinated another joint effort for the preparation and implementation of the 2019 Update. A draft copy of the 2019 Update, prepared by Keller/Wegley Engineering, is on file with the Fresno District office and is under review.

Source Water Assessment – A source water assessment was completed in 2003 and is on file with the Fresno District office. According to the assessment, the Friant-Kern Canal is considered most vulnerable to the following activities not associated with any detected contaminants including; agricultural drainage, sewer collection systems, utility stations-maintenance areas, metal plating/finishing/fabricating and plastics/synthetics producers.

INACTIVE SOURCES

The City inactivated all groundwater sources of supply (Wells 03, 05, 06 and 08) during 2003 and 2004, due to low production capacity and elevated nitrate levels. The groundwater wells were connected to a transmission line that blended at the intake of the surface water treatment plant to comply with the nitrate maximum contaminant level. At present, the City's sole source of supply is surface water. According to records, the wells have been inactivated and abandoned; but have not been destroyed.

E. WATER PRODUCTION AND ADEQUACY OF SUPPLY

According to the City's 2018 electronic Annual Report (eAR), submitted to the Drinking Water Program, the City provides water service to 1,575 residential and 119 commercial/industrial connections. According to the California Drinking Water Regulations, all public water systems are required to record the water production from their sources on a monthly basis and report them to the Division in the eAR.

Table 3 provides the City's historical water production summary that includes the number of service connections, maximum month demand, maximum day demand and peak hour demand. The table includes annual production values provided by the City for each year shown below. Equations obtained from the California Waterworks Standards were used to estimate maximum day and peak hour demands when data was not provided in the eAR. These values are identified with an asterisk.

Table 3: Historical Water Production

Year	Total Annual Production (MG)	Service Connections	Maximum Month Demand (MG)	Maximum Day Demand (GPM)	Peak Hourly Demand* (GPM)
2018	435.2	1,694	50.40 (Mar)	1,200	1,800
2017	416.0	1,666	52.73 (Jul)	1,772*	2,658
2016	471.9	1,610	53.26 (Jul)	1,790*	2,685
2015	412.9	1,531	40.90 (Jul)	1,000	1,500
2014	507.3	1,508	61.04 (Jul)	1,600	2,400
2013	580.2	1,485	66.38 (Jul)	2,000	3,000
2012	564.4	1,479	65.95 (Jul)	1,800	2,700
2011	549.1	1,483	73.01 (Jul)	2,000	3,000
2010	614.6	1,465	76.36 (Jul)	1,900	2,850
2009	**677.9**	**1,455**	**76.56 (Jul)**	**2,000**	**3,000**

Based on the historical water production summary provided in Table 3, the City's year with the greatest annual water production occurred in 2009, where 677.9 million gallons of water was produced. The most recent water production values have significantly decreased with the promotion of water conservation (year 2015) and the installation of water meters. Currently, all service connections are metered, however a tiered water rate structure has not been implemented. The year with the highest maximum day demand (MDD) and peak hourly demand (PHD) was 2009 at 2,000 gpm and 3,000 gpm, respectively. The MDD yielded approximately 2.88 million gallons per day (MGD).

In accordance with the California Waterworks Standard, all public water systems are required to have source capacity to meet the City's MDD. In addition, systems with more than 1,000 service connections shall also be able to meet the four hours of PHD utilizing source, storage and/or emergency source connections. The City has a two-million-gallon storage tank that in tandem with the two surface water treatment plants, can meet the City's MDD of 2.88 MGD. The surface water treatment plants are estimated to have a combined treatment capacity of 2,100 gpm or about 3 MGD. The four-hour peak demand at 3,000 gpm equates to approximately 720,000 gallons which can be easily met by the storage tank alone. However, the existing clearwell is considered an integral part of the disinfection process, used to achieve the required chlorine contact time. The City needs to plan for the installation of a designated storage water tank to meet the required four hours of PHD and maximum day demands.

The City's water system can meet both maximum day demand and peak hour demand. However, the poor condition of Plant A, does not ensure reliable treatment capacity. It is recommended that the City move forward with planned improvements to the surface water treatment facility to ensure uninterrupted service to customers. Planned improvements should include the addition of an appropriately sized water storage tank.

F. TREATMENT

The following section will provide descriptions of each component of the City's overall surface water treatment facility. Photographs of the various processes can be found in Appendix A.

Emergency Raw Water Storage

The City owns three raw water storage ponds which are typically bypassed during normal operations. On occasion, the Friant Water Authority will shut down sections of the Friant-Kern Canal for maintenance and/or repair. Maintenance activities can include chemical application for treatment of weeds and aquatic vegetation. Longer shutdowns occur about every three to five years and can last for a period of weeks to several months, depending on the level of structural maintenance and repairs needed within the canal.

Upon notification of a pre-scheduled canal outage from the Friant Water Users Authority, the City will store raw surface water in the three storage basins that lie east of the treatment facility, located approximately 900 feet east of the canal. The shutdowns lower the canal water level below the City's raw water intake. The City's turnout currently has a bar rack installed.

Together, the three basins have a total storage capacity of 140 ac-ft (two 49 ac-ft and one 45.4 ac-ft capacity earthen reservoirs). They are utilized to help maintain uninterrupted water service during canal shutdowns and provide flexibility when the canal water yields high turbidities. Two of the three storage basins have high percolation rates, limiting the holding capacity during long canal shutdown periods. Attempts have been made to artificially seal the ponds to improve water retention, however, these projects were unsuccessful. The City is currently planning a basin lining project as part of the upgrades to the surface water treatment facility.

As previously mentioned, the City was issued Compliance Order No. 03_23_17R_001 due to the City's inability to provide a source of supply that can adequately, dependably, and safely service all users under maximum day demand conditions. In addition to lining the basins, the City will need to add a fourth basin to help meet the source capacity demand during normal canal shutdowns.

Surface Water Treatment Plant (SWTP)

To meet the requirements of the Surface Water Treatment Rule (SWTR), the City's water system must meet a minimum 2-log reduction for *Cryptosporidium* and 3-log reduction/inactivation for *Giardia lamblia cysts*, and 4-log reduction/inactivation for viruses. The City's surface water treatment facility utilizes two types of treatment plants: conventional filtration (Plant A) and alternative filtration (Plant B) technologies. Each plant has a treatment capacity of about 1.5 MGD or 1,050 gpm.

As required by the SWTR, each surface water treatment plant must provide multi-barrier treatment. Table 4 provides a breakdown of the filtration credits for physical microbial removal along with the needed disinfection/inactivation credits for each specific filtration technology.

Table 4 – Filtration Credits for Microbial Removal

Filtration Treatment Technology	Combined Filter Effluent Turbidity (95% Monthly/Max) NTU	Maximum Logs of Credit for Physical Removal			Minimum Log inactivation Credit for Disinfection	
		Cryptosporidium	Giardia	Viruses	Giardia	Viruses
Conventional	0.3/1	2	2.5	2.0	0.5	2.0
Alternative*	0.2/1	2	2.5	2.0	0.5	2.0
*Removal credits are dependent upon treated effluent turbidity levels. This table provides the minimum logs of credit for physical removal based on the current permit provisions.						

As stated in the City's current Water Supply Permit No. 03-11-99P-001, Plant B, which utilizes an alternative filtration technology treatment process, can receive a 2.5-log removal credit for *Giardia cysts* and a 2.0-log removal credit for viruses so long as treated water turbidities of 0.2 NTU or lower are produced using the 95 percentile readings. However, if turbidities between 0.2 NTU to 0.5 NTU are produced, the plant is only credited with 2.0-logs of *Giardia cysts* removal and 1.0-log of virus removal therefore requiring higher inactivation requirements. Consequently, with California's adoption of the Federal Long Term 1 Enhanced Surface Water Treatment Rule, the permitted upper limit of 0.5 NTU was later reduced to 0.3 NTU in accordance with the new performance standard requirements. Table 4 provides the more stringent permit condition to show the minimum logs of credit given for physical removal.

The startup and shutdown of the water treatment plants are controlled by the water level at the clearwell. Prior to entering the treatment plants, raw surface water from the Friant-Kern Canal first passes through the City's intake structure equipped with a bar screen. The screened raw water flows through an existing USBR flow meter, into a concrete vault and wetwell. The wetwell holds three 20-horsepower (hp) vertical turbine pumps. Each of these transfer pumps is capable of pumping at the design flow of 1,050 gpm into the discharge manifold that splits into two flow streams feeding treatment Plants A and B. During normal operation, only two raw water transfer pumps are in service. The third raw water transfer pump has been installed for redundancy.

The intake facilities include a separate above ground manifold equipped with a flow meter. The flow meter was originally installed to capture flows from the active groundwater sources that were used to blend with surface water. The groundwater sources were inactivated in 2003 and 2004. The pipeline connecting the groundwater sources has since been severed and capped. The inactive wells, however, are still present and have not yet been destroyed.

Pretreatment for Plants A & B – Chemical pretreatment consists of an alum-based polymer blend and a low-dose injection of chlorine. The polymer is injected first followed by chlorine. The chemically treated water then passes through an in-line static mixer. The injected polymer blend promotes coagulation of the suspended particles found in the raw surface water. Currently, the City manually adjusts the chemical feed pumps based on the turbidity levels of the incoming raw water.

Polymer – The City uses Pro Pac 926 for it's polymer blend. It's manufactured by NTU Technologies, Inc and is certified as meeting NSF/ANSI Standard 60. According to the

NSF website, Pro Pac 926 is listed as having a maximum use dosage of 83 mg/L. At the time of the inspection, the City was dosing polymer (Pro Pac 926) at 3 mg/L through use of two ProMinent chemical metering pumps, one for each plant. Each pump has a rated capacity of 1.1 gallons per hour (gph) at a maximum pressure of 145 pounds per square inch (psi). During times of high raw water turbidity, the operator has reported dosages as high as 16 mg/L. A chemical tank with double containment is used to store the polymer which is fed neat.

Pre-chlorination – Following the polyblend injection, the City then prechlorinates the incoming water with a 12.5-percent strength solution of sodium hypochlorite, (Chem Chlor) manufactured by Chem Quip Inc. Chem Chlor is NSF/ANSI Standard 60 certified and has a maximum use dosage of 84 mg/L. Sodium hypochlorite is injected using a Blue-White Flexflo® peristaltic chemical metering pump. It has a maximum feed capacity of 3.96 gph at a maximum pressure of 100 psi. Dosages range between 0.3 mg/L to 0.1 mg/L.

Following chemical injection, the water passes through an inline static mixer. The water line then splits into two feedlines to feed the individual surface water treatment plants, Plants A and B.

Plant A – Plant A was originally constructed in 1974 and is comprised of a concrete circular upflow flocculator-clarifier followed by four modular sand filters. At the time of the inspection, Plant A was in use however was taken offline on January 25, 2018 for yearly maintenance and inspection.

Upflow Clarifier – Water first enters the mixing zone (center hood) of the clarifier from the bottom, where mechanical mixing and flocculation occur. Flocculated solids settle to the bottom of the basin, forming a sludge blanket. According to the operator, the clarifier was last drained and cleaned in the summer of 2017. The condition of the clarifier is overall poor, as there are signs of concrete deterioration on the interior clarifier walls and signs of corrosion of the submerged steel components.

The clarifier measures 37 feet in diameter and has a volume of 84,000 gallons. The top of the flocculation hood has a diameter of 13 feet. There are eight radial launders measuring 11 feet in length placed in a wagon wheel arrangement. The weir loading rate is approximately 6 gpm per foot of weir length. At the maximum flow rate of 1,050 gpm, the surface overflow rate and detention time are approximately 1.1 gpm/ft^2 and 80 minutes, respectively. Clarified water flows into the launders which divert the flow to a collection vault where the water then flows to four rapid sand filters for gravity filtration.

The settled solids found at the bottom of the clarifier are routinely pumped to the sludge handling facilities.

Rapid Sand Filtration – Filtration is provided by two declining rate gravity filters that each contain two cells. Each cell measures 12 feet by eight feet, yielding a total surface area of 384 square feet (ft^2). The filter media is comprised of 18 inches of anthracite coal that sits on top of nine inches of sand. The filters are contained in open-top modular steel tanks. Flow into each filter is controlled through use of a float-controlled throttling butterfly valve on each discharge header. The filtration rate is about 2.7 gpm/ft^2 at the design flow rate of 1,050 gpm. Filtered water is then disinfected and sent to a buried concrete tank prior to entering the two million-gallon clearwell.

At the time of the inspection, Filters No. 3 and 4 were the only filters in use at Plant A. Filters No. 1 and 2 were out of service due to faulty actuators. The actuators were replaced in March 2018. During the inspection, it was noted that the tank walls were showing signs of corrosion.

Each filter cell is backwashed using treated water from the clearwell. The backwash sequence is comprised of a surface wash, backwash/surface wash combination, and then backwash that is followed by filter-to waste cycle. The filter is left idle for a specified time to stabilize the media before the filter is placed back into service. If the turbidity of the filtered water exceeds 0.3 NTU, the filter is automatically placed into filter-to-waste mode until the turbidity level drops below 0.3 NTU. Currently, an individual cell can be backwashed while the other three filters remain in service.

Plant B – Plant B is a Roberts Filter Group Pacer II® adsorption clarifier-filtration system that was originally constructed in 1996. It is comprised of two identical treatment trains, each measuring eight feet by 20 feet with an operating depth of eight feet. Together, the trains can treat a total flow of 1,050 gpm or 525 gpm each. Each train consists of the proprietary ContaClarifier® and conventional gravity tri-media filter. The trains can operate independently of each or in tandem.

Contact Clarifier – Following chemical pretreatment, water flows into the clarifier through the bottom. Water flows upwards though a bed of course non-buoyant media, combining flocculation and clarification into one process. Clarified water is then channeled into the adjacent filtration process.

According to the previous sanitary survey report, the clarifier has a surface area of 52.78 ft^2, a bed volume of 211.1 ft^3 and a hydraulic loading rate (overflow rate) of 9.95 gpm/ft^2. The detention time is calculated at 6 minutes, based on the surface area and operational depth of eight feet using the design flowrate of 525 gpm. Based on this detention time, the process is considered a high-rate process.

Every four hours and prior to filter backwashes, the adsorption media in the clarifiers is flushed by increasing the influent raw water flow (media expansion) followed by an air scour cycle. A containment screen is suspended above the non-buoyant media to prevent the loss of media during the cleaning process (media expansion and air scouring).

Filtration – Clarified water enters the tri-media filter, allowing for gravitational filtration through the filter bed. According to the previous sanitary survey report, the tri-media filter has a surface area of 105.56 ft^2 with a filtration rate of 4.97 gpm/ft^2, assuming the design flow rate of 525 gpm. The water level at each filter is modulated at the filter effluent to maintain a constant water level above the media bed. The tri-media bed is comprised of the following media types shown in Table 5:

Table 5: Dual Pacer II Tri-Media

Media Type	Depth	Specifications
Anthracite (top)	18 inches	Effective Size 1.0 – 1.1 mm Uniformity Coefficient of 1.65
Silica Sand	9 inches	Effective Size 0.45 – 0.55 mm Uniformity Coefficient of 1.5
Garnet Sand	3 inches	Effective Size 0.25 – 0.35 mm Uniformity Coefficient of 1.8
Garnet Gravel (bottom)	3 inches	Effective Size 1.0 – 3.0 mm

A perforated polyvinyl chloride (PVC) underdrain system lies under a gravel layer at the bottom. Filtered water is then disinfected and sent to a buried concrete tank prior to entering the two million-gallon clearwell.

Initiation of the filter surface wash and backwash sequences are automated and occur once a day. The sequence consists of a surface wash followed by a backwash/surface wash combination and a backwash followed by three to five minutes of a filter-to-waste cycle. The train is then placed into service. However, if the turbidity of the filtered water exceeds 0.2 NTU, the filter is automatically placed back into rinse-to-waste mode until the turbidity level drops below 0.2 NTU.

Disinfection – Filtered water from Plants A and B combines and receives post-chlorination. The water is then conveyed to a buried concrete tank before being pumped into the clearwell.

Post-chlorination – Filtered water from both treatment plants is injected with a 12.5-percent strength solution of sodium hypochlorite, (Chem Chlor) manufactured by Chem Quip Inc. Chem Chlor is NSF/ANSI Standard 60 certified and has a maximum use dosage of 84 mg/L. The sodium hypochlorite is stored in a large storage container used to supply chemical to both the raw water and treated water flows. The sodium hypochlorite solution is injected using a Blue-White Flexflo® peristaltic chemical metering pump.

Operation of all chemical feed equipment is prompted via SCADA when a signal is triggered, indicating the treatment plant(s) are in use. Chemical feed rates are adjusted manually. Disinfection is paced to maintain a chlorine residual in the finished water clearwell of at least 1 mg/L.

Corrosion Control – Beginning in 2006, the City began implementing zinc orthophosphate for corrosion control in lieu of the previously used chemical, caustic soda. The City conducts weekly sampling at the designated sample point at the water treatment plant and also monitors once every two weeks from within the distribution system. There are two sites located at the furthest points in the distribution system that are monitored on a rotational basis (1426 South Ave. and 1205 Adams Ave.). These sites also serve as routine bacteriological sampling sites and are found in the northwest and southwest corners of the distribution system. According to monthly monitoring reports, the City is maintaining a zinc orthophosphate concentration of about 0.5 mg/L, monitored as phosphorous (P), at both locations. The City currently utilizes a test kit with a color wheel for concentration measurements.

Zinc Orthophosphate – Zinc orthophosphate is used a corrosion inhibitor and is NSF/ANSI Standard 60 certified. It is stored in 250-gallon to 350-gallon totes in the chemical storage area inside the Control Building at the Treatment facility. The zinc orthophosphate solution is injected into the filtered water prior to entering the 34,000-gallon underground storage tank. The City uses two Prominent metering pumps for chemical injection. Each metering pump has a rated capacity of 1.1 gph.

By March 31, 2020, the City needs to provide the Division with a revised Operations Plan to describe the current operations at the plant and include the corrosion control treatment system. The Operations Plan shall consist of a description of all treatment facilities; operating personnel, including number of staff, certifications levels and responsibilities; procedures used to determine chemical does rates; monitoring locations and sampling frequency for water quality parameters; records; response to plant emergencies and chemicals used. The plan should include a range of pH levels allowed within the distribution system and the optimal pH level.

Backwash Reclaim Facility

The Backwash reclaim facility is comprised of the following: a backwash receiving basin, sedimentation basin, polymer injection and sludge dewatering. According to the Operator, the backwash reclaim facility returns clarified spent backwash flow from the sedimentation tank to the head of the SWTPs. The PLC allows a backwash return flow of exactly nine percent of the overall daily treated flow. The following subsections provide a detailed description for each individual handling process.

Backwash Receiving Basin – The SWTP has a backwash receiving basin that collects spent filter backwash water from the Plant B contact clarifiers and receives the spent rinse water used in between backwash cycles. At times, the basin is also designed to receive overflow water from the 2-MG clearwell, in addition to water drained from the bottom of the backwash sedimentation tank. In event of an emergency, an 18-inch overflow pipe connecting the receiving basin to the storm drain can be used to prevent an overflow event at the basin.

The receiving basin measures 40 feet by 25 feet. The basin floor slopes toward the center, having a maximum depth of 11 feet. The basin is equipped with a submersible 1400-gpm pump furnished with a 30-hp electric motor. The pump transfers spent backwash water into the adjacent sedimentation tank or alternatively can transfer water to the raw water storage ponds. An ultrasonic level sensor at the receiving basin triggers the operation of the submersible pump. According to the Operator, the pump is called into operation at a 6.5-foot water level and will shut-off at a two-foot water level in the receiving basin or when the high-water level at the sedimentation tank is reached. A low-low level switch will also shut-off the pump, in the event the ultrasonic level sensor fails. The transfer pump is triggered when the water level in the sedimentation tank is at a low-water level of 12 feet. The receiving basin transfer pump will shut-off once the high-water level of 20 feet is reached.

Sedimentation Tank – Backwash water from the receiving basin is pumped into a 230,000-gallon bolted-steel sedimentation tank. Prior to entry into the tank, the water is dosed with a polymer to facilitate coagulation of suspended solids for gravitational settling and aids in the sludge dewatering process.

Polymer Injection – The backwash handling facility includes a polymer feed building that houses the polymer feed system. The feed system is comprised of a 50-gallon polymer drum and a skid-mounted chemical metering pump, manufactured by Velodyne, used for polymer injection. The metering pump has a maximum rated pressure of 100 psi and a polymer flow range of 0.25 to 5.0 gph. Polymer dosage is flow paced.

The City has the capability of injecting polymer at two locations using this polymer metering system. The first injection site is located upstream of the sedimentation tank. The second injection site is located upstream of the sludge dewatering box. The operator must manually control where polymer injection will occur. Operation of the polymer metering pump is triggered when flow is detected through installed flowmeters found upstream of each of these two processes. Following polymer injection, the chemically treated flow passes through a static mixer to encourage conglomeration.

The polymer used is AE212P (a polyacrylamide polymer) manufactured by NTU Technologies. It is NSF/ANSI Standard 60 certified and has a maximum use dosage of 3 mg/L, according to the NSF Product listing website. The chemical comes as a 40 percent stock and is diluted down to 0.5 percent.

Following polymer injection, the water is top fed into a 25-foot high, 39-foot diameter sedimentation tank. The chemically treated backwash water is then allowed to settle for three hours before decanting occurs, according to the operator. The settling time is adjusted based on the incoming backwash water quality. The sedimentation tank is equipped with an ultrasonic level sensor and a floating decanter that is connected to the Backwash Reclaim Pump. The Reclaim Pump will decant clarified water to the head of the surface water treatment process until a low-level setpoint is reached. The sedimentation tank also has an 18-inch diameter overflow line that directs water back into the backwash receiving basin, in the event the tank is overfilled.

Backwash Reclaim Pump – The sedimentation tank is equipped with a floating decanter connected to a backwash reclaim pump. The reclaim pump has a 3-hp electric motor with a variable frequency drive (VFD). The reclaim pump conveys clarified water from the sedimentation tank back to the raw water wet well located at the head of both surface water treatment plants (Plants A and B). The reclaim pump is automated. A modulating-valve on the discharge line of the decanter restricts the reclaim flow to nine percent of the surface water treatment flow. **According to the Operator, the returned nine percent flow is not based on the instantaneous flow entering the SWTP process. The return flow is currently based on the total daily treated flow.** According to the Operations Plan dated March 2017, the reclaim pump is set to shut-off at a low-water level of 10-feet.

Once the allotted settling time in the sedimentation tank has been reached (3 hours), an actuating valve opens triggering the operation of the reclaim pump. The floating decanter includes a strainer and it draws water from below the surface preventing any unsettled solids from being pumped and discharged at the raw well. The reclaim pump will shut-off once the low-water level setpoint is reached.

A turbidimeter is located on the reclaim discharge pipeline. Turbidity setpoints of 20 NTU and 50 NTU trigger the high reclaim turbidity warning and alarm, respectively.

Sludge Mixing System – The sludge mixing system is comprised of a mixing pump with a 50-hp electric motor, and mixing eductors that are mounted on the sedimentation tank floor. The sludge mixing system serves to maintain a uniform sludge blanket within the tank and prevents sludge buildup along the tank circumference. The mixing pump draws water from the center of the tank and discharges it through the mixing eductors.

Following each decant cycle, the sludge mixing pump is called into operation for a specified duration. The sludge mixing pump can also be used to drain the sedimentation tank and will return flow back to the backwash receiving basin by adjusting the valving on the discharge piping manifold.

Sludge Pump – The sludge pump is located adjacent to the sludge mixing pump. The sludge pump is equipped with at 7.5-hp electric motor. It draws water from the sedimentation tank sharing the same discharge pipeline as the mixing pump. The sludge pump is manually operated and transfers sludge from the sedimentation tank to the sludge dewatering box. Following pumping, the sludge flow is immediately injected with polymer (AE212P). The same facilities providing polymer prior to the sedimentation tank are also used to provide polymer to the sludge flow. The polymer helps to enhance sludge formation.

Sludge Dewatering Box – The dewatering box is a Flotrend Sludgemate. The sludge flow first enters the box through a PVC pipe equipped with a camlock connection. Water from the dewatering process gravity flows out of the box through bottom outlet ports and is piped back to the backwash receiving basin. The accumulated solids are periodically emptied from the box and are temporarily stored in the nearby concrete, sludge drying bed area. The sludge will be periodically taken to the City's wastewater treatment plant for temporary storage before final disposal.

F. RESERVOIRS AND BOOSTER PUMPS

34,000-Gallon Storage Tank – Post-chlorinated water from Plants A and B flows into the 34,000-gallon underground concrete storage tank. This storage tank was last inspected and cleaned in 2004. Treated water is then pumped into the adjacent two million-gallon above-ground clearwell by three finished-water transfer pumps. Operation of the transfer pumps is triggered based on the water level inside the clearwell. The pumps are equipped with VFDs. The transfer pumps are called to service by SCADA which regulates the water level of the clearwell. There is also a fourth transfer pump at this tank that supplies backwash water at Treatment Plants A and B.

Two-Million Gallon Clearwell –The clearwell reservoir was constructed in 1973. It measures 100 feet in diameter and has a height of 34.5 feet. Proper ventilation is provided at the top center of the clearwell; although it was not inspected at the time of the inspection. **The City will need to provided photo documentation showing the vent screen is intact and in good condition by February 29, 2020.** The clearwell is also equipped with an external overflow line that feeds the storm drain.

Post-chlorinated water enters the two-million-gallon welded-steel clearwell through an internal top feed line. A bottom outlet, located one foot above ground level, connects to a manifold equipped with five booster pumps that feeds the distribution system. The fifth booster pump is engine-driven and is only used during emergencies to meet fire flow demand. The other pumps are high-head electric pumps with a combined capacity of 4,600 gpm. The pumps consist of the following motor power and design flowrate capacities: 30-hp at 600 gpm, 50-hp at 950 gpm, 75-hp at 1,550 gpm, and 75-hp at 1,500 gpm. The two largest pump motors include VFDs that are controlled by the SCADA system.

G. DISTRIBUTION SYSTEM

Water Mains – The pipeline network in the distribution system consists primarily of 4-inch to 8-inch diameter pipe. According to the 2018 eAR, about 60 percent of the distribution system is comprised of asbestos cement that is around 40 years in age. The remaining 40 percent is comprised of C-900 PVC that is about 15 years in age.

One pressure zone exists within the distribution system. System pressure are maintained between 50 and 70 psi. The distribution system is looped except for seven dead-end lines which are flushed annually.

The water mains are in good condition. During the year 2018, no mainline breaks occurred according to the City's 2018 eAR. However, the City did report 24 service connection breaks/leaks in the same annual report. According to the previous sanitary survey, distribution mains are in the streets and the sewers are located in alleys.

Existing mains are repaired by the City personnel or, at times, the work may be contracted out. The City attempts to first repair a main break under pressure but will isolate and de-water the main if the break is too large. All repairs, replacement mains, and new mains are performed in accordance with AWWA Standard specifying disinfection and flushing procedures along with bacteriological sampling.

Valves – A total of 220 valves were reported in the 2018 eAR of which 22 valves were exercised. The valve size ranges from 4-inches to 12-inches in diameter. Valve exercising occurs on an "as needed" basis.

H. WATER QUALTIY MONITORING

SOURCE MONITORING

Bacteriological Monitoring – Currently, the City is conducting routine weekly bacteriological monitoring of the source water from the Friant-Kern Canal. This monitoring consists of total coliform, fecal coliform, and *E. coli* bacteria sampling. The raw water samples are reported in MPN/100 ml. A summary of the raw water data is available in the Source Bacteriological Monitoring Report in Appendix B.

Long Term 2-Enhanced Surface Water Treatment Rule – The Federal Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) was promulgated in January 2006 to address the health risk from *Cryptosporidium*. For water systems serving less than 10,000 persons (Schedule 4 water systems), the second round of source water monitoring for *E. coli* bacteria was to begin on October 1, 2017. The City submitted their LT2ESWTR Sampling Schedule in August 2017 which was approved by the Fresno District office. The schedule specified which weeks *E. coli* bacteria monitoring would be conducted at two-week intervals. Table 6 provides a summary of the E. coli bacteria results from October 2017 through to September 2019.

Table 6 – LT2ESWTR Monitoring Results for *E. coli* Bacteria

Date	*E. coli* Bacteria Result (MPN/100 mL)	Date	*E. coli* Bacteria Result (MPN/100 mL)
10/4/2017	<1.8	3/21/2018	4
10/18/2017	4	4/4/2018	27
11/1/2017	2	4/18//18	7.8
11/15/2017	<1.8	5/2/2018	17
12/6/2017	2	5/16/2018	33
12/20/2017	2	6/6/2018	11
1/3/2017	NA	6/22/2018	2
1/17/2017	NA	7/11/2018	11
1/24/2018*	2	7/27/2018	7.8
1/31/2018*	<1.8	8/8/2018	2
2/7/2018	<1.8	8/22/2018	<1.8
2/21/2018	<1.8	9/5/2018	<1.8
3/7/2018	NA	9/19/2018	<1.8
3/16/2019*	<1.8	**Annual Mean**	**5.6**

According to Table 6, *E. coli* bacteria results for some scheduled samplings were not available. Dates shown with an asterisk are sample dates closest to a sample date specified in the City's monitoring plan. These values were used to calculate the 12-month annual mean of 5.6 MPN/100 mL. *Cryptosporidium* monitoring is not required for water systems that have an annual mean *E. coli* concentration of less than 10 MPN/100 mL. Because *E. coli* levels are less than this trigger, *Cryptosporidium* monitoring is not required, and the City's bin classification will stay the same.

Source Classification and Data Submittal – The Friant Water Authority operates the Friant-Kern canal, the conveyance system the City utilizes to obtain its source of supply. The City's surface water source is classified as a CLSA (Community, Large, Surface Water, Agricultural).

All source water quality monitoring compliance is based on the sample results found in the Division's Water Quality Inquiry (WQI) database. All chemical water quality monitoring from the surface water source must be submitted to the Division's WQI database by electronic data transfer (EDT). The City must label the samples with the correct primary station code (PS Code) for the laboratory to submit the sample results electronically. A summary report of the City's most recent water quality data available in WQI is provided in Appendix C. The Last Sample Date and Monitoring Schedule report for the City is found in Appendix D.

General Mineral, General Physical and Inorganic Chemicals – Surface water sources are required to be sampled annually for most secondary/general physical (GP) and inorganic (IO) chemicals. Raw water samples collected from the surface water source were last sampled for secondary and inorganic chemicals in March 2019, except for bicarbonate alkalinity, carbonate alkalinity, hydroxide alkalinity which were sampled in September 2019. Asbestos and nitrite monitoring were last sampled in June 2011 and March 2019, respectively. The results for all sampled constituents were in compliance with their respective maximum contaminant levels (MCLs). **The next round of source water sampling for most of the Secondary/GP, and IO chemicals is due to the Division by March 31, 2020.** Please refer to Appendix D for the next due sample dates for each constituent.

Color – A secondary drinking water standard has been established for color. The secondary MCL is 15 Units. Color is typically caused from naturally occurring organic materials found in the source water. In July 2016, March 2017, and Mach 2019, the City's sample results showed color levels of 15, 30 and 45 units, respectively.

Volatile Organic Chemicals (VOC) Monitoring – The initial monitoring requirement for VOCs requires water systems to collect four quarterly samples. Once initial monitoring requirements have been satisfied, VOC monitoring will be reduced to an annual frequency schedule if results show no VOC detections. However, for the City, VOC monitoring can be further reduced to once every three years for the surface water source. However, a monitoring waiver request must be submitted by the City to the Division for review and approval. The initial monitoring requirement for VOCs has been satisfied. VOC monitoring for all required constituents was last conducted in September 2019. All water quality sample results since the completion of the last sanitary survey inspection showed nondetectable VOC concentrations. **The next round of source water sampling for VOCs is due to the Division by September 30, 2022 by EDT.**

Synthetic Organic Chemicals (SOC) Monitoring – The initial monitoring requirements for SOCs requires water systems to collect four consecutive quarterly samples for all required SOC contaminants. Once initial monitoring requirements have been satisfied, SOC monitoring will be reduced to two consecutive quarters every three years, if results show no SOC detections. Only 1,2,3-trichloropropane (1,2,3-TCP), alachlor, atrazine, 2,4-D, endothall and simazine require monitoring. Monitoring for all other SOC constituents has been waived. Once the initial monitoring requirement has been satisfied, monitoring of the six SOCs can be reduced to every three years, unless there is a detection. However, a monitoring waiver request must be submitted by the City to the Division for review and approval. The City has satisfied the initial monitoring requirements for all SOC constituents, including 1,2,3-TCP. **The next round of source water sampling of all SOCs, except 1,2,3-TCP, is due to the Division by September 30, 2022 by EDT. The next 1,2,3-TCP sample is due to the Division by March 31, 2022.**

1,2,3–Trichloropropane (TCP) - 1,2,3-TCP is a chemical that is not naturally occurring in the environment. It is a manufactured chemical typically found in discharges related to solvent use. In 1999, the Division established a 0.005 µg/L drinking water notification level for 1,2,3–TCP. Notification levels are health-based advisory levels established by the Division for chemicals in drinking water that currently lack MCLs; however, are candidates for future regulation based upon detections in numerous sources, and potential of adverse health effects. 1,2,3-TCP is *reasonably anticipated to be a human* *carcinogen* based on sufficient evidence of carcinogenicity from various experimental studies of animals. In December 2017, California established an MCL of 0.000005 mg/L (0.005 μg/L) for 1,2,3-TCP.

Beginning January 1, 2018, water systems were required to begin initial monitoring, consisting of four-consecutive quarterly samples for 1,2,3-TCP at all sources of supply. The City has collected four quarterly samples in which all results yielded nondetectable 1,2,3-TCP concentrations. The monitoring frequency for 1,2,3-TCP has, thereby, been reduced to once every three years.

Radiological Monitoring – The initial monitoring requirements for gross alpha (GA) and radium-228 have been satisfied. Monitoring for uranium, radium-226 and radium-228 is only triggered under the following conditions where analysis of the same GA water sample must be used:

If GA + (0.84)(Gross Alpha Counting Error) > 5 pCi/L
then uranium analysis is required

If GA + (0.84)(Gross Alpha Counting Error) – U > 5 pCi/L
then radium-226 and radium -228 analysis is required

The on-going monitoring frequency for GA is determined based on the last sample result, prompting either a 3-year, 6-year or 9-year monitoring schedule for GA. The last GA sample collected in March 2017 resulted in a nondetectable concentration, which places the source on a 9-year monitoring frequency for GA. **The next GA sample is due to the Division via EDT by March 31, 2026.**

SURFACE WATER TREATMENT RULE MONITORING COMPLIANCE

The SWTR requires the turbidity and chlorine residual to be measured and recorded for the evaluation of the treatment plant's performance for removal of *Cryptosporidium* and the removal/inactivation of both *Giardia cysts* and viruses. Table 4 provides the filtration credit for microbial removal based on the type of surface water treatment process used.

Effective inactivation for *Giardia* and viruses is determined by chlorine contact time (CT). Filtration performance determines the effective *Giardia,* viruses, and *Cryptosporidium* removal. Each month, the City submits to the Division a "*Monthly Summary of Monitoring for Surface Water Treatment Regulations*" for SWTR compliance. This report includes turbidity and chlorine monitoring data, as well as calculations for CT compliance at the clearwell.

Turbidity Performance Requirements – The Long Term 1 Enhanced Surface Water Treatment Rule (LT1) applies to all public water systems using surface water serving fewer than 10,000 people and requires these water systems to provide at least 2.0-log *Cryptosporidium* removal. Conventional treatment facilities (i.e. Plant A) must achieve a combined filter effluent turbidity level of less than or equal to 0.3 NTU in at least 95 percent of measurements taken each month to receive credit for the required 2-log cryptosporidium removal. Treatment facilities using an alternative filtration technology (i.e. Plant B) must achieve a combined filter effluent turbidity level of less than or equal to 0.2 NTU in at least 95 percent of measurements taken each month to receive credit for the required 2-log cryptosporidium removal. The maximum turbidity level of the combined filter effluent must not exceed 1.0 NTU at any time.

The surface water treatment facility is equipped with the following turbidimeters (not including the unit installed at the backwash reclaim facility): HACH Surface Scatter 6 continuous turbidimeter (Raw Water), eight HACH 1720E turbidimeters. **HACH is discontinuing support of the 1720E turbidimeters and will no longer provide replacement parts nor servicing of units. It is recommended that the City plan for the replacement of these units within the next five years.**

At the time of the inspection, the raw water turbidimeter was giving faulty reads and grab samples were therefore collected. A new raw water turbidimeter was installed in March 2018 and is located on the feed line that directly feeds Plant B.

The surface water treatment facility is equipped with an alarm system operated through the SCADA system software which records individual filter turbidity reading for both Plants A and B, and the combined effluent turbidities at each plant. The SCADA system is connected to an auto-dialer that is activated if turbidity setpoints are exceeded at any plant.

Plant A Filters – There are two filter trains that operate in parallel with two cells each. Each filter cell is equipped with an on-line turbidimeter, HACH 1720E. The combined filter effluent is also equipped with a HACH 1720E turbidimeter. Individual turbidimeter alarms are triggered for values of 0.3 NTU or higher. An alarm is also triggered if the combined filter effluent exceeds 0.3 NTU.

Plant B Filters – There are two filter trains operating in parallel. Each filter is equipped with a HACH 1720E on-line turbidimeter. A HACH 1720E continuous on-line turbidimeter is located on the combined finished water line. Individual turbidimeter alarms are triggered for values of 0.2 NTU or higher. An alarm is also triggered if the combined filter effluent exceeds 0.3 NTUs.

The two treatment plants are operated independent of each other, due to the different turbidity performance standards. Table 7 provides the turbidity standards for each type of filtration technology.

Table 7: Turbidity Performance Standards

Filtration Treatment Technology	Combined Filter Effluent Turbidity (95% Monthly) NTU	Combined Filter Effluent Turbidity (Max) NTU
Plant A - Conventional	0.3	1
Plant B - Alternative	0.2	1

According to the submitted *Monthly Summary Reports,* during 2018 the 95th percentile values for turbidity at Plant A ranged between 0.06 NTU to 0.288 NTU. These values were below the 0.3 NTU performance standard; thereby compliance with the LT1 turbidity performance standards was met. The average percent reduction in turbidity during 2018 ranged between 89.6 percent and 97.8 percent. However, Plant A was taken out of service in February, March, November and December during 2018.

Plant B is credited for 2.5-logs of *Giardia cysts* removal and 2.0-logs of virus removal if the filtered water turbidity is maintained below 0.2 NTU (as calculated using the 95 percentile readings). According to those same submitted *Monthly Summary Reports,* during 2018 the 95th percentile values for turbidity at Plant B ranged between 0.04 NTU and 0.117, meeting compliance with the LT1 turbidity performance standards. The average percent reduction of turbidity during 2018 ranged between 92.2 percent and 98.7 percent.

Disinfection Compliance – The City's water system is required to achieve a minimum of 0.5-log *Giardia* inactivation through the disinfection process at the SWTP. Log inactivation through disinfection is based on the disinfection residual (C) multiplied by the contact time (T) referred to as "CT", or "CT achieved" measured as:

$$C \times T = mg/L{*}min, \text{ delivered dose}$$

Where:

C is the disinfectant residual (mg/L)
T is the exposure or contact time (minutes)

The "CT achieved" value is calculated based on the daily minimum disinfectant (chlorine) residual concentration recorded on the discharge side of the clearwell prior to the first connection and is based on the lowest water level of the clearwell at peak flow. The CT achieved value is compared to the CT required value using the ratio:

$$CT_{Ratio} = CT_{Achieved}/CT_{Required}$$

The "CT required" is calculated based on values obtained from generated tables listing derived CTs using various parameters including chlorine residual, clearwell baffling factor, lowest daily water temperature, and highest daily pH. The CT ratio must be greater than or equal to one (1) in value to show that the CT achieved is greater than or equal to the CT required.

There is a two-million-gallon clearwell tank that provides the required chlorine CT and thus, is an integral part of the SWTP process needed to meet SWTR compliance. The CT calculations provided in the *Monthly Summary Reports* do not account for prechlorination at the 34,000-gallon tank found ahead of the two-million-gallon clearwell.

Table 8 provides a list of the CT parameters:

Table 8: CT Calculation Parameters

Parameter	**Value**	**Description**
Flow (gpm)	Q =	Peak daily flowrate in gpm
Clearwell Volume per foot	V = 57,971	Gallons/Ft
Clearwell Baffling Factor	$T_{10}/T = 0.1$	Poor Baffling
Chlorine Residual	C =	measured in mg/L at first customer (min. value)
High pH	pH =	Highest daily treated pH
Low Temperature	T =	°C low temperature daily

The two-million-gallon storage tank is credited with a baffling factor of 0.1. A tracer study has not been conducted and is not needed at this time. However, if improvements are made to the clearwell in the future, a tracer study may be required at that time.

This City is required to achieve a minimum of 0.5-log *Giardia cysts* inactivation through the disinfection process at the SWTP. According to the submitted 2018 monthly surface water treatment reports, chlorine residuals can fluctuate between 0.5 mg/L and 1.9 mg/L. These monthly summary reports also show CT ratios ranging from 6.58 to 46.19.

A HACH CL-17 analyzer continuously monitors the chlorine residual leaving the clearwell. SCADA is used to monitor the treatment plant operations including, but not limited to, water tank elevation levels, pH levels, turbidity levels, and free chlorine residuals. The SCADA system is connected to an automatic phone dialer that is activated following a low-level detection. The low-level chlorine alarm is triggered when a free chlorine of 0.7 mg/L or less is detected at the effluent.

DISTRIBUTION SYSTEM MONITORING

Bacteriological monitoring – The City is required to collect a minimum of three bacteriological samples from the distribution system each week based on population served. Typically, the City has been collecting 16 samples per month. However, the City will collect 20 samples during those months that have five weeks. A bacteriological sample siting plan (BSSP) dated September 15, 2016 is on file with the Fresno District office. The plan provides eight routine site locations along with associated repeat sample site locations found upstream and downstream of the routine sample site. A summary of the distribution monitoring since 2015 is included in Appendix E. The City has complied with the revised total coliform rule maximum contaminant level since the last inspection.

Lead and Copper Rule – The Lead and Copper Rule requires community and nontransient–noncommunity waters systems to monitor lead and copper levels at the consumers' taps. Water systems are required to conduct standard tap samplings for two consecutive six-month periods at a minimum number of sites, based upon water system size. Compliance with the lead and copper action levels is based on the 90th percentile lead and copper levels. This means that the concentration of lead and copper must be less than or equal to the action level in at least 90 percent of the samples collected. The action levels for lead and copper are 0.015 mg/L and 1.3 mg/L, respectively.

The City is currently placed on a triennial monitoring frequency for lead and copper tap monitoring and is required to collect 20 tap samples. A summary of the historical lead and copper tap sample results is included in Appendix F. The most recent sampling was conducted in September 2018, with concentrations measuring nondetect for lead and 0.15 mg/L for copper. **The next round of lead and copper tap monitoring is due to the Division by September 31, 2021.**

Lead Service Line Inventory Requirement – Existing law requires public water systems (PWS) to take specified actions to test for and remediate certain contaminants in drinking water, including lead and copper. Existing law prohibits the use of any pipe, pipe or plumbing fitting or fixture, solder, or flux that is not "lead free" in the installation or repair of any public water system or any plumbing in a facility providing water for human consumption, except as specified. Senate Bill (SB) 1398 became effective on September 27, 2016 and added Section 116885 to the Health and Safety Code (HSC), which was later amended (SB 427) on September 11, 2017. HSC Section 116885 required Community Water Systems (CWS) to compile an inventory of known lead user service lines in use in its distribution system and identify areas that may have lead user service lines (user service lines whose content cannot be determined) in use in its distribution systems by July 1, 2018. "User service line" means the pipe, tubing, and fittings connecting a water main to an individual water meter or service connection.

HSC Section 116885 requires CWS, after completing the inventory, to provide a timeline for replacement of known lead user service lines in the distribution system to the SWRCB. In addition, by July 1, 2020, CWS with areas that may have lead user service lines in use in its distribution system must either determine the existence or absence of lead user service lines in these areas and provide that information to the SWRCB, or provide a timeline for replacement of the user service lines whose content cannot be determined. The SWRCB must approve the replacement timeline.

According to the 2018 electronic annual report, the City reported that 1,694 service laterals are comprised of high-density polyethylene (HDPE). All service line pipes and fittings within the City's distribution system were determined to be lead-free; where lead-free is defined as a weighted average of 0.25% lead calculated across the wetted surfaces of a pipe, pipe fitting and fixture, and 0.2% lead for solder and flux. The City has complied with the Lead Service Line Inventory Requirement.

Disinfection Byproducts – Beginning on January 1, 2004, the US Environmental Protection Agency's Stage 1 Disinfectants/Disinfection Byproducts (D/DBP) Rule required water systems serving less than 10,000 persons to begin monitoring and reporting disinfection byproduct levels and residual disinfectant levels to the Division. Water Systems serving 10,000 or more persons had to comply by January 1, 2002. The D/DBP Rule applies to any community and nontransient-noncommunity water system that treats their water with a chemical disinfectant in any part of the treatment process or that provides water that contains a chemical disinfectant.

The D/DBP Rule was adopted in California and became effective on June 17, 2006. Prior to this date, any noncompliance issues were referred to the USEPA for enforcement action.

Stage 2 Disinfection Byproduct Rule Monitoring – On June 21, 2012, California adopted the Stage 2 Disinfection Byproduct Rule (ST2DBPR). The S2DBPR builds on the Stage 1 DBPR, and was created to improve on public health protection by increasing compliance monitoring requirements for Total Trihalomethanes (TTHM) and Haloacetic acids 5 (HAA5). The established MCLs for TTHM and HAA5 are 80 µg/L and 60 µg/L, respectively. Compliance with each DBP is based on a running annual average (RAA) of four consecutive quarters of monitoring data.

The PSCodes for the approved ST2DBPR monitoring sites are provided in Table 9. The PSCodes listed are to be used solely for ST2DBPR reporting purposes for each associated sample site. If a monitoring site needs to be changed, approval must first be obtained from the Fresno District office prior to monitoring, as the Division will need to review the request, and also create any new PSCodes. Analyzing laboratories will need to submit all results electronically to the Division's database by EDT. The sample bottle(s) and the chain-of-custody form needs to be correctly labeled using the ST2DBPR Monitoring Site locations for EDT to work properly.

Table 9: Approved ST2DBPR Monitoring Locations and PS Codes

ST2 Monitoring Site	PS Code
ST2DBP – 633 SIXTH STREET	1010023-900
ST2DBP – 1205 ADAMS	1010023-901

The City is required to collect TTHM and HAA5 samples from the distribution system at each ST2DBPR monitoring location once _every quarter_, in accordance with the approved Stage 2 Disinfection Byproduct Monitoring Plan. Tables 10 and 11 provide the last two years of data for TTHM and HAA5 at both monitoring sites.

Table 10: TTHM and HAA5 Sample Results
1010023-900 S2DBPR – 633 Sixth Street

Sample Date	TTHM µg/L	TTHM RAA µg/L	HAA5 µg/L	HAA5 RAA µg/L
03/07/2018	33	46	26	31
06/15/2018	64	50	67	41
09/19/2018	33	44	27	38
12/14/2018	35	41	28	37
03/13/2019	41	43	64	47
06/14/2019	36	36	36	39
09/27/2019	30	36	23	38
12/23/2019	21	32	19	36

TTHM MCL = 80 µg/L and HAA5 MCL = 60 µg/L

**Table 11: TTHM and HAA5 Sample Results
1010023-901 S2DBPR – 1205 Adams**

Sample Date	TTHM µg/L	TTHM RAA µg/L	HAA5 µg/L	HAA5 RAA µg/L
03/07/2018	39	56	28	42
06/15/2018	70	55	61	40
09/19/2018	28	46	24	36
12/14/2018	35	43	31	36
03/13/2019	48	45	72	47
06/14/2019	45	39	24	38
09/27/2019	28	39	0	32
12/23/2019	18	35	20	29

TTHM MCL = 80 µg/L and HAA5 MCL = 60 µg/L

According to sample results, TTHM and HAA5 concentrations are below their respective MCLs, with the most recent samples collected in December 2019. **The next samples for TTHM and HAA5 are due to the Division via EDT by March 31, 2020.**

Asbestos – Regulations require tap monitoring within distribution systems vulnerable to asbestos contamination at service connections serviced by an asbestos-cement main pipeline. Distribution system monitoring for asbestos is required if asbestos-cement pipe is used and the water produced by the sources has an aggressive index of less than 11.5. The aggressive index is an indicator of corrosivity, and correlates reasonably well with the release of asbestos fibers caused by dissolution of the cement matrix. The aggressive index (AI) is calculated using the following equation:

$$AI = pH + \log (A*H)$$

Where:

pH = measured pH of the water
A = alkalinity, mg/L as $CaCO_3$
H = calcium hardness, mg/L as $CaCO_3$

Aggressive index results less than 11.5 indicates a potential for asbestos contamination in the system. Asbestos monitoring of the distribution system in an area served by asbestos-cement pipe shall be conducted every nine years. The calculated aggressive index of the raw surface water is displayed in Table 12. According to table, the water is considered aggressive to asbestos-cement (AC) pipe.

**Table 12: Aggressive Index of Source Water
for Years 2015-2019**

Sample Date	Lab pH	A	H	Calculated AI	Lab Result AI
3/18/15	7.6	21	17	10.2	10.0
7/6/16	7.4	12	8	9.4	9.3
3/30/17	7.4	15	14	9.7	9.6
3/7/18	7.4	12	8.5	9.4	9.3
3/27/19	7.3	16	14	9.7	9.5

The City currently provides corrosion control treatment using zinc orthophosphate. According to the monthly reports, the City uses about 55 lbs of zinc orthophosphate daily. Each month the City measures the treated water samples weekly from the water treatment plant for pH and zinc orthophosphate measured as phosphorous (as P). The City also measures pH and zinc orthophosphate (as P) from two locations within the distribution, as provided in Table 13. The sites are alternately sampled once every two weeks.

Table 13: Zinc Orthophosphate Monitoring Locations

Location ID
1426 South Avenue
1205 Adams Avenue

Each site listed in Table 13 is located at the furthest point in the distribution system. These sites also serve as bacteriological sampling locations. According to the City's monthly reports submitted to the Division, the concentration of zinc orthophosphate (as P) is maintained at 0.5 mg/L.

MAINTENANCE AND OPERATION

Operator Certification – According to the 2018 Electronic Annual Report, the City's population is 9,780. Based on this service population, the City's water system is classified as a D2 distribution system. The City's Surface Water Treatment Plant is classified as a T3 treatment facility. The minimum chief operator certification requirements for both the City's distribution and treatment systems are provided in Table 14:

Table 14: Minimum Chief Operator Certifications

Facility	Classification
Distribution System	D2
Treatment Classification	T3

According to the 2018 eAR, Mr. Andy Valencia is the Chief Operator and meets the minimum certification requirements for the City's distribution and treatment systems. Table 15 provides a list of the Chief and Shift operators along with their certifications.

Table 15: Operator Certifications

Operator Name	Distribution Certification & Operator Number	Treatment Certification & Operator Number
Andy Valencia, Chief Operator	D3 (No. 19261)	T3 (No. 24013)
David Lopez, Shift Operator	D2 (No. 35011)	T2 (No. 25513)

Operation and maintenance activities for the City's water system are conducted under the supervision of Mr. Andy Valencia, Chief Operator. Bacteriological and chemical samples are typically collected in conformance with required water quality monitoring schedules. The water served complies with the all bacteriological and chemical drinking water standards.

When treatment facilities and distribution facilities are added or modified, the City shall evaluate and update, if necessary, their distribution and treatment classifications. At all times, the Chief and Shift Operators shall meet the minimum certification requirements according to Sections 63766 and 63770 of Chapter 13, Division 4, Title 22.

Cross-Connection Control – Cross connections are defined as actual or potential connections between a potable water supply and a non-potable source, where it is possible for a contaminant to enter the drinking water supply. All community and noncommunity water systems are required to maintain an approved Cross Connection Control Program.

The City has initiated a cross-connection control program, however, does not have a Cross Connection Control Program Coordinator on staff. According to the 2018 eAR, there are a total of 191 backflow prevention assemblies within the distribution system. All assemblies were tested. During testing, there were 25 assemblies that failed. All 25 assemblies were repaired or replaced. There were six assemblies that were installed during 2018. According to the California Drinking Water Regulations, all backflow assemblies/devices must be tested annually. The City has increased in size since the last cross connection control survey was completed in 2001. **It is recommended that the City conduct an updated cross connection control survey to determine if any cross connections exist within the City's service area.**

Emergency Notification Plan (ENP) – The City shall maintain an up-to-date Emergency Notification Plan (ENP) identifying how customers will be notified in the event of a water quality emergency. The City should update their ENP whenever there are changes in emergency personnel and/or their contact information.

An ENP dated November 2006 is on file with the Fresno District office. However, a change in Division staffing has occurred since this submittal. **By February 15, 2020, the City needs to provide the Division with an updated ENP for review and approval.** A blank ENP template is provided in Appendix G. An electronic copy can be provided upon request.

Emergency Response Plan - The City submitted an Emergency Response Plan (ERP) dated December 29, 2004. The ERP needs to be updated to reflect current City personnel. **By April 15, 2020, the City needs to provide an updated ERP to the Fresno District office for review and approval.** For your reference, an ERP template is provided in Appendix H.

Consumer Confidence Report – Every community water system and every nontransient-noncommunity water system is required to prepare and distribute a consumer confidence report (CCR) by July 1st of each year. The CCR provides a summary of water quality information for detected primary and secondary contaminants on an annual basis. A copy of the CCR for the year ending December 31, 2018 was submitted to the Division. The City has also provided the Division with certification of the 2018 CCR delivery. According to the City's certification form, the CCR was distributed in July 2019 to customers. It was also posted on the City's internet website and in public places (City Hall and Orange Cove Library). **As a reminder, the City's 2019 CCR must be distributed to water customers by July 1, 2020. Certification of delivery should be submitted within 10 days following delivery.**

Electronic Annual Report (eAR) – The California Health and Safety Code Section 116530 states that all public water systems shall submit a technical report, as required by the Division, on an annual basis. The Division requires all water systems to submit the Electronic Annual Report (eAR) to the Drinking Water Program, typically, by March 31st of each year for the previous year, detailing population served and number of service connections, water produced and used status of various monitoring requirements and operator certification, system improvements and other information. The City has submitted their 2018 eAR to the Division via the Division's Drinking Water Information Clearinghouse (DRINC) portal. **As a reminder, the deadline for the 2019 EAR is approaching with a due date of March 31, 2020.**

Complaints – All water suppliers are required to record all water quality and system water outage complaints received, both verbal and written, and corrective action taken. Table 16 provides the number and type of complaints reported in the eARs regarding water system issues for years 2014 through 2018.

Table 16: Complaints Reported during 2014-2018

Type of Complaint	Number of Complaints Reported	Number of Complaints Investigated	Number of Complaints Reported to Division
Taste and Odor	10	10	10
Color			
Turbidity			
Worms and other Visible Organisms			
Pressure (High or Low)	50	50	50
Water Outages			
Illnesses (Waterborne)			
Other			
Total	50	50	50

According to City's EARs, all customer complaints were investigated. The highest volume of complaints involved low water pressure. The City determined the cause to be related to the customer's plumbing. During year 2017, the City received 10 taste and odor related complaints. Operators believed the cause of the issue was due to the surface water source. The City needs to continue recording and reporting all complaints in future EARs.

J. SYSTEM APPRAISAL

The City's water system, specifically Plant A, needs improvement. Plant A is showing corrosion and is incapable of providing reliable redundancy in the event Plant B must be taken out-of-service for maintenance and/or repair. Combined, the two surface water treatment plants have a capacity of 3.0 MGD. The highest year of water production occurred in 2009 with a maximum day demand of 2.88 MG. The plants can meet the City's current maximum day demand with the capacity of the two treatment plants and their 2-MG storage tank. However, the future capability of Plant A to operate without interruption is unlikely. The City has recently received construction funding through the SWRCB's Drinking Water State Revolving Fund financial assistance program (Proposition 1) to address deficiencies at Plant A and to improve the overall operations of the facility.

Another problem the City faces is source capacity during times when the Friant-Kern Canal must be taken down for maintenance by the Friant Water Authority. The three existing raw water storage basins are unlined and cannot hold water for more than 30 days. This presents a significant problem for the City when canal maintenance is scheduled for longer durations where canal water flow would be low or entirely unavailable. The City was issued a Compliance Order (No. 03_23_17R_001) to address this source capacity deficiency in February 2017. The compliance deadline is March 31, 2020. The City's funding project through Proposition 1 will also include lining the existing basins. As a short-term solution, the City has been awarded funding through Assembly Bill 72 to provide a temporary solution for an upcoming water outage scheduled for Fall 2020. The outage allows the Friant Water Authority to make necessary repairs within the Canal. The outage is expected to take place mid-October 2020 through the beginning of February 2021. However, as a long-term solution, it is recommended that the City construct a fourth raw water storage basin to increase source capacity during times of extended water outages. It is also recommended the City develop another source of supply by either drilling a well outside the City limits, connecting to another public water system, constructing of an alternate pipeline connection from Millerton Lake or installating treatment for groundwater contamination.

The City complies with all primary and secondary drinking water standards. Chemical monitoring is current, and the City adheres to all monitoring schedules. The supervision over the operation and maintenance of the water system is adequate.

K. RECOMMENDATIONS

The City must address the following deficiencies:

1. By February 15, 2020, the City needs to provide the Division with an updated ENP for review and approval. See Appendix G for an ENP template.

2. By February 29, 2020, the City will need to provide the Fresno District office with photo documentation showing the vented screen atop the 2-MG clearwell is intact and in good condition.

3. By March 31, 2020, the City needs to monitor for most of the secondary/general physical, and inorganic chemicals. All sample results must be submitted to the Division through EDT.

4. By March 31, 2020, the City needs to provide the Division with a revised Operations Plan to describe the current operations at the plant which also includes the corrosion control treatment system. See the corrosion control section of this report.

5. By March 31, 2020, the City needs to monitor for TTHM and HAA5 and submit sample results to the Division by EDT.

6. By March 31, 2020, the City must submit the 2019 EAR through the Drinking Water Information Clearinghouse (DRINC Portal website). The draft EAR template will be made available in early February 2020.

7. By April 15, 2020, the City needs to provide an updated ERP to the Fresno District office for review and approval.

8. By July 1, 2020, the City must distribute the 2019 Consumer Confidence Report to all water service customers. A copy of the report must be submitted to the DRINC Portal along with the Certification of Delivery form verifying proof of distribution.

9. It is recommended that the City conduct a cross connection control survey to determine if any cross connections exist within the City's service area since the last survey was conducted in June 2001.

10. It is recommended that the City acquire an increased surface water allotment, as was recommended by the City's engineering consultant.

11. HACH is discontinuing support of the HACH 1720E turbidimeters and will no longer provide replacement parts nor servicing of units. It is recommended that the City plan for the replacement of these units within the next five years.

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Appendix D – Last Sample Date and Monitoring Schedule
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Appendix A
Water System Photographs

Appendix A
City of Orange Cove Water System
Photographs

Friant-Kern Canal Intake

The City's intake structure equipped with a bar screen.

Raw Water Lift Pumps

No.: 3
Type: Vertical Turbine
Power: 20-hp, each
Design flow: 1,050 gpm

Plant A—Upflow Clarifier

Type: Conventional

Appendix A
City of Orange Cove Water System
Photographs

Plant A—Gravity Filters

Type: Conventional Treatment

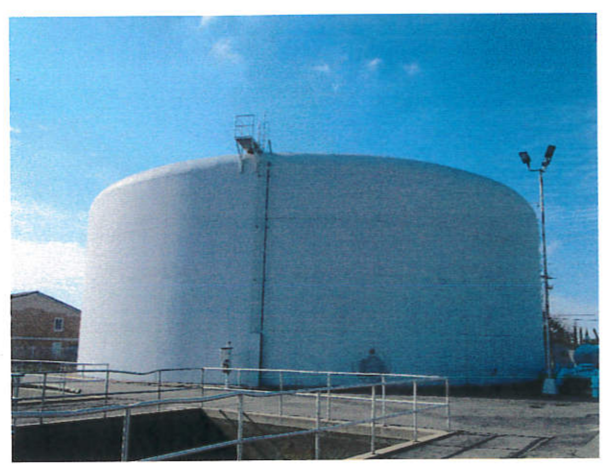
Plant B—Dual Pacer II (Model P-525)

Type: Alternative

Packaged plant comprised of an upflow clarifier and downflow filtration

Finished Water Clearwell

Type: Welded Steel
Capacity: 2 Million Gallons

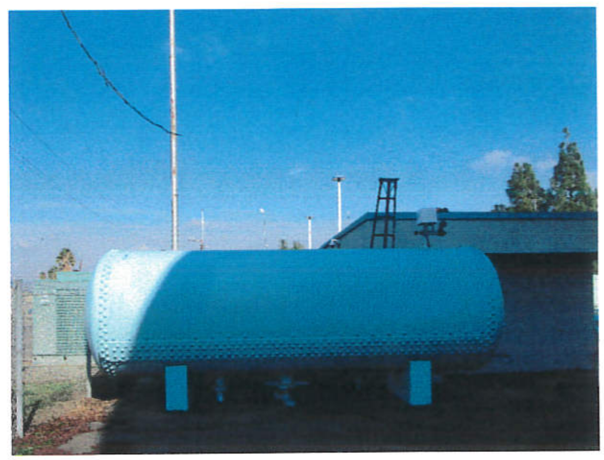


Appendix A
City of Orange Cove Water System
Photographs

Treated Water Booster Pumps

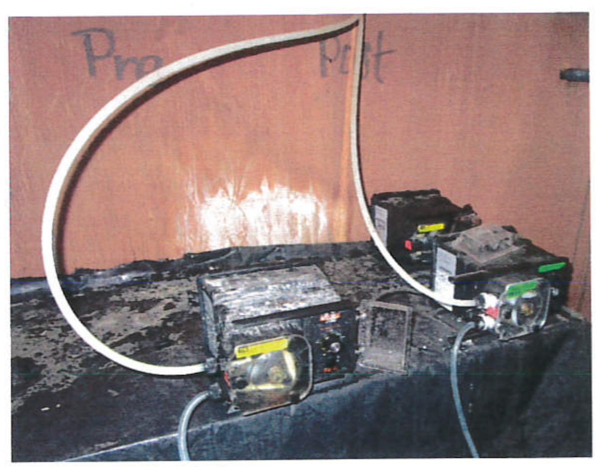
No: 4
Power: 30-hp, 50-hp, 60-hp and 75 hp

Hydropneumatic Tank



Chemical Facilities

Pre- & Post Chlorination chemical metering pumps



Appendix A
City of Orange Cove Water System
Photographs

Backwash Receiving Basin & Solids Equalization /Sedimentation Tank

Basin dimensions: 40 feet x 25 feet
Basin depth: 11 feet

Tank Type: Bolted Steel
Tank Capacity: 230,000 gallons

Sludge Mixing Pump & Sludge Pump

Sludge Mixing Power: 50 hp

Sludge Pump Power: 7.5 hp

Backwash Recycle Pump

Power : 3 hp

Appendix A
City of Orange Cove Water System
Photographs

Dewatering Box

Solids Handling Chemical Building

Appendix B
Source Bacteriological Monitoring Report

Source Bacteriological Monitoring Report

1010023 Orange Cove, City of

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
1/7/2015	11:15	canal	Surface	MPN	<2		<2			
1/14/2015	11:50	Canal	Surface	MPN	2		<2			
1/21/2015	11:45	Canal	Surface	MPN	<2		<2			
1/28/2015	11:26	Canal	Surface	MPN	<2		<2			
2/6/2015	12:05	Canal	Surface	MPN	7		<2			
2/11/2015	11:20	canal	Surface	MPN	22		4			
2/18/2015	11:41	Canal	Surface	MPN	<2		<2			
2/25/2015	11:10	Canal	Surface	MPN	13		13			
3/4/2015	11:30	Canal	Well	MPN	<2	<2	<2			
3/11/2015	10:10	Canal	Surface	MPN	240	11	17			
3/18/2015	12:00	Canal	Surface	MPN	8	2	2			
3/25/2015	12:17	canal	Surface	MPN	23	<2	2			
4/1/2015	11:50	Canal	Surface	MPN	30		<2			
4/8/2015	11:15	Canal	Surface	MPN	50		13			
4/15/2015	11:45	Canal	Surface	MPN	4	<2	<2			
5/8/2015	11:50	Canal	Surface	MPN	220	70				
5/13/2015	11:40	Canal	Surface	MPN	80		80			
5/20/2015	12:25	Canal	Surface	MPN	13		4			
5/27/2015	11:50	Canal	Surface	MPN	4	<2				
6/3/2015	13:00	Canal	Surface	MPN	30	2	2			
6/12/2015	12:45	canal	Surface	MPN	4	4	4			
6/19/2015	10:45	canal	Surface	MPN	80	7	11			
6/24/2015	10:10	Canal	Surface	MPN	30	2	2			
7/1/2015	12:05	canal	Surface	MPN	23		2			
7/8/2015	11:36	canal	Surface	MPN	30		30			
7/17/2015	11:20	canal	Surface	MPN	300		300			
7/22/2015	11:36	canal	Surface	MPN	300		14			
7/29/2015	10:50	Kern Canal	Surface	MPN	50		8			
8/7/2015	10:59	Lopez	Well	MPN	50	<2	2			
8/14/2015	11:00	Canal	Surface	MPN	80	8	8			
8/19/2015	10:15	Canal	Well	MPN	240	2	2			
8/26/2015	12:55	Canal	Well	MPN	240	13				
9/9/2015	13:00	Canal	Surface	MPN	240	13	13			
9/16/2015	12:10	Canal	Surface	MPN	50	4	4			
9/23/2015	11:29	Canal	Surface	MPN	50	17	17			
9/30/2015	11:54	Canal	Surface	MPN	80		4			
10/7/2015	12:23	Canal	Surface	MPN	<1.8		<1.8			
10/7/2015	12:23	Canal	Surface	MPN	<1.0	<1.0				
10/14/2015	11:56	Canal	Surface	MPN	27		9.3			
10/23/2015	11:45	canal	Surface	MPN	49	17				

1010023 Orange Cove, City of

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
10/28/2015	12:06	canal	Surface	MPN	23		2			
11/6/2015	11:10	Canal	Surface	MPN	23		2			
11/13/2015	11:05	canal	Surface	MPN	4.5		4.5			
11/18/2015	11:30	canal	Surface	MPN	7.8		2			
11/25/2015	13:20	canal	Surface	MPN	49		17			
1/8/2016	11:16	canal	Surface	MPN	>1600		33			
1/15/2016	12:03	canal	Surface	MPN	7		<1.8			
1/20/2016	11:31	Canal	Surface	MPN	>1600	350				
1/27/2016	11:55	canal	Surface	MPN	23	4.6				
2/3/2016	12:11	Canal	Surface	MPN	23	13	13			
2/10/2016	11:20	canal	Surface	MPN	46	13	13			
2/17/2016	10:48	canal	Surface	MPN	9.2	6.8	6.8			
2/24/2016	12:24	canal	Surface	MPN	6.8	2	2			
3/2/2016	12:20	canal	Surface	MPN	22	17	17			
3/9/2016	11:45	canal	Surface	MPN	2	<1.8	<1.8			
3/16/2016	11:45	canal	Surface	MPN	7.8	2	2			
3/24/2016	11:55	canal	Surface	MPN	7.8	7.8	7.8			
3/30/2016	12:15	canal	Surface	MPN	49	23	23			
4/8/2016	11:22	canal	Surface	MPN	27	6.8	6.8			
4/15/2016	11:25	canal	Surface	MPN	79	17	17			
4/20/2016	11:50	canal	Surface	MPN	<1.8	<1.8	<1.8			
4/27/2016	12:01	Canal	Surface	MPN	<1.8	<1.8	<1.8			
5/6/2016	10:57	Kern Canal	Surface	MPN	<1.8	<1.8				
5/13/2016	11:20	Canal	Surface	MPN	350	170	350			
5/18/2016	11:55	Canal	Surface	MPN	49	49	49			
5/25/2016	12:30	canal	Surface	MPN	<1.8	<1.8	<1.8			
6/1/2016	14:00	Canal	Surface	MPN	79	33	33			
6/8/2016	12:38	Canal	Surface	MPN	<1.8	<1.8	<1.8			
6/15/2016	12:40	canal	Surface	MPN	170	170	170			
6/22/2016	12:30	canal	Surface	MPN	23	7.8	7.8			
7/8/2016	12:20	canal	Surface	MPN	11	6.8	6.8			
7/13/2016	12:07	canal	Surface	MPN	49	13	13			
7/20/2016	12:15	Canal	Surface	MPN	49	2	2			
7/29/2016	12:02	Canal	Surface	MPN	70	4.5	4.5			
8/3/2016	12:33	Canal	Surface	MPN	240	14	17			
8/19/2016	11:00	canal	Surface	MPN	22	2	4			
8/26/2016	11:35	Canal	Surface	MPN	13	2	2			
9/2/2016	11:42	Canal	Surface	MPN	130	6.8	6.8			
9/7/2016	11:15	Well 2A	Well	MPN	<1.1	<1.1				
9/9/2016	11:30	canal	Surface	MPN	130	7.8	7.8			
9/14/2016	11:25	well 6	Well	MPN	<1.1	<1.1				
9/14/2016	12:45	Canal	Surface	MPN	79	4.5				

1010023 Orange Cove, City of

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
9/21/2016	10:20	Well 7	Well	MPN	<1.1	<1.1				
9/23/2016	14:35	Canal	Surface	MPN	49	23	23			
9/28/2016	11:30	Well 9A	Well	MPN	<1.1	<1.1				
9/28/2016	12:50	Canal	Surface	MPN	70	7.8	7.8			
10/7/2016	14:45	Canal	Surface	MPN	7.8	4.5	<1.8			
10/12/2016	11:57	Canal	Surface	MPN	<1.8	<1.8	<1.8			
10/21/2016	11:25	Canal	Surface	MPN	33	2	4.5			
10/26/2016	12:00	Canal	Well	MPN	240	<1.8	<1.8			
11/4/2016	11:40	Kern Canal	Well	MPN	49	<1.8	<1.8			
11/9/2016	11:57	canal	Surface	MPN	<1.8	<1.8	<1.8			
11/18/2016	9:50	Canal	Surface	MPN	350	49	79			
11/30/2016	11:20	canal	Surface	MPN	33	<1.8	<1.8			
12/9/2016	11:40	canal	Surface	MPN	130	13	13			
12/14/2016	12:40	canal	Surface	MPN	170	<1.8	<1.8			
12/22/2016	13:28	Canal	Surface	MPN	<1.8	<1.8	<1.8			
12/30/2016	10:20	Kern canal	Surface	MPN	79	49	49			
1/4/2017	12:12	Canal	Surface	MPN	23	<1.8	4.5			
1/11/2017	13:05	Canal	Surface	MPN	920	110	110			
1/20/2017	11:23	Canal	Surface	MPN	920	13	23			
1/27/2017	11:30	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/8/2017	11:50	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/17/2017	12:20	Canal	Surface	MPN	110	33	33			
2/24/2017	11:45	Canal	Surface	MPN	14	2	2			
4/5/2017	11:07	Canal	Surface	MPN	22	11	11			
4/13/2017	10:57	Canal	Surface	MPN	<1.8	<1.8	<1.8			
4/19/2017	11:05	Canal	Surface	MPN	33	23	23			
4/26/2017	12:22	Canal	Surface	MPN	7.8	4.5	4.5			
5/3/2017	12:10	Canal	Surface	MPN	17	7.8	13		MR7	*Does not have monthly summary*
5/10/2017	12:30	Canal	Surface	MPN	33	23	23			
5/17/2017	12:15	Canal	Surface	MPN	<1.8	<1.8	<1.8			
5/24/2017	12:15	canal	Surface	MPN	<1.8	<1.8	<1.8			
5/31/2017	11:30	Canal	Surface	MPN	49	17	33			
6/7/2017	12:10	Canal	Surface	MPN	14	11	11			
6/14/2017	11:20	Canal	Surface	MPN	21	4.5	4.5			
6/23/2017	11:20	Canal	Surface	MPN	33	<1.8	<1.8			
6/28/2017	10:50	Canal	Surface	MPN	7.8	7.8	7.8			
7/19/2017	10:40	Canal	Surface	MPN	33	<1.8	<1.8			
7/26/2017	11:40	Canal	Surface	MPN	130	<1.8	<1.8			
8/2/2017	12:09	Canal	Surface	MPN	240	4.5	4.5			
8/9/2017	12:40	Canal	Surface	MPN	17	2	2			
8/16/2017	11:32	Canal	Surface	MPN	49	<1.8	<1.8			
8/23/2017	12:20	Canal	Surface	MPN	79	<1.8	<1.8			

1010023 Orange Cove, City of

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
8/30/2017	13:17	Canal	Surface	MPN	240	<1.8	<1.8			
9/6/2017	12:05	Canal	Surface	MPN	540	6.8	6.8			
9/13/2017	11:15	Canal	Surface	MPN	79	13	13			
9/20/2017	11:15	Canal	Surface	MPN	13	4.5	7.8			
9/27/2017	11:55	Canal	Surface	MPN	22	17	17			
10/4/2017	12:35	Canal	Surface	MPN	<1.8	<1.8	<1.8			
10/11/2017	12:05	Canal	Surface	MPN	<1.8	<1.8	<1.8			
10/18/2017	13:00	Canal	Surface	MPN	14	4	4			
10/25/2017	11:20	Canal	Surface	MPN	70	7.8	7.8			
11/1/2017	12:08	Canal	Surface	MPN	46	2	2			
11/7/2017	12:03	Canal	Surface	MPN	79	2	2			
11/15/2017	11:58	Canal	Surface	MPN	<1.8	<1.8	<1.8			
11/22/2017	10:25	Canal	Surface	MPN	33	7.8	7.8			
12/6/2017	10:15	Canal	Surface	MPN	31	2	4.5			
12/13/2017	13:35	Canal	Surface	MPN	23	4.5	7.8			
12/20/2017	11:55	Canal	Surface	MPN	4.5	2	2			
12/27/2017	12:00	Canal	Surface	MPN	4.5	<1.8	<1.8			
1/24/2018	13:12	Canal	Surface	MPN	7.8	2	2			
1/31/2018	11:25	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/7/2018	11:00	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/14/2018	12:15	Canal	Surface	MPN	2	<1.8	<1.8			
2/21/2018	11:10	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/28/2018	13:25	Canal	Surface	MPN	<1.8	<1.8	<1.8			
3/16/2018	10:40	Canal	Surface	MPN	4	<1.8	<1.8			
3/21/2018	11:58	Canal	Surface	MPN	49	4	4			
3/27/2018	11:57	Canal	Surface	MPN	13	7.8	7.8			
4/4/2018	11:37	Canal	Surface	MPN	130	27	27			
4/11/2018	11:45	Canal	Surface	MPN	140	70	70			
4/18/2018	11:45	Canal	Surface	MPN	22	7.8	7.8			
4/25/2018	10:30	Canal	Surface	MPN	33	17	17			
5/2/2018	12:33	Canal	Surface	MPN	49	17	17			
5/9/2018	12:10	Canal	Surface	MPN	17	17	17			
5/16/2018	11:55	Canal	Surface	MPN	49	33	33			
5/23/2018	11:30	Canal	Surface	MPN	79	79	79			
6/1/2018	11:20	Canal	Surface	MPN	130	79	79			
6/6/2018	11:00	Canal	Surface	MPN	79	11	11			
6/13/2018	11:20	Canal	Surface	MPN	22	11	11			
6/22/2018	12:50	Canal	Surface	MPN	2	2	2			
6/27/2018	10:00	Canal	Surface	MPN	17	17	17			
7/3/2018	11:57	Canal	Surface	MPN	23	23	23			
7/11/2018	11:35	Canal	Surface	MPN	11	11	11			
7/18/2018	10:50	Canal	Surface	MPN	79	4.5	4.5			

1010023 Orange Cove, City of

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
7/27/2018	12:40	Canal	Surface	MPN	33	7.8	7.8			
8/3/2018	10:58	Canal	Surface	MPN	4.5	<1.8	2			
8/8/2018	13:40	Canal	Surface	MPN	6.8	2	4.5			
8/15/2018	11:45	Canal	Surface	MPN	49	11	11			
8/22/2018	12:40	Canal	Surface	MPN	21	<1.8	<1.8			
8/30/2018	13:00	Canal	Surface	MPN	11	2	2			
9/5/2018	12:00	Canal	Surface	MPN	<1.8	<1.8	<1.8			
9/14/2018	10:25	Canal	Surface	MPN	7.8	7.8	7.8			
9/19/2018	11:50	Canal	Surface	MPN	7.8	<1.8	<1.8			
10/3/2018	12:47	Canal	Surface	MPN	49	13	13			
10/10/2018	11:35	Canal	Surface	MPN	49	13	13			
10/17/2018	11:30	Canal	Surface	MPN	33	4.5	4.5			
10/24/2018	11:10	Canal	Surface	MPN	2	<1.8	<1.8			
11/9/2018	13:55	Canal	Surface	MPN	4	4	4			
11/14/2018	12:00	Canal	Surface	MPN	7.8	2	2			
11/19/2018	11:25	Canal	Surface	MPN	7.8	<1.8	<1.8			
11/28/2018	13:00	Canal	Surface	MPN	49	49	49			
12/5/2018	11:20	Canal	Surface	MPN	9.3	4	4			
12/12/2018	12:15	Canal	Surface	MPN	23	7.8	7.8			
12/19/2018	11:50	Canal	Surface	MPN	<1.8	<1.8	<1.8			
12/26/2018	11:50	Canal	Surface	MPN	23	13	13			
1/2/2019	11:55	Canal	Surface	MPN	<1.8	<1.8	<1.8			
1/11/2019	12:00	Canal	Surface	MPN	<1.8	<1.8	<1.8			
1/16/2019	12:25	Canal	Surface	MPN	<1.8	<1.8	<1.8			
1/23/2019	12:01	Canal	Surface	MPN	2	2	2			
1/30/2019	11:18	Canal	Surface	MPN	6.8	6.8	6.8			
2/6/2019	11:40	Canal	Surface	MPN	13	2	2			
2/15/2019	13:10	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/20/2019	12:40	Canal	Surface	MPN	<1.8	<1.8	<1.8			
2/27/2019	11:00	Canal	Surface	MPN	7.8	2	2			
3/6/2019	11:29	Canal	Surface	MPN	49	33	33			
3/15/2019	12:25	Canal	Surface	MPN	23	13	13			
3/20/2019	12:05	Canal	Surface	MPN	22	22	22			
3/27/2019	11:15	Canal	Surface	MPN	33	33	33			
4/5/2019	11:59	Canal	Surface	MPN	9.2	6.1	6.1			
4/10/2019	11:22	Canal	Surface	MPN	7.8	7.8	7.8			
4/17/2019	13:13	Canal	Surface	MPN	23	13	13			
4/24/2019	10:10	Canal	Surface	MPN	23	13	13			
5/1/2019	12:10	Canal	Surface	MPN	14	14	14			
5/8/2019	11:30	Canal	Surface	MPN	46	31	31			
5/17/2019	11:29	Canal	Surface	MPN	7.8	2	2			
5/31/2019	14:20	Canal	Surface	MPN	<1.8	<1.8	<1.8			

1010023 Orange Cove, City of

Sample Date	Time	Source	Sample Type	Test Method	T Coli	E Coli	F Coli	HPC	Violation	Comments
6/5/2019	11:51	Canal	Surface	MPN	33	13	13			
6/12/2019	11:25	Canal	Surface	MPN	7.8	7.8	7.8			
6/19/2019	11:20	Canal	Surface	MPN	2	<1.8	<1.8			
6/26/2019	12:18	Canal	Surface	MPN	1.8	1.8	4			
8/2/2019	12:39	Canal	Surface	MPN	220	<1.8	<1.8			
8/9/2019	13:25	Canal	Surface	MPN	22	2	2			
8/16/2019	12:20	Canal	Surface	MPN	49	2	2			
8/21/2019	12:40	Canal	Surface	MPN	4.5	2	2			
9/4/2019	12:04	Canal	Surface	MPN	4	<1.89	<1.8			
9/13/2019	11:15	Canal	Surface	MPN	79	7.8	7.8			
10/4/2019	11:25	Canal	Surface	MPN	130	<1.8	<1.8			
10/9/2019	10:15	Canal	Surface	MPN	>1600	<1.8	<1.8			
10/18/2019	11:15	Canal	Surface	MPN	7.8	<1.8	<1.8			
10/30/2019	11:05	Canal	Surface	MPN	49	6.8	6.8			
11/8/2019	11:51	Canal	Surface	MPN	1.8	<1.8	<1.8			
11/13/2019	10:49	Canal	Surface	MPN	<1.8	<1.8	<1.8			
11/22/2019	10:20	Canal	Surface	MPN	23	2	2			
11/25/2019	12:35	Canal	Surface	MPN	17	2	2			

Appendix C
Drinking Water Analyses Result Report

STATE OF CALIFORNIA
DRINKING WATER ANALYSES RESULTS REPORT
LAST SAMPLE FOR ALL CHAPTER 15 CONSTITUENTS - ALL RESULTS
REPORT OF SYSTEM: 1010023

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 002 NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: A

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		DATE	RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023002		**1010023**	**CITY OF ORANGE COVE**	**002**	**FRIANT KERN CANAL - RAW**					
	DBP	DISINFECTION BYPRODUCTS								
		32101	BROMODICHLOROMETHANE (THM)	2019/09/27	0		--------	1	--------	UG/L
		32104	BROMOFORM (THM)	2019/09/27	0		--------	1	--------	UG/L
		32106	CHLOROFORM (THM)	2019/09/27	0		--------	1	--------	UG/L
		32105	DIBROMOCHLOROMETHANE (THM)	2019/09/27	0		--------	1	--------	UG/L
		82080	TOTAL TRIHALOMETHANES	2019/09/27	0		80	--------	80.000	UG/L
	GP	SECONDARY/GP								
		82383	AGGRSSIVE INDEX (CORROSIVITY)	2019/03/27	9.5	*	--------	--------	--------	
		00440	BICARBONATE ALKALINITY	2019/09/27	9.8	*	--------	--------	--------	MG/L
		00916	CALCIUM	2019/03/27	4.3	*	--------	--------	--------	MG/L
		00445	CARBONATE ALKALINITY	2019/09/27	0		--------	--------	--------	MG/L
		00940	CHLORIDE	2019/03/27	2.8		500	--------	250.000	MG/L
		00081	COLOR	2019/03/27	45	*	15	--------	15.000	UNITS
		01042	COPPER	2019/03/27	81		1000	50	1000.000	UG/L
		38260	FOAMING AGENTS (MBAS)	2019/03/27	< 0000000000		.5	--------	0.500	MG/L
		00900	HARDNESS (TOTAL) AS CACO3	2019/03/27	14.0	*	--------	--------	--------	MG/L
		71830	HYDROXIDE ALKALINITY	2019/09/27	0		--------	--------	--------	MG/L
		01045	IRON	2019/03/27	220		300	100	300.000	UG/L
		00927	MAGNESIUM	2019/03/27	0.88	*	--------	--------	--------	MG/L
		01055	MANGANESE	2019/03/27	< 0000000000		50	20	50.000	UG/L
		00086	ODOR THRESHOLD @ 60 C	2019/03/27	1.5		3	1	3.000	TON
		00403	PH, LABORATORY	2019/03/27	7.3	*	--------	--------	--------	
		01077	SILVER	2019/03/27	< 0000000000		100	10	100.000	UG/L
		00929	SODIUM	2019/03/27	4.3	*	--------	--------	--------	MG/L
		00095	SPECIFIC CONDUCTANCE	2019/03/27	49		1600	--------	900.000	US
		00945	SULFATE	2019/03/27	1.3		500	.5	250.000	MG/L
		70300	TOTAL DISSOLVED SOLIDS	2019/03/27	42		1000	--------	500.000	MG/L
		82079	TURBIDITY, LABORATORY	2019/03/27	9.4	*	5	.1	5.000	NTU

STATE OF CALIFORNIA
DRINKING WATER ANALYSES RESULTS REPORT
LAST SAMPLE FOR ALL CHAPTER 15 CONSTITUENTS - ALL RESULTS
REPORT OF SYSTEM: 1010023

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 002 NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: A

PSCODE	GROUP/CONSTITUENT IDENTIFICATION			DATE		RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023002	GP	SECONDARY/GP									
		01092	ZINC	2019/03/27	<	0000000000		5000	50	5000.000	UG/L
	IO	INORGANIC									
		01105	ALUMINUM	2019/03/27		1800	*	1000	50	200.000	UG/L
		01097	ANTIMONY	2019/03/27	<	0000000000		6	6	6.000	UG/L
		01002	ARSENIC	2019/03/27		2.2		10	2	5.000	UG/L
		81855	ASBESTOS	2011/06/15	<	.0000		7	.2	7.000	MFL
		01007	BARIUM	2019/03/27	<	0000000000		1000	100	1000.000	UG/L
		01012	BERYLLIUM	2019/03/27	<	0000000000		4	1	4.000	UG/L
		01027	CADMIUM	2019/03/27	<	0000000000		5	1	5.000	UG/L
		A-044	CHROMIUM (TOTAL CR-CRVI SCREEN)	2003/07/18		1.0000	*	--------	1	--------	UG/L
		01034	CHROMIUM (TOTAL)	2019/03/27	<	0000000000		50	10	50.000	UG/L
		01032	CHROMIUM, HEXAVALENT	2001/03/08	<	.0000		--------	1	1.000	UG/L
		01291	CYANIDE	2014/09/03	<	.0000		150	100	150.000	UG/L
		00951	FLUORIDE (F) (NATURAL-SOURCE)	2019/03/27	<	0000000000		2	.1	2.000	MG/L
		01051	LEAD	2019/03/27	<	0000000000		--------	5	15.000	UG/L
		71900	MERCURY	2019/03/27	<	0000000000		2	1	2.000	UG/L
		01067	NICKEL	2019/03/27	<	0000000000		100	10	100.000	UG/L
		A-031	PERCHLORATE	2019/03/27	<	0000000000		6	4	4.000	UG/L
		01147	SELENIUM	2019/03/27	<	0000000000		50	5	50.000	UG/L
		01059	THALLIUM	2019/03/27	<	0000000000		2	1	2.000	UG/L
	NI	NITRATE/NITRITE									
		00618	NITRATE (AS N)	2019/03/27	<	0000000000		10	.4	5.000	mg/L
		71850	NITRATE (AS NO3)	2015/03/18	<	.0000		45	2	23.000	MG/L
		A-029	NITRATE + NITRITE (AS N)	2019/03/27	<	0000000000		10	.4	5.000	mg/L
		00620	NITRITE (AS N)	2019/03/27	<	0000000000		1	.4	0.500	mg/L

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 002 NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: A

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		DATE	RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023002	RA	RADIOLOGICAL								
		01501	GROSS ALPHA	2017/03/30 <	0000000000		15	3	5.000	PCI/L
		01502	GROSS ALPHA COUNTING ERROR	2017/03/30	0.00		--------	--------	--------	PCI/L
		A-072	GROSS ALPHA MDA95	2017/03/30	1.06	*		--------	--------	PCI/L
		11501	RADIUM 228	2017/05/03	1.47	*	--------	1	--------	PCI/L
		11502	RADIUM 228 COUNTING ERROR	2017/05/03	0.35	*	--------	--------	--------	PCI/L
		A-075	RADIUM 228 MDA95	2017/05/03	0.45	*		--------	--------	PCI/L
	S1	REGULATED VOC								
		34506	1,1,1-TRICHLOROETHANE	2019/09/27	0		200	.5	0.500	UG/L
		34516	1,1,2,2-TETRACHLOROETHANE	2019/09/27	0		1	.5	0.500	UG/L
		34511	1,1,2-TRICHLOROETHANE	2019/09/27	0		5	.5	0.500	UG/L
		34496	1,1-DICHLOROETHANE	2019/09/27	0		5	.5	0.500	UG/L
		34501	1,1-DICHLOROETHYLENE	2019/09/27	0		6	.5	0.500	UG/L
		34551	1,2,4-TRICHLOROBENZENE	2019/09/27	0		5	.5	0.500	UG/L
		34536	1,2-DICHLOROBENZENE	2019/09/27	0		600	.5	0.500	UG/L
		34531	1,2-DICHLOROETHANE	2019/09/27	0		.5	.5	0.500	UG/L
		34541	1,2-DICHLOROPROPANE	2019/09/27	0		5	.5	0.500	UG/L
		34561	1,3-DICHLOROPROPENE (TOTAL)	2019/09/27	0		.5	.5	0.500	UG/L
		34571	1,4-DICHLOROBENZENE	2019/09/27	0		5	.5	0.500	UG/L
		34030	BENZENE	2019/09/27	0		1	.5	0.500	UG/L
		32102	CARBON TETRACHLORIDE	2019/09/27	0		.5	.5	0.500	UG/L
		77093	CIS-1,2-DICHLOROETHYLENE	2019/09/27	0		6	.5	0.500	UG/L
		34423	DICHLOROMETHANE	2019/09/27	0		5	.5	0.500	UG/L
		34371	ETHYL BENZENE	2019/09/27	0		300	.5	0.500	UG/L
		46491	METHYL-TERT-BUTYL-ETHER (MTBE)	2019/09/27	0		13	3	3.000	UG/L
		34301	MONOCHLOROBENZENE	2019/09/27	0		70	.5	0.500	UG/L
		77128	STYRENE	2019/09/27	0		100	.5	0.500	UG/L
		34475	TETRACHLOROETHYLENE	2019/09/27	0		5	.5	0.500	UG/L
		34010	TOLUENE	2019/09/27	0		150	.5	0.500	UG/L

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 002 NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: A

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		DATE		RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023002	S1	REGULATED VOC									
		34546	TRANS-1,2-DICHLOROETHYLENE	2019/09/27		0		10	.5	0.500	UG/L
		39180	TRICHLOROETHYLENE	2019/09/27		0		5	.5	0.500	UG/L
		34488	TRICHLOROFLUOROMETHANE FREON 11	2019/09/27		0		150	5	5.000	UG/L
		81611	TRICHLOROTRIFLUOROETHANE (FREON 113)	2019/09/27		0		1200	10	10.000	UG/L
		39175	VINYL CHLORIDE	2019/09/27		0		.5	.5	0.500	UG/L
		81551	XYLENES (TOTAL)	2019/09/27		0		1750	0.5	1750.000	UG/L
	S2	REGULATED SOC									
		7744X	1,2,3-TRICHLOROPROPANE (1,2,3-TCP)	2009/06/19	<	.5000	*	--------	0.005	0.005	UG/L
		77443	1,2,3-TRICHLOROPROPANE (1,2,3-TCP)	2019/03/13	<	0000000000		0.005	0.005	0.005	UG/L
		39045	2,4,5-TP (SILVEX)	2016/07/06	<	0000000000		50	1	1.000	UG/L
		39730	2,4-D	2019/09/27		0		70	10	10.000	UG/L
		77825	ALACHLOR	2019/09/27		0		2	1	1.000	UG/L
		39033	ATRAZINE	2019/09/27		0		1	.5	0.500	UG/L
		38710	BENTAZON	2016/07/06	<	0000000000		18	2	2.000	UG/L
		34247	BENZO (A) PYRENE	2007/06/01	<	.0000		.2	.1	0.100	UG/L
		39350	CHLORDANE	1998/06/18	<	.0000		.1	.1	0.100	UG/L
		38432	DALAPON	2016/07/06	<	0000000000		200	10	10.000	UG/L
		A-026	DI(2-ETHYLHEXYL)ADIPATE	2007/06/01	<	.0000		400	5	5.000	UG/L
		39100	DI(2-ETHYLHEXYL)PHTHALATE	2007/06/01	<	.0000		4	3	3.000	UG/L
		38761	DIBROMOCHLOROPROPANE (DBCP)	2016/07/06	<	0000000000		.2	.01	0.010	UG/L
		81287	DINOSEB	2016/07/06	<	0000000000		7	2	2.000	UG/L
		38926	ENDOTHALL	2019/09/27		0		100	45	45.000	UG/L
		39390	ENDRIN	1998/06/18	<	.0000		2	.1	0.100	UG/L
		77651	ETHYLENE DIBROMIDE (EDB)	2016/07/06	<	0000000000		.05	.02	0.020	UG/L
		79743	GLYPHOSATE	2006/12/01	<	.0000		700	25	25.000	UG/L
		39410	HEPTACHLOR	1998/06/18	<	.0000		.01	.01	0.010	UG/L
		39420	HEPTACHLOR EPOXIDE	1998/06/18	<	.0000		.01	.01	0.010	UG/L
		39700	HEXACHLOROBENZENE	1998/06/18	<	.0000		1	.5	0.500	UG/L
		39340	LINDANE	1998/06/18	<	.0000		.2	.2	0.200	UG/L

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 002 NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: A

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		DATE	RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023002	S2	39480	METHOXYCHLOR	1998/06/18 <	.0000		40	10	10.000	UG/L
		82199	MOLINATE	2007/06/01 <	.0000		20	2	2.000	UG/L
		34671	PCB-1016 (AS DECACHLOROBIPHENYL (DCB))	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39488	PCB-1221 (AS DCB)	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39492	PCB-1232 (AS DCB)	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39496	PCB-1242 (AS DCB)	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39500	PCB-1248 (AS DCB)	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39504	PCB-1254 (AS DCB)	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39508	PCB-1260 (AS DCB)	1998/06/18 <	.0000		--------	.5	0.500	UG/L
		39032	PENTACHLOROPHENOL	2016/07/06 <	0000000000		1	.2	0.200	UG/L
		39720	PICLORAM	2016/07/06 <	0000000000		500	1	1.000	UG/L
		39516	POLYCHLORINATED BIPHENYLS, TOTAL, AS DCB	1998/06/18 <	.0000		.5	.5	0.500	UG/L
		39055	SIMAZINE	2019/09/27	0		4	1	1.000	UG/L
		A-001	THIOBENCARB	2007/06/01 <	.0000		70	1	1.000	UG/L
		39400	TOXAPHENE	1998/06/18 <	.0000		3	1	1.000	UG/L
	UA	STATE UCMR								
		77562	1,1,1,2-TETRACHLOROETHANE	2019/09/27	0		--------	.5	0.500	UG/L
		01020	BORON	2001/02/22 <	.0000		--------	--------	--------	UG/L
		34668	DICHLORODIFLUOROMETHANE (FREON 12)	2019/09/27	0		--------	0.5	1000.000	UG/L
		A-033	ETHYL-TERT-BUTYL ETHER	2019/09/27	0		--------	3	--------	UG/L
		A-034	TERT-AMYL-METHYL ETHER (TAME)	2019/09/27	0		--------	3	--------	UG/L
		01087	VANADIUM	2001/02/22 <	.0000		--------	--------	50.000	UG/L
	UB	UNREG. TABLE B								
		77222	1,2,4-TRIMETHYLBENZENE	2019/09/27	0		--------	0.5	330.000	UG/L
		38458	DIMETHOATE	2007/06/01 <	10.0000	*	--------	--------	--------	UG/L
		A-011	P-ISOPROPYLTOLUENE	2019/09/27	0		--------	--------	--------	UG/L
	UC	UNREG. TABLE C								
		38533	PROPACHLOR	2007/06/01 <	.0000		--------	0.5	0.500	UG/L

DRINKING WATER ANALYSES RESULTS REPORT

LAST SAMPLE FOR ALL CHAPTER 15 CONSTITUENTS - ALL RESULTS

REPORT OF SYSTEM: 1010023

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 007 NAME: ORANGE COVE WTP - TREATED CLASS: OTHR STATUS: A

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		DATE		RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023007		**1010023**	**CITY OF ORANGE COVE**	**007**		**ORANGE COVE WTP - TREATED**					
	GP	SECONDARY/GP									
		01042	COPPER	2002/04/19	<	50.0000		1000	50	1000.000	UG/L
		01045	IRON	2002/04/05	<	50.0000		300	100	300.000	UG/L
		01055	MANGANESE	2002/04/05	<	5.0000		50	20	50.000	UG/L
	IO	INORGANIC									
		01051	LEAD	2002/04/19	<	5.0000		--------	5	15.000	UG/L
	NI	NITRATE/NITRITE									
		71850	NITRATE (AS NO3)	2013/01/23		32.0000	*	45	2	23.000	MG/L

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 900 NAME: ST2DBP - 633 SIXTH STREET CLASS: DBPQ STATUS: A

PSCODE	GROUP/CONSTITUENT IDENTIFICATION			DATE	RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023900		**1010023**	**CITY OF ORANGE COVE**	**900**	**ST2DBP - 633 SIXTH STREET**					
	DBP	DISINFECTION BYPRODUCTS								
		32101	BROMODICHLOROMETHANE (THM)	2019/09/27	1.2	*	--------	1	--------	UG/L
		32104	BROMOFORM (THM)	2019/09/27	0		--------	1	--------	UG/L
		32106	CHLOROFORM (THM)	2019/09/27	29	*	--------	1	--------	UG/L
		82721	DIBROMOACETIC ACID (DBAA)	2019/09/27	0		--------	1	--------	UG/L
		32105	DIBROMOCHLOROMETHANE (THM)	2019/09/27	0		--------	1	--------	UG/L
		77288	DICHLOROACETIC ACID (DCAA)	2019/09/27	12	*	--------	1	--------	UG/L
		A-049	HALOACETIC ACIDS (5) (HAA5)	2019/09/27	23		60	--------	60.000	UG/L
		A-041	MONOBROMOACETIC ACID (MBAA)	2019/09/27	0		--------	1	--------	UG/L
		A-042	MONOCHLOROACETIC ACID (MCAA)	2019/09/27	0		--------	2	--------	UG/L
		82080	TOTAL TRIHALOMETHANES	2019/09/27	30		80	--------	80.000	UG/L
		82723	TRICHLOROACETIC ACID (TCAA)	2019/09/27	11	*	--------	1	--------	UG/L

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 901 NAME: ST2DBP - 1205 ADAMS CLASS: DBPQ STATUS: A

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		DATE	RESULT	*	MCL	DLR	TRIGGER	UNIT
1010023901		**1010023**	**CITY OF ORANGE COVE**	**901**	**ST2DBP - 1205 ADAMS**					
	DBP	DISINFECTION BYPRODUCTS								
		32101	BROMODICHLOROMETHANE (THM)	2019/09/27	1.3	*	--------	1	--------	UG/L
		32104	BROMOFORM (THM)	2019/09/27	0		--------	1	--------	UG/L
		32106	CHLOROFORM (THM)	2019/09/27	27	*	--------	1	--------	UG/L
		82721	DIBROMOACETIC ACID (DBAA)	2019/09/27	0		--------	1	--------	UG/L
		32105	DIBROMOCHLOROMETHANE (THM)	2019/09/27	0		--------	1	--------	UG/L
		77288	DICHLOROACETIC ACID (DCAA)	2019/09/27	0		--------	1	--------	UG/L
		A-049	HALOACETIC ACIDS (5) (HAA5)	2019/09/27	0		60	--------	60.000	UG/L
		A-041	MONOBROMOACETIC ACID (MBAA)	2019/09/27	0		--------	1	--------	UG/L
		A-042	MONOCHLOROACETIC ACID (MCAA)	2019/09/27	0		--------	2	--------	UG/L
		82080	TOTAL TRIHALOMETHANES	2019/09/27	28		80	--------	80.000	UG/L
		82723	TRICHLOROACETIC ACID (TCAA)	2019/09/27	0		--------	1	--------	UG/L

Appendix D
Last Sample Date and Monitoring Schedule

LAST SAMPLE DATE AND MONITORING SCHEDULE

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 002 NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: Active

PSCODE	GROUP/CONSTITUENT IDENTIFICATION		LAST RESULT	UNITS	MCL	DLR	LAST SAMPLE	COUNT	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
1010023 - 002	CITY OF ORANGE COVE		002	FRIANT KERN CANAL - RAW								
GP	SECONDARY/GP											
00440	BICARBONATE ALKALINITY		9.8	MG/L	--------	--------	2019/09/27	185	12		2020/09	
00916	CALCIUM		4.3	MG/L	--------	--------	2019/03/27	20	12		2020/03	
00445	CARBONATE ALKALINITY		0	MG/L	--------	--------	2019/09/27	185	12		2020/09	
00940	CHLORIDE		2.8	MG/L	500	--------	2019/03/27	20	12		2020/03	
00081	COLOR		45	UNITS	15	--------	2019/03/27	18	12		2020/03	
01042	COPPER		81	UG/L	1000	50	2019/03/27	20	12		2020/03	
38260	FOAMING AGENTS (MBAS)	<	ND	MG/L	.5	--------	2019/03/27	21	12		2020/03	
00900	HARDNESS (TOTAL) AS CACO3		14.0	MG/L	--------	--------	2019/03/27	20	12		2020/03	
71830	HYDROXIDE ALKALINITY		0	MG/L	--------	--------	2019/09/27	185	12		2020/09	
01045	IRON		220	UG/L	300	100	2019/03/27	20	12		2020/03	
00927	MAGNESIUM		0.88	MG/L	--------	--------	2019/03/27	20	12		2020/03	
01055	MANGANESE	<	ND	UG/L	50	20	2019/03/27	20	12		2020/03	
00086	ODOR THRESHOLD @ 60 C		1.5	TON	3	1	2019/03/27	19	12		2020/03	
00403	PH, LABORATORY		7.3		--------	--------	2019/03/27	21	12		2020/03	
01077	SILVER	<	ND	UG/L	100	10	2019/03/27	21	12		2020/03	
00929	SODIUM		4.3	MG/L	--------	--------	2019/03/27	20	12		2020/03	
00095	SPECIFIC CONDUCTANCE		49	US	1600	--------	2019/03/27	21	12		2020/03	
00945	SULFATE		1.3	MG/L	500	.5	2019/03/27	20	12		2020/03	
70300	TOTAL DISSOLVED SOLIDS		42	MG/L	1000	--------	2019/03/27	21	12		2020/03	
82079	TURBIDITY, LABORATORY		9.4	NTU	5	.1	2019/03/27	18	12		2020/03	
01092	ZINC	<	ND	UG/L	5000	50	2019/03/27	20	12		2020/03	
IO	INORGANIC											
01105	ALUMINUM		1800	UG/L	1000	50	2019/03/27	19	12		2020/03	
01097	ANTIMONY	<	ND	UG/L	6	6	2019/03/27	19	12		2020/03	
01002	ARSENIC		2.2	UG/L	10	2	2019/03/27	21	12		2020/03	

LAST SAMPLE DATE AND MONITORING SCHEDULE

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: Active

PSCODE	GROUP/CONSTITUENT IDENTIFICATION			LAST RESULT	UNITS	MCL	DLR	LAST SAMPLE	COUNT	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
1010023 - 002	IO	INORGANIC											
	81855	ASBESTOS	<	.0000	MFL	7	.2	2011/06/15	2	108		2020/06	
	01007	BARIUM	<	ND	UG/L	1000	100	2019/03/27	20	12		2020/03	
	01012	BERYLLIUM	<	ND	UG/L	4	1	2019/03/27	19	12		2020/03	
	01027	CADMIUM	<	ND	UG/L	5	1	2019/03/27	21	12		2020/03	
	01034	CHROMIUM (TOTAL)	<	ND	UG/L	50	10	2019/03/27	21	12		2020/03	
	00951	FLUORIDE (F) (NATURAL-SOURCE)	<	ND	MG/L	2	.1	2019/03/27	20	12		2020/03	
	71900	MERCURY	<	ND	UG/L	2	1	2019/03/27	20	36		2022/03	
	01067	NICKEL	<	ND	UG/L	100	10	2019/03/27	19	12		2020/03	
	A-031	PERCHLORATE	<	ND	UG/L	6	4	2019/03/27	8	12		2020/03	
	01147	SELENIUM	<	ND	UG/L	50	5	2019/03/27	21	12		2020/03	
	01059	THALLIUM	<	ND	UG/L	2	1	2019/03/27	19	12		2020/03	
	NI	NITRATE/NITRITE											
	00618	NITRATE (AS N)	<	ND	mg/L	10	.4	2019/03/27	20	12		2020/03	
	00620	NITRITE (AS N)	<	ND	mg/L	1	.4	2019/03/27	17	36		2022/03	
	RA	RADIOLOGICAL											
	01501	GROSS ALPHA	<	ND	PCI/L	15	3	2017/03/30	10	108	M	2026/03	
	S1	REGULATED VOC											
	34506	1,1,1-TRICHLOROETHANE		0	UG/L	200	.5	2019/09/27	21	36		2022/09	
	34516	1,1,2,2-TETRACHLOROETHANE		0	UG/L	1	.5	2019/09/27	21	36		2022/09	
	34511	1,1,2-TRICHLOROETHANE		0	UG/L	5	.5	2019/09/27	21	36		2022/09	
	34496	1,1-DICHLOROETHANE		0	UG/L	5	.5	2019/09/27	21	36		2022/09	
	34501	1,1-DICHLOROETHYLENE		0	UG/L	6	.5	2019/09/27	21	36		2022/09	
	34551	1,2,4-TRICHLOROBENZENE		0	UG/L	5	.5	2019/09/27	21	36		2022/09	
	34536	1,2-DICHLOROBENZENE		0	UG/L	600	.5	2019/09/27	21	36		2022/09	
	34531	1,2-DICHLOROETHANE		0	UG/L	.5	.5	2019/09/27	21	36		2022/09	

LAST SAMPLE DATE AND MONITORING SCHEDULE

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: NAME: FRIANT KERN CANAL - RAW CLASS: CLSA STATUS: Active

1010023 - 002	**S1**	34541	1,2-DICHLOROPROPANE		0	UG/L	5	.5	2019/09/27	21	36		2022/09
		34561	1,3-DICHLOROPROPENE (TOTAL)		0	UG/L	.5	.5	2019/09/27	21	36		2022/09
		34571	1,4-DICHLOROBENZENE		0	UG/L	5	.5	2019/09/27	21	36		2022/09
		34030	BENZENE		0	UG/L	1	.5	2019/09/27	21	36		2022/09
		32102	CARBON TETRACHLORIDE		0	UG/L	.5	.5	2019/09/27	21	36		2022/09
		77093	CIS-1,2-DICHLOROETHYLENE		0	UG/L	6	.5	2019/09/27	21	36		2022/09
		34423	DICHLOROMETHANE		0	UG/L	5	.5	2019/09/27	21	36		2022/09
		34371	ETHYL BENZENE		0	UG/L	300	.5	2019/09/27	21	36		2022/09
		46491	METHYL-TERT-BUTYL-ETHER (MTBE)		0	UG/L	13	3	2019/09/27	19	36		2022/09
		34301	MONOCHLOROBENZENE		0	UG/L	70	.5	2019/09/27	21	36		2022/09
		77128	STYRENE		0	UG/L	100	.5	2019/09/27	21	36		2022/09
		34475	TETRACHLOROETHYLENE		0	UG/L	5	.5	2019/09/27	21	36		2022/09
		34010	TOLUENE		0	UG/L	150	.5	2019/09/27	21	36		2022/09
		34546	TRANS-1,2-DICHLOROETHYLENE		0	UG/L	10	.5	2019/09/27	21	36		2022/09
		39180	TRICHLOROETHYLENE		0	UG/L	5	.5	2019/09/27	21	36		2022/09
		34488	TRICHLOROFLUOROMETHANE FREON 11		0	UG/L	150	5	2019/09/27	21	36		2022/09
		81611	TRICHLOROTRIFLUOROETHANE (FREON 113)		0	UG/L	1200	10	2019/09/27	21	36		2022/09
		39175	VINYL CHLORIDE		0	UG/L	.5	.5	2019/09/27	21	36		2022/09
		81551	XYLENES (TOTAL)		0	UG/L	1750	0.5	2019/09/27	21	36		2022/09
	S2	**REGULATED SOC**											
		77443	1,2,3-TRICHLOROPROPANE (1,2,3-TCP)	<	ND	UG/L	0.005	0.005	2019/03/13	4	36	M	2022/03
		39730	2,4-D		0	UG/L	70	10	2019/09/27	12	36		2022/09
		77825	ALACHLOR		0	UG/L	2	1	2019/09/27	11	36		2022/09
		39033	ATRAZINE		0	UG/L	1	.5	2019/09/27	12	36		2022/09
		38926	ENDOTHALL		0	UG/L	100	45	2019/09/27	10	36		2022/09
		39055	SIMAZINE		0	UG/L	4	1	2019/09/27	11	36		2022/09

LAST SAMPLE DATE AND MONITORING SCHEDULE

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 900 NAME: ST2DBP - 633 SIXTH STREET CLASS: DBPQ STATUS: Active

PSCODE		GROUP/CONSTITUENT IDENTIFICATION		LAST RESULT	UNITS	MCL	DLR	LAST SAMPLE	COUNT	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
1010023 - 900		**CITY OF ORANGE COVE**		**900**	**ST2DBP - 633 SIXTH STREET**								
	D BP	**DISINFECTION BYPRODUCTS**											
		32101	BROMODICHLOROMET HANE (THM)	1.2	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		32104	BROMOFORM (THM)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		32106	CHLOROFORM (THM)	29	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		82721	DIBROMOACETIC ACID (DBAA)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		32105	DIBROMOCHLOROMET HANE (THM)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		77288	DICHLOROACETIC ACID (DCAA)	12	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		A-049	HALOACETIC ACIDS (5) (HAA5)	23	UG/L	60	--------	2019/09/27	22	3		2019/12	**DUE NOW**
		A-041	MONOBROMOACETIC ACID (MBAA)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
		A-042	MONOCHLOROACETIC ACID (MCAA)	0	UG/L	--------	2	2019/09/27	22	3		2019/12	**DUE NOW**
		82080	TOTAL TRIHALOMETHANES	30	UG/L	80	--------	2019/09/27	22	3		2019/12	**DUE NOW**
		82723	TRICHLOROACETIC ACID (TCAA)	11	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**

LAST SAMPLE DATE AND MONITORING SCHEDULE

SYSTEM NO: 1010023 NAME: CITY OF ORANGE COVE COUNTY: FRESNO

SOURCE NO: 901 NAME: ST2DBP - 1205 ADAMS CLASS: DBPQ STATUS: Active

PSCODE		GROUP/CONSTITUENT IDENTIFICATION	LAST RESULT	UNITS	MCL	DLR	LAST SAMPLE	COUNT	FREQ MON THS	MOD	NEXT SAMPLE DUE	NOTES
1010023 - 901		**CITY OF ORANGE COVE**	**901**	**ST2DBP - 1205 ADAMS**								
	D BP	**DISINFECTION BYPRODUCTS**										
	32101	BROMODICHLOROMETHANE (THM)	1.3	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	32104	BROMOFORM (THM)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	32106	CHLOROFORM (THM)	27	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	82721	DIBROMOACETIC ACID (DBAA)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	32105	DIBROMOCHLOROMETHANE (THM)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	77288	DICHLOROACETIC ACID (DCAA)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	A-049	HALOACETIC ACIDS (5) (HAA5)	0	UG/L	60	--------	2019/09/27	22	3		2019/12	**DUE NOW**
	A-041	MONOBROMOACETIC ACID (MBAA)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**
	A-042	MONOCHLOROACETIC ACID (MCAA)	0	UG/L	--------	2	2019/09/27	22	3		2019/12	**DUE NOW**
	82080	TOTAL TRIHALOMETHANES	28	UG/L	80	--------	2019/09/27	22	3		2019/12	**DUE NOW**
	82723	TRICHLOROACETIC ACID (TCAA)	0	UG/L	--------	1	2019/09/27	22	3		2019/12	**DUE NOW**

Appendix E
Bacteriological Distribution Monitoring Report

Bacteriological Distribution Monitoring Report

1010023 **Orange Cove, City of** **Distribution System Freq: 4/W**

Sample Date	Time	Location	T Coli	E Coli	F Coli	Type	Cl2	Violation	Comment
1/31/2015		16 samples	A	A		Routine	0.95-1.1		
2/28/2015		16 samples	A	A		Routine	0.9-1.1		
3/31/2015		16 samples	A	A		Routine	0.9-1.14		
4/30/2015		20 samples	A	A		Routine	0.90-1.2		
5/31/2015		16 samples	A	A		Routine	1.0-1.2		
6/30/2015		16 samples	A	A		Routine	0.9-1.1		
7/31/2015		20 samples	A	A		Routine	0.9-1.2		
8/31/2015		16 samples	A	A		Routine	0.91-1.3		
9/30/2015		20 samples	A	A		Routine	0.7-1.2		
10/31/2015		16 samples	A	A		Routine	0.8-1.2		
11/30/2015		16 samples	A	A		Routine	1.0-1.5		
12/31/2015		20 samples	A	A		Routine	0.65-1.1		
1/31/2016		16 samples	A	A		Routine	0.85-1.0		
2/29/2016		16 samples	A	A		Routine	0.8-1.5		
3/31/2016		20 samples	A	A		Routine	0.90-1.20		
4/30/2016		16 samples	A	A		Routine	0.90-1.10		
5/31/2016		16 samples	A	A		Routine	1.00-1.10		
6/30/2016		20 samples	A	A		Routine	0.60-1.00		
7/31/2016		16 samples	A	A		Routine	0.10-1.0		
8/31/2016		16 samples	A	A		Routine	0.80-1.10		
9/30/2016		20 samples	A	A		Routine	0.90-1.20		
10/31/2016		16 samples	A	A		Routine	0.80-1.00		
11/30/2016		20 samples	A	A		Routine	0.8-1.10		
12/31/2016		16 samples	A	A		Routine	0.90-1.50		
1/31/2017		16 samples	A	A		Routine	0.80-1.2		
2/28/2017		16 Samples	A	A		Routine	0.9-1.3		
3/31/2017		16 samples	A	A		Routine	0.90-1.20		
4/30/2017		16 Samples	A	A		Routine	0.92-2.0		
5/31/2017		20 Samples	A	A		Routine	0.7-1.50		*Missing 4 more samples*
6/30/2017		16 samples	A	A		Routine	0.80-1.30		
7/30/2017		16 samples	A	A		Routine	0.90-1.30		
8/30/2017		20 Samples	A	A		Routine	0.8-1.37		
9/30/2017		16 Samples	A	A		Routine	0.9-1.2		
10/31/2017		16 Samples	A	A		Routine	0.8-1.4		
11/30/2017		20 Samples	A	A		Routine	0.81-1.2		
12/31/2017		16 Samples	A	A		Routine	0.80-1.0		
1/31/2018		20 Samples	A	A		Routine	0.8-1.2		
2/28/2018		16 Samples	A	A		Routine	0.8-1.10		
3/31/2018		16 Samples	A	A		Routine	1.03-1.40		
4/30/2018		16 Samples	A	A		Routine	0.90-1.2		
5/31/2018		16 Samples	A	A		Routine	0.7-1.0		
6/30/2018		20 Samples	A	A		Routine	0.80-1.0		
7/31/2018		16 Samples	A	A		Routine	0.80-1.10		
8/31/2018		20 Samples	A	A		Routine	0.80-1.2		
9/30/2018		16 Samples	A	A		Routine	0.9-1.3		
10/31/2018		16 Samples	A	A		Routine	0.9-1.3		
11/30/2018		16 Samples	A	A		Routine	0.90-1.28		
12/31/2018		16 Samples	A	A		Routine	0.9-1.80		
1/30/2019		20 Samples	A	A		Routine	0.9-1.3		
2/28/2019		16 Samples	A	A		Routine	0.8-1.1		
3/31/2019		16 Samples	A	A		Routine	0.80-1.2		

Sample Date	Time	Location	T Coli	E Coli	F Coli	Type	Cl2	Violation	Comment
4/30/2019		16 Samples	A	A		Routine	0.70-1.30		
5/31/2019		16 Samples	A	A		Routine	0.7-1.3		
6/30/2019		16 Samples	A	A		Routine	0.90-1.2		
7/31/2019		16 Samples	A	A		Routine	1.00-1.10		
8/30/2019		16 Samples	A	A		Routine	1-1.10		
9/30/2019		16 Samples	A	A		Routine	0.80-1.1		
10/31/2019		20 Samples	A	A		Routine	0.9-12		
11/30/2019		16 Samples	A	A		Routine	1.0-1.2		

Violation Key

MCL	Exceeds the maximum contaminant level
MR1	No monthly sample for the report month
MR2	No quarterly sample for the report month
MR3	Incorrect number of routine samples for the report month
MR4	Did not collect 5 routine samples for previous month's positive sample
MR5	Incorrect number of repeat samples as follow-up to a positive sample
MR6	No source sample
MR7	No summary report submitted
MR8	Other comments and/or info
MR9	Cl2 not reported

Appendix F
Lead and Copper Rule Tracking Report

Individual System Lead and Copper Rule Tracking Report

1010023 **Orange Cove, City of** Pop: Eng: **CK** **Lead Action Level: 0.015 mg/L**
Copper Action Level: 1.3 mg/L

Sample Date Begin/(End)	Monitoring Period	Sample Set ID	Number Required	Number Sampled	Lead 90th % (mg/L)	Copper 90th % (mg/L)	Action Taken	Action Type	Next Due Date	Next Due Freq	Comments
(5/24/1993)	6M1ST-1993	1st 6	40	49	0.0	0.020					*Collected 5/24-6/21/93*
(6/27/1993)	YR1993	2nd 6	40	47	0.0	0.020					*Collected 6/27-7/28/93*
(12/22/1997)	YR1997	A1	20	20	0.009	0.0					*A1 & A2 not collected in summer*
(12/13/2000)	YR2000	A2	40	40	0.0246	0.027					*Pb levels caused by inadeq pH adjmt*
(6/22/2001)	6M1ST-2001		5	5	<0.005	<0.050					*Listed as wells on analytical resutls*
(9/6/2001)	6M2ND-2001	1st 6	17	17	<0.005	<0.050					*40 reqd due to exceedance (initial monitoring)*
(9/19/2001)	YR2001	1st 6	20	20	<0.005	<0.050			5/31/2002	2nd 6	*Monitoring delinquent; 40 samples collected 5/03 awaitng results // akh 6/03*
(5/28/2003)	6M1ST-2003	2nd 6	40	40	<0.005	0.055			9/30/2004	A1	*Reduced monitoring in 2004 to 20 sample sites.// akh 7/30/03*
(9/30/2004)	YR2004	A1	20	20	0.0025	0.025			9/30/2005	A2	*Analytical results-still need Form 141 requested email 11/2/04; akh 11/2/04*
(9/29/2005)	YR2005	A2	20	20	0.0025	0.051			5/31/2007	1st 6	*akh 11/30/05// ah 4/07- Need 40- 1st 6 changed to zinc ortho in 2/07*

Legend:

Cit: Citation
EL: Enforcement letter

1st 6: 1st initial 6-mo. round of monitoring
2nd 6: 2nd initial 6-mo. round of monitoring

A1: 1st Annual monitoring
A2: 2nd Annual monitoring

T1: 1st Triennial (3 yr) monitoring
T2: 2nd Triennial (3 yr) monitoring
T3: 3rd Triennial (3 yr) monitoring

1010023 Orange Cove, City of Pop: Eng: CK

Lead Action Level: 0.015 mg/L

Copper Action Level: 1.3 mg/L

Sample Date Begin/(End)	Monitoring Period	Sample Set ID	Number Required	Number Sampled	Lead 90th % (mg/L)	Copper 90th % (mg/L)	Action Taken	Action Type	Next Due Date	Next Due Freq	Comments
(3/29/2007)	6M1ST-2007	1st 6	40	40	0.007	0.53			9/30/2008	2nd 6	*akh 12/11/07 Need form 141. ah 4/08: 40 sites in 2008 then reduce to 20 sites in 2009 as A1. Other FKC users use Zn ortho successfully.*
(10/29/2008)	6M2ND-2008	2nd 6	40	40	0.0025	0.086			9/30/2011	T1	*entered by MRW 11/24/08. akh 2/8/10: next round June - Sept. 2011 - 20 sites.*
8/26/2011 (8/26/2011)	3Y2009-2011	T1	20	20	0.0	0.14			9/30/2014	T2	*entered by MRW 9-30-11.*
(8/1/2014)	3Y2012-2014	T2	20	20	<0.005	0.074			9/30/2017	T3	
(9/21/2018)	3Y2016-2018	T3	20	20	<0.005	0.150			9/30/2021	T4	

Legend:

Cit: Citation
EL: Enforcement letter

1st 6: 1st initial 6-mo. round of monitoring
2nd 6: 2nd initial 6-mo. round of monitoring

A1: 1st Annual monitoring
A2: 2nd Annual monitoring

T1: 1st Triennial (3 yr) monitoring
T2: 2nd Triennial (3 yr) monitoring
T3: 3rd Triennial (3 yr) monitoring

12/31/2019

Appendix G
Emergency Notification Plan (ENP) Template

State Water Resources Control Board
Division of Drinking Water

WATER QUALITY EMERGENCY NOTIFICATION PLAN

Name of Utility: ______________________________

Physical Location/Address: ______________________________

The following persons have been designated to implement the plan upon notification by the Division of Drinking Water, SWRCB that an imminent danger to the health of the water users exists:

Water Utility: Contact Name & Title	Email Address	Telephone Day	Telephone Evening	Telephone Cell
1.				
2.				
3.				

The implementation of the plan will be carried out with the following DDW-SWRCB and County Health Department personnel:

DDW-SWRCB & County Health Departments: Contact Name & Title	Telephone Day	Telephone Evening
1. José A. Robledo, Fresno District 23 Engineer, SWRCB-DDW	(559) 447-3396	(559) 731-1208
2. Tricia A. Wathen, Central CA Section Chief, SWRCB-DDW	(559) 447-3398	(559) 696-8506
3. Rick Heinrichs, Environmental Health Specialist-Supervisor Fresno County Health Department	(559) 600-3357	(559) 600-3357

If the above personnel cannot be reached, contact:

Office of Emergency Services Warning Center (24 hrs.) (800) 852-7550 or (916) 845-8911
When reporting a water quality emergency to the Warning Center, please ask for the State Water Resources Control Board – Division of Drinking Water Duty Officer.

NOTIFICATION PLAN

Attach a written description of the method or combination of methods to be used (radio, television, door-to-door, sound truck, etc.) **to notify customers in an emergency.** For each section of your plan give an estimate of the time required, necessary personnel, estimated coverage, etc. Consideration must be given to special organizations (such as schools), non-English speaking groups, and outlying water users. Ensure that the notification procedures you describe are practical and that you will be able to actually implement them in the event of an emergency. Examples of notification plans are attached for large, medium and small communities.

Report prepared by:

______________________________ ______________________________
Signature and Title Date

EXAMPLE PLAN I (Medium Community)

During regular working hours our people will contact the news media at television station KXYZ to broadcast the necessary warning. The local radio stations will also be contacted. The television and radio personnel are available at all hours. As a follow-up measure, we will also contact the Daily Bee, a local newspaper that serves both Ourtown and Hometown.

The warnings will be issued in both English and Spanish to cover all members of the community. Outlying areas of the water service area (such as Isolated Canyon and Lonesome Mountain subdivisions) will also be notified by sound truck and/or handbill distributed to their respective areas. Both of these areas are very small and this can be done quite quickly.

A special telephone answering service can also be quickly set up at the utility headquarters (using the regular company numbers) to answer questions that will come in from consumers. Questions are anticipated, especially from the Hometown area, because that area is served by three different water companies. A map will be available to the telephone answering personnel to determine the water company serving the caller.

It is anticipated that the time for notification to the television and radio audiences will be very short. The areas served by handbill and sound truck will also be notified within an hour. For notification to be issued in other than normal hours, the same media will be contacted and an announcement will be scheduled for as long as is necessary. A sound truck(s) will be used in the early morning hours to quickly alert the people not listening to their radio or television.

EXAMPLE PLAN II (Small Community)

Our community is very small and the most efficient means of notification will be both sound truck and handbill. It is estimated that the entire service area can be covered in less than three hours.

EXAMPLE PLAN III (Large Community)

The same plan as implemented in Plan I should be used here with the exceptions noted. All the news media will be contacted in the entire metropolitan area. This includes all television and radio stations and all local and general area newspapers. Maps have been prepared to be distributed to the media to locate the boundaries of the water company. This system is large enough that it may only be necessary to notify some of the water users. This information will be transmitted to the media and an answering service at the water company will respond to consumers' calls. Unless the problems are limited to isolated areas it is unreasonable to assume that contact can be made through sound truck or handbill.

Appendix H
Emergency Response Plan (ERP) Template

This EXAMPLE is for a small water system and represents the minimum information required. The information required for your plan will be based on the complexity of your water system.

Emergency/Disaster Response Plan

To continue minimum service levels and mitigate the public health risks from drinking water contamination that may occur during a disaster or other emergency events and in order to provide reliable water service and minimize public health risks from unsafe drinking water during those events, the ______________________________ water system proposes the following plan that defines how it will respond to emergencies and/or disasters that are likely to affect its operation.

Disasters/emergencies that are likely to occur in the water system's service area that are addressed are: earthquake, major fire emergencies, water outages due to loss of power, localized flooding, water contamination, and acts of sabotage.

1) **DESIGNATED RESPONSIBLE PERSONNEL:** For designated responsible personnel and chain of command and identified responsibilities, see the attached "Emergency and Disaster Personnel and Responsibilities".
2) **INVENTORY OF RESOURCES:** An inventory of system resources that are used for normal operations and available for emergencies; includes maps and schematic diagrams of the water system, lists of emergency equipment, equipment suppliers, and emergency contract agreements that are kept at the water system office.
3) **EMERGENCY OPERATIONS CENTER:** The water system office has been designated as the communication network emergency operations center. Emergency contact information for equipment suppliers is attached. The telephone and FAX will be the primary mode of communication in an emergency. In addition, the local fire department and law enforcement have a radio and we have made arrangements to use it to contact police, fire and other emergency response personnel should telephone communication be lost.

Agency	Address, City	Phone #	FAX #
Water System			
Fire Department			
Law Enforcement			

4) **<u>OTHER AGENCY COORDINATION</u>:** Coordination procedures with governmental agencies for health and safety protection; technical, legal, and financial assistance, and public notification procedures are continually being developed and updated through regulation and experience and will be added as necessary to this plan. (See attached sheet.)

5) **<u>RESPONSE PROCEDURES</u>:** Personnel will, as quickly as possible, determine the status of other employees, assess damage to water system facilities, provide logistics for emergency repairs, monitor progress of repairs and restoration efforts, communicate with health officials and water users according to the "Emergency Notification Plan" on file with the regulatory agency (i.e., Department of Health Services (DHS) or Local Primacy Agency (LPA)), and document damage and repairs.

6) **<u>RESUME NORMAL OPERATIONS</u>:** The steps that will be taken to resume normal operations and to prepare and submit reports to appropriate agencies will include identifying the nature of the emergency (e.g., earthquake-causing water outage/leaks, fire or power outage causing water shortage/outage, sabotage resulting in facility destruction or water contamination).

   a. **Leaks or service interruption (Result of earthquake, etc.)**

      i. Isolate leak. Turn power or flow off, if necessary, to control leak.
      ii. Repair or isolate break to allow service to the maximum system population possible. Disinfect as per attached AWWA Standards; increase system disinfectant residual as precaution, until normal service is resumed.
      iii. Do bacteriological sampling until 3 good consecutive samples are confirmed.
      iv. Reestablish normal service.

   b. **Low pressure (Result of earthquake, fire, storm)**

      i. Increase production, if possible, to provide maximum system output.
      ii. Increase disinfectant residual as precaution to potential contamination.

   c. **Power outage**

      i. Place emergency generator on line to provide minimum water pressure to system.
      ii. Increase disinfectant residual as precaution to potential contamination.

d. Contamination

i. Identify location and source of contamination.
ii. If contamination is from system source, isolate or treat source.
iii. If contamination is an act of sabotage, take appropriate action based on nature of contamination. Immediately contact local law enforcement and your regulatory agency (DHS or LPA). Actions should be taken in consultation with the regulatory agency and could include shutting off water until all contaminants are identified.

e. Physical destruction of facility (sabotage)

i. Immediately contact local law enforcement and regulatory agency for consultation.

All significant water outages (widespread and lasting more than eight hours) or disinfection failure will be reported to the Department of Health Services (DHS) District Office, or Local Primacy Agency (LPA) by telephone or equally rapid means. All emergencies will be documented along with action taken, and kept in the files of the water system office. Acts of sabotage will be reported to the local law enforcement agency.

Emergency and Disaster Personnel and Responsibilities

Name Title	Telephone No. (Work) Telephone No. (Home)	Role
 Secretary		Initial contact at office, in charge for all emergencies until replaced by Chairperson or Director
 Board Chairperson		In charge for all emergencies
 Board Member		
 Board Member		
 Board Member		
 Treasurer		
 Operator		Emergency assistance and support

Additional Mutual Assistance or Emergency Resources

Agency/Department	Telephone No. (Day) Telephone No. (After Hours)
Another Water Agency	
Fire Department	
Local Law Enforcement	
County Office of Emergency Services	
FBI Office (terrorism or sabotage) (Also notify local law enforcement.)	
DHS District Office	
Local Environmental Health Agency	

Water system contact information:

Name:
Address:
City, State, Zip code:
Phone:
FAX:

Emergency Contact Numbers and Operational Practices

A. List of equipment on hand for emergency repairs

1. **Example** *(Miscellaneous pipes and fittings, 2", 4", 6" & 8", approximately 100 count 20 of each.)*

2.

3.

B. List of sources of needed equipment, not on hand

1. (Sources for backhoe, jackhammer, technical support. Sources under contract.)

2. (Sources for electrical and pump repair.)

3. (Sources for emergency generators in case of prolonged power outages.)

4.

C. List of distributors or suppliers of replacement parts for the system

1. (Sources for PVC pipe, valves, and fittings.)

2. (Sources for pumps, pressure tank, and gauges.)

3.

D. List of emergency contact numbers:

	Name	Phone (Day)	Phone (After-hours)
DHS District Office			
Local Environmental Health Agency (LPA)			
Electrician			
Laboratory			
Electric & Pump (repair service)			
Chemical Disinfectant Supplier			
Other Water Agency (equipment support)			
Fire Department			
Law Enforcement			
County Office of Emergency Services			

Appendix N: Ken Schmidt Well Memos

KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
600 WEST SHAW AVE., SUITE 250
FRESNO, CALIFORNIA 93704
TELEPHONE (559) 224-4412

August 18, 2016

Mr. Harry Tow
Quad Knopf Inc.
901 East Main Street
Visalia, CA 93292

Re: E. Orosi CSD Test Well

Dear Harry:

During July 20-28, Johnson Drilling Co. of Reedley completed a casing hammer test well to a depth of 590 feet. We logged the drill cuttings and prepared a geologic log, which is attached. Alluvial deposits were encountered to a depth of 588 feet and hardrock was encountered below that depth. The deposits above a depth of 391 feet were primarily brown in color. Blue or gray-green deposits were present from 391 to 421 feet in depth. Gray or brown deposits were present from 421 to 453 feet in depth. Green deposits were predominant below a depth of 453 feet, except for a black sand from 568 to 572 feet in depth. Fine-grained layers that could function as confining beds below a depth of 180 feet were present in the following depth intervals:

181 to 255 feet	333 to 352 feet
265 to 281 feet	421 to 431 feet.

Depth to water ranged from 89 to 100 feet at the time of drilling. Water samples were collected from a total of 10 different depth intervals by airlifting. A submersible pump was installed at two of these intervals (255 to 260 feet and 394 to 400 feet in depth) to allow collection of pumped samples. The water samples were preserved and hand delivered to APPL, Inc. in Clovis for analyses of inorganic and trace organic constituents. Samples for radiological analyses were preserved and shipped to FGL Environmental in Santa Paula.

Total dissolved solids (TDS) concentrations ranged from 236 to 460 mg/l. The lowest TDS concentrations (less than 280 mg/l) were present between 255 and 357 feet and 453 and 496 feet in depth. Nitrate concentrations generally decreased with increasing depth, and were all less than the MCL of 45 mg/l. Nitrate concentrations in samples from below a depth of 255 feet were 15 mg/l or less. Iron and arsenic concentrations were well below the respective MCLs of 0.3 mg/l and 10 ppb. Manganese concentrations ranged from less than 0.01 to 0.21 mg/l. Concentrations exceeded the recommended MCL of 0.05 mg/l in samples from 173 to 179 feet, 394 to 458 feet, and for 572 to 577 feet in depth. Alpha activeities in all of the sam-ples were less than the MCL. DBCP, EDB, and 1,2,3-TCP concentra-tions were non-detectable in all of the samples.

A new well can be constructed at the site. I recommend not tapping strata below a depth of 570 feet and between 390 and 430 feet in depth. Blank casing would be installed from the surface to 255 feet, from 390 to 430 feet, and from 570 to 590 feet in depth. Louvered casing would be installed from 255 to 390 feet and 430 to 570 feet in depth. Gravel would be placed from 590 feet up to a depth of 230 feet. A gravel feed tube would be installed from 235 feet in depth to the surface. An annular seal would then be placed from 230 feet to the surface. Sieve analyses of fine sands by Roscoe Moss Co. indicate that a slot size of 0.06 inch and gravel gradation of 8x16 should be used. Such a well would tap about 140 feet of coarse-grained water producing deposits. A properly constructed and developed well should produce about 1,200 to 1,400 gpm.

Please call me if you have any questions.

Sincerely yours,

K Schmidt

Kenneth D. Schmidt

KDS/cl

GEOLOGIC LOG FOR EAST OROSI CSD TEST WELL

Depth (feet)	Description
0 - 6	Red-brown sandy silt
6 - 12	Red-brown fine to medium sand
12 - 32	Red-brown sandy clay
32 - 41	Red-brown silty fine sand
41 - 85	Brown silt
85 - 91	Brown silty clay
91 - 101	Brown clay
101 - 138	Red-brown sandy clay
138 - 150	Brown decomposed clayey coarse sand
150 - 158	White and brown clayey decomposed rock
158 - 169	Brown and white clay
169 - 174	Brown clay
174 - 181	Brown clayey medium to coarse sand and gravel
181 - 210	Light brown clay
210 - 255	Brown clayey silt
255 - 257	Brown cemented fine to medium sand
257 - 265	Brown fine to medium sand
265 - 281	Pink dry clay
281 - 292	Pink clay and brown fine to medium sand
292 - 296	Brown cemented fine to medium sand
296 - 301	Brown fine to medium sand
301 - 312	Light brown sandy clay
312 - 318	Brown fine sand
318 - 322	Gray-brown sandy clay
322 - 333	Gray-brown clayey fine sand
333 - 352	Gray and pink dry clay
352 - 361	Brown medium sand
361 - 375	Brown fine to medium sand with clay
375 - 381	Brown clayey medium to coarse sand
381 - 389	Brown clayey coarse sand
389 - 391	Light brown clay
391 - 393	Blue-green clay
393 - 411	Blue-green very fine to fine sand
411 - 419	Gray-green clay
419 - 421	Gray-green silty indurated clay
421 - 429	Gray sandy clay
429 - 431	Light brown clay

Continued:

GEOLOGIC LOG FOR EAST OROSI CSD TEST WELL
(Continued:)

Depth (feet)	Description
431 - 435	White coarse sand
435 - 438	Light brown clay
438 - 445	Brown-green medium to coarse sand
445 - 453	Light brown clay
453 - 468	Brown-green fine to medium sand
468 - 471	Green cemented fine to medium sand
471 - 475	Green medium to coarse sand
475 - 491	Green clayey medium to coarse sand
491 - 511	Brown silty fine sand
511 - 512	Pink and light brown clay
512 - 513	Green clay
513 - 521	Green fine to medium sand
521 - 529	Green clay
529 - 533	Green fine to medium sand
533 - 539	Green clay
539 - 568	Green fine to medium sand
568 - 572	Black cemented fine to medium sand
572 - 588	Green clayey medium to coarse sand
588 - 590	Hard rock

EAST OROSI CSD TEST WELL - WATER QUALITY TABLE

Depth Interval (feet)	Fe (mg/l)	Mn (mg/l)	As (ppb)	NO_3 (mg/l)	EC umhos/cm	TDS (mg/l)	pH	DBCP (ppb)	EDB (ppb)	1,2,3 TCP (ppt)	Perchlorate (µg/l)	Gross Alpha (pci/l)	SWL (ft)
138-141 A	<0.03	0.031	1.3	41	533	367	8.0	<0.01	<0.01	< 5	1.4	2.1	
173-179 A	<0.03	0.056	1.5	36	506	352	8.1	<0.01	<0.01	< 5	1	2.7	
255-260 A	<0.03	0.062	1.4	15	325	236	8.1	<0.01	<0.01	< 5	1.5	0.4	
255-260 P	<0.03	0.009	1.9	14	330	238	7.6	<0.01	<0.01	< 5	1.7	0.0	89.3
295-300 A	<0.03	0.021	1.4	15	355	243	8.1	0.01	<0.01	< 5	2.2	1.3	
352-357 A	<0.03	0.032	1.2	7	416	279	8.1	<0.01	<0.01	< 5	0.8	1.0	
394-400 A	<0.03	0.138	1.8	1	596	348	8.2	<0.01	<0.01	< 5	<1	0.8	
394-400 P	<0.03	0.211	2.4	< 0.5	605	346	7.6	<0.01	<0.01	< 5	<1	1.1	110.3
453-458 A	<0.03	0.057	1.3	7	411	276	8.1	<0.01	<0.01	< 5	<1	0.0	
491-496 A	0.03	0.023	1.8	8	382	260	8.1	<0.01	<0.01	< 5	<1	0.2	
529-534 A	<0.03	0.041	1.7	8	496	326	8.1	<0.01	<0.01	< 5	<1	0.7	
572-577 A	<0.03	0.066	1.2	6	704	460	8	<0.01	<0.01	< 5	<1	0.5	

GROUNDWATER CONDITIONS IN THE MONSON AREA

Draft Report-For Review Purposes Only

DRAFT

prepared for
Provost & Pritchard Consulting Group
Fresno, California

by
Kenneth D. Schmidt & Associates
Groundwater Quality Consultants
Fresno, California

January 30, 2015

January 30, 2015

Mr. Brian Shoener
Provost & Pritchard Consulting Group
286 W. Cromwell
Fresno, CA 93711

Re: Monson Groundwater Evaluation

Dear Brian:

Submitted herewith is our draft report on groundwater conditions in the Monson area. We appreciate the information provided by Self Help Enterprises.

Sincerely yours,

Kenneth D. Schmidt
Geologist No. 1578
Certified Hydrogeologist
No. 176

KDS/td

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GROUNDWATER CONDITIONS IN THE MONSON AREA

INTRODUCTION

High nitrate concentrations are present in shallow groundwater in the Monson area, a condition that is common in the Dinuba Sultana, Orosi, Cutler, and Sequoia Field areas. Self Help Enterprises has conducted sampling programs for private individual wells at and near Monson. Provost & Pritchard is conducting an evaluation of developing a community water system to serve Monson. This evaluation is intended to provide information on groundwater conditions so that one or more public supply wells producing groundwater without treatment can be developed. Subsurface geologic conditions are discussed first, followed by a discussion of water supply wells and depths. Water levels and well production are then discussed, and then groundwater quality. Lastly, recommendations are provided on the location, depth, and method of construction of a test well in Monson.

SUBSURFACE GEOLOGIC CONDITIONS

The Monson area is located in an interfan area between the Kings and Kaweah Rivers and is thus underlain by primarily fine-grained deposits, particularly below a depth of about 300 feet.

Sand Creek flows through the area just east of Monson, and Cottonwood Creek flows through the area south of Monson. Drillers logs and completion reports for water wells were obtained from the California Department of Water Resources, San Joaquin District. The deepest water wells with records in the Monson area are about 350 to 420 feet deep. In order to evaluate deeper subsurface conditions, lithologic logs and electric logs for deep holes were obtained from the California Division Oil, Gas, and Geothermal Resources website.

Figure 1 shows the location of these deep holes and wells. Three important issues are 1) the depth to the top of the hardrock, 2) the depth to the top of the reduced (blue-green) deposits, and 3) whether or not salty groundwater is present at depth. Experience in the area is that groundwater in the reduced deposits at depth may be of unusable quality for public supply without treatment. At Hole T16S/R24E-21H, the base of the alluvial deposits was 492 feet deep, and about 40 feet of sands were indicated between 435 and 470 feet in depth. Information on salty groundwater wasn't available. At Hole T16S/R24E-26P, the top of the hardrock was 994 feet deep, and information on salty groundwater was not available. A permeable sand and gravel layer was indicated from 379 to 417 feet in depth. Hole 33H was drilled to a depth of 1,160 feet and salty groundwater

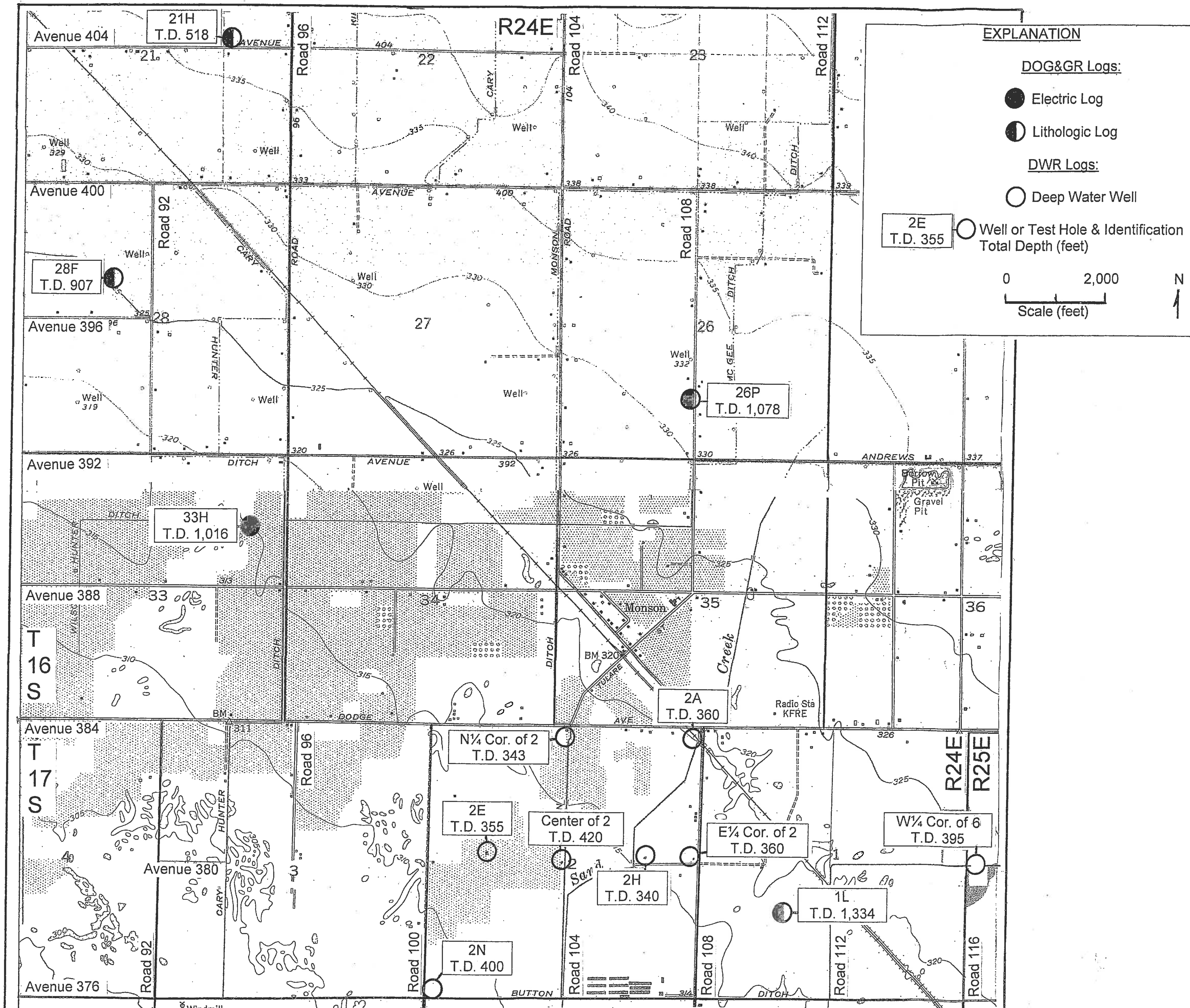


FIGURE 1-LOCATION OF WELLS AND TEST HOLES WITH LOGS

was not indicated. Deposits about a depth of 623 feet were oxidized (not reduced). About 50 feet of sand were indicated between 350 and 775 feet in depth. At Hole 28F, the blue-green deposits were below a depth of 648 feet and the top of the hardrock was 900 feet deep. About 72 feet of sands were indicated between 420 and 630 feet in depth. At Hole 1L, the top of the hardrock was 1,294 feet in depth, and information on salty water wasn't available.

In summary, depth to the top of the hardrock increase to the south in the area, from about 1,000 feet deep near Avenue 392 to 1,250 feet deep near Avenue 380. The top of the blue-green deposits apparently averages about 600 to 650 feet in depth in the vicinity. Salty groundwater wasn't indicated to be present at depth. The most favorable subsurface conditions to develop a public supply well are as far south as is feasible, where the top of the hardrock is deeper.

WATER SUPPLY WELLS

Drillers logs are available for three supply wells in the Monson area that range in depth from 400 to 420 feet, and none encountered the hardrock (Figure 1). The great majority of irrigation wells with logs are less than 300 feet deep. Most domestic wells with logs are less than 200 feet deep. However, two domestic wells were apparently constructed in 2014 to a depth of about 300 feet and produced low nitrate groundwater (discussed later).

WATER LEVELS

Water-level records were obtained from the California Department of Water Resources, San Joaquin District. Long-term records are available for four wells in the Monson area. Water levels in well have been shallow, commonly less than about 30 feet deep. On the long-term, water levels have been stable.

WELL PRODUCTION

Yields of about 1,000 gpm have been reported for some irrigation wells in the Monson area that have perforations or are open extending up to above a depth of about 150 feet. Overall, the shallow strata are more productive than deeper strata. Reported yields of a number of wells that are only perforated below about 190 feet in depth have usually ranged from about 100 to 300 gpm. No information is available on the yields of wells only open or perforated below a depth of about 300 feet. However, yields can be estimated from interpretation of the logs for several deep holes.

GROUNDWATER QUALITY

During May-July 2008, Self Help Enterprises collected water samples from 13 private domestic wells in Monson. Completion reports are only available for only three of these wells. Based on the high nitrate concentrations and other information, all of the sampled wells probably tapped strata above a depth of about 200 feet. Nitrate concentrations in the sampled wells ranged from 46 to 130 mg/l, and all exceeded the maximum contaminant level (MCL) of 45 mg/l. Except for two wells, nitrate concentrations exceeded 75 mg/l. DBCP was detected at concentrations ranging from 0.01 to 0.13 ppb, below the MCL of 0.2 ppb, in water from four of these wells. During 2012-13, Self Help Enterprises collected water samples from 42 private domestic wells in and near Monson. Drillers logs are available for only eight of these wells. All of the sampled wells with records were about 200 feet deep or shallower. Nitrate concentrations in water from these wells ranged from less than 1 to 250 mg/l. Except for one well (No. 28), nitrate concentrations were 130 mg/l or less. The average nitrate concentration in water from the sampled wells in 2012-13 was 64 mg/l, and about 60 percent of the sampled wells had nitrate concentrations exceeding the MCL. Three of the sampled wells (No. 16, 24, and 31) had nitrate concentrations less than 9 mg/l. Wells No. 16 and 24 were located north of Avenue 388, and No. 31 was located on Simpson Drive. Information on the construction of these wells isn't available.

The source of the high nitrate in the area has not been determined. Nitrogen fertilizers are indicated to be the primary sources in the regional area. However, septic tank effluent is a likely source in Monsoon, and concentrations up to 130 mg/l could be from septic tank effluent. The higher concentration in water from Well No. 28 is likely at least party associated with nitrogen fertilizer use in the area. Two domestic wells along Monson Drive (Sites 5 and 40) were constructed to a depth of about 300 feet and were sampled in November 2014. Water from these wells had nitrate concentrations ranging from 12 to 13 mg/l. This indicates a trend of lower nitrate concentrations in the deeper groundwater, which is expected. DBCP was not detected in water from either of these wells. 1, 2, 3-TCP was detected at 15 part per trillion (ppt) in water from one of these wells, which is higher than the expected MCL to be developed (5 to 10 ppt). Results of the private well sampling are provided in Appendix A.

Water from the Monson Market well was frequently sampled during 2003-13. The overall trend was increasing nitrate concentrations, from about 55 mg/l in early 2003 to about 80 mg/l in 2013. Part of this increase may be due to water-level declines during the drought, which results in shallower groundwater (nearer the water level) being pumped from wells.

Groundwater in the deeper reduced deposits may contain high concentrations of arsenic, manganese, iron, and hydrogen sulfide. This needs to be determined by doing a test well (described later).

Vertical Trends

There is a trend in both the local and regional areas that indicates higher nitrate concentrations in the shallow groundwater (above a depth of about 250 feet) and low nitrate concentrations in the deeper groundwater. This has been demonstrated at two lots in Monson (Sites 5 and 40). Nitrate concentrations in water from many shallow wells ranged from 50 to 100 mg/l, whereas for they ranged from only 12 to 13 mg/l in water from the deeper wells (about 300 feet deep). A similar trend is present in Dinuba, Sultana, East Orosi, Orosi, Cutler, and farther south in the Sequoia Field area.

RECOMMENDATIONS

In order to develop one or more public supply wells, the amount and quality of groundwater below a depth of about 300 feet needs to be determined from a test well. Subsurface geologic conditions are indicated to be likely better near the south edge of Monson than elsewhere in Monson. The casing hammer method should be used to drill a test well into the reduced deposits, the top of which is expected to be about 650 feet deep. An 8-inch diameter casing would initially be driven as far as possible, and below that a 6-inch diameter casing would be driven to a total depth of about 900 feet. The most important constituents in the shallow groundwater are indicated to be nitrate, DBCP, and 1, 2, 3-TCP. The most important constituents in the deeper groundwater are likely manganese, arsenic, and possibly iron. Based on the thickness of sands and gravels that have been encountered below a depth of 350 feet at deep holes in the Monson area, well yields of about 400 to 600 gpm may be possible.

REFERENCES

APPENDIX A

RESULTS OF PRIVATE WELL SAMPLING

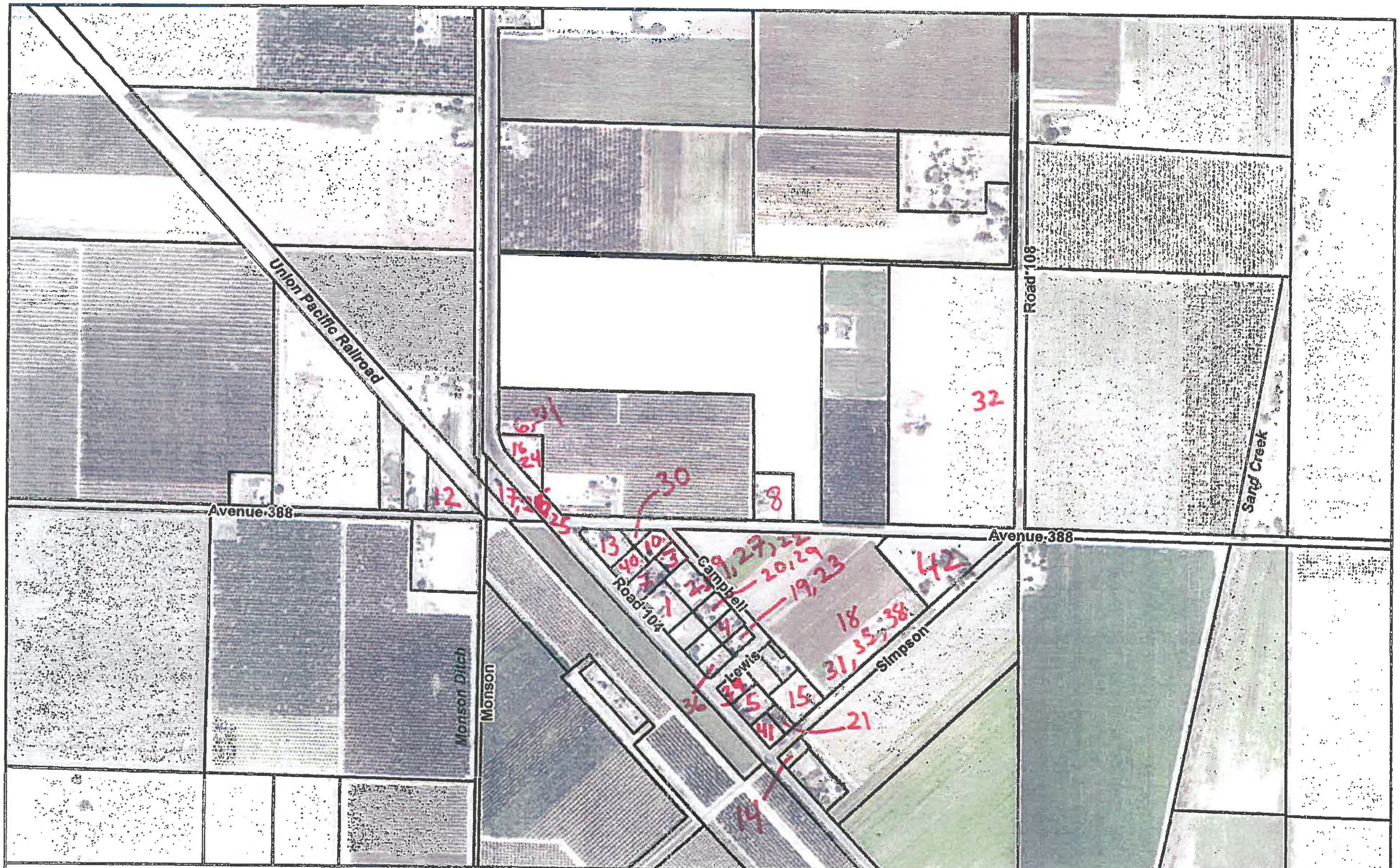
Monson Well Water Sampling Results 2012-2013				
Site	Samples	Sampling Date	Nitrate PPM	Bacteria P/A
Site 1	1	11/27/2012	**85**	A
Site 2	2	11/15/2012	39	A
Site 3	3	11/15/2012	**100**	A
Site 4	4	11/15/2012	**56**	A
Site 5	5	11/15/2012	**50**	A
Site 6	6	11/15/2012	**110**	**P**
Site 7	7	3/6/2013	**100**	A
Site 8	8	3/7/2013	**81**	**P**
Site 9	9	12/17/2012	37	A
Site 10	10	12/17/2012	**100**	A
Site 11	11	12/17/2013	**92**	A
Site 12	12	3/5/2013	**66**	A
Site 13	13	3/25/2013	**120**	A
Site 14	14	3/5/2013	34	**P**
Site 15	15	3/6/2013	41	A
Site 16	16	3/7/2013	8.6	**P**
Site 17	17	12/17/2012	**74**	A
Site 18	18	5/1/2013	32	**P**
Site 19	19	5/1/2013	18	A

Monson
Well Water Sampling Results
2012-2013

Site	Samples	Sampling Date	Nitrate PPM	Bacteria P/A
Site 20	20	5/1/2013	**69**	A
Site 21	21	3/6/2013	42	A
Site 22	22	5/30/2013	33	A
Site 23	23	5/1/2013	18	A
Site 24	24	3/7/2013	8.6	A
Site 25	25	3/13/2013	67	A
Site 26	26	3/13/2013	67	A
Site 27	27	5/30/2013	33	A
Site 28	28	6/29/2013	**250**	**P**
Site 29	29	6/29/2013	**63**	A
Site 30	30	12/17/2012	**130**	A
Site 31	31	5/1/2013	0	A
Site 32	32	3/13/2013	**81**	**P**
Site 33	33	12/17/2012	43	**P**
Site 36	34	5/1/2013	14	A
Site 39	35	5/30/2013	**80**	**P**
Site 40	36	4/14/2013	**100**	**P**
Site 41	37	3/25/2013	18	A
Site 42	38	3/28/2013	**71**	A

Monson Well Water Sampling Results 2012-2013				
Site	Samples	Sampling Date	Nitrate PPM	Bacteria P/A
		Max	250	N/A
		Min	0	N/A
		Average	64	N/A
		# over MCL	22	10
		% over MCL	58%	26%

: BSK Test Results received



0 200 400 600 Feet

PROVOST & PRITCHARD CONSULTING GROUP EST. 1968
An Employee Owned Company

130 N. Garden Street
Visalia . CA . 93291
(559) 636-1166

Legend

Parcel (Tulare Co. Assessor)

TULARE COUNTY

Monson Water System Feasibility

Project Site

9/11/2014 : G:\Clients\Tulare County - 1399\13991402-P&E for Monson Community\GIS\Map\site.mxd

MONSON DRINKING WATER WELL SAMPLING, JULY 31 2008

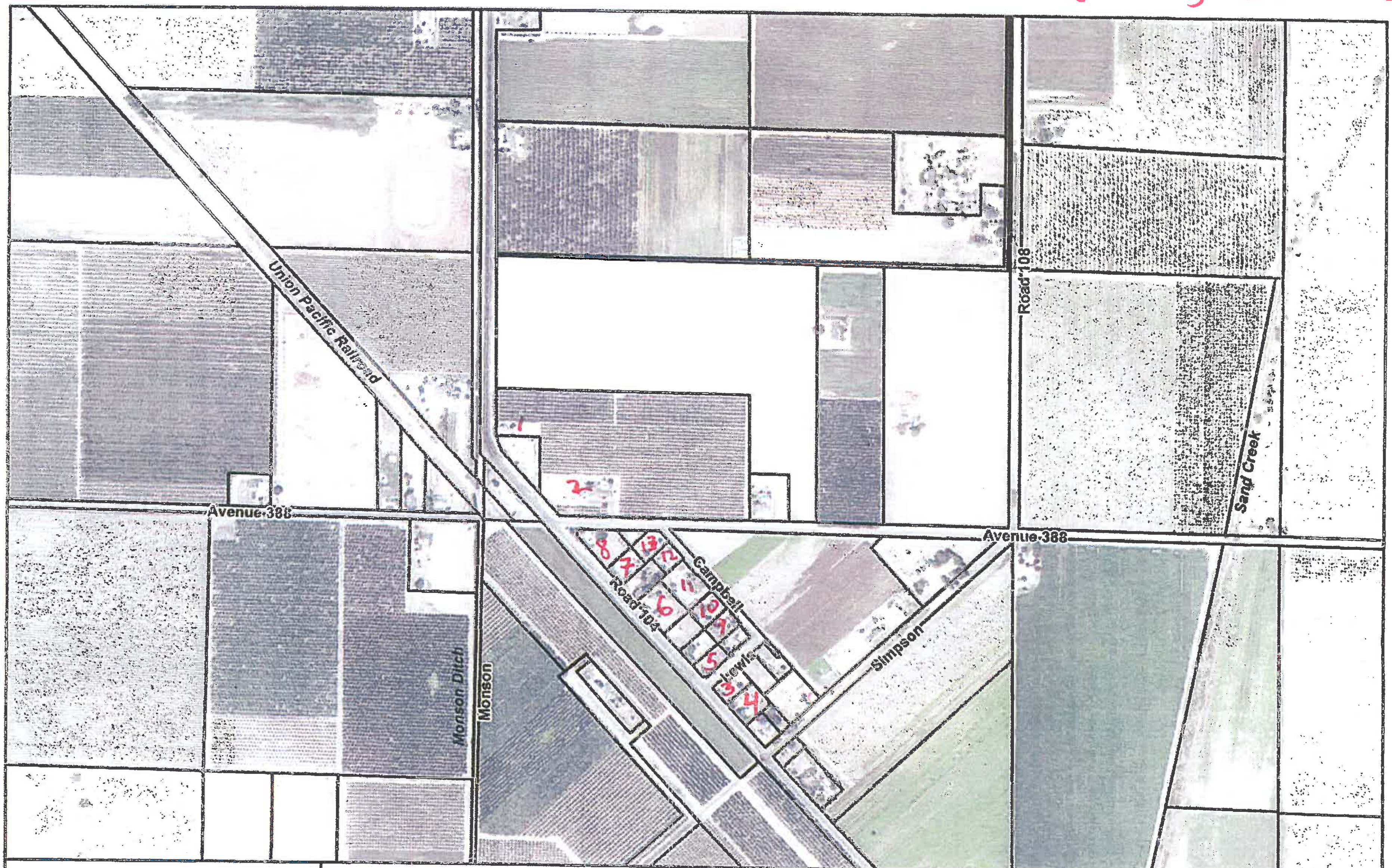
	NAME	ADDRESS	PHONE	NO3	DBCP	BACT	PC to rept
1	Clarence & Carol Harms	10524 Ave 388	591-4208	120 ppm	ND	Absent	ok
2	Joel Sanpedro	10507 Ave 388	595-1324	130 ppm	ND	Present*	ok
3	Andrea Gonzalez (Martin)	38668 Monson Dr	595-0912	60 ppm	ND	Absent	na
4	Salvador & Martha Gomez	38660 Monson Dr	591-2332	76 ppm	18 ppt	Present*	ok
5	Modesto Macias	38686 Monson Dr	595-9211	46 ppm	ND	Absent	ok
6	Tony Torres (Lisa)	38734 Monson Dr	591-2491	86 ppm	79 ppt	Absent	na
7	Jorge Luis Colunga (Viadis)	38758 Monson Dr	591-6197	130 ppm	ND	Absent	ok
8	Francisco Javier Salas	38780 Monson Dr	307-6623	120 ppm	14 ppt	Absent	na, lm
9	Ignacio Avila (Christian)	38737 Campbell Dr	595-1753	86 ppm	ND	Absent	ok
10	Terra Pelham	38745 Campbell	397-5946	95 ppm	ND	Absent	na, lm
11	Laura Saldana Garcia (Jose Luis)	38771 Campbell	591-1623	92 ppm	ND	Absent	ok
12	Archuleta Salvador	38785 Campbell Dr	591-7249	96 ppm	130 ppt	Absent	ok
13	Benjamin & Lala Luengas	38795 Campbell	591-4138	120 ppm	ND	Absent	ok

KEY:
NO3 = Nitrate
DBCP = Dibromochloropropane
BACT = Bacteria, by Total Coliform
ND = Non-detect
MCL = Maximum Contaminant Level
ppm = parts per million
ppt = parts per trillion

	NO3:	DBCP	BACT
MCL:	45 ppm	200 ppt	0
average:	105 ppm over 12 wells		

Sample results in blue were taken 5/16/2008
*While two wells tested in this program came up positive for total coliform bacteria, none were positive for E-coli.

Monson Drinking Water Well Sampling, July 31 2008



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Parcel (Tulare Co. Assessor)

TULARE COUNTY

Monson Water System Feasibility

Project Site

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KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
600 WEST SHAW AVE., SUITE 250
FRESNO, CALIFORNIA 93704
TELEPHONE (559) 224-4412

July 12, 2016

Mr. Brian Shoener
Provost & Pritchard
286 Cromwell
Fresno, CA 93711

Re: Sultana CSD

Following is my updated draft report on groundwater conditions in the Sultana vicinity. In November 1995, I prepared a report on groundwater conditions in the Sultana area. At that time, the District had two active wells (No. 1 and No. 2) that were about 330 feet deep. High nitrate and DBCP concentrations have been common in the shallow groundwater in the Dinuba-Sultana area. Both Wells No. 1 and 2 have relatively shallow perforations and thus tapped such shallow groundwater. Pursuant to that evaluation, a test well was done near where Well No. 3 was later constructed. The top of the hardrock is relatively shallow in the Sultana area. My previous evaluation indicated that the top of the hardrock is deeper to the southeast near Sultana. The test well was completed near Well No. 3 to a depth of 500 feet in March 1996. Although the top of the hardrock wasn't reached, a clay strata was encountered from 460 to 480 feet in depth and the weathered rock (underlying the alluvial deposits) was encountered from 480 to 500 feet in depth. A significant confining bed was indicated between 235 and 268 feet in depth. This same confining bed is indicated to be present from about 215 to 266 feet in depth at CSD Well No. 1. However, perforated casing was placed above this confining bed in both Wells No. 1 and 2. DBCP concentrations, ranging from 0.26 to 0.92 ppb, exceeding the MCL of 0.2 ppb, were present above this confining bed at the test well, as were elevated concentrations of nitrate (26 to 38 mg/l). Well No. 3 was subsequently completed in October 1996. Perforated casing was placed from 260 to 420 feet in depth, and an annular seal was placed from a depth of 250 feet to the surface. A pump test on October 9-10, 1996 indicated a pumping rate of 485 gpm with a drawdown of 128 feet, or a specific capacity of 4 gpm per foot. More recent tests have indicated pumping rates ranging from about 455 to 625 gpm. Specific capacities for this well have reportedly ranged from about 7 to

10 gpm per foot in recent years. However, these values were apparently based on 5-minute recovery measurements for the static water levels, as opposed to true static levels.

Comprehensive chemical analyses are available for water from Well No. 3 in recent years. Nitrate concentrations have ranged from 10 to 12 mg/l, well below the MCL of 45 mg/l. Arsenic concentrations have been less than 2 ppb, below the MCL of 10 ppb. Iron and manganese concentrations have also been below the recommended MCLs. DBCP concentrations ranged from 0.02 to 0.04 ppb, less than the MCL of 0.2 ppb. The 1,2,3-TCP concentration was determined once, and was less than 0.5 parts per trillion. Although a MCL for 1,2,3-TCP hasn't been developed, it is likely to not be less than 5 ppt.

The driller's reports that we obtained for other wells near Sultana doesn't indicate any other wells tapping alluvial deposits as deep as those tapped by Well No. 3. A suitable location for a new well appears to be somewhere south of Avenue 416 and east of Road 108.

Please call me if you have any questions.

Sincerely Yours,

Ken Schmidt

Kenneth D. Schmidt

ATTACHMENT

GROUNDWATER CONDITIONS REPORT, SULTANA AREA
NOVEMBER 1995

KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
1540 EAST MARYLAND, SUITE 100
PHOENIX, ARIZONA 85014
602-279-7033

November 3, 1995

Mr. Richard Ayers, President
Sultana Community Services District
P.O. Box 158
Sultana, CA 93666

Re: New Well

Dear Richard:

Following is my report on groundwater conditions in the Sultana area. Information on the District wells and subsurface geologic conditions in the vicinity is first discussed. Possible sampling of other wells and the potential for developing groundwater with an acceptable DBCP concentration are then discussed. Lastly, recommendations are provided on preferable locations and the estimated depth for a test well.

District Wells

Water Well Drillers Reports indicate that Well No. 1 was drilled in March 1978 to a depth of 358 feet. Casing was installed to a depth of 332 feet, and was perforated from 168 to 322 feet in depth. A 60-foot annular seal was installed from the land surface. Opposite the depth interval perforated in Well No. 1, there was a total of about 50 feet of coarse-grained, water-producing strata. A relatively thick clay layer was reported from 219 to 266 feet in depth at Well No. 1. About 30 feet of coarse-grained water-producing strata were tapped by the well below this clay layer. The well did not encounter bedrock, according to the Water Well Drillers Report.

Well No. 2 was drilled in May 1982 to a depth of 341 feet. Casing was installed to a depth of 340 feet, and was perforated from 150 to 330 feet in depth. A 150-foot conductor and annular seal were installed in this well. In the interval perforated, there was a total of about 65 feet of coarse-grained, water-producing strata. A relatively thick clay layer was reported from 259 to 302 feet in depth. Less than ten feet of coarse-grained water-producing strata below this clay layer were tapped by the well. Well No. 2 also did not encounter bedrock, according to the Water Well Drillers Report.

Subsurface Geologic Conditions

Water Well Drillers Reports were obtained for wells in Sections 10, 11, 14, and 15 in T16S/R24E from the California Department of Water Resources in Fresno. Besides the CSD wells, reports were available for eight other alluvial wells about 260 feet deep or deeper. These other wells were all shallower than the CSD wells. Numerous wells near Smith Mountain and "D" Mountain have encountered bedrock. However, none of the wells farther southeast, near Sultana, reportedly encountered bedrock. The area of deepest wells for which records are available includes the south half of Section 11, all of Section 14, and the north half of Section 15. The deepest bedrock in the Sultana CSD is most likely to the southeast, based on existing information.

Possible Water Sampling

The only well for which a Water Well Drillers Report is available that is recommended for sampling is a well at the BASF facility, about one quarter mile west of Road 104. This well is reportedly screened from 183 to 225 feet in depth, and thus has the deepest top of perforations of any of the wells for which records are available. I am in the process of obtaining information on past sampling from them. If no DBCP results are available, we will request to sample the well and do so shortly.

DBCP Concentrations

The highest DBCP concentrations for the CSD wells are usually in the range of 0.5 to 0.7 ppb, compared to the MCL of 0.2 ppb. Experience indicates that prolonged pumping (beyond a few weeks) of each well results in higher DBCP concentrations. Lower, and sometimes non-detectable, DBCP concentrations are usually obtained after long non-operational periods. The existing information indicates that DBCP concentrations are highest in the shallow groundwater. Assuming that the annular seal in Well No. 2 is effective, DBCP concentrations likely exceed the MCL in groundwater below a depth of 150 feet. The thick clay layers (i.e., 219 to 266 feet at Well No. 1) may preclude deeper movement of DBCP to the underlying water-producing strata. The deeper groundwater is likely of suitable quality for public supply.

Recommendations

My recommendation is to look for well sites either northwest or southeast of Well No. 1, along the 8-inch diameter pipeline. A spacing of at least 500 feet from Well No. 1 is advisable. Also, the locations of nearby irrigation and other large capacity wells should be considered. The new well should be spaced at least 500 feet from these wells also, if possible. Since bedrock has not been reported to a depth of at least 358 feet in the area, I recommend drilling the test well to a depth of 600 feet deep, or to the top of bedrock, whichever is shallower.

I will be providing some additional information after the results of pump tests and the BASF well analyses are obtained, if possible.

Sincerely yours,

Ken Schmidt

Kenneth D. Schmidt

KDS/pt

KENNETH D. SCHMIDT AND ASSOCIATES
GROUNDWATER QUALITY CONSULTANTS
600 WEST SHAW, SUITE 250
FRESNO, CALIFORNIA 93704
TELEPHONE (559) 224-4412

May 22, 2013

Mr. Matt Kemp
Provost & Pritchard
286 W. Cromwell
Fresno, CA 93711

Re: Yettem-Seville Area

Dear Matt:

Submitted herewith is our report on groundwater conditions in the Yettem-Seville area.

Sincerely yours,

Kenneth D. Schmidt
Geologist No. 1578
Certified Hydrogeologist
No. 176

REGISTERED GEOLOGIST
KENNETH D. SCHMIDT
NO. 176
CERTIFIED
HYDROGEOLOGIST
STATE OF CALIFORNIA

REGISTERED GEOLOGIST
KENNETH D. SCHMIDT
NO. 1578
STATE OF CALIFORNIA

HYDROGEOLOGIC CONDITIONS IN
THE YETTEM-SEVILLE AREA

prepared for
Provost and Pritchard
Fresno, California

by
Kenneth D. Schmidt and Associates
Groundwater Quality Consultants
Fresno, California

May 2013

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DRAFT

HYDROGEOLOGIC CONDITIONS IN THE YETTEM-SEVILLE AREA

INTRODUCTION

Croft and Gordon (1968) described groundwater conditions in the Hanford-Visalia area, which includes Yettem and Seville. The Yettem-Seville area is near the east edge of the valley. Hard-rock outcrops are present north of Seville, and the alluvial deposits are relatively thin in the Yettem-Seville area. The alluvial deposits are underlain by weathered rock and hardrock. Based on well completion reports, a map of the thickness of alluvial deposits was prepared (Figure 1). Logs for some test holes drilled by the mud rotary method cannot be used to clearly determine the depth of the base of the alluvium. Thus more weight was given to logs for wells drilled by other methods, where such a delineation was more evident. The alluvial deposits in the Yettem-Seville area range from less than about 100 feet thick near the Santa Fe Railroad Tracks to more than 500 feet thick southwest of Yettem. Thus these deposits thicken to the southwest. Because of the much thicker alluvium at and near Yettem compared to Seville, the focus of this report is on the Yettem area. The Yettem-Seville area is in what is termed an interfan area, between major streams. The interfan area in underlain predominantly by clay in the alluvial deposits, particularly below a depth of about 200 feet. The largest stream that

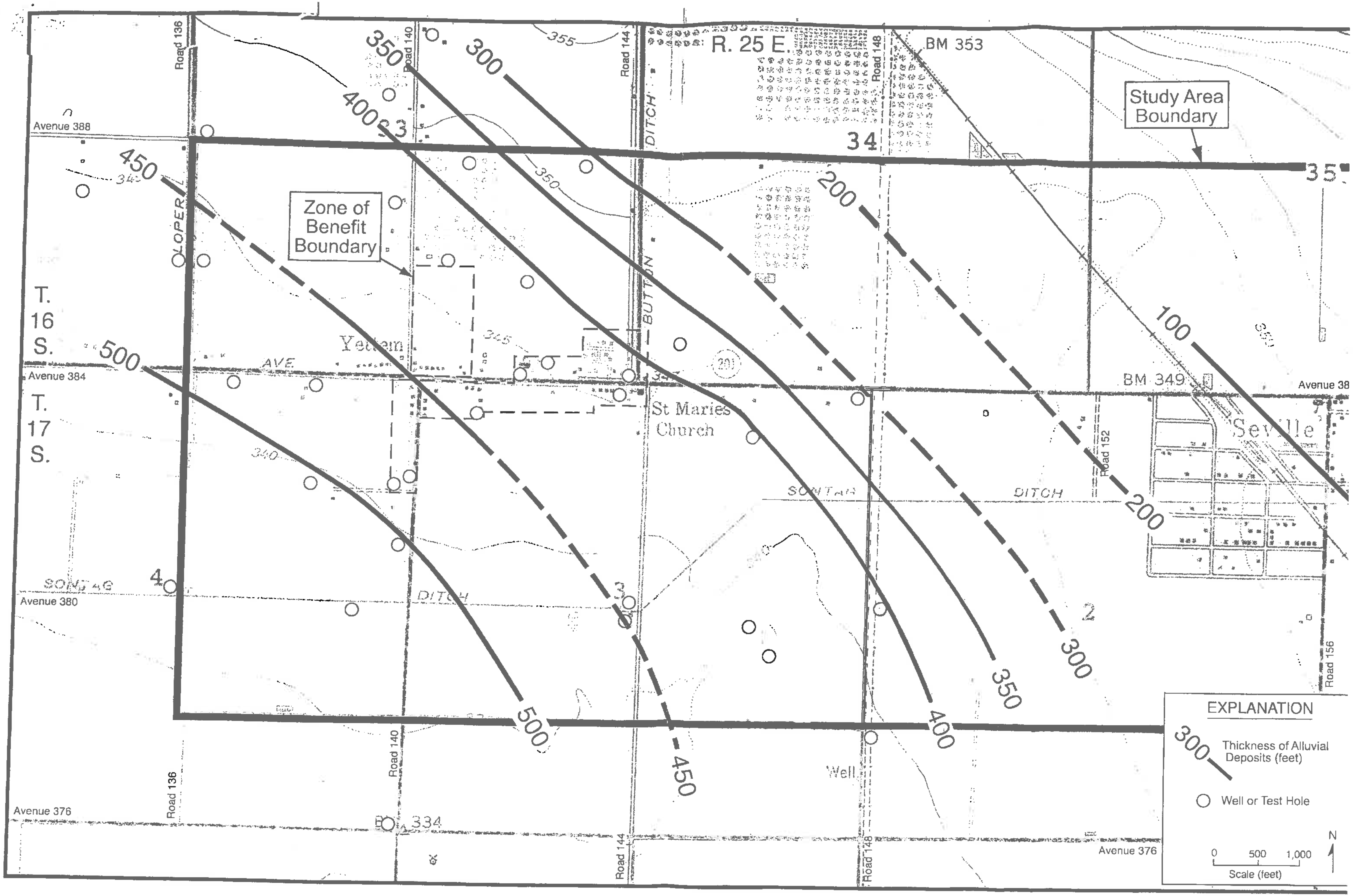


FIGURE 1 - THICKNESS OF ALLUVIAL DEPOSITS

probably passed through the south part of the Yettem area in the geologic past was Cottonwood Creek.

SUBSURFACE GEOLOGIC CONDITIONS

As part of this evaluation, three subsurface geologic cross sections were developed (Figure 2). On each cross section, the major water-producing strata are shown. Cross section A-A′ extends from the northwest to the southeast, through Yettem Well No. 1. Cross Section B-B′ extends from the south to the north and northeast, and passes through Yettem Wells No. 1 and 2 and the Yettem School test hole. Four holes or wells along this section have electric logs, which help delineate subsurface conditions in more detail. Cross Section C-C′ extends from the northwest through the Yettem School test hole to the southeast.

Cross Section A-A′ (Figure 3) extends from west of Road 136 and south of Avenue 388 on the northwest to near Road 148 and north of Avenue 376 on the southeast. This cross section generally trends perpendicular to the inferred southwesterly dip of the alluvial deposits. Clay and other fine-grained deposits are predominant along the section. The five most southeasterly wells along this section encountered weathered rock. The base of the alluvial deposits was about 360 feet deep at Well 2N, 405 feet deep at Well 3J, 430 deep at 3K, 380 feet deep at Well 3L, and

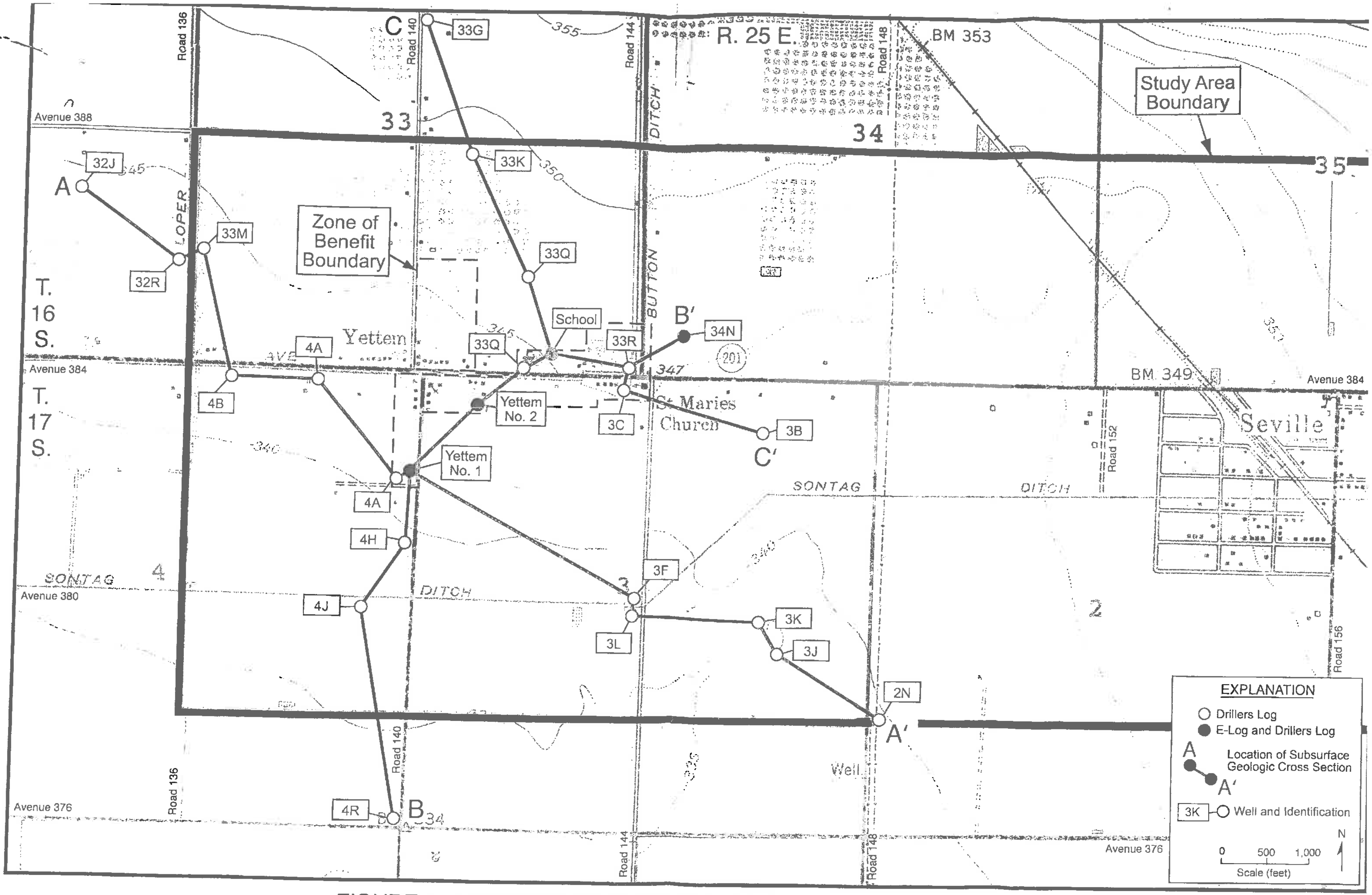


FIGURE 2 - LOCATION OF SUBSURFACE GEOLOGIC CROSS SECTIONS

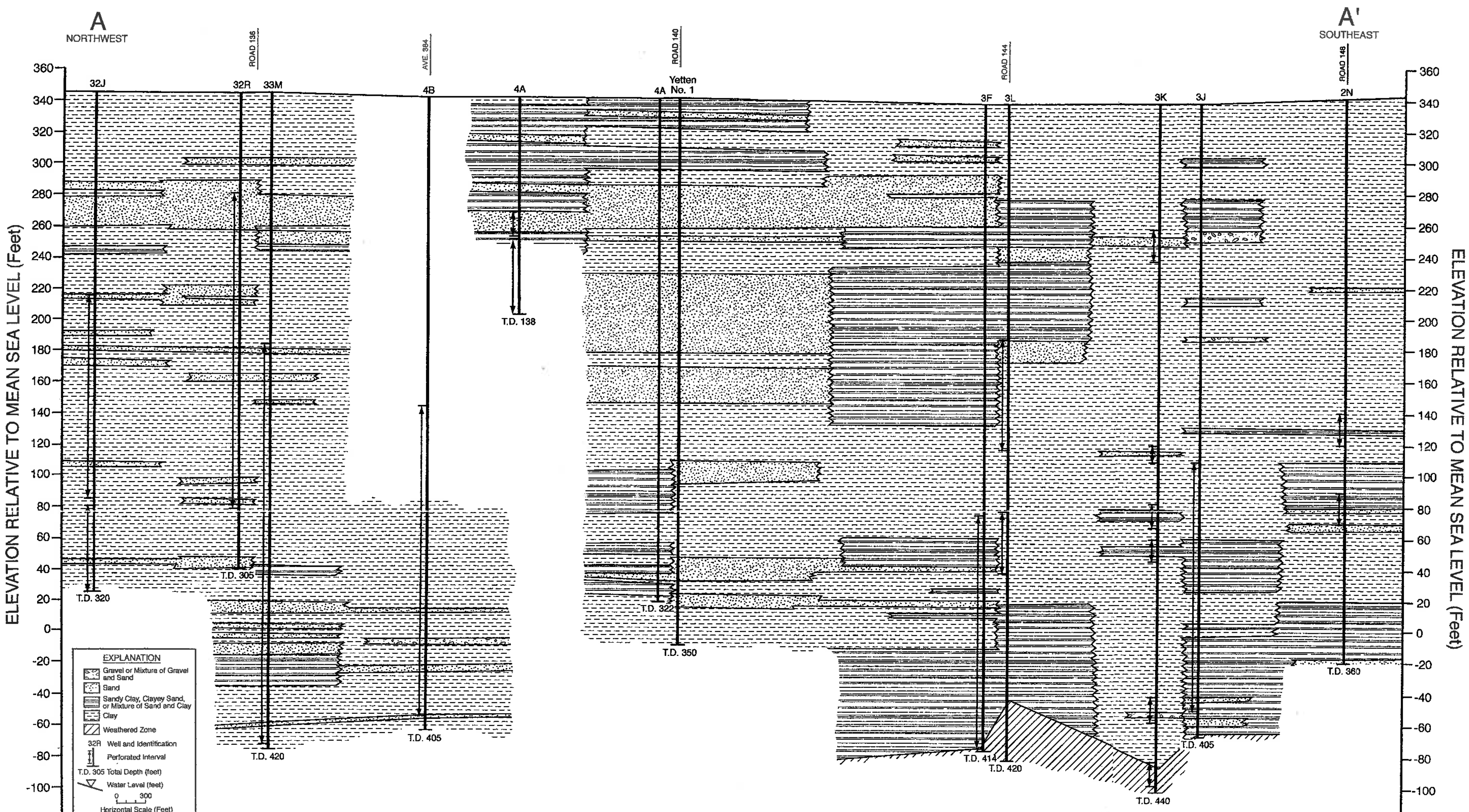


FIGURE 3 - SUBSURFACE GEOLOGIC CROSS SECTION A - A'

410 feet deep at Well 3F. The most extensive sands are within the uppermost 200 feet of the deposits, which are considered to be the Quaternary older alluvium of Croft and Gordon (1968). Sands in these deposits are thickest along the central part of the section (at Well 4A and Yettem Well No. 1). The underlying deposits below a depth of about 200 feet are termed the Tertiary-Quaternary continental deposits, and are more fine-grained than the overlying deposits. The thickest sands below a depth of about 270 feet were found along the northwest part of the section at Well 33M. Connate (brackish) groundwater was found in the hardrock (below a depth of about 360 feet) near Well 2N.

Cross Section B-B′ (Figure 4) extends from near Avenue 376 and Road 140 to the south to east of Road 144 and north of Avenue 384 to the northeast. This section is generally oriented parallel to the inferred dip of the alluvial deposits. The base of the alluvial deposits was penetrated at Well 4H, the Yettem School test hole, and Well 34N. The base of the alluvial deposits is about 380 feet deep at Well 34N, 450 feet deep at the Yettem School test hole, and about 510 feet deep at Well 4H. The Quaternary older alluvium is also about 200 feet thick along this section and sands are relatively common. The underlying continental deposits are predominantly clay, but significant sands were found at Well 4J below a depth of about 340 feet. Connate

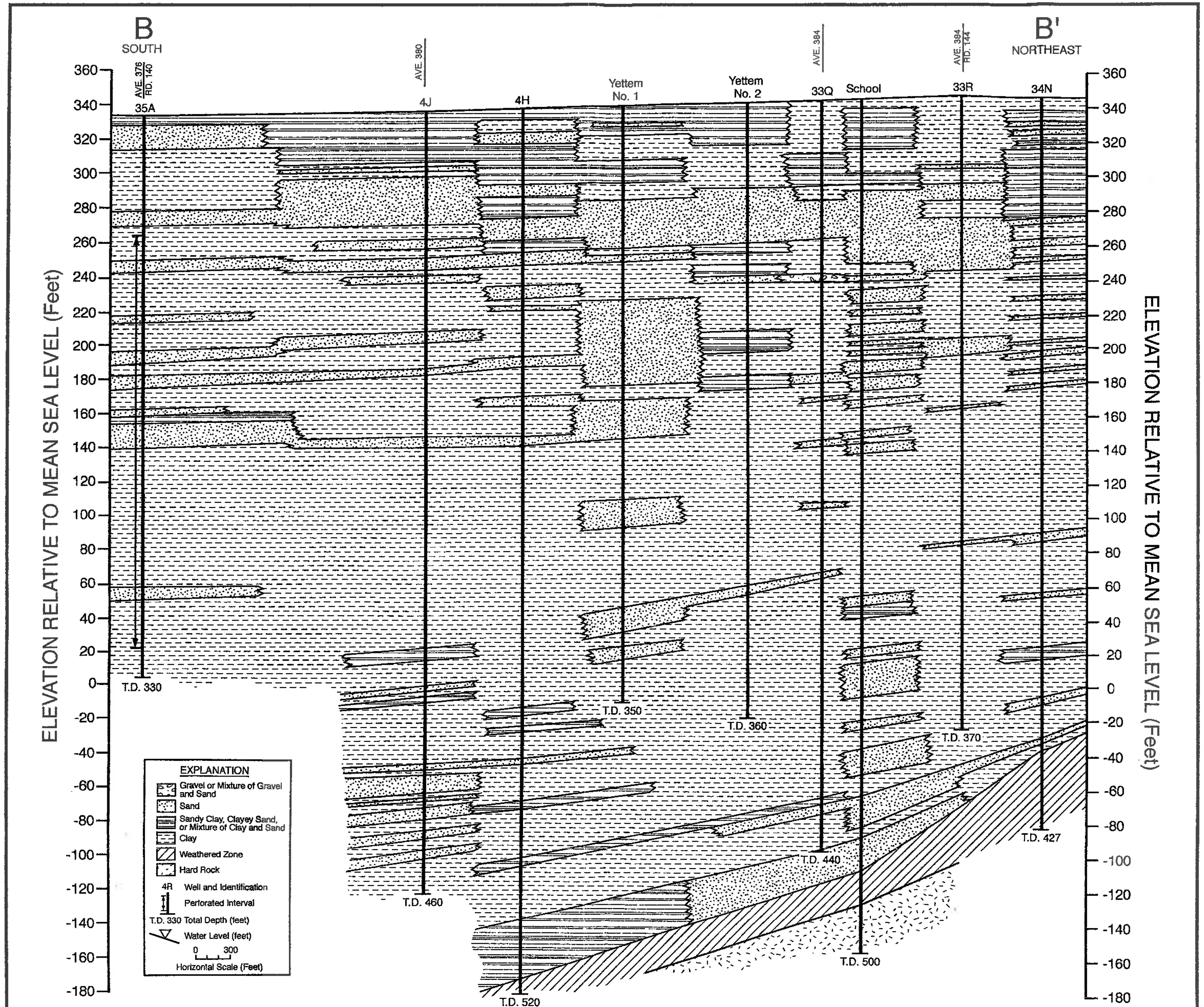


FIGURE 4 - SUBSURFACE GEOLOGIC CROSS SECTION B - B'

groundwater was found in two deep sand layers (below about 400 feet in depth) just above the weathered zone at the Yettem School test hole.

Cross Section C-C' (Figure 5 extends from north of Avenue 388 and east of Road 140 on the north to between Roads 144 and 148 and south of Avenue 384 to the southeast. This cross section is generally oriented perpendicular to the inferred dip of the alluvial deposits. The only well or hole along this section that penetrated the base of the alluvial deposits was the Yettem School test hole. The Quaternary older alluvium is also about 200 feet thick along this section and a laterally extensive, fairly thick sand layer is present at an average depth of about 70 to 90 feet. The underlying continental deposits are primarily clay. The thickest sands in the continental deposits below a depth of about 300 feet along this section were at the Yettem School test hole. As discussed previously, connate groundwater was found below a depth of about 400 feet at this hole.

WATER LEVELS

Water-level measurements for wells in the Yettem-Seville area were obtained from the California Department of Water Resources Website. Figure 6 is a water-level elevation and direction of groundwater flow map for April 2009. Water-level elevations

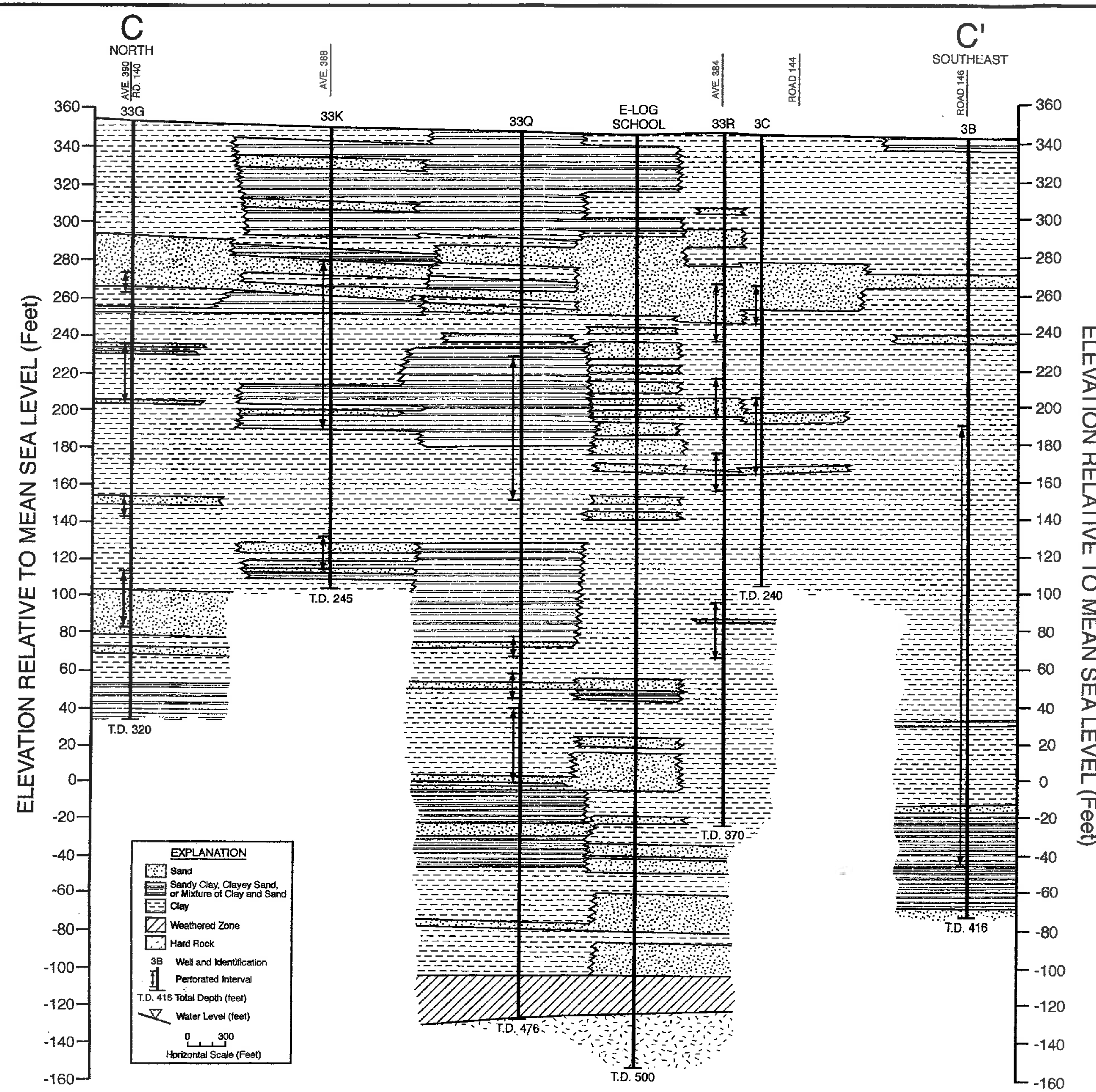


FIGURE 5 - SUBSURFACE GEOLOGIC CROSS SECTION C - C'

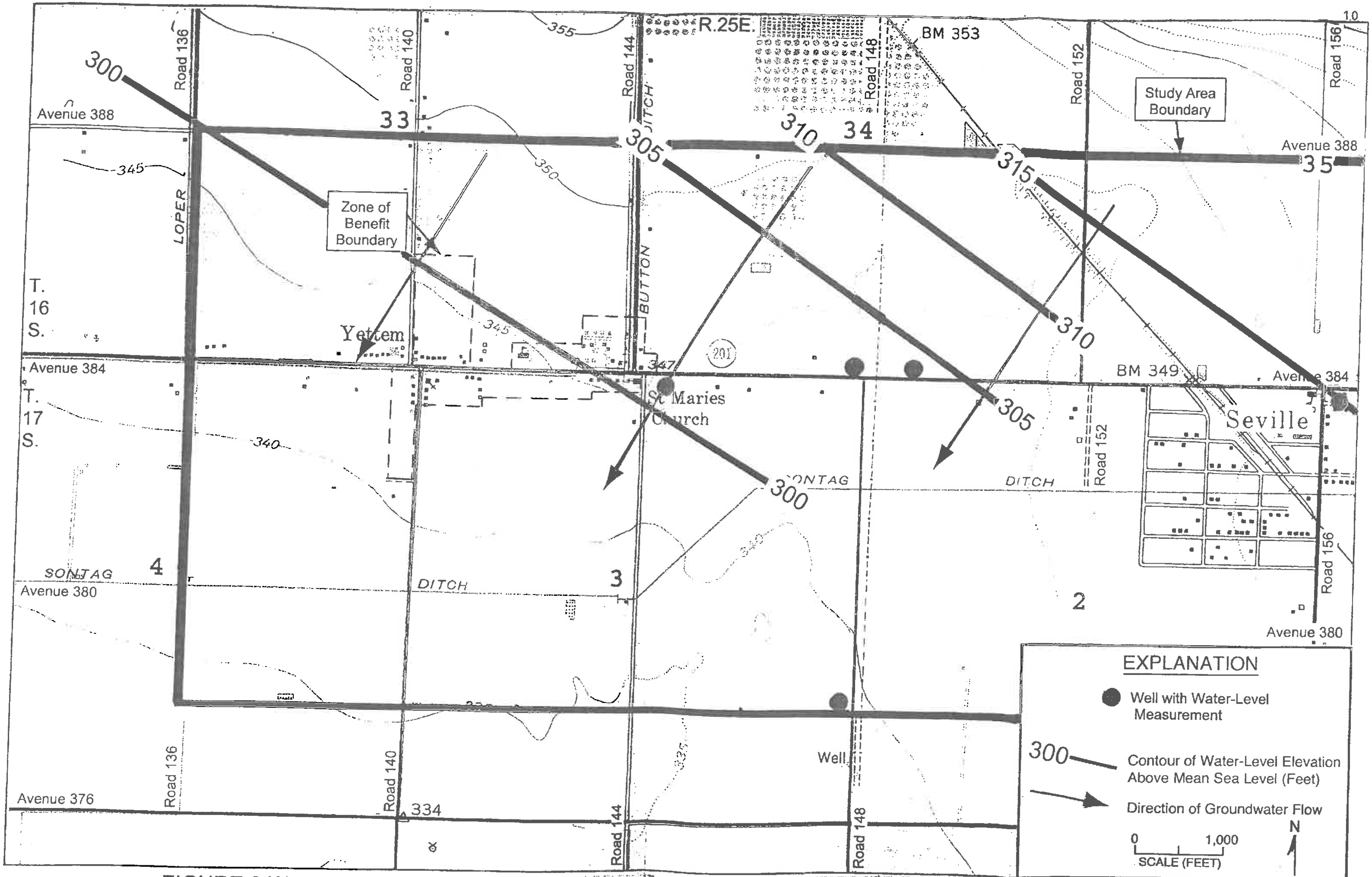


FIGURE 6-WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW (APRIL 2009)

ranged from 315 feet above sea level in Seville to less than 300 feet in the southwest part of Yettem.

Water-level hydrographs were prepared for six wells in the area (Appendix A). Water-level are relatively shallow in the area, and the shallowest levels have ranged from about 10 to 15 feet. Water levels have risen and fallen with climatic conditions, and overall have been stable or slightly risen since the 1950's.

WELL PRODUCTION

Pumping rates for most large capacity wells in the Yettem area have ranged from about 60 to 270 gpm. Specific capacity values for most wells range from about 2 to 12 gpm per foot. A sustainable well yield of 200 gpm is thus considered good for irrigation wells in the Yettem-Seville area. The two Yettem community wells had sustainable pumping rates of about 65 gpm and 85 gpm, and specific capacities of 0.8 and 1.3 gpm per foot, respectively, when first tested.

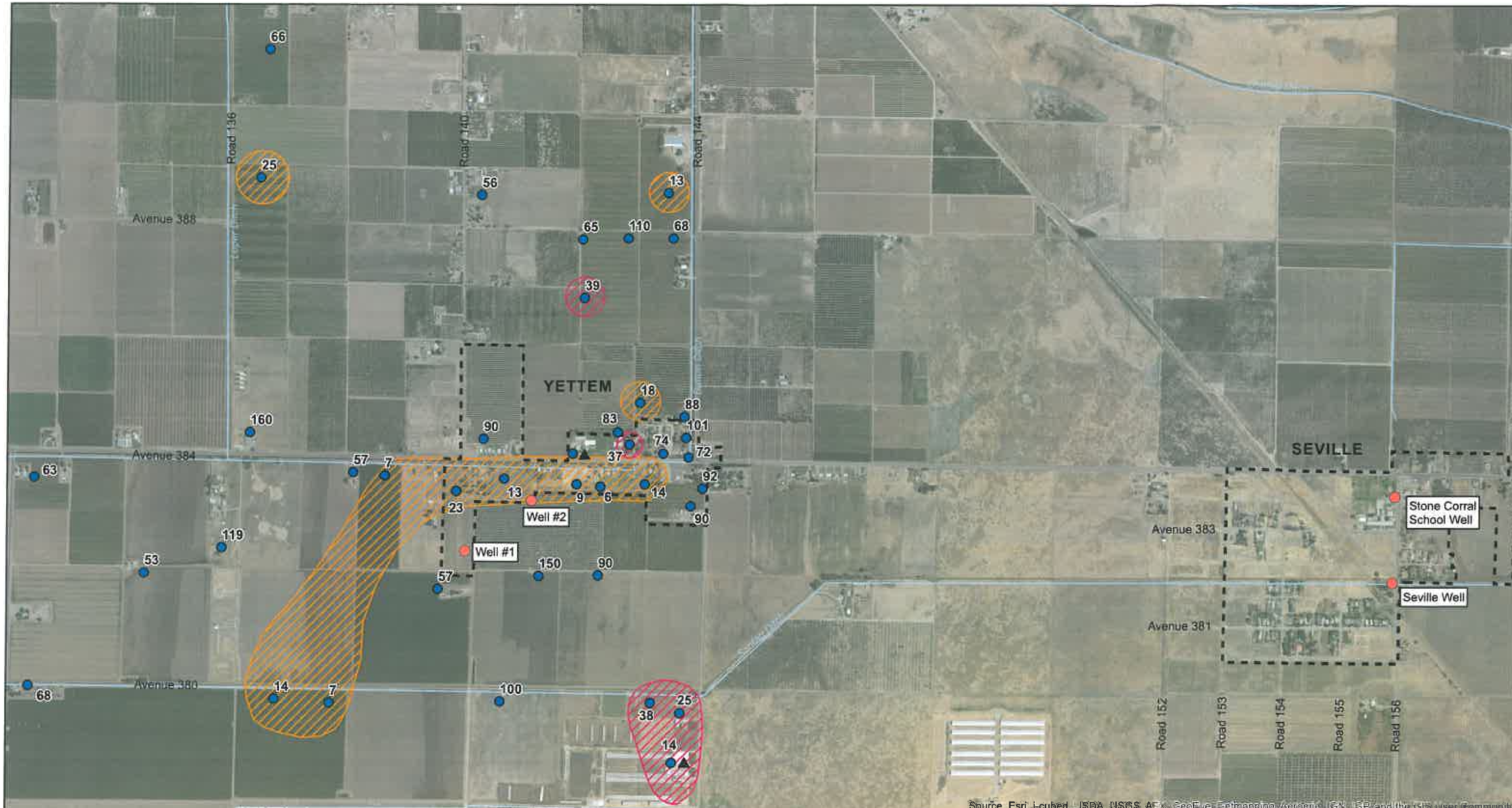
GROUNDWATER QUALITY

Self-Help Enterprises collected water samples from about 50 private wells in the Yettem area during 1986-89. Most of these wells were less than 200 feet deep and thus tapped the older alluvium. Figure 7 shows nitrate concentrations in the water from these wells. A number of wells that had low nitrate concentrations were along the Button and Sontag Ditches, and the low nitrate concentrations may have been due to canal seepage.

Water samples were collected from different depths at three sites (the Yettem School and Yettem Wells No. 1 and 2). Clay layers normally act to separate differences in constituent concentrations at various depths. Nitrate concentrations are expected to decrease with increasing depth, except near well conduits (wells perforated opposite both shallow and deep groundwater. Moderate nitrate concentrations (31 to 36 mg/l) were found in samples from below a depth of 400 feet at the Yettem School test hole, but this water was indicated to be connate water. Because of the sampling procedures used for the Yettem wells, the reliability of these is uncertain. Nitrate concentrations in water from the Yettem Well No. 1 test hole ranged from 12 to 27 mg/l between depths of 100 and 300 feet. However, the nitrate concentrations from the completed well (perforated from 130 to 260 feet and 270 to 330 feet in depth) was much higher than indicated by the test hole sampling. At the test hole for Yettem Well No. 2, nitrate concentrations ranged from about 7 to 30 mg/l and were lowest in the deepest sample (from 278 to 288 feet). In this case, the nitrate concentration in water from the pumped

FIGURE 7

NITRATE CONCENTRATIONS IN
SHALLOW GROUNDWATER (1986-89)



0 500 1,000 Feet

PROVOST & PRITCHARD CONSULTING GROUP EST. 1968 — An Employee Owned Company

KDSA Est. 1972

Legend

- Sampled Well and Nitrate Concentration in mg/l
- High Salinity
- Yettem and Seville public supply wells & Stone Corral School well
- Approximate Area of Nitrate Concentrations > 45 mg/l
- Approximate Area of Nitrate Concentrations < 40 mg/l
- Approximate Area of Nitrate Concentrations < 25 mg/l

NOTES:
1. *Locations of water wells and nitrate concentartions sampled by Self-Help Enterprises*
2. *High salinity 'Well or Test Hole' is from other sources.*
3. *Most wells shown have a total depth of 200' or less.*

FIGURE 7

Nitrate Concentrations in Shallow Groundwater (1986-89)

5/22/2013 : G:\Clients\Tulare County - 1399\13991302-Seville & Yettem Water Systems\GIS\Map\Eng Report Figs itrates_ks.mxd well (perforated from 120 to 316 feet in depth) agreed with the test hole results. Few wells in the Yettem area have apparently been sampled for 1,2,3-TCP, but this constituent is likely to the present in the shallow groundwater (above a depth of about 200 feet). Perchlorate has also been found in some of the shallow groundwater in the Yettem area.

SUMMARY

Relatively thick and laterally extensive sands are found in the older alluvium above a depth of about 200 feet, in the Yettem area. Sampling of water from numerous relatively shallow wells in and near Yettem was conducted by Self-Help Enterprises in 1986-89. Unfortunately, high nitrate concentrations are widespread in the Quaternary older alluvium. Low nitrate concentrations are present in the shallow groundwater in some areas, particularly near canals. However, this shallow low nitrate groundwater isn't considered a reliable supply, particularly during drought periods. The alluvial deposits are less than 200 feet thick beneath Seville. Because of the shallow depth to the hardrock, the thin sands that are present in the alluvium, and the anticipated low well yield and likely salt water in the hardrock, the Seville area is not considered suitable for developing a new well. In contrast, the alluvial deposits are more than 400 feet thick beneath Yettem. The best opportunity to obtain good quality groundwater is from the continental deposits located in the area southwest or northwest of Yettem. The key to developing good quality groundwater is to tap sands below a depth of about 250 feet and where the connate groundwater is deeper than about 450 feet or is not present. The casing hammer method is recommended for the test well. The casing could be driven down to the top of the hardrock. If connate water isn't encountered, then the hole could be drilled deeper into the hardrock for further testing, if necessary. The test well should be located at least 600 feet from large capacity wells, so as to minimize possible well interference.

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Croft, M.G., and G. V. Gordon, 1968, "Geology, Hydrology, and Quality of Water in the Hanford-Visalia Area, San Joaquin Valley, California", U.S. Geological Survey Open-File Report.

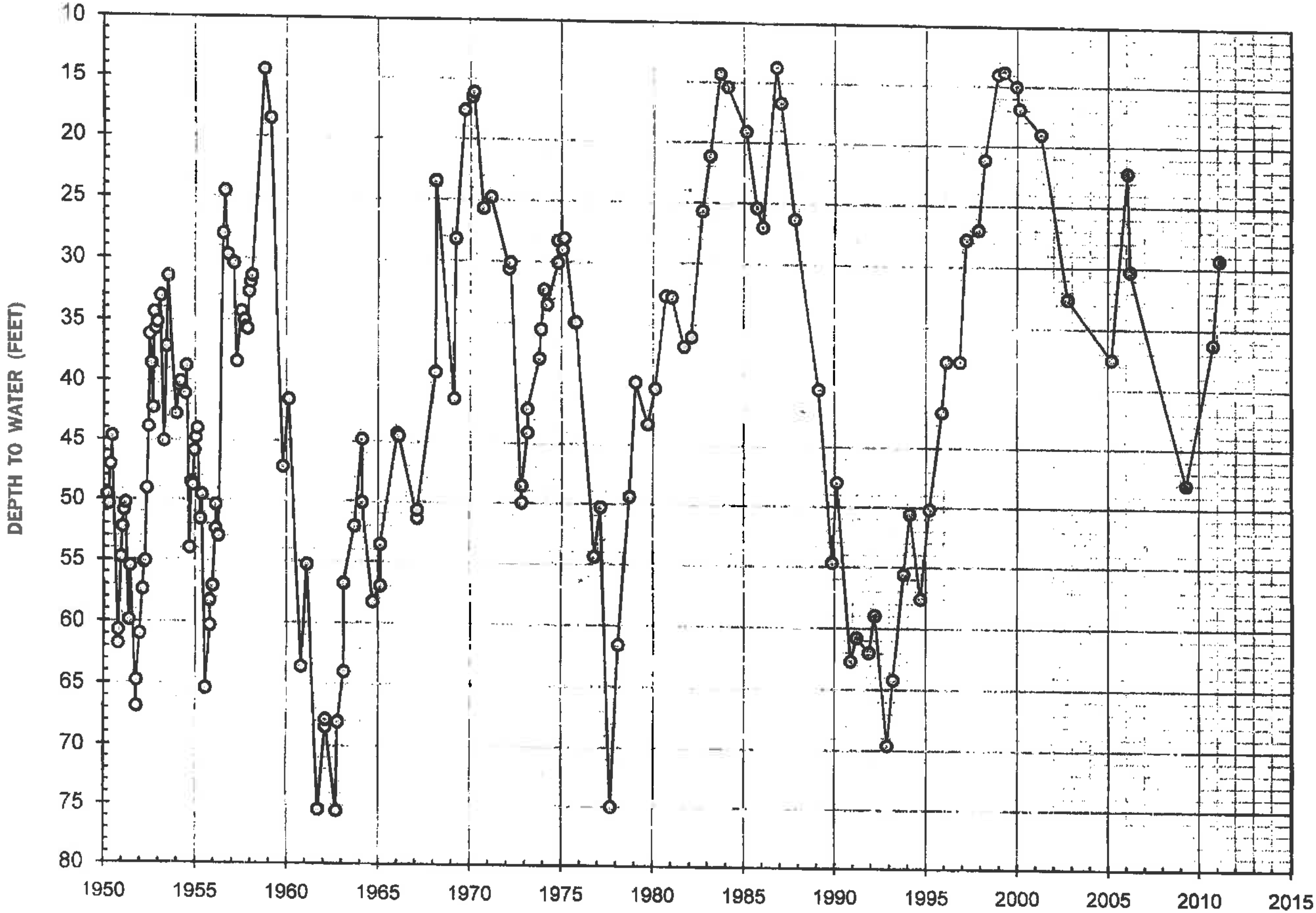
Boyle Engineering Corporation, 1983, "Domestic Well at Yettem School (Cutler-Orosi Unified School District).

Keller and Wegley Consulting Engineers, 1993, Letter Report of September 14 on Yettem Well No. 1 Test Hole Results.

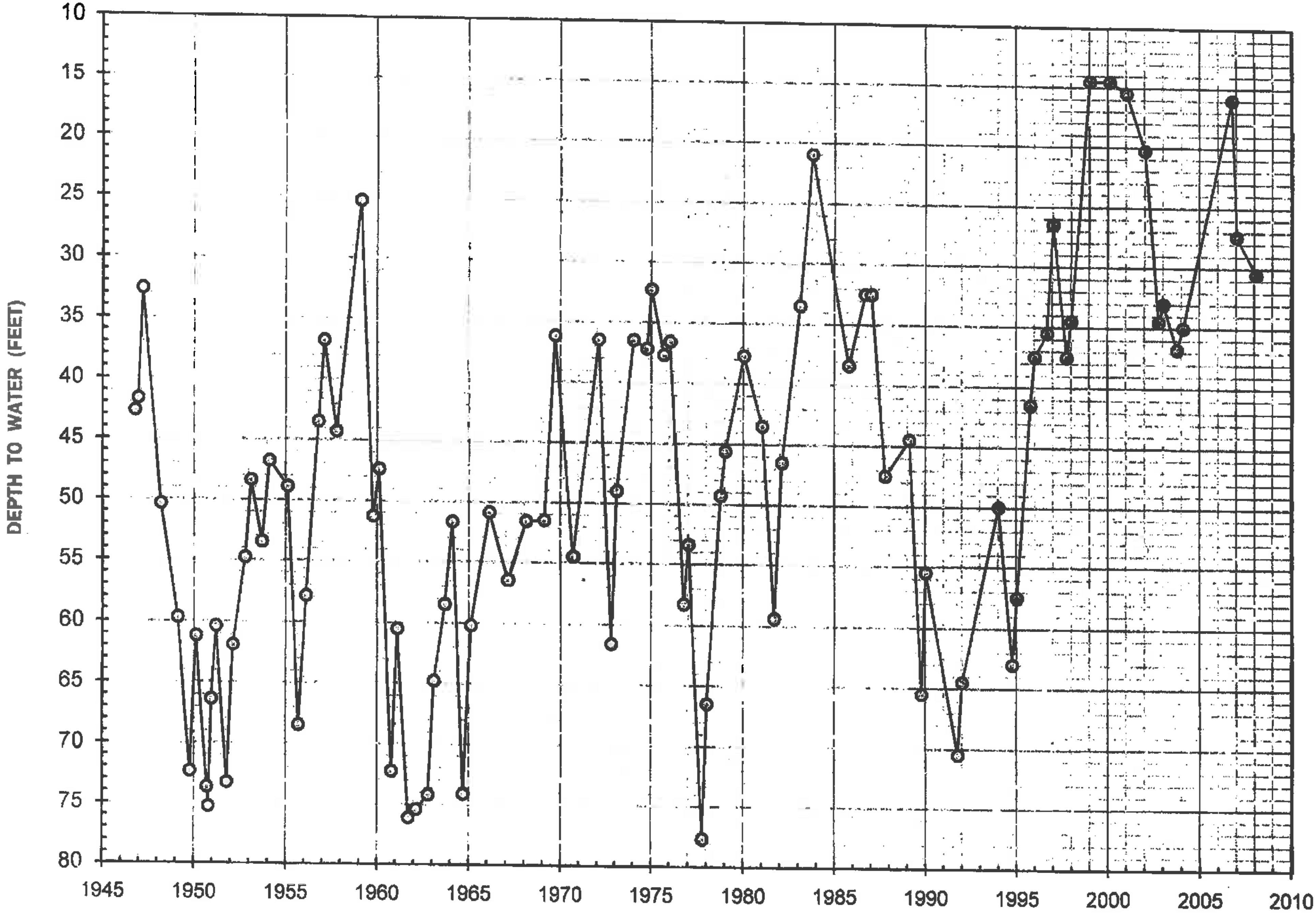
Keller and Wegley Consulting Engineers, 1994, Data package of October 20, 1994 on Yettem Well No. 2 Test Hole Results.

APPENDIX A

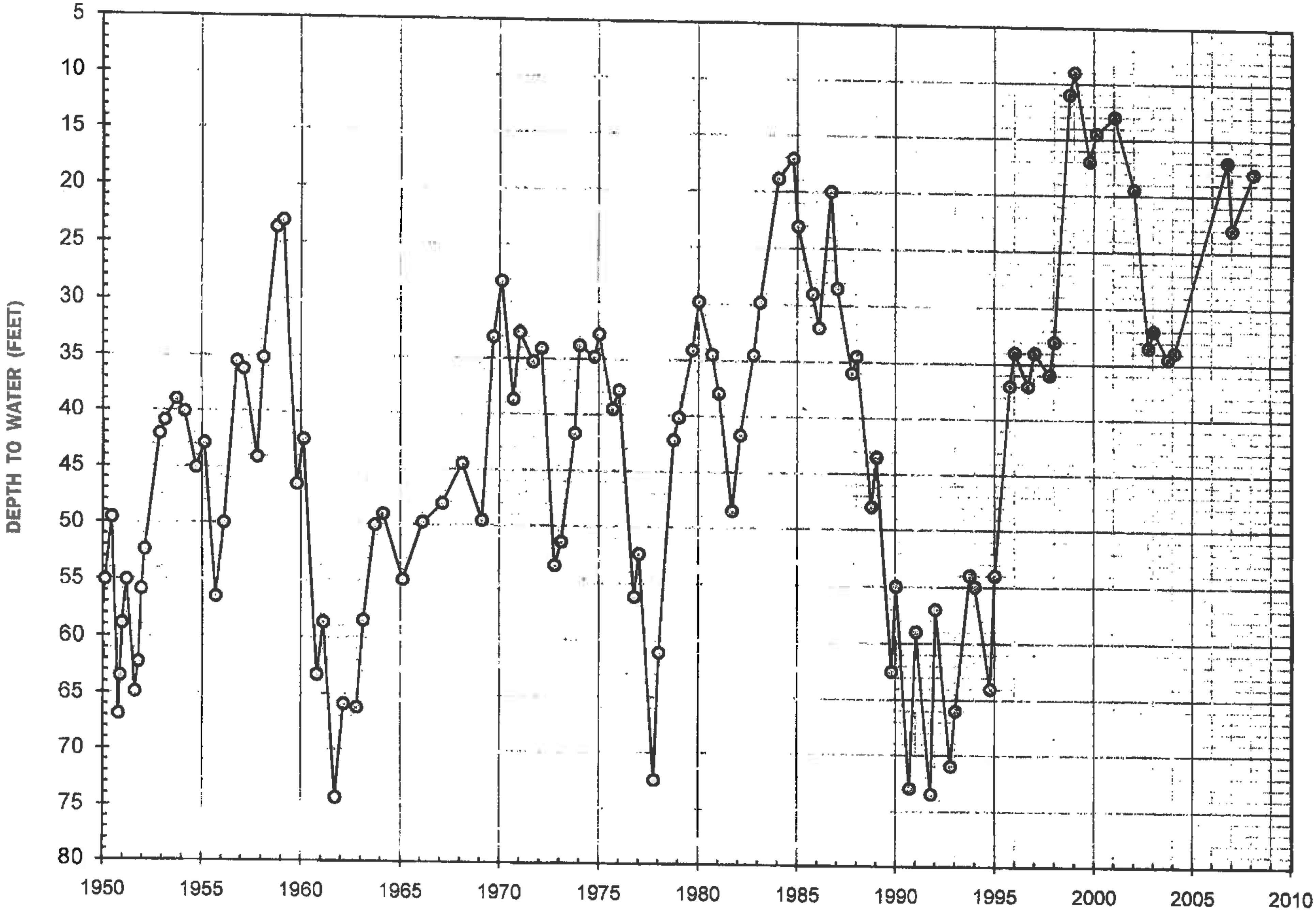
WATER-LEVEL HYDROGRAPHS



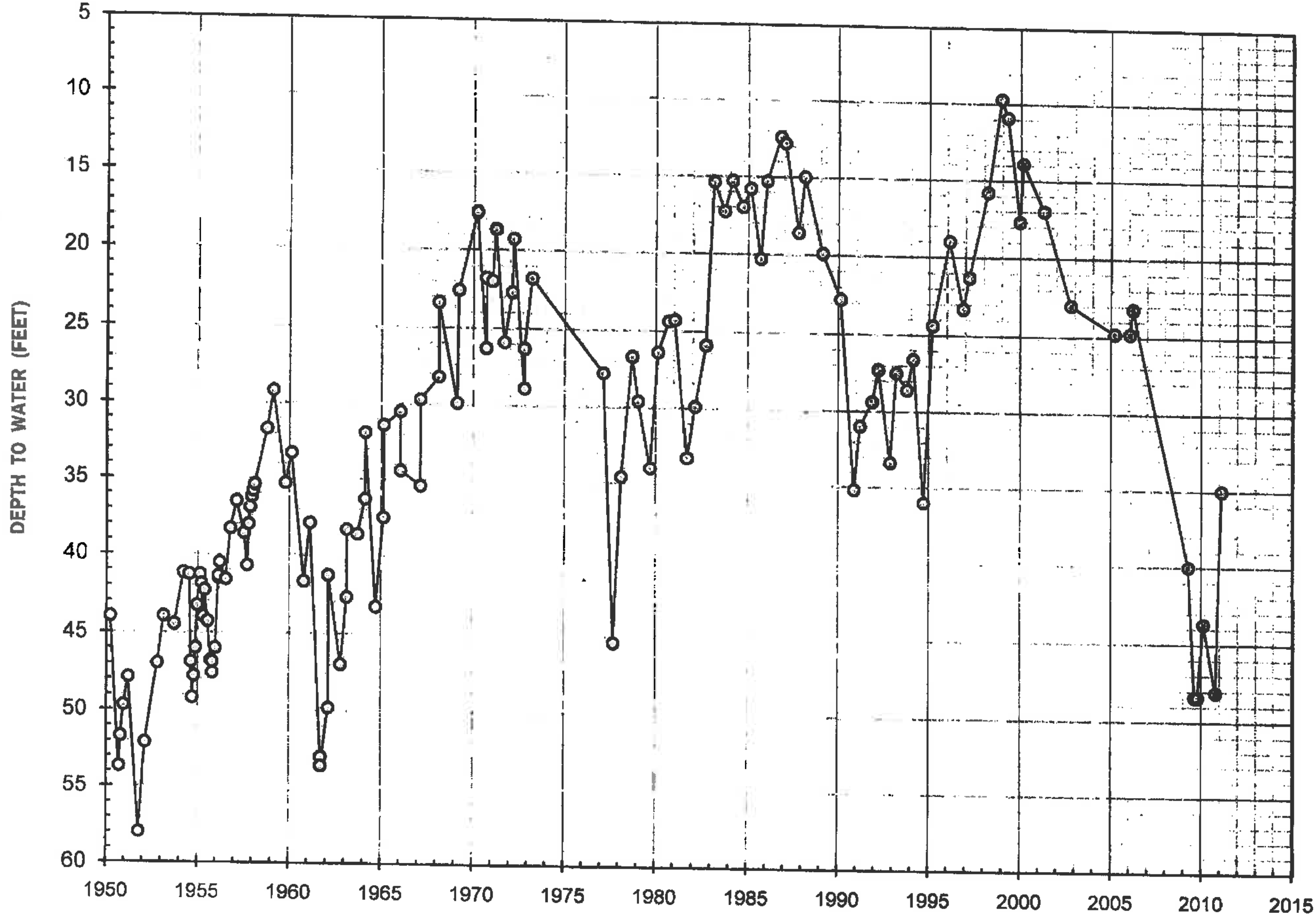
WATER-LEVEL HYDROGRAPH FOR WELL T.16S./R.25E.-32C1



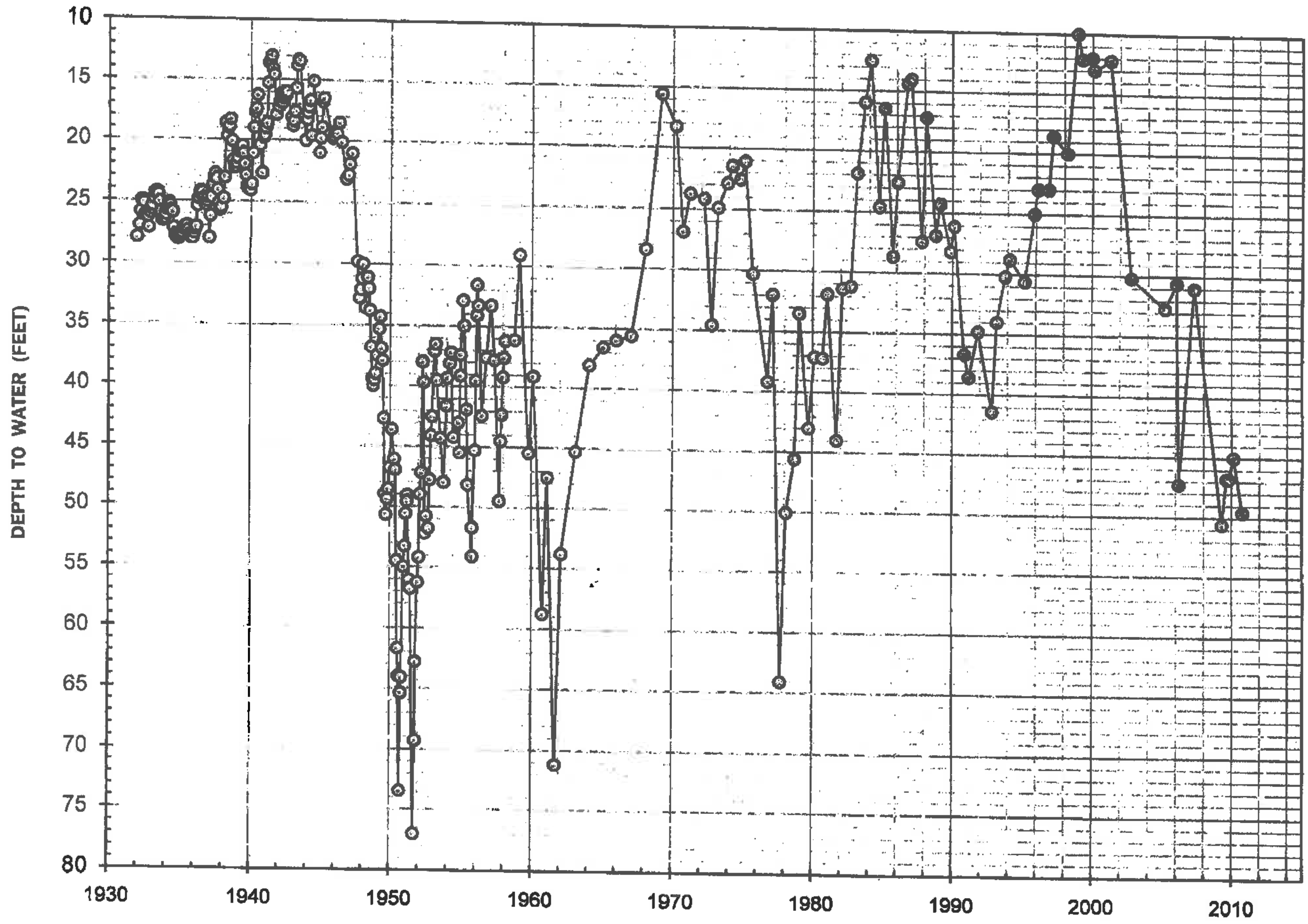
WATER-LEVEL HYDROGRAPH FOR WELL T.16S./R.25E.-33A1



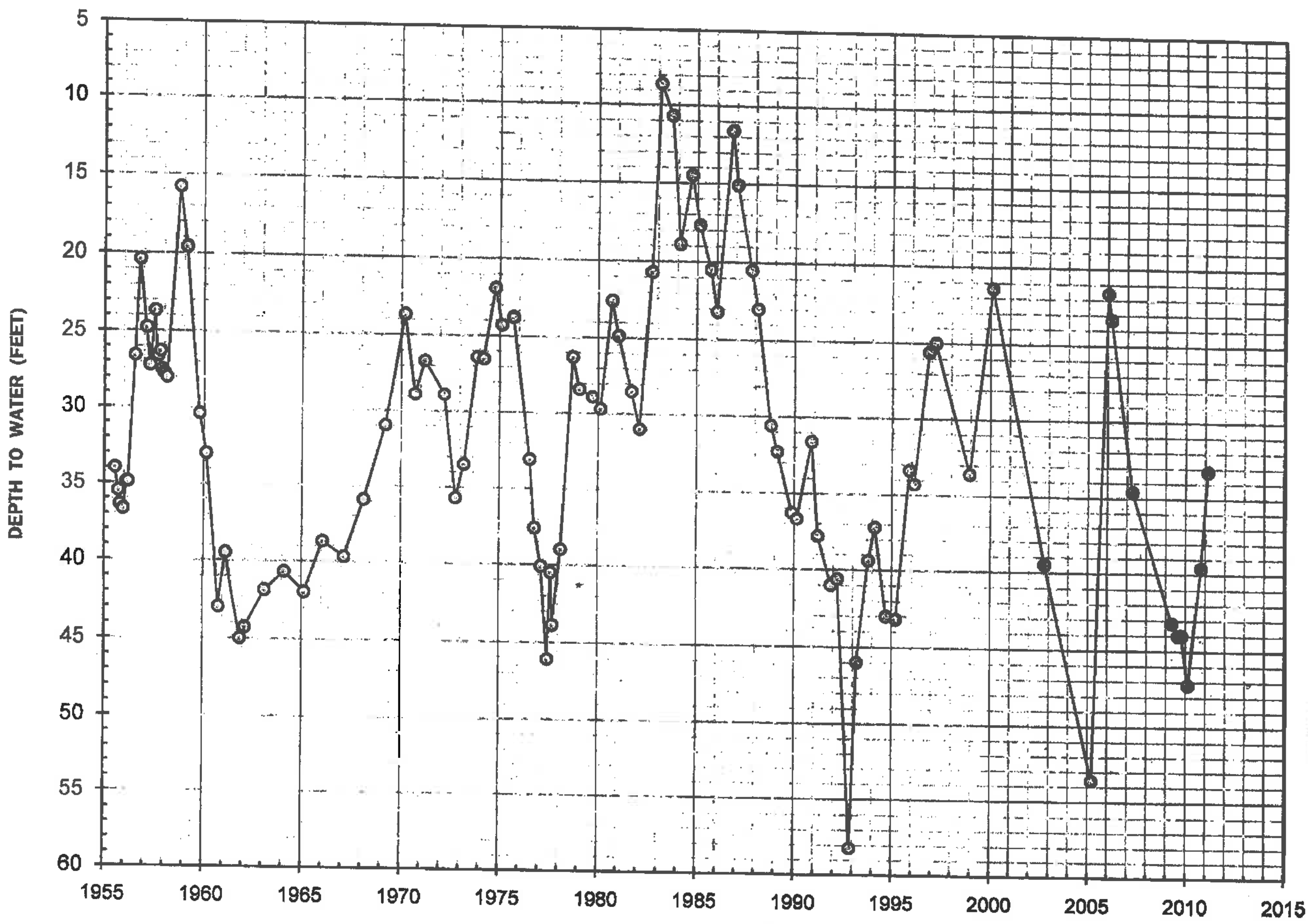
WATER-LEVEL HYDROGRAPH FOR WELL T.16S./R.25E.-34D2



WATER-LEVEL HYDROGRAPH FOR WELL T.17S./R.25E.-01D1



WATER-LEVEL HYDROGRAPH FOR WELL T.17S./R.25E.-01P1



WATER-LEVEL HYDROGRAPH FOR WELL T.17S./R.25E.-03B1

Appendix O: Surface Water - Guidelines

Guidelines for Accepting Water into the Friant-Kern Canal

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Guidelines for Accepting Water into the Friant-Kern Canal 1

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B. Water Quality Monitoring and Reporting Requirements 3

C. Resolution of Disputes 8

D. Water Quality Forecasting and Communications 9

E. Implementation Responsibilities and Costs 9

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Tables 12

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Guidelines for Accepting Water into the Friant-Kern Canal

Overview

These Guidelines apply to all water introduced into the Friant-Kern Canal ("**FKC**") other than directly from Millerton Lake to the headworks of the FKC (collectively, "**Non-Millerton water**").

These Guidelines describe the Friant Water Authority's ("**FWA**") application review process, implementation procedures, and the responsibilities of water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the FKC (collectively, "**Contractors**"). These Guidelines define the water quality thresholds and the required mitigation associated with introduced Non-Millerton water and corresponding water quality, as well as the methodologies and tools for monitoring and forecasting water quality in the FKC. These Guidelines are intended to ensure that water quality is protected for sustained domestic and agricultural use.

These Guidelines are applicable to all Non-Millerton water introduced or diverted into the FKC including but not limited to:

- Groundwater pump-ins (e.g., groundwater wells or previously banked water)
- Surface water diversions and pump-ins
- Recaptured and recirculated San Joaquin River Restoration Program Restoration Flows
- Water introduced at the FKC-Cross Valley Canal ("**CVC**") intertie and delivered via reverse flow on the FKC

A Water Quality Advisory Committee composed of Friant Division long-term contractors ("**Friant Contractors**") involved in either introducing or receiving Non-Millerton water to or from the FKC has been established to provide recommendations to FWA on operations and monitoring requirements of the FKC. The Water Quality Advisory Committee will operate under an established charter (see Attachment A). The Water Quality Advisory Committee will appoint a Monitoring Subcommittee to assist FWA in the implementation of the Guidelines.

These Guidelines are subject to review and modification by FWA if any of the following conditions occurs:

- A future regulatory cost or equivalent fee is imposed on Friant Contractors and a portion of such fee can reasonably be attributed to the incremental difference of water quality conditions in the FKC.
- When Friant Division Class 1 contract allocation is less than or equal to 25 percent, the Water Quality Advisory Committee will convene as outlined in Attachment A. In these years, mitigation will be accounted for as presented in these Guidelines, but will be deferred to a mutually agreed to later date unless those responsible for the put and take mutually agree to put and take the

mitigation in the critical year. All monitoring requirements will remain as presented in these Guidelines.

- There is a significant, regulatory change or scientifically based justification and three out of the following five Friant Contractors agree and work with the Water Quality Advisory Committee to recommend a change: (1) Arvin-Edison Water Storage District, (2) Shafter Wasco Irrigation District, (3) Delano-Earlimart Irrigation District, (4) South San Joaquin Municipal Utility District, and (5) Kern-Tulare Water District.

The Bureau of Reclamation (**Reclamation**) may also propose and/or require modifications to these Guidelines in coordination with FWA and reserves the right to implement additional water quality requirements as needed to protect water quality within the FKC. FWA will provide written notice of any proposed modification that are relevant to these Guidelines to all Contractors prior to adoption and implementation.

A. General Requirements for Discharge of Water into the Friant-Kern Canal

1. Guidelines Compliance Determination

A Contractor wishing to discharge Non-Millerton water into the FKC must, concurrent with its application for a contract or other applicable approval from Reclamation in such form and contents as may be required by Reclamation, obtain a determination from FWA as to compliance with the Guidelines or demonstrate to FWA and Reclamation that the proposed discharge will be subject to comparable and adequate alternative water quality mitigation measures. The application will not be approved until FWA has provided its determination that the applicant is compliant with the Guidelines or the provision of alternative mitigation measures is adequately demonstrated and incorporated into the proposed discharge project. Figure 1 shows the concurrent process that a Contractor must pursue to obtain these approvals. The Contractor will be responsible for securing all other requisite Federal, State or local permits.

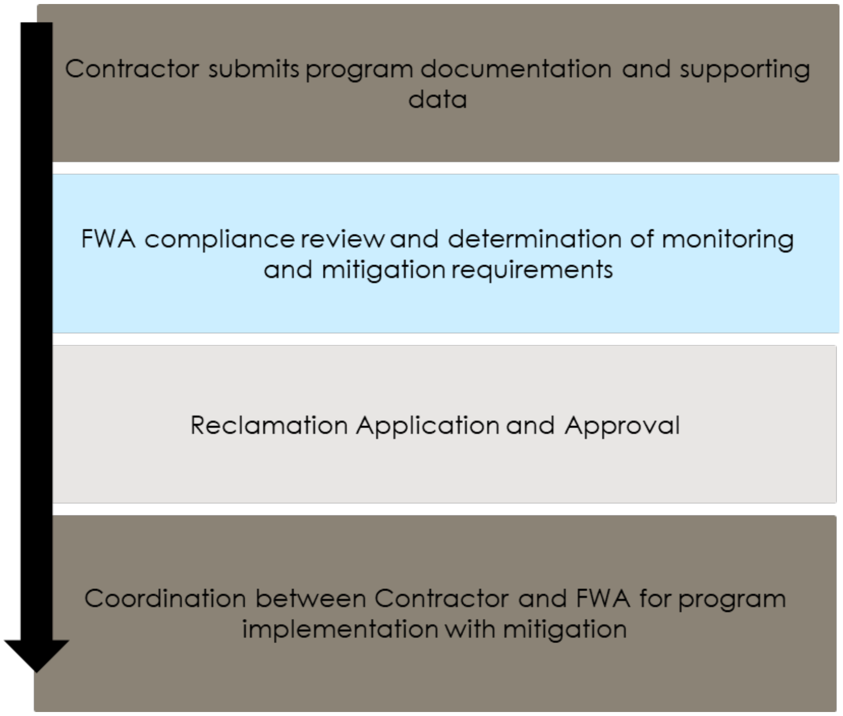


Figure 1. Approval Process Diagram

2. Discharge Facility Approval

The approvals for the erection and maintenance of each discharge facility into the FKC must be approved and documented in the manner required by Reclamation, in coordination with FWA.

3. Other Discharge and Conveyance Requirements

The discharge of Non-Millerton water into the FKC may not in any way limit the ability of either FWA or Reclamation to operate and maintain the FKC for its intended purpose nor may it adversely impact existing water delivery contracts or any other water supply or delivery agreements. The discharge of Non-Millerton water into the FKC will be permissible only when there is capacity in the system as determined by FWA and/or Reclamation.

B. Water Quality Monitoring and Reporting Requirements

1. General Discharge Approval Requirements

Each source of Non-Millerton water discharged into the FKC must be correctly sampled, completely analyzed, and approved by FWA and Reclamation prior to introduction into the FKC. The Contractor must pay the cost of collection and analyses of the water required under these Guidelines. Other costs associated with the implementation of these Guidelines to be paid by the Contractors are described in Section E below.

2. Water Quality Monitoring and Management

The monitoring program requirements are detailed below. In addition, the requirements are summarized in a single table in Attachment B.

(a) Monitoring Requirements for Discharged Water

Prior to introduction to the FKC, all Non-Millerton water discharged into the FKC must be tested at the source (i.e., grab samples at each pump location for groundwater pump-ins or in-prism (i.e., in-situ) grab samples for water being introduced via other conveyances) and sampled by an appropriate party every three years for the complete list of water quality constituents listed in the then current version of Table 1. In addition, all Non-Millerton water discharged into the FKC must be tested and sampled by an appropriate party annually for the short list of water quality constituents listed in Table 4. The analytical laboratory must be a facility with Environmental Laboratory Accreditation Program (**ELAP**) certification. The laboratory analytical report and summary of water quality analytical results must be reported to FWA and Reclamation's **Contracting Officer** (i.e., the Area Manager for the South-Central California Area Office) for review. All monitoring requirements are summarized in Attachment B.

If analytical results show an exceedance of 80% of the threshold for any water quality constituents, defined in Table 4, discharged Non-Millerton water will be tested weekly for the targeted constituents of concern until four consecutive grab samples show consistent water quality results. The appropriateness of the threshold buffer (i.e., 80% of the threshold) will be evaluated by the Water Quality Advisory Committee.

If the water quality analytical results show exceedance of any constituent above its threshold in Table 1, 3 or 4 (i.e., not the threshold buffer but the threshold itself), at the discretion of Reclamation such water may not be allowed to be introduced into the FKC. FWA will evaluate monitoring requirements on a case-by-case basis and may impose additional requirements including but not limited to monitoring of the discharge source and downstream in prism quality at the cost of the Contractor.

(b) In-Prism Water Quality Monitoring

FWA will cause to be implemented continuous, real-time monitoring of in-prism water quality conditions in the FKC. Conductivity meters (or sondes) will measure and record real-time in-prism electrical conductivity ("**EC**"), measured as microsiemens per centimeter (µS/cm), every 15 minutes at the FKC check structures and corresponding mileposts shown in Table 2. Collected EC data will be uploaded to FWA's Intellisite Operation System (**IOS**) in real-time. These continuous, in-prism measurements of EC will provide real-time data on incremental water quality changes and mixing in the canal and will assist in water quality threshold management.

If the Friant Water Quality Model forecasts an in-prism exceedance of 80% of the threshold for any water quality constituents, defined in Table 4, water samples from the FKC will be collected each week by appropriate FWA staff until the sampled concentrations, supported through Friant Water Quality Model forecasted simulations, show four consecutive weeks below the 80% threshold. Each weekly collection will consist of one sample from each downstream check structure shown in Table 2 and where water quality changes are expected, plus one duplicate sample. FWA will deliver the samples to a laboratory with ELAP certification. FWA expenses for all water quality monitoring and sampling are subject to reimbursement from Contractors through fees and charges. As was the case for the discharged water, the appropriateness of the threshold buffer will be evaluated by the Water Quality Advisory Committee.

Additional water quality sampling and analysis will be performed during specific FKC operations. FWA will cause to be measured EC using hand-held conductivity meters as needed, such as during:

- servicing of real-time monitoring equipment;
- unexpected real-time monitoring equipment outages;
- confirmation of real-time monitoring equipment measurements; and,
- targeted in-prism measurements.

(c) CVC In-Prism Water Quality Monitoring

Upon initiation of reverse-flow, pump-back activities and/or if it is anticipated that operations within the CVC will significantly change mixed water quality conditions (i.e., influence from California Aqueduct, Kern River, Kern Fan), grab samples will be collected by FWA within the CVC near the FKC/CVC Intertie, and provided to a third-party laboratory with ELAP certification for testing of water quality constituents listed in Table 1. In addition, during reverse-flow pump-back operations, weekly water quality sampling will be performed within the CVC near the FKC/CVC Intertie. Grab samples will be collected by FWA and provided to a third-party, ELAP certified laboratory for testing. At a minimum, grab samples collected during reverse-flow pump-back operations will be analyzed for the short list of water quality constituents listed in Table 4.

The Water Quality Advisory Committee will evaluate water quality monitoring, sampling, and analysis requirements on a regular basis and provide recommendations for modification of the described requirements.

(d) In-Prism Water Quality Management

FKC in prism water quality will be managed per the following thresholds. If the below thresholds are exceeded, systematic cessation of pump-in or pump-back operations will occur.

1. Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 116270-116755), and Title 22 of the California Code of Regulations (Sections 6440 et seq.), as amended. In prism water quality constituent concentrations may not exceed the Maximum Contaminant Level (**MCL**) as defined in Table 1, except those constituents listed in Table 3 and Table 4. Current State of California requirements at the time of sampling will prevail over those in the accepted version of this document if MCLs in Table 1 are changed in the future.

2. Water quality thresholds defined in Table 3. Water quality thresholds are representative of constituent thresholds of sensitive crops; leaching requirements; and crop thresholds for regulated

deficit irrigation practices that occur during almond hull split from July 1 through August 31; and flexible thresholds in the second half of the contract year, from September 1 through February 28, depending on observed water quality in the first portion of the contract year.

i. Table 3 presents alternative water quality thresholds for Period 3 (September 1 – February 28) that are dependent on the measured water quality during Period 1 (March 1 – June 30). If the measured average chloride concentration for Period 1 exceeds 70 milligrams per liter (mg/L), the chloride threshold remains at 102 mg/L for Period 3a. If the measured average chloride concentrations for Period 1 are less than or equal to 70 mg/L, the allowable chloride concentration increases from 102 mg/L to 123 mg/L for Period 3b.

ii. It is estimated that an average of one week is required for in-prism water quality to turnover. Prior to the onset of the defined hull split period requirements (July 1), current FKC operations and water quality conditions will be evaluated to determine if this one-week period should be adjusted.

If water quality thresholds are exceeded, or based on modeling appear likely to be imminently exceeded, or operations in the FKC need to change per Guidelines requirements, FWA will immediately notify the Water Quality Advisory Committee, which must convene a meeting of the Monitoring Subcommittee within three days of receiving notification from FWA. The Monitoring Subcommittee and FWA will review operations and water quality data and will seek consensus on determining the best management actions to improve water quality; provided, however, the final operational decision will be made by FWA. In addition, the Monitoring Subcommittee will seek 1:1, unleveraged, and cost-neutral exchanges to limit potential Project water impacts. Notwithstanding the foregoing, FWA retains the right to determine and take immediate management actions with respect to groundwater pump-ins in accordance with the applicable approvals, but will work in good faith with the Water Quality Advisory Committee and Monitoring Subcommittee to evaluate options. If required, management actions including any reductions or cessation of pump-in volume must occur within three days of the meeting between FWA and the Monitoring Subcommittee. FWA will order any reduction in pump-in volume in order of greatest mass loading. Finally, the Monitoring Subcommittee will set an appropriate review period to assess if implemented management actions are working and, if not, will agree to reconvene to discuss additional actions necessary to improve water quality.

(e) Uncontrolled Season

Non-Millerton water may not be introduced to the FKC during the Friant Division uncontrolled season as declared by Reclamation unless:

- Deliveries are necessary due to FKC capacity constraints, and if the Non-Millerton water delivered from the CVC remains below the Shafter Check, or
- The Non-Millerton water is below the determined baseline EC threshold of 200 µS/cm and, therefore, does not require mitigation.
- Introduction of Non-Millerton water does not impact Friant Division flood operations.

3. Water Quality Mitigation

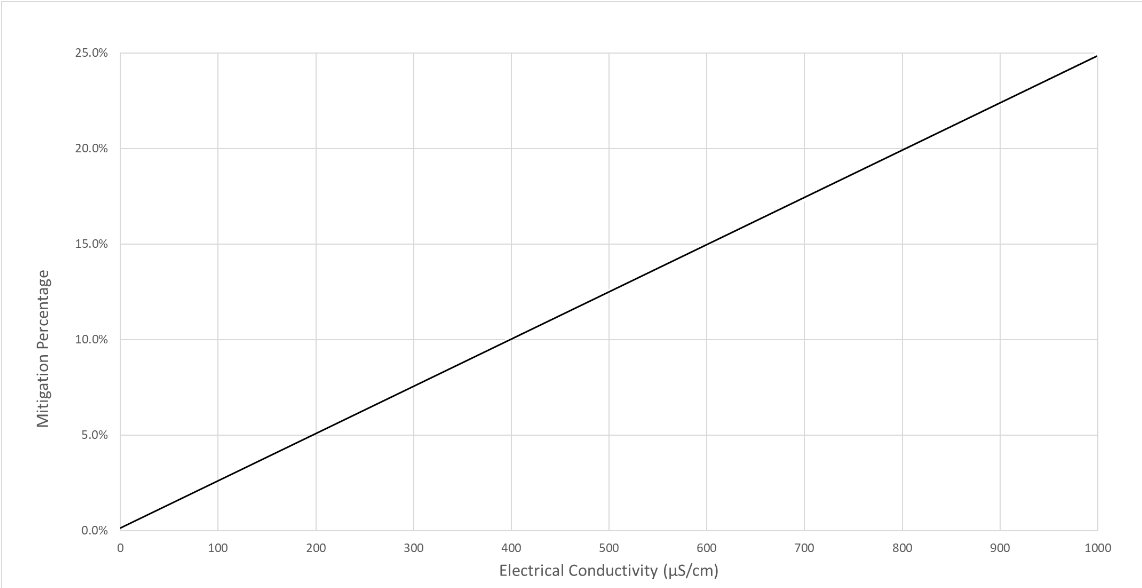
Mitigation for impacted water quality is quantified through use of the Water Quality Mitigation Ledger ("**Ledger**"). The Ledger tracks and accounts for all inflows into and diversions from the FKC in order to determine appropriate mitigation for impacted water quality (attributable to the introduced Non-Millerton water or "**Put**"[1]). The volume of additional surface water needed for mitigation, expressed as a percentage of the introduced water, or Put, is determined using an established mitigation rating curve. The mitigation rating curve is based on (1) constituent concentrations, and (2) agronomic principles that focus on leaching requirements to prevent constituent accumulation in the rootzone and resulting impacts on crops. This approach aims to balance concerns related to long-term groundwater quality with a multi-layered assessment of agronomic impacts as a durable solution. The process for developing the agronomic impacts evaluation and mitigation rating curve can be found in *Attachment C– Agronomic Impacts and Mitigation.*

The Ledger quantifies mitigation for Friant Contractors that have an expectation to receive water consistent with quality conditions of Millerton Lake. Specifically, mitigation applies to the "**Take**" (or delivery) of Friant Division Class 1, Class 2, Recovered Water Account (RWA [Paragraph 16b]), and Unreleased Restoration Flows supplies. Friant Contractors and/or other Contractors, including but not limited to third parties, whose supplies are not delivered to the headworks of the FKC are not eligible to receive mitigation.

Mitigation percentage is based on the EC of the Put above the established baseline. The established baseline is based on assumptions of current, minimum leaching practices by water users, or growers, in the region. Consistent with good agricultural practices, it is assumed that growers are currently applying at least a five percent (5%) leaching fraction. Under the mitigation rating curve shown in Figure 2, this corresponds to an approximate EC of 200 µS/cm. It is assumed that growers are already managing the effects of applied water quality conditions up to 200 µS/cm of EC, and mitigation is only required for water quality conditions with incremental EC that exceed the baseline EC threshold of 200 µS/cm. Note that the mitigation rating curve extends beyond the maximum EC and mitigation percentage shown in Figure 2 (i.e., at 1,000 µS/cm and 25%) at the same slope of 5% mitigation per 200 µS/cm of EC.

A mitigation volume is calculated based on the Put volume and corresponding mitigation percentage. Mitigation volumes for each Put are distributed to each Friant Contractor receiving an eligible Take, or "**Taker**," downstream based on the volumetric proportion of the Take on a weekly basis. Mitigation occurs in real time by the Contractor and offsets a like volume of each Taker's supply at the end of a reporting period. Additional mitigation is not required to account for the water quality conditions of the mitigation volumes. Water quality conditions and flows are tracked daily. The ledger and required mitigation volumes are balanced weekly and reported and transferred monthly. Accounting and reporting are detailed in *Attachment D – Standard Operating Procedures*.

[1] Existing FKC inlet drains are exempt from providing mitigation.



Key:
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)

Figure 2. Proposed Mitigation Rating Curve Based on Boron Sensitivity and Normalized to Electrical Conductivity

4. Critical Year Management

When Friant Division Class 1 contract allocation is less than or equal to 25 percent, the Water Quality Advisory Committee will convene as outlined in Attachment A. In these years, mitigation will be accounted for as presented in these Guidelines, but will be deferred to a mutually agreed later date unless those responsible for the Put and Take mutually agree to put and take the mitigation in the critical year. All monitoring requirements will remain as presented in these Guidelines.

C. Resolution of Disputes

In the event a Contractor is dissatisfied with the application or interpretation of these Guidelines by FWA staff or consultants, the following dispute resolution procedures will apply:

1. A Contractor may request FWA refer the dispute to Reclamation's Contracting Officer's Representative for initial review. FWA will prepare and deliver a written summary of the dispute for Reclamation's Contracting Officer's Representative, who will then confer with the parties and issue an advisory opinion regarding the dispute in a timely manner.

2. In addition to or in lieu of the meet and confer process with Reclamation's Contracting Officer's Representative above, a Contractor may submit a written appeal to be heard by the FWA Board of Directors. The written appeal must be submitted to the office of the Chief Executive Officer, who will then place the dispute on the agenda of the Board of Directors for a hearing at a board meeting no later than 60 days from the date of receipt. The decision of the Board of Directors will be final and FWA and the other party(ies) must promptly comply with such decision until the same is stayed, reversed, or modified by a decision of a court of competent jurisdiction.

The Cooperative Agreement between the Contractors and FWA provides additional dispute resolution procedures. In the event of any conflict between the dispute resolution procedures in these Guidelines and the Cooperative Agreement, the provisions in the Cooperative Agreement will control.

D. Water Quality Forecasting and Communications

1. Friant-Kern Canal Water Quality Model

Water quality monitoring and collection of water quality data will be evaluated using the FKC Water Quality Model, a volumetric mass-balance model of the entire FKC. The FKC Water Quality Model will serve as a predictive, water quality forecast tool to assist Friant Contractors and FWA in making real-time operation decisions. The weekly application of this model will require compilation of surface water quality data collected, as described above, as well as forecasts of water orders and periodic model updates.

2. Water quality reporting and communications

IOS will report real-time, continuous FKC in-prism EC measurements. In addition, FWA will cause to be provided a weekly summary report to Friant Contractors and Reclamation on:

- FKC current and forecasted operations;
- FKC current in-prism monitoring and forecasted water quality conditions; and,
- Pertinent pump-in programs' operations and water quality conditions.

E. Implementation Responsibilities and Costs

FWA will be responsible for the following actions:

- Maintain and calibrate conductivity meters
- Perform water quality sampling during pump-in operations
- Coordinate laboratory water quality testing
- Coordinate with Contractors on water quality data monitoring and analysis
- Manage in-prism water quality and manage operations database
- Perform weekly water quality reporting and forecasting using FKC Water Quality Model
- Perform weekly analysis to determine mitigation and distribution to respective Friant Contractors or any other Contractor party(ies) using the FKC Water Quality Mitigation Ledger
- Coordinate with Reclamation's SCCAO on water quality reporting, mitigation, and contractual requirements

- Coordinate and facilitate the work of Water Quality Advisory Committee and the Monitoring Subcommittee.

Costs for implementation and administration of these Guidelines will be initially paid out of the FWA Operation, Maintenance, and Replacement (OM&R) budget, and subsequently will be reimbursed by Contractors. The Contractor will pay a dollar per acre-foot ($/acre-foot) surcharge ("**Guidelines Surcharge**") for introduced Non-Millerton water, that will be credited to the FWA OM&R budget. The Guidelines Surcharge will be adopted by the FWA Board of Directors and will be based on an estimate of total annual costs divided by average annual deliveries of pump-in programs into the FKC. The Guidelines Surcharge will be applied to all introduced Non-Millerton water even if mitigation is not required

Annual costs and deliveries will be reassessed every year and compared to estimates provided in Attachment E to determine if any adjustments are required to the Guidelines Surcharge.

Definitions

Contractors: Water contractors and other parties authorized to introduce or receive Non-Millerton water into or from the FKC.

Contracting Officer: The Area Manager of Reclamation's South-Central California Area Office.

Cooperative Agreement: The agreement between FWA and the participating Contractors regarding the establishment, implementation and management of these Guidelines.

CVC: Cross Valley Canal

EC: Salinity measured as electrical conductivity

ELAP: Environmental Laboratory Accreditation Program

Friant Contractors: Friant Division contractors with long-term contracts with Reclamation.

FWA: Friant Water Authority, a California joint powers agency.

Guidelines Surcharge: The surcharge imposed by FWA on Contractors on a per acre feet basis for Non-Millerton water introduced into the FKC to cover the costs of implementing the Guidelines.

IOS: Intellisite Operation System

Ledger: The Water Quality Mitigation Ledger that tracks and accounts for all inflows into and diversions from the FKC in order to determine appropriate mitigation for impacted water quality attributable to the introduced Non-Millerton water.

Maximum Contaminant Level (MCL): Usually reported in milligrams per liter (parts per million) or micrograms per liter (parts per billion).

Non-Millerton water: All water introduced into the Friant-Kern Canal other than directly from Millerton Lake to the headworks of the FKC.

OM&R: Operation, Maintenance and Replacement.

Put: The introduction of Non-Millerton water into the FKC.

Project: The Friant Division of the Central Valley Project, specifically the Friant-Kern Canal.

Reclamation: U.S. Department of the Interior, Bureau of Reclamation.

SCCAO: Reclamation's South-Central California Area Office.

Take: The delivery of Friant Division Class 1, Class 2, Recovered Water Account (RWA [Paragraph 16b]), and Unreleased Restoration Flows supplies.

Taker: A Friant Contractor receiving an eligible Take.

Title 22: The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 116270-116755), and California Code of Regulations (Sections 6440 et seq.), as amended.

Tables

Table 1. Water Quality Constituents

Table 2. Check Structure Locations for Real-Time Measurements of Electrical Conductivity

Table 3. Friant-Kern Canal In-Prism Water Quality Thresholds

Table 4: Friant-Kern Canal Water Quality Constituents Short List.

Attachments

Attachment A: Water Quality Advisory Committee Charter

Attachment B: Monitoring Program Summary

Attachment C: Agronomic Impacts and Mitigation

Attachment D: Ledger Standard Operating Procedures

Attachment E: FKC Water Quality Guidelines Cost Allocation

The non-Project water discharged into Federal Facilities must comply with the California Drinking Water standards (Title 22)[2] listed in Table 1. However, selenium thresholds cannot exceed 2 micrograms per liter as defined in Table 4.

Table 1 Title 22 Water Quality Standards

Constituent	Units	MCL	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Primary					
Aluminum	mg/L	1 (1)	0.05 (2)	7429-90-5	EPA 200.7
Antimony	mg/L	0.006 (1)	0.006 (2)	7440-36-0	EPA 200.8
Arsenic	mg/L	0.010 (1)	0.002 (2)	7440-38-2	EPA 200.8
Asbestos	MFL	7 (1)	0.2 MFL>10μm (2)	1332-21-4	EPA 100.2
Barium	mg/L	1 (1)	0.1 (2)	7440-39-3	EPA 200.7
Beryllium	mg/L	0.004 (1)	0.001 (2)	7440-41-7	EPA 200.7
Cadmium	mg/L	0.005 (1)	0.001 (2)	7440-43-9	EPA 200.7
Chromium, total	mg/L	0.05 (1)	0.01 (2)	7440-47-3	EPA 200.7
Copper	mg/L	1.3	0.050 (2)	7440-50-8	EPA 200.7
Cyanide	mg/L	0.15 (1)	0.1 (2)	57-12-5	EPA 335.2
Fluoride	mg/L	2.0 (1)	0.1 (2)	16984-48-8	EPA 300.1
Hexavalent Chromium	mg/L	0.010 (1)	0.001 (2)	18540-29-9	EPA 218.7
Lead	mg/L	0.015 (9)	0.005 (2)	7439-92-1	EPA 200.8
Mercury	mg/L	0.002 (1)	0.001 (2)	7439-97-6	EPA 245.1
Nickel	mg/L	0.1 (1)	0.01 (2)	7440-02-0	EPA 200.7
Nitrate (as nitrogen)	mg/L	10 (1)	0.4 (2)	7727-37-9	EPA 300.1
Nitrate + Nitrite (sum as nitrogen)	mg/L	10 (1)		14797-55-8	EPA 353.2
Nitrite (as nitrogen)	mg/L	1 (1)	0.4 (2)	14797-65-0	EPA 300.1
Perchlorate	mg/L	0.006 (1)	0.004 (2)	14797-73-0	EPA 314/331/332
Selenium	mg/L	0.002 (10)	0.001	7782-49-2	EPA 200.8
Thallium	mg/L	0.002 (1)	0.001 (2)	7440-28-0	EPA 200.8
Thiobencarb	mg/L	0.07		28249-77-6	EPA 527
Secondary					
Aluminum	mg/L	0.2 (6)		7429-90-5	EPA 200.7
Chloride	mg/L	500 (7)		16887-00-6	EPA 300.1
Color	units	15 (6)			EPA 110
Copper	mg/L	1.0 (6)	0.050 (8)	7440-50-8	EPA 200.7
Iron	mg/L	0.3 (6)		7439-89-6	EPA 200.7
Manganese	mg/L	0.05 (6)		7439-96-5	EPA 200.7
Methyl-tert-butyl ether (MTBE)	mg/L	0.005 (6)		1634-04-4	EPA 502.2/524.2
Odor -threshold	units	3 (6)			SM 2150B
Silver	mg/L	0.1 (6)		7440-22-4	EPA 200.7
Specific Conductance	μS/cm	1,600 (7)			SM 2510 B

[2] California Code of Regulations, Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010 4037), and Administrative Code (Sections 64401 et seq.), as amended https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dw_regulations_2019_03_28.pdf

Constituent	Units	MCL	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Sulfate	mg/L	500 (7)		14808-79-8	EPA 300.1
Thiobencarb	mg/L	0.001 (6)		28249-77-6	EPA 527
Total Dissolved Solids	mg/L	1,000 (7)			SM 2540 C
Turbidity	units	5 (6)			EPA 190.1/SM2130B
Zinc	mg/L	5.0 (6)		7440-66-6	EPA 200.7
Other Required Analyses					
Boron	mg/L	2.0 (13)		7440-42-8	EPA 200.7
Molybdenum	mg/L	0.01 (11)		7439-98-7	EPA 200.7
Sodium	mg/L	200 (12)		7440-23-5	EPA 200.7
Radioactivity					
Gross alpha*	pCi/L	15 (3)			SM 7110C
Organic Chemicals					
(a) Volatile Organic Chemicals (VOCs)					
Benzene	mg/L	0.001 (4)	0.0005 (5)	71-43-2	EPA 502.2/524.2
Carbon Tetrachloride	mg/L	0.0005 (4)	0.0005 (5)	56-23-5	EPA 502.2/524.2
1,2-Dichlorobenzene.	mg/L	0.6 (4)	0.0005 (5)	95-50-1	EPA 502.2/524.2
1,4-Dichlorobenzene.	mg/L	0.005 (4)	0.0005 (5)	106-46-7	EPA 502.2/524.2
1,1-Dichloroethane	mg/L	0.005 (4)	0.0005 (5)	75-34-3	EPA 502.2/524.2
1,2-Dichloroethane	mg/L	0.0005 (4)	0.0005 (5)	107-06-2	EPA 502.2/524.2
1,1-Dichloroethylene	mg/L	0.006 (4)	0.0005 (5)	75-35-4	EPA 502.2/524.2
cis-1,2-Dichloroethylene	mg/L	0.006 (4)	0.0005 (5)	156-59-2	EPA 502.2/524.2
trans-1,2-Dichloroethylene	mg/L	0.01 (4)	0.0005 (5)	156-60-5	EPA 502.2/524.2
Dichloromethane.	mg/L	0.005 (4)	0.0005 (5)	75-09-2	EPA 502.2/524.2
1,2-Dichloropropane.	mg/L	0.005 (4)	0.0005 (5)	78-87-5	EPA 502.2/524.2
1,3-Dichloropropene.	mg/L	0.0005 (4)	0.0005 (5)	542-75-6	EPA 502.2/524.2
Ethylbenzene.	mg/L	0.3 (4)	0.0005 (5)	100-41-4	EPA 502.2/524.2
Methyl-tert-butyl ether	mg/L	0.013 (4)	0.003 (5)	1634-04-4	EPA 502.2/524.2
Monochlorobenzene	mg/L	0.07 (4)	0.0005 (5)	108-90-7	EPA 502.2/524.2
Styrene.	mg/L	0.1 (4)	0.0005 (5)	100-42-5	EPA 502.2/524.2
1,1,2,2-Tetrachloroethane	mg/L	0.001 (4)	0.0005 (5)	79-34-5	EPA 502.2/524.2
Tetrachloroethylene (PCE)	mg/L	0.005 (4)	0.0005 (5)	127-18-4	EPA 502.2/524.2
Toluene	mg/L	0.15 (4)	0.0005 (5)	108-88-3	EPA 502.2/524.2
1,2,4-Trichlorobenzene	mg/L	0.005 (4)	0.0005 (5)	120-82-1	EPA 502.2/524.2
1,1,1-Trichloroethane	mg/L	0.200 (4)	0.0005 (5)	71-55-6	EPA 502.2/524.2
1,1,2-Trichloroethane	mg/L	0.005 (4)	0.0005 (5)	79-00-5	EPA 502.2/524.2
Trichloroethylene (TCE)	mg/L	0.005 (4)	0.0005 (5)	79-01-6	EPA 502.2/524.2
Trichlorofluoromethane	mg/L	0.15 (4)	0.005 (5)	75-69-4	EPA 502.2/524.2
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/L	1.2 (4)	0.01 (5)	76-13-1	SM 6200B
Vinyl Chloride	mg/L	0.0005 (4)	0.0005 (5)	75-01-4	EPA 502.2/524.2
Xylenes	mg/L	1.750* (4)	0.0005 (5)	1330-20-7	EPA 502.2/524.2
(b) Non-Volatile Synthetic Organic Chemicals (SOCs)					
Alachlor	mg/L	0.002 (4)	0.001 (5)	15972-60-8	EPA 505/507/508
Atrazine	mg/L	0.001 (4)	0.0005 (5)	1912-24-9	EPA 505/507/508
Bentazon	mg/L	0.018 (4)	0.002 (5)	25057-89-0	EPA 515.1
Benzo(a)pyrene	mg/L	0.0002 (4)	0.0001 (5)	50-32-8	EPA 525.2
Carbofuran	mg/L	0.018 (4)	0.005 (5)	1563-66-2	EPA 531.1
Chlordane	mg/L	0.0001 (4)	0.0001 (5)	57-74-9	EPA 505/508
2,4-D	mg/L	0.07 (4)	0.01 (5)	94-75-7	EPA 515.1

Constituent	Units	MCL	Detection Limit for Reporting	CAS Registry Number	Recommended Analytical Method
Dalapon	mg/L	0.2 (4)	0.01 (5)	75-99-0	EPA 515.1
Dibromochloropropane	mg/L	0.0002 (4)	0.00001 (5)	96-12-8	EPA 502.2/504.1
Di(2-ethylhexyl)adipate	mg/L	0.4 (4)	0.005 (5)	103-23-1	EPA 506
Di(2-ethylhexyl)phthalate	mg/L	0.004 (4)	0.003 (5)	117-81-7	EPA 506
Dinoseb	mg/L	0.007 (4)	0.002 (5)	88-85-7	EPA 5151-4
Diquat	mg/L	0.02 (4)	0.004 (5)	85-00-7	EPA 549.2
Endothall	mg/L	0.1 (4)	0.045 (5)	145-73-3	EPA 548.1
Endrin	mg/L	0.002 (4)	0.0001 (5)	72-20-8	EPA 505/508
Ethylene Dibromide	mg/L	0.00005 (4)	0.00002 (5)	106-93-4	EPA 502.2/504.1
Glyphosate (Roundup)	mg/L	0.7 (4)	0.025 (5)	1071-83-6	EPA 547
Heptachlor.	mg/L	0.00001 (4)	0.00001 (5)	76-44-8	EPA 508
Heptachlor Epoxide	mg/L	0.00001 (4)	0.00001 (5)	1024-57-3	EPA 508
Hexachlorobenzene	mg/L	0.001 (4)	0.0005 (5)	118-74-1	EPA 505/508
Hexachlorocyclopentadiene	mg/L	0.05 (4)	0.001 (5)	77-47-4	EPA 505/508
Lindane (gamma-BHC)	mg/L	0.0002 (4)	0.0002 (5)	58-89-9	EPA 505/508
Methoxychlor	mg/L	0.03 (4)	0.01 (5)	72-43-5	EPA 505/508
Molinate	mg/L	0.02 (4)	0.002 (5)	2212-67-1	EPA 525.1
Oxamyl	mg/L	0.05 (4)	0.02 (5)	23135-22-0	EPA 531.1
Pentachlorophenol	mg/L	0.001 (4)	0.0002 (5)	87-86-5	EPA 515.1-3
Picloram	mg/L	0.5 (4)	0.001 (5)	1918-02-1	EPA 515.1-3
Polychlorinated Biphenyls	mg/L	0.0005 (4)	0.0005 (5)	1336-36-3	EPA 130.1
Simazine	mg/L	0.004 (4)	0.001 (5)	122-34-9	EPA 505
Thiobencarb (Bolero)	mg/L	0.07 (4)	0.001 (5)	28249-77-6	EPA 527
Toxaphene	mg/L	0.003 (4)	0.001 (5)	8001-35-2	EPA 505
1,2,3-Trichloropropane	mg/L	0.000005 (4)	0.000005 (5)	96-18-4	SRL 524M
2,3,7,8-TCDD (Dioxin)	mg/L	3×10^{-8} (4)	5×10^{-9} (5)	1746-01-6	EPA 130.3
2,4,5-TP (Silvex)	mg/L	0.05 (4)	0.001 (5)	93-72-1	EPA 515.1
Other Organic Chemicals					
Chlorpyrifos	µg/L	0.015 (11)		2921-88-2	EPA 8141A
Diazinon	µg/L	0.10 (11)		333-41-5	EPA 8141A

Sources:

- Recommended Analytical Methods: https://www.nemi.gov/home/
- Maximum Contaminant Levels (MCL): Title 22. The Domestic Water Quality and Monitoring Regulations specified by the State of California Health and Safety Code (Sections 4010-4037), and Administrative Code (Sections 64401 et seq.), as amended.

(1) Title 22. Table 64431-A Maximum Contaminant Levels, Inorganic Chemicals
(2) Title 22. Table 64432-A Detection Limits for Reporting (DLRs) for Regulated Inorganic Chemicals
(3) Title 22. Table 64442 Radionuclide Maximum Contaminant Levels (MCLs) and Detection Levels for Purposes of Reporting (DLRs)
(4) Title 22. Table 64444-A Maximum Contaminate Levels, Organic Chemicals
(5) Title 22. Table 64445.1-A Detection Limits for Purposes of Reporting (DLRs) for Regulated Organic Chemicals
(6) Title 22. Table 64449-A Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Levels"
(7) Title 22. Table 64449-B Secondary Maximum Contaminant Levels "Consumer Acceptance Contaminant Level Ranges"
(8) Title 22. Table 64678-A DLRs for Lead and Copper
(9) Title 22. Section 64678 (d) Lead Action level
https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/documents/lawbook/dw_regulations_2019_03_28.pdf

- California Regional Water Quality Control Board, Central Valley Region, Fourth Edition of the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. Revised June 2015

(10) Basin Plan, Table III-1 (ug/L) (selenium in Grasslands water supply channels)
(11) Basin Plan, Table III-2A. 4-day average (chronic) concentrations of chlorpyrifos & diazinon in San Joaquin River from Mendota to Vernalis
https://www.waterboards.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_op_pesticide/

- Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations - Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985).

(12) Ayers, Table 1 (mg/L) (sodium)
(13) Ayers, Table 1 (mg/L) (boron)
http://www.fao.org/3/T0234E/T0234E00.htm

- (14) Requested by State Water contractors, no MCL specified.

- California Regional Water Quality Control Board. PFAS Per-and Polyfluoroalkyl Substances.

(15) Testing Methods in California Drinking Water
https://www.waterboards.ca.gov/pfas/

Table 2. Check Structure Locations for Real-Time Measurements of Electrical Conductivity

Check Structure	Milepost
Little Dry Creek	5.50
Kings River	28.52
Sand Creek	46.04
Dodge Ave	61.03
Kaweah River	71.29
Rocky Hill	79.25
Fifth Ave	88.22
Tule River	95.67
Deer Creek	102.69
White River	112.90
Reservoir (Woollomes)	121.51
Poso Creek	130.03
Shafter	137.20
Kern River	151.81

Table 3. Friant-Kern Canal In-Prism Water Quality Thresholds

Period	Salinity expressed as EC (µS/cm)	Chloride (mg/L)	Boron (mg/L)[1]	Turbidity (NTU)[6]	Total Suspended Solids (ppm)[6]	SAR[7]	Sodium (mg/L)[7]
Period 1 March 1 – June 30	1,000[2]	102[3]	0.4	40	20	3	69
Period 2 July 1 – August 31	500[4]	55[4]	0.4	40	20	3	69
Period 3a September 1 – February 28	1,000[2]	102[3]	0.4	40	20	3	69
Period 3b September 1 – February 28	1,000[2]	123[5]	0.4	40	20	3	69

Notes:

Thresholds adapted from Grieve, C.M., S.R. Grattan and E.V. Maas. 2012. Plant salt tolerance. In. (W.W. Wallender and K.K. Tanji, eds). Agricultural Salinity Assessment and Management (2nd edition). ASCE pp 405-459; and Ayers, R.S. and D.W. Westcot 1985. Water quality for agriculture. FAO Irrigation and Drainage Paper 29 (rev 1). Food and Agriculture Organization of the United Nations. Rome

For addition detail, see Attachment C – Agronomic Impacts and Mitigation.

When Friant-Kern Canal in-prism water quality conditions in this table are exceeded, Friant Division Long-Term Contractors will work together to seek 1:1, unleveraged, and cost-neutral exchanges for pump-in and pump-back programs. This does not apply to spot-market or third-party exchanges.

[1] Grapes are used as a representative crop for boron sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apricots, figs, and grapefruits. Threshold assumes conventional irrigation with minimum 20 percent leaching fraction applied.

[2] Threshold assumes minimum of 20 percent leaching requirement applied and adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) to not exceed maximum EC_{et}. Almonds on Nemaguard rootstock are used as a representative crop for salinity sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apples, cherries, pears, pistachios, and walnuts.

[3] Threshold assumes minimum of 20 percent leaching requirement applied and then adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) to not exceed maximum Cl-et. Almonds on Nemaguard rootstock used as a representative crop for chloride sensitivity. They are used as a surrogate for other sensitive crops including cherries, pistachios, and walnuts. If the measured average chloride concentration for Period 1 exceeds 70 mg/L, the chloride threshold remains at 102 mg/L.

[4] Threshold applies to almond hull split period when regulated deficit irrigation is applied to avoid hull rot. This threshold is used assuming irrigation applications are reduced to 50 percent of the tree water requirement and subsequently thresholds applied for the remainder of the year have been adjusted to account for additional salt accumulation. This threshold was developed with consideration of existing program operations, historical water quality data, and absolute water quality thresholds.

[5] If the measured average chloride concentration in Period 1 (March 1 – June 30) is less than or equal to 70 mg/L, the allowable chloride threshold for Period 3 (September 1 – February 28) is increased to 123 mg/L.

[6] Applied TSS and turbidity thresholds from section 3 of the Final Initial Study/Negative Declaration for: Warren Act Contract and License, and Operation and Maintenance Agreement to Introduce Floodwaters from Reclamation District 770 into the Friant-Kern Canal, March 2017. Additional detail provided in Attachment C – Agronomic Impacts and Mitigation

[7] SAR and Sodium are managed together. If the measured SAR value exceeds 3 AND the measured sodium concentration exceeds a threshold of 69 mg/L, management will be necessary. SAR is derived from Ayers Table 1 and assumes surface irrigation. The sodium threshold is also derived from Ayers Table 1 and suggests that irrigation waters <3 meq/L (69 mg/L) is suitable for crops that are sprinkler irrigated.

Key:

µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
ASCE = American Society of Civil Engineers
Cl^{-}_{et} = maximum chloride threshold of the saturated soil paste
EC = electrical conductivity of applied water
EC_{et} = Soil salinity threshold for a given crop
FAO = Food and Agriculture Organization of the United Nations
Friant Division = Friant Division of the Central Valley Project
mg/L = milligrams per liter
SAR = sodium adsorption ratio
TDS = total dissolved solids

Table 4: Friant-Kern Canal Water Quality Constituents Short List

Constituent	Units	Thresholds
1,2,3 TCP	(µg/L)	0.005
Arsenic	(mg/L)	0.010
Bicarbonate	(mg/L)	--
Boron	(mg/L)	See Table 3
Bromide	(mg/L)	--
Calcium	(mg/L)	--
Chloride	(mg/L)	See Table 3
Chromium, total	(mg/L)	0.05
Hexavalent chromium	(mg/L)	0.010
Iron	(µg/L)	300
Magnesium	(mg/L)	--
Manganese	(µg/L)	50
Nitrate	(mg/L)	10
pH		--
SAR		See Table 3
Salinity (as EC)	(µS/cm)	See Table 3
Selenium	(µg/L)	2
Sodium	(mg/L)	See Table 3
Sulfate	(mg/L)	500
TDS	(mg/L)	-- *
Total Organic Carbon	(mg/L)	--
TSS	(ppm)	See Table 3
Turbidity	(NTU)	See Table 3
Gross alpha	pCi/L	15

Notes:
Thresholds are Title 22 MCLs unless otherwise noted.
Constituent with threshold denoted as "--" do not have an established MCL.
Refer to Table 1 and Notes for Table 1 for additional details.
*TDS MCL not listed for the purposes of these Guidelines. TDS and EC are both a measure of salinity and the EC thresholds shown in Table 3 are controlling.

Attachment A. Water Quality Advisory Committee Charter

Background and Objective

The Guidelines for Accepting Water into the Friant-Kern Canal ("Guidelines") were adopted by the Friant Water Authority (FWA) based on the voluntary consensus of and written agreement with a significant majority of the contractors of the Friant Division of the Central Valley Project ("Friant Division"). The Guidelines address concerns regarding the implementation of programs and projects that could introduce water of a lesser quality to the Friant-Kern Canal ("FKC"), when compared to water quality of historic deliveries from Millerton Lake. The Guidelines include water quality constituent thresholds based on agronomic principles and a ledger mechanism to determine the required mitigation for introducing water of lesser quality into the FKC.

The Guidelines provide that FWA will appoint a Water Quality Advisory Committee ("Committee") composed of Friant Division long-term contractors ("Friant Contractors") involved in either introducing water to or receiving water from the FKC. The Committee will provide recommendations to FWA and Reclamation on operations and water quality monitoring requirements of the FKC as well as potential revisions to the Guidelines. This document describes Committee membership and Committee roles and responsibilities.

Water Quality Advisory Committee Membership

The appointed Committee will be composed of Friant Contractors who may either be introducing water to or receiving water from the FKC. Committee membership is described in Table 1. New members in replacement of an existing member or as a new addition to the membership list requires majority approval following notice to and the consent of the FWA Board of Directors.

Table 1. Water Quality Advisory Committee Membership

Members
Arvin-Edison Water Storage District
Delano-Earlimart Irrigation District
Kern-Tulare Water District

Lindsay Strathmore Irrigation District
Lower Tule River Irrigation District
Pixley Irrigation District
Porterville Irrigation District
Saucelito Irrigation District
Shafter Wasco Irrigation District
South San Joaquin Municipal Utility District
Terra Bella Irrigation District

Roles and Responsibilities

The Committee will convene on an annual basis prior to the irrigation season or planned reverse flow operations. The Committee will:

- Evaluate current year operations related to Guidelines implementation including but not limited to Ledger operation modifications, potential schedule changes, and potential changes to mitigation deliveries.
- Review and approve annual monitoring.
- Make recommendations regarding the costs and budgets associated with administering and implementing the Guidelines.

The Committee may also convene on an as needed basis under the following conditions:

- When Friant Division Class 1 contract allocation is less than or equal to 25 percent.
- If a future regulatory cost or equivalent fee is imposed on Friant Contractors and a portion of such fee can reasonably be attributed to the incremental difference of water quality conditions in the FKC.
- If there is a significant, scientifically based justification and three out of the following five water contractors agree that a change to Guideline principles and/or criteria should be discussed: Arvin-Edison Water Storage District, Shafter Wasco Irrigation District, Delano-Earlimart Irrigation District, South San Joaquin Municipal Utility District, or Kern-Tulare Water District.

- If FKC water quality continuously exceeds one or more constituent thresholds and pump-in operations must cease.

The Committee will make recommendations to the FWA Board via consensus decision making. If 100% consensus cannot be reached, a recommendation will be made, and minority viewpoints will also be communicated. The Committee with provide all recommendations to the FWA Board. Single-year modifications to Guidelines implementation, monitoring, and/or pump-in operations will be noticed to all Friant Contractors. Recommendations requiring substantial modifications or updates to the Guidelines will be provided to the FWA Board and the FWA will coordinate with Reclamation to implement recommended changes.

Monitoring Subcommittee

The Committee will appoint at least three and no more than five representatives of its members to serve on a Monitoring Subcommittee that will coordinate with FWA on the implementation of the Guidelines particularly with respect to potential or actual exceedance of the water quality thresholds established under these Guidelines and the implementation of required mitigation, including the reduction of discharges of Non-Millerton water into the FKC. The Subcommittee will make recommendations to FWA in accordance with Section B.2.d above, but the final operational decisions will be made by FWA.

Attachment B. Monitoring Program Summary

Summary of requirements for monitoring campaign specified in the Guidelines for Accepting Water into the Friant-Kern Canal

Sample Source/Type		Trigger	Constituents/Bacterial Organisms	Frequency	Location	Communication
Source of Discharge Water						
1	Non-Millerton Lake Source	Routine sampling.	All in Table 1	Every three years	Discharge Location.	Reported to FWA and Reclamation FKC's Contracting Office for review. FWA will report to Friant contractors.
2	Non-Millerton Lake Source	Routine sampling.	All in Table 4	Annually	Discharge Location.	
3	Non-Millerton Lake Source	If routine sampling of Table 4 water quality constituents shows exceedance of an established threshold buffer. **	Any in Table 4 exceeding the established threshold buffer.	Weekly for targeted constituents of concern, until four consecutive tests show consistent water quality results.	Discharge Location.	
4	Non-Millerton Lake Source	Reclamation on a case-by-case basis per condition of program operations.	Any	Any	Any	
Blended Canal Water						
5	FKC Water	Routine sampling (continuous).	EC	Real-time, Every 15 minutes	Check structures and mile posts in Table 2	Uploaded to FWA's IOS. FWA will regularly calibrate equipment.
6	FKC Water	If Friant Water Quality Model forecasts exceedance of an established threshold buffer. **	Any in Table 4 exceeding the established threshold buffer.	Weekly. Until sampled data, supported through modeling, show four consecutive tests below the established threshold buffer.	Check structures and mile posts in Table 2, where water quality changes are expected.	FWA will deliver to ELAP certified lab. Forecasted and measured in-prism water quality will be communicated by FWA to Friant contractors.
7	FKC Water	Specific operation disruptions (servicing of real-time equipment, unexpected outages, etc.).	EC	Any	Any	
8	CVC	Reverse-flow, and pump-back operations.	All in Table 4	Weekly	CVC, near Intertie	FWA will deliver to ELAP certified lab. Water quality data will be communicated via FWA's IOS.
9	CVC	Initiation of pump-back operations, and/or anticipated that CVC operations will significantly change water quality	All in Table 1 and Table 4	As needed	CVC, near Intertie	FWA will deliver to ELAP certified lab. Water quality data will be communicated via FWA's IOS.

Notes: References to tables above (Table 1, 2, 4) from Friant Water Authority draft Guidelines for Accepting Water into the Friant-Kern Canal.

**Threshold buffers that will trigger continued monitoring are 80% of the thresholds established in Table 4.

Key:

EC = electrical conductivity

CVC = Cross Valley Canal

ELAP = Environmental Laboratory Accreditation Program

FKC = Friant-Kern Canal

IOS = Intellisite Operation System

Reclamation = U.S. Department of the Interior, Bureau of Reclamation

Attachment C. Agronomic Impacts and Mitigation

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ACRONYMS AND ABBREVIATIONS

µmhos/cm	micromhos per centimeter (1 µmhos/cm = 1 µS/cm = 1/1,000 dS/m)
µS/cm	microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
Ad hoc Committee	Ad hoc Water Quality Committee
AEWSD	Arvin-Edison Water Storage District
ATP	adenosine triphosphate
AW	applied water
B	boron
B_e	boron concentration of the saturated soil paste (rootzone boron)
B_{et}	maximum boron threshold of the saturated soil paste
B_w	boron concentration of applied irrigation water
B_{sw}	boron threshold for soil water concentration
Ca	calcium
Ca^{2+}	calcium ion
$CaCO_3$	calcite or calcium carbonate
cfs	cubic feet per second
Check 21	Check Structure 21 at milepost 172,40 on the California Aqueduct
Cl^-	chloride ion
Cl^-_e	chloride concentration of the saturated soil paste (rootzone chloride)
Cl^-_{et}	maximum chloride threshold of the saturated soil paste
Cl^-_w	chloride concentration of applied irrigation water
CO_2	carbon dioxide
CO_3^{2-}	carbonate ion
CVC	Cross Valley Canal
DEID	Delano-Earlimart Irrigation District
dS/m	deciSiemens per meter (1 dS/m = 1,000 µmhos/cm = 1,000 µS/cm)
EC	electrical conductivity
EC_e	electrical conductivity of the saturated soil paste (rootzone salinity)
EC_{dw}	electrical conductivity/salinity of irrigation drainage water
EC_w	electrical conductivity/salinity of applied irrigation water
ET	evapotranspiration
F_c	concentration factor
FKC	Friant-Kern Canal
Friant Division	Friant Division of the Central Valley Project
FWA	Friant Water Authority

HCO_3^-	bicarbonate
Intermediate	Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
KTWD	Kern Tulare Water District
LF	leaching fraction
LR	leaching requirement
Mg^{2+}	magnesium ion
Mg	magnesium
meq/L	milliequivalents per liter
mg/L	milligrams per liter (equivalent to ppm)
Na^+	sodium ion
Na	sodium
pH	Measure of acidity or alkalinity
Policy	Friant-Kern Canal Water Quality Policy
ppm	parts per million (equivalent to mg/L)
RDI	regulated deficit irrigation
SAR	sodium adsorption ratio
SAR_{adj}	adjusted sodium adsorption ratio
SID	Saucelito Irrigation District
SSJMUD	South San Joaquin Municipal Utility District
SWID	Shafter-Wasco Irrigation District
TDS	total dissolved solids

BACKGROUND

The Guidelines for Accepting Water into the Friant-Kern Canal (Guidelines) were developed in response to concerns regarding the implementation of programs and projects that could introduce water of a lesser quality to the Friant-Kern Canal (FKC), when compared to water quality of historic deliveries from Millerton Lake. The Guidelines define requirements for discharging water into the FKC, water quality monitoring and reporting requirements, mitigation requirements, and forecasting and communication protocols. The Guidelines propose a ledger mechanism to determine the required mitigation for introducing water of lesser quality into the FKC. This attachment to the Guidelines provides additional information on agronomic effects, mitigation requirements, and approach for defining maximum water quality thresholds for key constituents. The thresholds are specific to irrigation periods that correspond to the growing season and agricultural management practices during the year.

AGRONOMIC EFFECTS

When assessing the suitability of water for irrigation, three main hazards or “agronomic thresholds” are considered (Ayers and Westcot, 1985): (1) the salinity hazard (electrical conductivity of the applied irrigation water [EC_w]), (2) the hazard posed by specific ions (chloride [Cl^-], boron [B], and sodium [Na^+]), and (3) the infiltration hazard (sodium adsorption ratio [SAR] and ECw). There are other parameters, such as acidity (pH) or alkalinity, sediments and nutrients that can affect calcite ($CaCO_3$) deposits, emitter clogging, crop development, and corrosion, but these do not fall under “agronomic thresholds.”

The primary source of imported water is proposed to come from the Friant-Kern Canal/Cross Valley Canal Intertie (Intertie) and conveyed via reverse-flow, pump-back operations. Water being introduced at the Intertie might include previously banked groundwater of Kern Fan water quality, Cross Valley Contract supplies, recaptured and recirculated San Joaquin River Restoration Program Restoration Flows, and other colors. Water quality conditions from the Cross Valley Canal (CVC)could range from existing conditions in the Cross Valley Canal (CVC) to that from the California Aqueduct, depending on respective canal operations. For the analysis presented herein, both CVC and California Aqueduct (measured at Check 21) water qualities were used, as well as a weighted average of those two sources (Intermediate) applied to show the range of potential imported water qualities. Source water quality concentrations are shown in Table 1 and Table 2.

Table 1. Average Concentrations of Various Irrigation Water Quality Constituents

LOCATION	WATER QUALITY CONSTITUENTS			
	TDS (/L)	EC_w (µS/cm)	Boron (B) (mg/L)	Chloride (Cl^-) (mg/L)
FKC[1, 2]	24	40	0.04	1.9
CVC[1, 3]	180	340	0.11	45.0
Intermediate[4]	232	420	0.16	63.2
Check 21[5]	283	500	0.21[6]	81.3

Note:
[1] Water quality data from AEWSD grab samples lab data from 2010 – 2019. Averages exclude months when mixing occurred.
[2] Sample taken at terminus of FKC.
[3] Sample taken at AEWSD CVC, Pumping Plant 6 or 6B Forebay.
[4] Weighted average of CVC and Check 21 water quality.
[5] California Aqueduct measured at Check 21 from 2009-2017.
[6] Check 21 Boron measurements only available for years 1967 – 1976.
Key:
AEWSD = Arvin Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
EC_w = electrical conductivity of applied water
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
mg/L = milligrams per liter
TDS = total dissolved solids

Table 2. Average Monthly Electrical Conductivity, Chloride, and Boron Concentrations by Source and Year Type

MONTH	CVC[1]			CHECK 21[2]		
	Wet[3]	Average[4]	Dry[5]	Wet[6]	Average[4]	Critical[7]
Average Monthly Electrical Conductivity Concentrations by Source and Year Type (µS/cm)						
January	431	369	287	309	523	598
February	570	433	378	269	551	680
March	261	273	275	248	545	671
April	240	270	277	255	500	616
May	--	306	306	195	479	575
June	385	384	383	174	471	597
July	257	292	307	206	385	542
August	286	308	335	249	425	643
September	323	326	329	247	524	689
October	429	360	315	539	573	628
November	396	356	330	480	529	614
December	368	349	337	532	554	624
Average Monthly Chloride Concentrations by Source and Year Type (mg/L)						
January	74.5	54.4	27.7	34.0	84.5	99.0
February	104.0	63.0	46.6	31.5	87.4	104.3
March	21.0	21.8	22.0	27.5	82.9	104.3
April	19.0	21.4	22.0	33.5	72.1	100.0
May	--	31.4	31.4	25.0	73.0	88.7
June	48.5	46.1	45.2	19.0	73.4	98.3
July	28.5	33.7	35.8	25.5	55.8	84.0
August	39.6	40.7	42.0	31.0	70.3	109.0
September	53.0	48.4	43.8	22.0	92.6	116.7
October	76.0	55.0	41.0	105.5	101.6	106.7
November	68.5	54.8	45.7	90.5	86.8	95.7
December	55.5	46.7	40.8	101.0	95.5	103.0
Average Monthly Boron Concentrations by Source and Year Type (mg/L)[8]						
January	0.12	0.11	0.10	0.23	0.20	0.20
February	0.16	0.15	0.14	0.30	0.26	0.25
March	0.10	0.11	0.11	0.33	0.31	0.30
April	0.11	0.12	0.12	0.30	0.29	0.10
May	--	0.12	0.12	0.27	0.25	0.20
June	0.16	0.15	0.14	0.20	0.18	0.20
July	0.11	0.11	0.12	0.13	0.16	0.20
August	0.09	0.10	0.12	0.10	0.19	0.20
September	0.08	0.09	0.11	0.10	0.16	0.10
October	0.11	0.10	0.09	0.25	0.19	0.15
November	0.11	0.11	0.11	0.20	0.18	0.15
December	0.11	0.11	0.12	0.20	0.19	0.15

Note:
[1] Water quality data from AEWSD grab samples lab data from 2010 – 2019.
[2] California Aqueduct measured at Check 21 from 2009-2017.
[3] CVC wet year averages represent the monthly average for San Joaquin Index year types below normal, above normal, and wet and excludes months where there is mixing.
[4] Average concentrations shown represent the average of all year types and excludes months where there is mixing.
[5] CVC dry year averages represent the monthly average for San Joaquin Index year types dry and critical and excludes months where there is mixing.
[6] Check 21 wet year averages represent the monthly average for San Joaquin Index wet year types only.
[7] Check 21 critical year averages represent the monthly average for San Joaquin Index critical years only.
[8] Check 21 Boron measurements represent years 1967 – 1976 per available data.

Key:
-- = no available data. CVC water quality in wet years during May were only mixed water quality.
AEWSD = Arvin-Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
mg/L = milligrams per liter

SALINITY EFFECTS ON CROPS

The effects of salinity on crops are due to two separate properties in the saline media that can impact the crop individually but more often collectively (Läuchli and Grattan, 2012): (1) Salinity increases the electrical conductivity (EC) of the soil solution which reduces its the osmotic potential and (2) specific ions (I.e. Cl-, Na+ and B) in the soil solution can potentially be toxic to certain crops.

Osmotic effects occur when the concentration of salt in the soil solution is too high to allow for normal for crop growth. Dissolved salts reduce the osmotic potential of the soil solution. Plants must adjust osmotically through either the absorption of ions from the soil solution, or the synthesis and/or accumulation of organic solutes in the root cells. The synthesis of compatible organic solutes allows a plant to adjust osmotically and survive, but at the expense of plant growth (Munns and Tester, 2008). The synthesis of organic solutes requires a considerable amount of metabolic energy (i.e., adenosine triphosphate (ATP)) that is used for cell maintenance and osmotic adjustment that could otherwise be used for growth. As a result, salt-stressed plants are stunted, even though they may appear healthy in all other regards. Both processes of adjustment (accumulation of ions and synthesis of organic solutes) occur but the extent by which one process dominates depends on the type of crop and level of salinity (Läuchli and Grattan, 2012). And in a cell, compartmentalization is critical to keep toxic ions away from sensitive metabolic processes in the cytoplasm (Hasegawa et al., 2000). Such compartmentation is controlled by transport processes in the plasma membrane and tonoplast (i.e., vacuolar membrane). The efficiency of ion transport processes, as well as metabolic costs for organic-solute synthesis, differ from crop to crop and even within a species giving rise to different salinity tolerances.

TOXIC ION EFFECTS

Specific ions (i.e., Na^+, Cl^-, and B) in the soil solution can cause direct injury to crops, causing further crop damage from what occurs from osmotic effects. Typically, toxic ion effects are commonly found in woody perennials, such as tree and vine crops, while most annual row crops remain injury free unless salinity stress is severe. Woody perennial crops have little ability to exclude sodium or chloride from their leaves, and the plants are long-lived; hence, they often suffer toxicities at even moderate soil salinities. Typically, toxic ion effects become more critical to sensitive tree and vine crops over the years.

Chloride

Chloride and sodium toxicity can damage a plant/tree physically, biochemically and physiologically. As sodium and chloride move in the transpiration stream, they are deposited in the leaves. Older leaves have more water transpire from them and consequently have higher concentrations of sodium and chloride. Once accumulated in a leaf, sodium and chloride typically do not remobilize to other tissues. As the concentration in that leaf increases, the salts can physically desiccate cells causing injury in the form of leaf burn. Necrotic leaves no longer photosynthesize and produce carbohydrates for the tree, which in turn, will impact growth and production. But even before salts accumulate in leaves to levels that cause physical injury, those salts can reduce the chlorophyll content in leaves (Dejampour et al., 2012) and interfere with enzymatic activities affecting key metabolic pathways in both respiration and photosynthesis (Munns and Tester, 2008).

Boron

Although not a main "salinizing" constituent in applied irrigation water, boron can also cause injury to the crop. Boron is an essential micronutrient for plants, but the concentration range of plant-available boron in the soil solution optimal for growth for most crops is very narrow. Above this narrow range, toxicity occurs (Grieve et al., 2012). Boron toxicity, including how and where it is expressed in the plant, is related to the mobility of boron in the plant. Boron is thought to be immobile in most species where it accumulates in the margins and tips of the oldest leaves where injury occurs. However, boron can be re-mobilized by some species due to high concentrations of sugar alcohols (polyols) where they bind with boron and carry it to younger tissues (Brown and Shelp, 1997). These boron-mobile plants include almond, apple, grape, and most stone fruits. For these crops, boron concentrations are higher in younger tissue than in older tissue, and injury is expressed in young, developing tissues in the form of twig die back, gum exudation, and reduced bud formation. Boron-immobile plants such as pistachio, tomato, and walnut do not have high concentrations of polyols, and the boron concentrates in the margins of older leaf tissues. Injury in these crops is expressed as the classical necrosis on leaf tips and margins.

Sodium

Sodium can be problematic to a crop in several ways. It can be directly toxic to the plant, it can interfere with the nutritional status of the plant (e.g., Na^+-induced calcium [Ca^{2+}] deficiency), or it can indirectly affect the crop due to its adverse effect on soil structure. Some trees are very sensitive and can develop Na^+ toxicity when concentrations of Na^+ are as low of 5 milliequivalents per liter (meq/L) (115 mg/L) in the soil water. However, this observation was made before scientists realized the importance of adequate Ca^{2+} in the soil water for root membrane stability to maintain their selectivity for ion uptake. With adequate Ca^{2+}, such as that provided by gypsum applications, sodium toxicity may never be observed in these sensitive trees at such low sodium concentrations. Therefore, rather than having a threshold for Na^+ per se, the sodium-calcium ratio in the soil solution is a better indicator of Na^+ toxicity. The SAR of the applied irrigation water has been used as a surrogate for the sodium-calcium ratio, and the general rule is an SAR < 3 is not problematic.

$$SAR = \frac{Na^+}{\sqrt{\frac{(Ca^{2+} + Mg^{2+})}{2}}}$$

Where Na^+, Ca^{2+}, and magnesium ion (Mg^{2+}) concentrations are expressed in meq/L.

This is different when assessing sodium's indirect effect on soil structural stability (see the Infiltration Hazard section that follows). Table 3 shows critical SAR of the applied irrigation water above which can cause injury or nutritional distress in sensitive crops. Table 4 shows the seasonal average SAR for various water sources.

Table 3. Critical SAR of Applied Irrigation Water

CROP[1]	CRITICAL SAR OF APPLIED IRRIGATION WATER
All Crops	< 3

Note:
[1] Many tree crops are sensitive to Na+ toxicity after several years when sapwood converts to heartwood releasing Na^+ from the root to the shoot. Most annual crops are insensitive to Na^+ per se provided there is sufficient Ca^{2+} in the soil solution to maintain membrane integrity and ion selectivity. Hence, the ratio of sodium to calcium is more critical (Grattan and Grieve, 1992).

Key
Ca^{2+} = calcium ions
Na^+ = sodium ions
SAR = sodium adsorption ratio

Table 4. Seasonal Average SAR for Various Water Sources

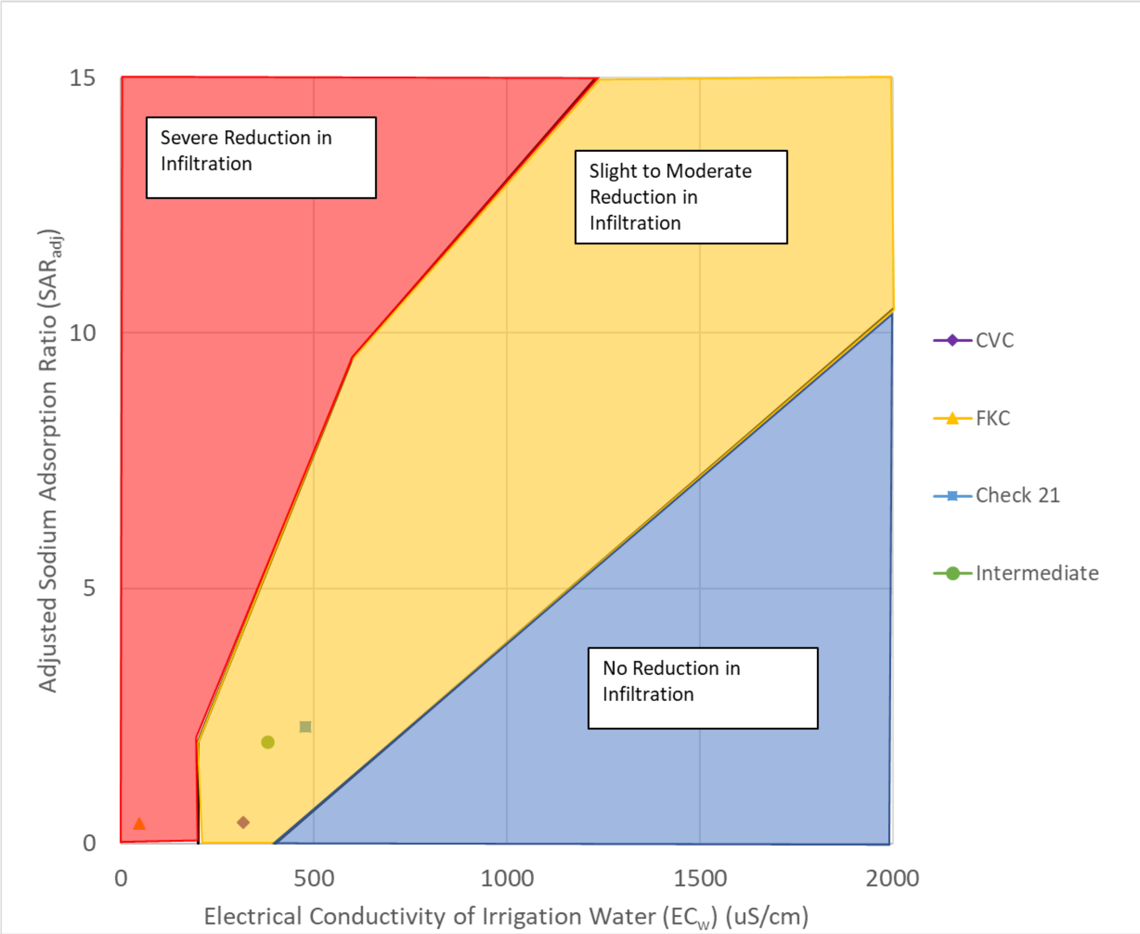
VALUE[1]	FKC[2, 3]	CVC[2, 4]	INTERMEDIATE[5]	CHECK 21[6]
Average	0.46	1.68	1.99	2.27
Maximum	0.87	2.04	2.46	2.96
Minimum	0.28	1.10	1.61	1.79

Note:
[1] March through October period.
[2] Water quality data from AEWSD grab samples lab data from 2011 – 2017.
[3] Sample taken at terminus of FKC.
[4] Sample taken at AEWSD CVC, Pumping Plant 6 or 6B Forebay.
[5] Weighted average of CVC and Check 21 water quality.
[6] California Aqueduct measured at Check 21 from 1968-2017.
Key
AEWSD = Arvin Edison Water Storage District
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
CVC = Cross Valley Canal
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
SAR = sodium adsorption ratio

INFILTRATION HAZARD

Sodium Adsorption Ratio

The SAR has been the standard used for assessing the infiltration hazard of applied irrigation water (Ayers and Westcot, 1985). But the actual infiltration hazard is assessed by balancing the opposite effects of salinity (EC_w) and sodicity (i.e., SAR) on aggregate stability. High salinity and low SAR are both important in maintaining adequate soil structure, which promotes better infiltration. Even though coarse-textured soils infiltrate faster than fine-textured soils, the hazard exists for all soil types. Typically, the adjusted SAR (SAR_{adj}) is used rather than the SAR as it more accurately accounts for $CaCO_3$, precipitation, and dissolution processes in the soil solution near the soil surface that control the free Ca^{2+} concentration. Figure 1 shows the relationship between the EC_w of the applied irrigation water and the SAR_{adj} as it relates to zones of “likely reductions” in infiltration rates (red), “slight to moderate reductions” in infiltration rates (yellow) and “no reductions” in infiltration rates (blue), adapted from Hanson et al., 2006. The threshold value is, therefore, variable and is considered to be the line that separates the “blue” and “yellow” zones on Figure 1. It is very important to note that low EC_w concentration (i.e., EC_w < 200 µS/cm) causes a reduction in water infiltration regardless of the SAR. Figure 1 also compares this relationship with various water sources. Note that FKC water falls in the red ”severe reduction in infiltration” zone because of its low EC_w concentration, while water from the CVC or mixed with CVC water falls in the yellow ”slight to moderate reduction in infiltration” zone. The addition of gypsum to FKC water increases the EC_w concentration, moving the point to the right and away from the ”severe reduction in infiltration” zone while slightly reducing the SAR.



Key:
µS/cm = microsiemens per centimeter
Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
FKC = Friant-Kern Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities

Figure 1. Comparison of Various Water Source Relationship between the Salinity of Applied Irrigation Water and the Adjusted Sodium Adsorption Ratio

Calcium-Magnesium Ratio

Calcium nutrition can be problematic under several conditions. Calcium deficiency can occur under low-saline conditions when the concentration of free calcium [Ca^{2+}] is $\leq$ 1-2 millimoles/L in the soil solution. Deficiency can also occur under high sodic conditions where the SAR exceeds 10-15 in sensitive plants due to high sodium-calcium ratios or in alkaline conditions where Ca^{2+} precipitates out of the soil solution as it forms $CaCO_3$. Due to competition in the plant between calcium and magnesium at the root membrane, calcium nutrition could potentially be compromised when the calcium-magnesium ratio is generally less than 1 (Rhoades, 1992). Table 5 shows the seasonal average calcium-magnesium ratio for various water sources. Note the ratios for both FKC and CVC water are considerably higher than 1, while the ratio at California Aqueduct Check 21 is very close to 1 but will likely increase in the soil solution as the infiltrating water dissolves existing gypsum in the soil from previous amendment use. Therefore, calcium deficiencies, using CVC or Check 21 water or any mixture of the two, are unlikely.

Table 5. Seasonal Average Calcium-Magnesium Ratio for Various Water Sources

VALUE[1]	FKC,[2,3]	CVC[2,4]	INTERMEDIATE[5]	CHECK 21[6]
Average	3.54	4.37	1.55	0.92
Maximum	6.16	8.24	2.00	1.00
Minimum	0.17	2.14	1.20	0.77

Note:
Based on molar or equivalent concentrations.
[1] March through October period.
[2] Water quality data from AEWSD grab samples lab data from 2011 – 2017.
[3] Sample taken at terminus of FKC.
[4] Sample taken at AEWSD CVC, Pumping Plant 6 or 6B Forebay.
[5] Weighted average of CVC and Check 21 water quality.
[6] California Aqueduct measured at Check 21 from 1968-2017.
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SAR = sodium adsorption ratio

PH AND BICARBONATE EFFECTS

The pH of both the applied irrigation water and the soil solution are important factors that may affect either the suitability of water for irrigation or its effect on nutrient availability to the crop. And many of the adverse effects of pH are associated with combined high alkalinity (high concentrations of bicarbonate [HCO_3^-] and carbonate [CO_3^{-2}]). In slightly alkaline waters (pH 7- 8.3), the alkalinity is from bicarbonate. Only when the pH exceeds 8.3 does carbonate become present. The pH of the water is an indication of the activity of the hydrogen ion. The numerical pH value is expressed on a negative log scale such that a one-unit increase or decrease corresponds to a ten-fold increase or decrease in the hydrogen ion activity. Therefore, a change of soil pH from 6 to 8 corresponds to a hundred-fold decrease in the hydrogen ion activity.

The pH of applied irrigation water can affect irrigation equipment or cause calcite (i.e. lime) deposits on vegetation. Regarding irrigation equipment, the pH is one of several water quality factors than can influence corrosion of galvanized pipes or other metallic parts. The pH can also influence precipitation of calcite ($CaCO_3$) at the orifices of drip emitters or minisprinklers which will affect the system's overall performance. This can be problematic if alkaline irrigation water, combined with sufficiently high bicarbonate and calcium concentrations, is used over the long term without periodic acid flushes to reduce scale buildup. Calcite precipitation becomes more problematic if the pH of the applied irrigation water exceeds 8.5. In addition, if such water is sprinkler irrigated above the canopy, it can cause unsightly white deposits that form on leaves and fruit. While these deposits typically do not cause harm to the crop, they nonetheless can affect the aesthetic quality. Acid additions to the irrigation water will not only reduce the pH but will reduce the [HCO_3^-], reducing the potential for $CaCO_3$ precipitation. Acid additions convert bicarbonate to carbon dioxide (CO_2) gas.

As the applied irrigation water infiltrates the soil, it interacts with the soil minerals. Therefore, the pH of the infiltrating water will change as it interacts with soil minerals, but soils are typically well buffered, as are soils in the FWA service area. Well buffered soils resist large changes in pH in the soil solution. The seasonal average pH of the irrigation water ranges from 7.1 to 8.4 depending upon the mixture of FKC water and California Aqueduct water. Because of the buffering capacity of the soil, this range in applied irrigation water pH will make little impact of the pH of the soil solution.

The pH of the soil solution has a profound influence on plant nutrient availability, nutrient uptake and ion toxicity to plants. The vast majority of soils that are cultivated for crop production around the world fall within the neutral, slightly acid and slightly basic pH range (i.e. pH 6-8). This is the general range where nutrient availability is optimal. However, there are those soils where the pH falls far from this normal range and these, if not corrected to an adequate range, can pose adverse effects on crops. Soils that are highly acidic (pH < 5.5) or highly alkaline (pH > 8.5) present a spectrum of challenges for the plant including nutrient availability, ion toxicities, and nutrient imbalances influencing the ion relations and nutrition within the plant itself (Läuchli and Grattan, 2012).

Most nutrients are not equally available to plants across the pH spectrum (Epstein and Bloom, 2005). Several mineral nutrients are severely affected in these non-optimal pH soils, particularly calcium, potassium, phosphorus, and iron. The reactions of plants to these nutrient elements under extreme soil pH conditions can affect plant growth, physiological processes and their morphological development (Läuchli and Grattan, 2012). The majority of the soils irrigated with waters from districts within the FWA, however, fall in the slightly alkaline range with the pH in the rootzone between 7.5 and 8.3 (UC Davis Soilweb https://casoilresource.lawr.ucdavis.edu/gmap/). Therefore, these soils are slightly alkaline, based largely on the natural abundance of calcite in the soil, and are at the upper end of the optimal pH range. Depending on the alkalinity of the soil water and [Ca^{2+}], some of the Ca^{2+} can precipitate out as $CaCO_3$ which decreases the calcium-magnesium ratio. Intermittent injection of acids in the applied irrigation water will reduce the pH and, consequently, the alkalinity of the water. Not only is this a maintenance measure to reduce calcite buildup on the orifices of drip emitters and minisprinklers, it drops the pH of the water which decreases bicarbonate, increases the [Ca^{2+}] and availability of other plant nutrients. Most growers in the San Joaquin Valley have some maintenance, acid-injection program in place. However, in Kern county, this may not be common practice in all districts. Acid applications, the residual gypsum in the soil and periodic applications of additional gypsum, are all a means of providing sufficient free Ca^{2+} in soils in Kern country. Moreover, increasing the [Ca^{2+}] in the soil water simultaneously improves the calcium-magnesium ratio.

Sprinkler irrigated fruit and vegetable crops (approximately 20% of studied districts) could be susceptible to formation of white deposits on leaves and fruit, or "white wash," and reduced marketability if bicarbonate concentrations, or [HCO_3], in applied irrigation water are too high (> 1.5 meq/L, leaving a white residue on the crop surface. Bicarbonate concentrations in the California Aqueduct water theoretically could cause "white washing" under sprinkler irrigation, especially during dry and breezy conditions. "White washing" is a concern to some growers and has been seen by growers occasionally in the study area; however, it is not known what the exact cause of the "white washing" was, whether it was from undiluted California Aqueduct water or some other source. Bicarbonate levels of 1.5 meq/L or 92 mg/L and higher may increase formation of white deposits. The seasonal average for [HCO_3] of CVC water is 78.5 mg/L. While this concentration is less than 92 mg/L, special management practices may be needed to mitigate or avoid "white wash" impacts during periods of elevated bicarbonate levels. These may include blending with higher quality sources or changing irrigation methods away from sprinklers that wet the foliage (Provost & Pritchard, 2012).

CORROSION AND DEGRADATION OF MATERIALS

The comparison of corrosion potential of California Aqueduct water and FKC water from Millerton Lake was performed by Provost & Pritchard in 2012 on several chemical constituents and calculated indices including: pH, Langelier Index, Ryzner Index, EC, resistivity, sulfates, and chlorides. This comparison generally showed that FKC water has a slight tendency to degrade concrete structures by leaching out minerals, but metallic corrosion will be low. Comparatively, California Aqueduct water will have a lower tendency to leach out minerals from concrete, and will have a more corrosive effect on metals, although there is only a slight difference between the two water sources in either case (Provost and Pritchard, 2012).

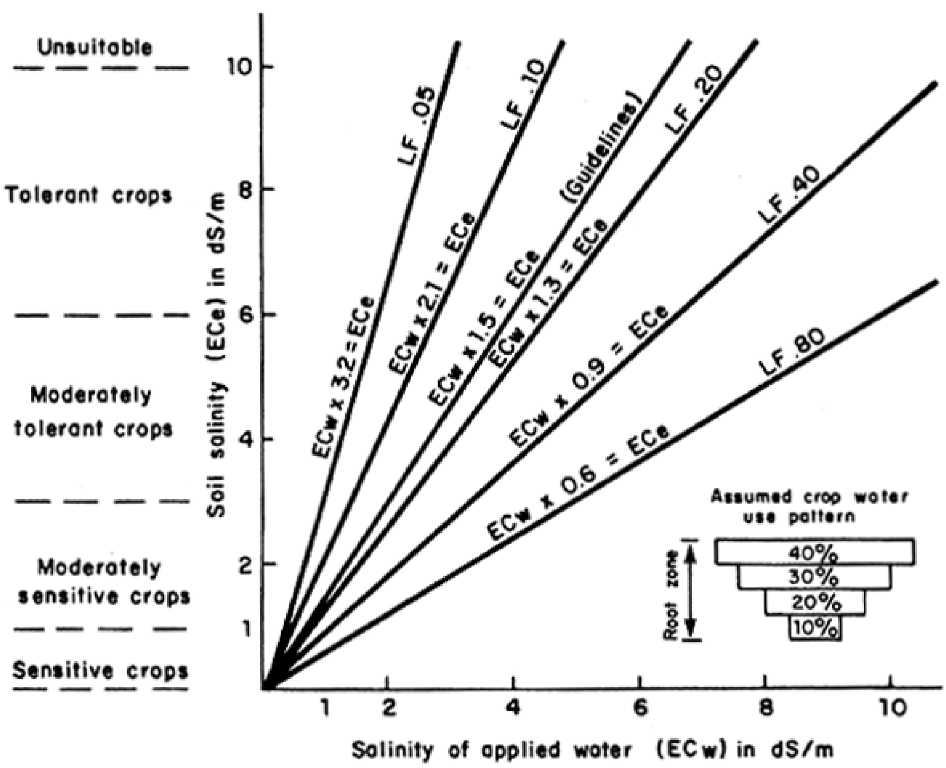
Materials such as brass, bronze, PVC, polyethylene, and stainless steel usually have a high corrosion tolerance, and therefore would not likely be affected by the exchange of source waters. The forecasted increase in corrosion from using more California Aqueduct water is likely manageable with the use of special coatings and proper selection of new materials and would likely result in minor increase in O&M costs (Provost and Pritchard, 2012).

AGRONOMIC LEACHING REQUIREMENTS

Agronomic leaching is the application of irrigation water in excess of the soil water holding capacity to neutralize the agronomic effects associated with increased salinity and ion toxicity in the crop rootzone. This approach aims to balance concerns related to long-term groundwater quality with a multi-layered assessment of agronomic impacts as a durable solution. The amount of leaching required, referred herein as maintenance leaching, depends upon the sensitivity of the crop to salinity and the irrigation water salinity. The higher the salinity of the applied irrigation water and the more sensitive the crop is to salinity, the greater the amount of leaching is required. This same leaching concept can also be applied to chloride and boron.

LEACHING FRACTION VS LEACHING REQUIREMENT

Often, leaching fraction (LF) and leaching requirement (LR) are used interchangeably. The two, in fact, are different. The LF is defined as the volume of water that drains below the rootzone divided by the volume of water that infiltrates the soil surface (equivalent to applied irrigation water assuming no surface runoff or evaporation). The LF can also be estimated based on the salinity of the applied irrigation water, or [EC_w], and that of the drainage water, or [EC_{dw}], where LF = EC_w/EC_{dw}. The crop roots extract water from the rootzone leaving the salts behind. If the crop rootzone is divided in quarters, typically the top quarter uses 40% of the water, the second quarter 30%, third quarter 20% and bottom quarter 10%. Therefore, the salt concentration increases with soil depth. The lower the LF, the more salts accumulate and concentrate at lower depths. Figure 2 is a representation of this relationship under conventional irrigation. The relationship between irrigation water salinity (EC_w) and soil salinity (EC_e) is linear but the slopes of the relationships are dependent upon the LF. The slopes decrease with increasing LF. The higher the LF, the higher the irrigation water salinity can be to maintain the yield of a crop. In Figure 2, note the dashed lines along the y-axis indicating the general salt tolerant categories as the salinity of the applied irrigation water changes.



Key:
dS/m = deciSiemens per meter (1 μS/cm = 1 μmhos/cm = 1/1,000 dS/m)
LF = leaching fraction

Figure 2. Relationship Between Soil Salinity (EC_e) and Salinity of the Applied Irrigation Water (EC_w) under a Series of Steady-State Leaching Fractions (0.05 to 0.80) (from Ayers and Westcot, 1985)

The LF concept is attractive in that it allows predictions of average rootzone salinity (EC_e) conditions from the applied irrigation water EC (EC_w) and assumed LF. Knowing the scientifically determined salinity threshold value (EC_{et}) for a particular crop, one can use this relationship to determine the maximum irrigation water salinity (EC_w) for a given LF. The relationship between EC_w, EC_e, and LF also depends on irrigation management. That is, EC_e = Concentration Factor (F_c) * EC_w where 'F_c' depends not only on the LF but the type of irrigation method. Applicable F_c values for conventional irrigation methods such as furrow or flood, and high frequency irrigation methods, such as drip and minisprinklers, are provided in Table 6.

Table 6. Concentration Factor Values for Conventional and High Frequency Irrigation (adapted from Suarez, 2012)

LEACHING FRACTION (LF)	CONCENTRATION FACTOR (F_c)	
	Conventional Irrigation	High Frequency Irrigation
0.05	2.79	1.79
0.10	1.88	1.35
0.20	1.29	1.03
0.30	1.03	0.87
0.40	0.87	0.77
0.50	0.77	0.70

The difference in F_c values between conventional and high frequency irrigation is largely based on how crop roots respond to the salinity in the rootzone. Under conventional irrigation, crops typically respond to the average rootzone salinity (i.e. the seasonal average of the four rootzone quarters of salinity). Under high frequency irrigation, crops respond to the water uptake weighted salinity (i.e. the salinity in the top quarter is weighted 40 percent, salinity in the second quarter is weighted 30 percent, and so on). Because the salinity in the top quarter is lower where evapotranspiration (ET) is higher and higher in bottom where ET is lower, the average rootzone salinity is lower under high frequency irrigation.

The LR, on the other hand, is the lowest LF needed to sustain maximum yield given the applied irrigation water salinity concentration, or [EC_w], and yield threshold for the given crop. In other words, it is the minimum leaching needed, given the crop type and water quality, to maintain the salinity (or chloride or boron), at the maximum rootzone concentration in the rootzone that the crop can tolerate. Any increase in rootzone concentration above this maximum level will cause injury or yield reductions. LR is an attractive concept because, given an irrigation water quality and crop sensitivity, the minimum leaching needed to sustain the rootzone salinity EC_e, rootzone chloride (Cl^-_e), or rootzone boron (B_e) at levels that would avoid or reduce damage or yield losses can be estimated.

LR can be estimated using the following equation (Rhoades and Merrill, 1976; Ayers and Westcot, 1985):

$$LR\% = \frac{EC_w}{5(EC_{et}) - EC_w}\ x\ 100$$

EC_w= Electrical conductivity of irrigation water
EC_{et}= Soil salinity threshold for a given crop

Note that the LR relationship can apply to chloride and boron by substituting their respective irrigation water concentrations (i.e. Cl^-_w or B_w) and their threshold values (Cl^-_{et} or B_{et}). The LR equation assumes that crops respond to an average rootzone salinity created by a 40-30-20-10% root water extraction pattern, similar to LF predictions using conventional irrigation. The difference is that LR predicts the minimal LF to achieve maximal yields whereas the LF approach assumes an LF first, then predicts what the EC_e will be given the EC_w of the irrigation water. Both are similar but solve the problem from different directions.

LIMITATIONS TO THE STEADY-STATE LEACHING CONCEPT

The leaching fraction or requirement is an attractive concept but has limitations. First, the leaching concept assumes steady-state conditions and thus has no time element. Therefore, there is no accounting for how long leaching will take, which will differ depending upon the permeability of the soils. Second, the evapotranspiration (ET) of the crop is assumed to be independent of the average rootzone salinity, but it is not (Letey and Feng, 2007). A salt-stressed crop will use less water than a non-stressed crop. Consequently, crop ET will be reduced, and leaching, with the same quantity of applied irrigation water, will be increased. And third, in drip irrigated fields, actual LFs are difficult to quantify because LF, soil salinity, soil water content, and root density all vary with distance and depth from the drip lines.

In light of these limitations, recent studies have shown that the EC_w and EC_e relations described by Ayers and Westcot (1985), which are based on steady-state LF conditions, tend to be too conservative and overestimate soil salinity and, therefore, overestimate yield losses in most cases (Corwin and Grattan, 2018; Letey et al., 2011). Transient-state models may more accurately predict soil salinity, as well as soil chloride, sodium and boron, but they are more complicated and require many more site-specific inputs and assumptions. Therefore, transient models are still too cumbersome and time consuming to replace steady-state models.

The LF and LR concepts are both steady-state, so they assume the amount of irrigation is not limiting. The amount of water needed for irrigation can be estimated as:

$$AW = ET/(1-LR)$$

AW = applied water
ET = evapotranspiration or crop water requirement
LR = leaching requirement

The units for applied water (AW) and ET or crop requirement are typically depths of water (i.e. inches or millimeters). But in many cases, the amount of water is limiting and therefore crops can be under-irrigated and therefore not achieve the required leaching. In this case, the salts in the crop rootzone will increase over time. At some point, depending upon the salinity of the imported water and crop sensitively, the salt content (or chloride or boron) can exceed the threshold level. Because the threshold values are based on seasonal averages, exceedances above the threshold are allowed to some degree without experiencing a reduction in yield. For example, if the average Cl^-_e was 100 mg/L for the first 2/3 the season and then reached 200 mg/L for the last 1/3 of the season due to insufficient leaching, almonds on "Nemaguard" rootstock would not be expected to be damaged because the seasonal average Cl^-_e would be 133 mg/L given the Cl^-_e threshold is 150 mg/L. Nevertheless, if the required leaching is not achieved, reclamation leaching would be required. Similarly, if the preseason soil salinity is over 150 mg/L and little to no leaching is applied during the season, injury would be expected to develop on almonds on "Nemaguard" rootstock. Therefore, the LR values for various crops and salinities are based on soils where the maintenance leaching fraction is achieved each irrigation. If the pre-existing soil salinity is initially high, then the soil is not at steady-state.

DIFFERENCE BETWEEN MAINTENANCE LEACHING AND RECLAMATION LEACHING

There is a distinct difference between maintenance leaching and reclamation leaching. Maintenance leaching occurs during each irrigation by applying more irrigation water than the soil can hold. This is the leaching fraction or requirement concept described above. Therefore, the AW is higher than the ET to accommodate the necessary leaching (see equation above). Reclamation leaching, on the other hand, occurs at the end of the irrigation season by applying excess irrigation water to flush the salts from the crop rootzone. Ideally, reclamation leaching would not be required if correct maintenance leaching is achieved each irrigation during the irrigation season. However, because some fields may not get the necessary leaching, salts can accumulate, and fields may require reclamation leaching at some time. In addition, low pressure systems such as drip and mini-sprinkler systems produce characteristic salt accumulation patterns in fields, even with sufficient downward leaching. Whether salts are building up in the rootzone or between drippers or minisprinklers, reclamation leaching is a valuable preventative measure from time to time at the end of the irrigation season.

At the end of the irrigation season, salt can be removed by sprinkler irrigation (i.e equivalent to intermittent ponding). Figure 3 shows the extent of leaching needed to address rootzone salinity. For example, if the average rootzone salinity (ECe) at the end of the season is 3000 µS/cm and the goal is to reduce the salinity in the soil down to 600 µS/cm the salinity needs to be reduced to 600/3000 = 0.2 (y-axis) or 20% of what it was before leaching. Then the amount of sprinkler irrigation water to apply is 0.5 ft (x-axis) for every foot of soil to reclaim. If the goal is to reduce the top 2 feet, then 0.5 x 2ft = 1ft of water would be needed. This assumes the combined rainfall and applied reclamation leaching water needed.

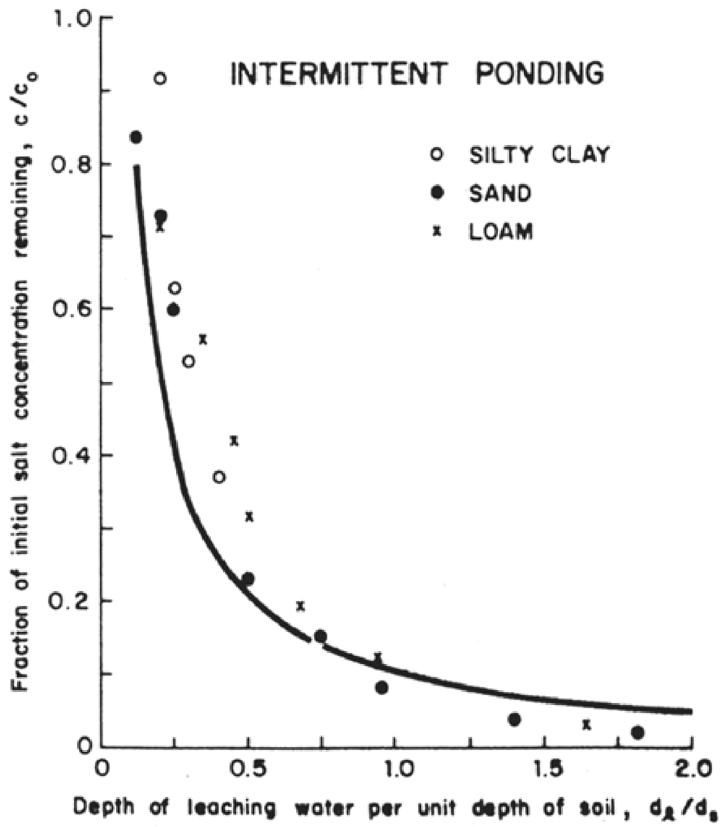


Figure 3. Reclamation Leaching Function under Sprinkler Irrigation or Intermittent Ponding (Ayers and Westcot, 1985).

The amount of reclamation leaching can be reduced by the amount of effective rainfall. To take advantage of rainfall, reclamation leaching should ideally take place after the rainfall season but before spring budding and leaf out begins, typically from October/November through March.

LEACHING AND NITROGEN MANAGEMENT

It is also important to address nitrogen management strategies combined with the salt leaching strategies. Unlike salts, nitrogen is very dynamic in the rootzone as it undergoes form changes from organic pools to inorganic fractions (primarily nitrate [NO_3^-] and ammonium [NH_4^+]). Ammonium, and particularly nitrate, are the forms primarily taken up by plants. Nitrate, being an anion, is relatively mobile in soils and is highly susceptible to leaching below the rootzone. Once nitrate leaches below the rootzone, chemical transformations are less likely to occur, and nitrate commonly continues leaching downward and eventually ends up in the aquifers. A 2002 study conducted by the Lawrence Livermore National Laboratory concluded that nitrate contamination in groundwater is "the number-one contaminant threat to California's drinking water supply" (LLNL 2002).

Rootzone salinity control and nitrogen management is a conflicting problem. It is necessary to leach salt from the rootzone to avoid damage from salinity or ion toxicity, but nitrates will unavoidably be leaching below the rootzone as well. If soil salinity is low at the beginning of the irrigation season (see reclamation versus maintenance leaching), then leaching at less than the critical LR is possible to avoid salt damage. Then, salinity in the profile will steadily build up over the season while soil nitrogen will be depleted due to crop uptake. At the end of the irrigation season, salinity will be the highest, and nitrate will be the lowest. Therefore, reclamation leaching can be implemented at the end of the irrigation season, and the process cycle repeats itself.

MITIGATION LEACHING REQUIREMENTS

ESTIMATING LEACHING REQUIREMENTS FOR MOST SENSITIVE CROPS

The most sensitive crops in the Friant Division were used for this analysis. Crops selected were based on their varied sensitivities to salinity, chloride, and boron. By using the most sensitive crops, all crops with higher tolerances should also be protected. The most salt-sensitive crops, or those with the lowest soil salinity threshold (EC_{et}), are beans, carrots, onions (seed), melons, and strawberries. All have an EC_{et} of 1000 µS/cm. For chloride, the most sensitive crops are almonds and other stone fruits on “Nemaguard” rootstock. The threshold Cl^{-}_{et}[1] is estimated to be 150 mg/L. The relationship between boron in the applied irrigation water and the saturated soil paste is more complicated because of boron’s high affinity to adsorb onto the soil. Irrigation water with higher boron concentrations than predicted can be used until the boron saturates the soil adsorption sites. Because of this complexity, Ayers and Westcot (1985) concluded that the “…maximum concentration (of boron) in the irrigation water are approximately equal to these values (boron tolerance reported based on soil water bases) or slightly less,” suggesting that applied irrigation water tolerances would be 0.5 – 0.75 mg/L which would protect the most sensitive crops.. However, over the long term (more than several years), boron will behave similarly to salts and chloride (D. Suarez, US Salinity Laboratory, personal communication). With the boron threshold for soil water ranging from 0.5 – 0.75 mg/L, the B_{et} is equivalent to half of the soil water concentration, or 0.25 – 0.375 mg/L. For more information on conversions from saturated soil paste to soil water concentrations, see Ayers and Westcot (1985). To be conservative, and based on the above tree and vine crop sensitivities, the B_w threshold is assumed to be 0.25 mg/L.

Table 7 shows the acreage and percentage of sensitive crops for representative water districts, and sensitivities to boron, chloride, and EC within each representative water district.

[1] It is important to note that most ‘threshold’ values for chloride and boron reported in literature (e.g. Grieve et al., 2012) are based on the soil water concentration. The saturated soil paste concentration (i.e. Cl^{-}_{e} or B_e) for most mineral soils is about half this value over the long-term (Ayers and Westcot 1985).

Table 7. Percentage and Area of Sensitive Crop Types within Representative Water Districts

	WATER DISTRICT											
	AEWSD		DEID		KTWD		SID		SSJMUD		SWID	
CROP TYPE	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**
Boron Sensitive[5]	**15%**	**18,883**	**5%**	**2,842**	**30%**	**5,969**	**6%**	**1,211**	**8%**	**4,629**	1%	**358**
Berries[1]	1%	761	2%	873	1%	200	n/a		<1%	63	n/a	
Cherries	2%	2,196	<1%	228	1%	160	<1%	22	<1%	211	1%	358
Citrus	11%	15,024	2%	1,301	28%	5,609	4%	825	7%	4,355	n/a	
Stone Fruits[4]	1%	902	1%	440	n/a		2%	364	n/a		n/a	
Chloride Sensitive[6]	**6%**	**7,593**	**22%**	**12,399**	**5%**	**1,040**	**17%**	**3,366**	**22%**	**13,577**	**56%**	**21,649**
Almonds (Nemaguard rootstock)	6%	7,593	22%	12,399	5%	1,040	17%	3,366	22%	13,577	56%	21,649
EC Sensitive[7]	**7%**	**8,490**	**<1%**	**175**	**n/a**		**<1%**	**50**	**1%**	**375**	**2%**	**862**
Carrots	3%	3,748	<1%	100	n/a		n/a		<1%	148	2%	784
Melons[2]	1%	777	<1%	74	n/a		<1%	50	n/a		<1%	75
Onions[3]	3%	3,961	n/a		n/a		n/a		<1%	228	<1%	1
Strawberries	<1%	4	n/a		n/a		n/a		n/a		<1%	2

Source: Data compiled from California Department of Water Resources Land Use Viewer (2017) developed by LandIQ using 2014 land use data. Districts provided updates to 2017 land use data where appropriate. DEID data was provided by the District, and data gaps were filled with LandIQ data.

Notes:

Grape Crops in DEID take up 43% (26,443 ac) of the District's land area.

"n/a" indicates that there is zero amount of a crop type in a district.

[1] Data Source lists Berries as "Bush Berries"

[2] Data Source groups Melons with Squash and Cucumbers

[3] Data Source groups Onions with Garlic

[4] Stone Fruits include Apricots, Nectarines, Peaches, Plums, and Prunes

[5] Boron Sensitive Crops include Berries, Citrus, and Stone Fruits

[6] Chloride Sensitive Crops include Almonds

[7] EC Sensitive Crops include Carrots, Melons, Onions, and Strawberries

Key:

% = percentage

AEWSD = Arvin-Edison Water Storage District

DEID = Delano-Earlimart Irrigation District

KTWD = Kern-Tulare Water District

n/a = not applicable

SID = Saucelito Irrigation District

SSJMUD = South San Joaquin Municipal Utility District

SWID = Shafter-Wasco Irrigation District

DEVELOPING MITIGATION LEACHING CURVES

This section describes quantification of mitigation based on leaching requirements for sensitive crops. This approach does not directly address the physical characteristics or dynamic nature of the rootzone, but rather is specific to sensitive crop types grown in the region and implementing sufficient leaching volumes to prevent crop injury. In addition, the volumetric mitigation quantified through this approach is not specific to a water district but is representative of all crops grown in the Friant Division.

For salinity, EC_{et} values were used to calculate LR values, as presented in Table 8 in percentages. For chloride or boron the same LR equation is used except irrigation water concentrations (i.e. Cl^{-}_{w} and B_w) in mg/L are used in place of EC_w and respective threshold Cl^{-}_{e} and B_e are used in place of EC_{et}. At each location, the quantified LR by water quality constituent is based on the most stringent LR, which assumes all water is applied to the most sensitive crop. Analysis shows a long-term LR between 5.2 and 19 percent, using the average, seasonal statistics for EC, chloride, and boron concentrations.

Table 8. Leaching Requirements for Various Sensitive Crops by Water Source and Water Quality Constituent

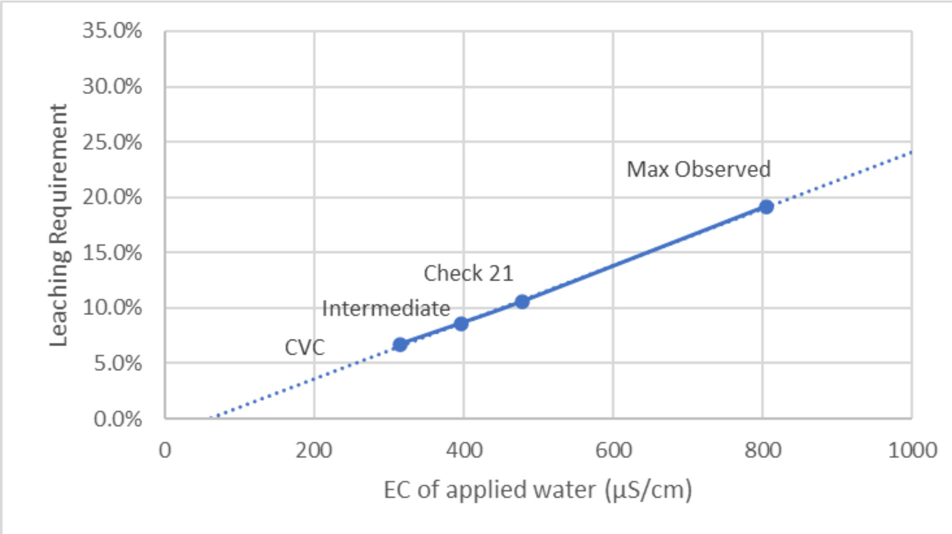
MOST SENSITIVE CROP	CVC			INTERMEDIATE			CHECK 21		
	EC	Cl^-	B	EC	Cl^-	B	EC	Cl^-	B
Carrots, onions, melons, strawberries	6.7%	-	-	8.6%	-	-	10.6%	-	-
Almonds (Nemaguard rootstock)	-	5.2%	-	-	8.1%	-	-	11.1%	-
Stone fruits, citrus, berries	-	-	8.0%	-	-	13.6%	-	-	19.0%

Key:
B = boron
Check 21 = Check Structure 21 at milepost 172,40 on the California Aqueduct
Cl^- = chloride
CVC = Cross Valley Canal
EC = electrical conductivity
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities

Figures 4 through 6 show mitigation rating curves based on LR percentages, source water quality, and constituents of concern. Each mitigation rating curve was extended to show the maximum observed concentration from historical water quality data for both CVC and California Aqueduct Check 21 sources.

The LR percentages presented in Table 8 and Figures 4 through 6 represent quantified volumetric mitigation that would be applied as maintenance leaching. Maintenance leaching occurs at each irrigation by applying more water than the soil can hold, or in other words, the applied irrigation water is more than the crop requirement to accommodate the necessary leaching. The quantified LR assumes long-term steady-state conditions and does not account for leaching from rain or end-of-season reclamation practices. Any rain or end-of-season leaching will decrease the presented values.

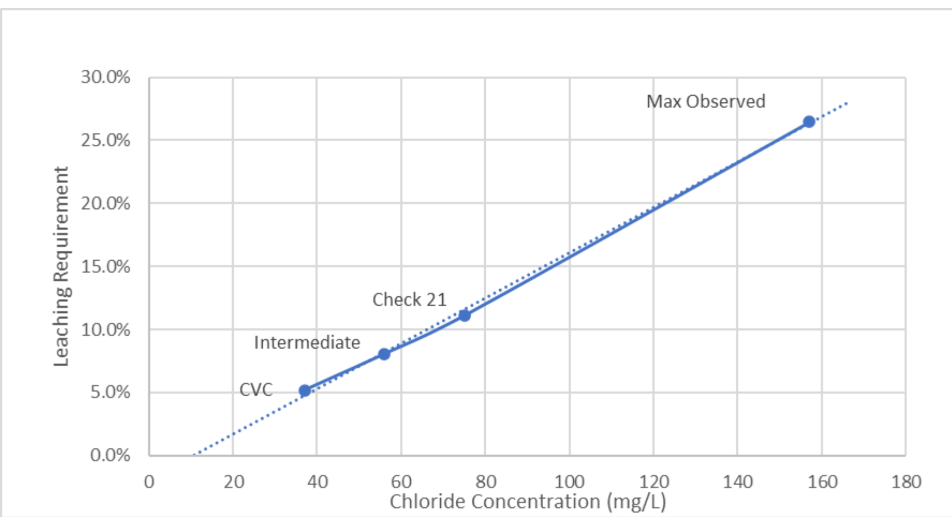
The quantified LR assumes mitigation water is delivered and applied at the same time as surface water delivery is taken. In addition, it assumes mitigation water is of the same water quality as the surface water delivery. Therefore, mitigation is only quantified for water of the same imported quality and not for both reverse flow pump-back and Millerton Lake supplies. If maintenance leaching practices are followed, reclamation leaching is unnecessary, except for in driest of years when surface supply does not meet irrigation demand or to leach salts that have accumulated between drip emitters and mini sprinklers. Using the most stringent LR, it is assumed all mitigation water is applied to the most sensitive crop.



Key:

Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
EC = electrical conductivity
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities

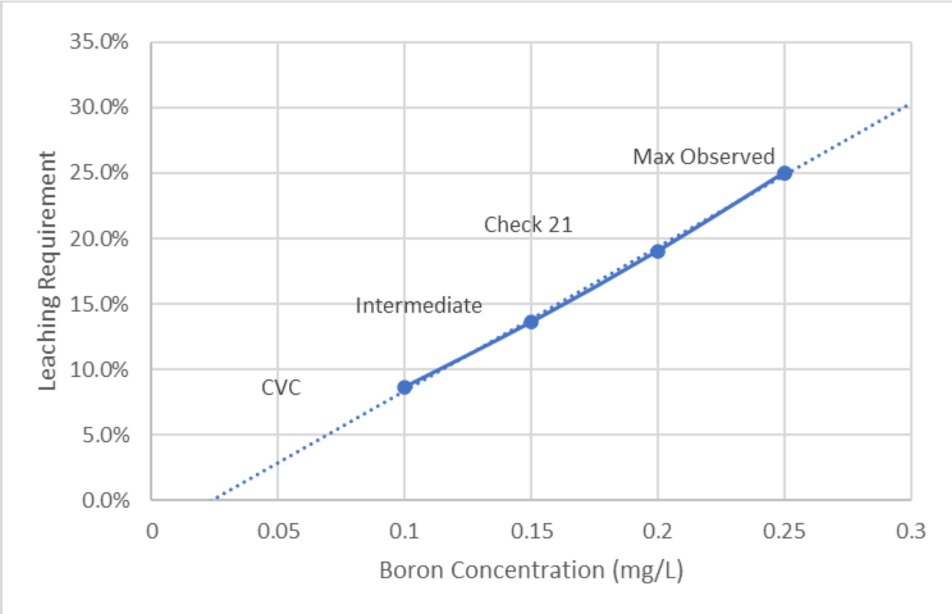
Figure 4. Leaching Requirement for Electrical Conductivity



Key:

Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
EC = electrical conductivity
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
mg/L = milligrams per liter

Figure 5. Leaching Requirement for Chloride

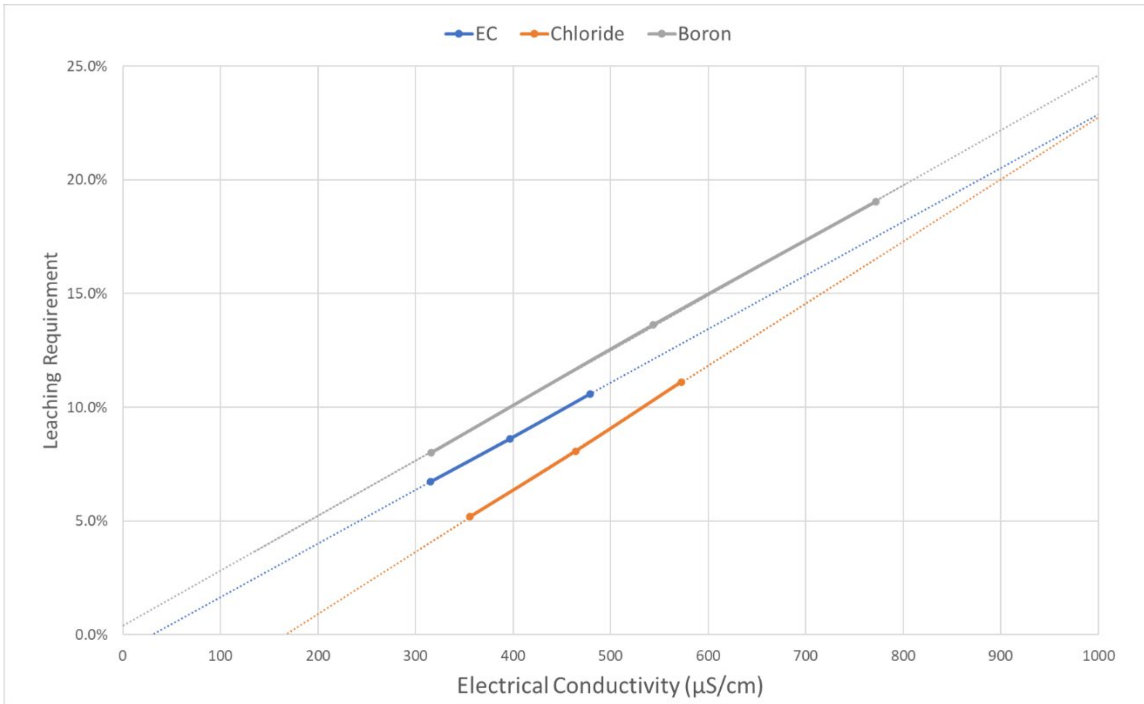


Key:
Check 21 = California Aqueduct Check 21
CVC = Cross Valley Canal
Intermediate = Water quality representing the average of California Aqueduct Check 21 and Cross Valley Canal water qualities
mg/L = milligrams per liter

Figure 6. Leaching Requirement for Boron

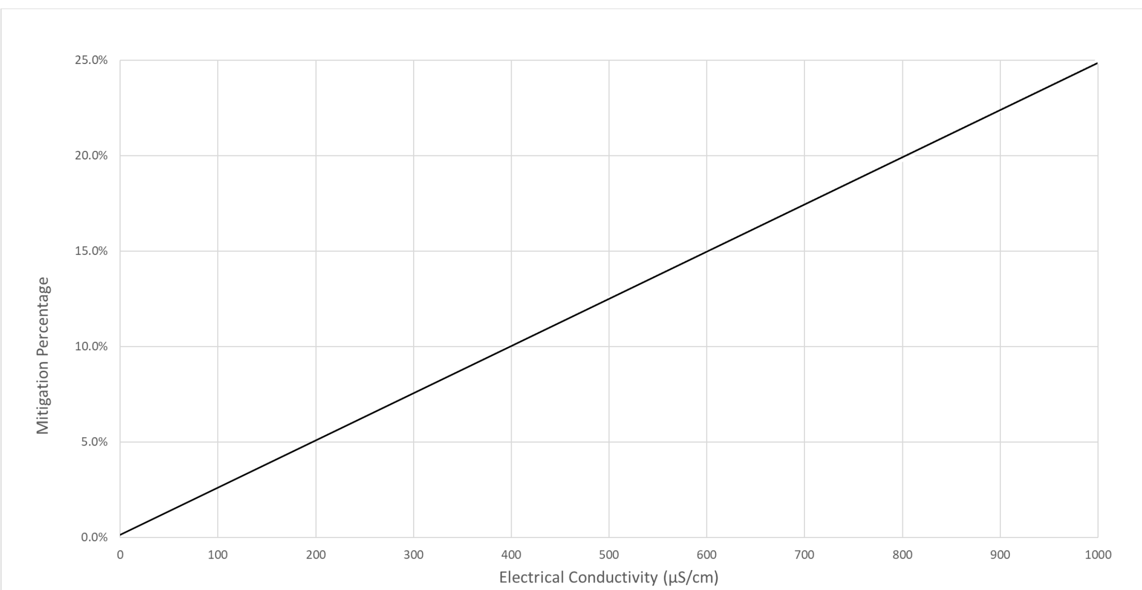
Leaching Requirement Normalization

In order to best understand the LR relationships amongst EC, chloride, and boron and to confirm the dominant constituent trend, individual rating curves were normalized to an EC concentration scale. The EC concentration was used as it can be easily measured in real-time. Figure 7 shows the stacked, normalized mitigation rating curves for all three constituents of concern. Boron is the dominant or driving constituent and has the highest LR, regardless of source water quality. The required leaching based on that curve would be sufficient to prevent crop injury due to increased EC or chloride concentrations in applied irrigation water, and, therefore, the boron curve is the proposed mitigation rating curve for the Water Quality Mitigation Ledger (Figure 8). The method for normalizing each constituent curve is described below.



Key:
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
EC = electrical conductivity

Figure 7. Rootzone Leaching Curves for Electrical Conductivity, Chloride, and Boron Normalized to an Electrical Conductivity



Key:
µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)

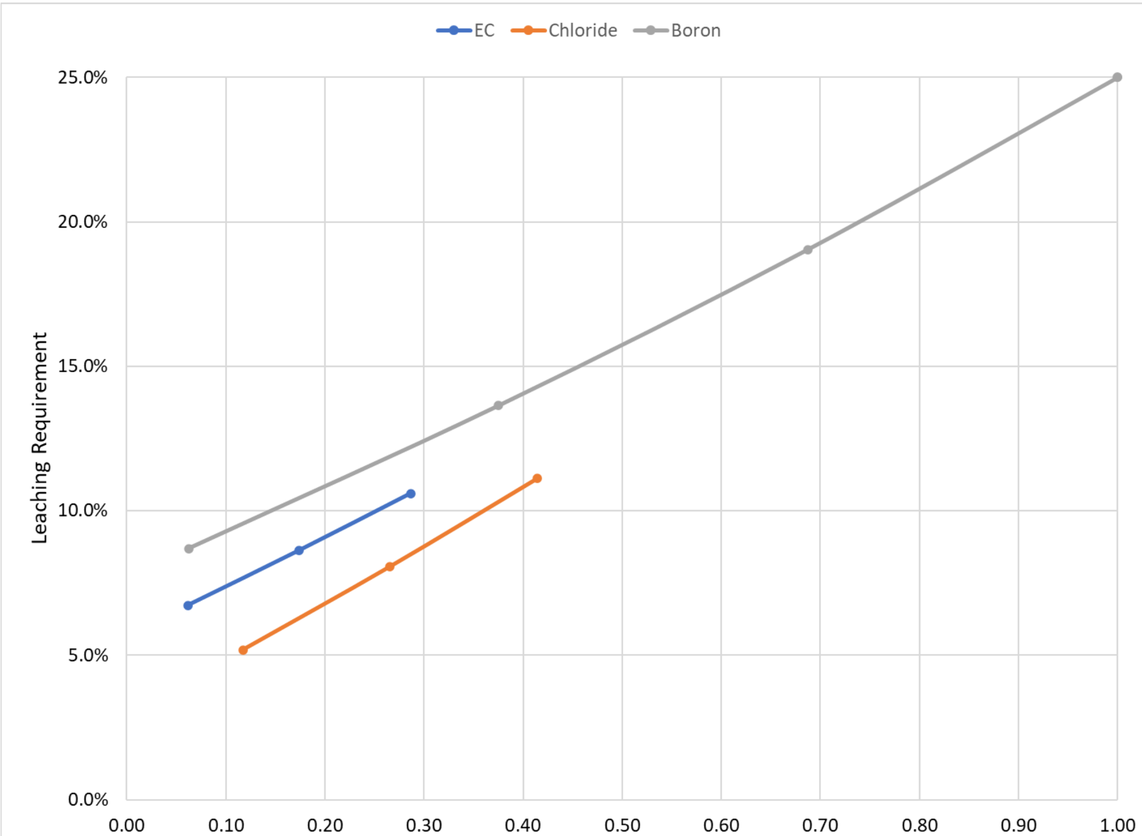
Figure 8. Proposed Mitigation Rating Curve based on Boron Sensitivity and Normalized to Electrical Conductivity

Normalization Method

As the three constituent curves have differing concentration scales and they do not show direct correlations to each other, the constituents were normalized to a common scale using the below equation.

$$X_{new} = \frac{X - X_{min}}{X_{max} - X_{min}}$$

In the equation, X represents the constituent concentration for EC, chloride, or boron. X_{min} is the minimum average, seasonal, observed concentration for a given constituent from either California Aqueduct Check 21 or CVC water quality data. The maximum observed concentration corresponded with varying leaching requirements for each of the constituents. To ensure that all constituents were normalized to the same scale and the full range of possible constituent concentrations was considered beyond the highest observed concentration for California Aqueduct Check 21 water, X_{max} represents the constituent concentration corresponding to a 25 percent LR. Figure 9 displays the normalized curves, and Table 9 presents the normalized data.



Key:
EC = electrical conductivity

Figure 9. Normalized Leaching Requirement curves for Electrical Conductivity, Chloride, and Boron

Normalized concentration values were then converted back to EC using the equation below, where X_{norm} represents the normalized concentration for chloride or boron. LR curves were then replotted using an EC scale (Figure 7).

$$EC = X_{norm}(EC_{max} - EC_{min}) + EC_{min}$$

Table 9. Constituent Normalization

SOURCE WATER	ELECTRICAL CONDUCTIVITY			CHLORIDE			BORON		
	Observed Concentration (µS/cm)	Normalized Value	Leaching Requirement	Observed Concentration (Seasonal Average) (mg/L)	Normalized Value	Leaching Requirement	Observed Concentration (Seasonal Average) (mg/L)	Normalized Value	Leaching Requirement
CVC	315	0.06	6.7%	37.00	0.12	5.2%	0.10	0.06	8.0%
Intermediate	397	0.17	8.6%	56.00	0.27	8.1%	0.15	0.38	13.6%
Check 21	479	0.29	10.6%	75.00	0.41	11.1%	0.20	0.69	19.0%
Maximum Observed	805	0.73	19.2%	157.00	1.05	26.5%	0.25	1.00	25.0%
Maximum normalization (25% Leaching Requirement)	1000	1.00	25.0%	150.00	1.00	25.0%	0.25	1.00	25.0%

Key:
CVC = Cross Valley Canal
µS/cm = microsiemens per centimeter
mg/L = milligrams per liter

APPLIED AGRONOMIC THRESHOLDS

The Policy includes maximum water quality thresholds for the FKC. Although the mitigation rating curve quantifies mitigation water to account for appropriate maintenance leaching, FKC water quality thresholds for EC, chloride, boron, turbidity, total suspended solids (TSS), and SAR and sodium were developed and are proposed herein. These thresholds aim to (1) balance supply reliability, water quality concerns, and agricultural practices, such as regulated deficit irrigation (RDI); and (2) ensure that the EC_{et}, Cl^{-}_{et}, or B_{et} limits are not exceeded for the most prevalent and sensitive crops in the Friant Division. The thresholds are specific to three irrigation periods that correspond to the growing season and agricultural management practices during the year:

- Period one represents the beginning of the growing season (March 1 – June 30);
- Period 2 represents timing of hull split and the duration of RDI practices in the Friant Division (July 1 – August 31); and
- Period 3 is inclusive of the remainder of the growing season and contract year (September 1 – February 28).

Table 10 shows the established water quality constituent thresholds for each period as defined in the Policy. The threshold variations in Period 3, shown as Periods 3a and 3b, are described in more detail in the Threshold Flexibility subsection below.

Sections below describe methods applied to account for annual RDI practices; development of water quality thresholds, including thresholds for RDI; and adjustments to water quality thresholds to accommodate flexibility for water management within the Friant Division.

Table 10. Friant-Kern Canal In-Prism Water Quality Thresholds

Period	Salinity expressed as EC (µS/cm)	Chloride (mg/L)	Boron (mg/L)[1]	Turbidity (NTU)[6]	Total Suspended Solids (ppm)	SAR[7]	Sodium (mg/L)[7]
Period 1 March 1 – June 30	1,000[2]	102[3]	0.4	40	20	3	69
Period 2 July 1 – August 31	500[4]	55[4]	0.4	40	20	3	69
Period 3a September 1 – February 28	1,000[2]	102[3]	0.4	40	20	3	69
Period 3b September 1 – February 28	1,000[2]	123[5]	0.4	40	20	3	69

Notes:

Thresholds adapted from Grieve, C.M., S.R. Grattan and E.V. Maas. 2012. Plant salt tolerance. In. (W.W. Wallender and K.K. Tanji, eds). Agricultural Salinity Assessment and Management (2nd edition). ASCE pp 405-459; and Ayers, R.S. and D.W. Westcot 1985. Water quality for agriculture. FAO Irrigation and Drainage Paper 29 (rev 1). Food and Agriculture Organization of the United Nations. Rome

For addition detail, see Attachment C – Agronomic Impacts and Mitigation.

When Friant-Kern Canal in-prism water quality conditions in this table are exceeded, Friant Division Long-Term Contractors will work together to seek 1:1, unleveraged, and cost-neutral exchanges for pump-in and pump-back programs. This does not apply to spot-market or third-party exchanges.

1 Grapes are used as a representative crop for boron sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apricots, figs, and grapefruits. Threshold assumes conventional irrigation with minimum 20 percent leaching fraction applied.

2 Threshold assumes minimum of 20 percent leaching requirement applied and adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) in order to not exceed maximum EC_{et}. Almonds on Nemaguard rootstock are used as a representative crop for salinity sensitivity and are prevalent in the Friant Division. They are used as a surrogate for many other sensitive crop types such as apples, cherries, pears, pistachios, and walnuts.

3 Threshold assumes minimum of 20 percent leaching requirement applied and then adjusted to account for regulated deficit irrigation during almond hull split period (July 1 – August 31) in order to not exceed maximum Cl-et. Almonds on Nemaguard rootstock used as a representative crop for chloride sensitivity. They are used as a surrogate for other sensitive crops including cherries, pistachios, and walnuts.

4 Threshold applies to almond hull split period when regulated deficit irrigation is applied to avoid hull rot. This threshold is used assuming irrigation applications are reduced to 50 percent of the tree water requirement and subsequently thresholds applied for the remainder of the year have been adjusted to account for additional salt accumulation. This threshold was developed with consideration of existing program operations, historical water quality data, and absolute water quality thresholds.

5 If the measured average chloride concentration in Period 1 (March 1 – June 30) is less than or equal to 70 mg/L, the allowable chloride threshold for Period 3 (September 1 – February 28) is increased to 123 mg/L.

6. Turbidity threshold is taken from section 3 of the Final Initial Study/Negative Declaration for: Warrant Act Contract(s) and License, and Operation and Maintenance Agreement, to Introduced Floodwaters from Reclamation District 770 into the Friant-Kern Canal, March 2017.

7. SAR and Sodium are managed together. If the measured SAR value exceeds 3 AND the measured sodium concentration exceeds a threshold of 69 mg/L, management will be necessary. SAR value is derived from Ayers Table 1 and the 69 mg/L sodium is derived and converted from the Ayers Table 6.

Key:

µS/cm = microsiemens per centimeter (1 µS/cm = 1 µmhos/cm = 1/1,000 dS/m)
ASCE = American Society of Civil Engineers
Cl^{-}_{et} = maximum chloride threshold of the saturated soil paste
EC = electrical conductivity of applied water
EC_{et} = Soil salinity threshold for a given crop
FAO = Food and Agriculture Organization of the United Nations
Friant Division = Friant Division of the Central Valley Project
mg/L = milligrams per liter
SAR = sodium adsorption ratio
TDS = total dissolved solids

REGULATED DEFICIT IRRIGATION

This section describes methods applied to account for annual RDI practices in the Friant Division for EC and chloride agronomic thresholds, specific to almonds. Note, grapes may also be deficit irrigated during the blooming period; however, the deficit irrigation period for grapes is not aligned with that of almonds, and grapes are most prone to boron toxicities. Consequently, a similar RDI analysis and threshold adjustment is unnecessary for grapes. See Boron Thresholds subsection in Water Quality Thresholds section for additional discussion on applied boron thresholds for grapes in the Friant Division.

Hull Rot Control

Hull rot is problematic in almond orchards in the San Joaquin Valley, and trees are particularly sensitive during the hull split period. Hull split is where 1 percent of the almonds exhibit split, and it typically lasts one to two weeks. The initiation of hull split depends on the almond variety, weather conditions, and tree stress. Although variety has the largest influence on hull-split timing, the temperature 90 days after flowering also affects the hull split initiation. Unseasonably cool temperatures delay hull split while unseasonably warm weather accelerates it.

Hull rot occurs due to infestation by one of two types of fungi, *Monilinia fructicola* or *Rhizopus stolonifera* (Holtz, 2009). Some almond varieties, particularly Nonpareil and Monterey, are more susceptible to fungal attack than are other varieties. High nitrogen application to an orchard combined with full irrigation, or irrigation to completely meet tree ET demands, at the time of hull split can make trees considerably more vulnerable to hull rot.

Hull rot can be largely controlled through a combination of nitrogen management, water management, and antifungal sprays. It is best controlled by RDI practices. A 2001 study showed that by cutting back irrigation to 50 percent of the trees' water requirements between June 1 to July 31 (70 percent regulated) or July 1 to July 15 (85 percent regulated), hull rot was substantially reduced as evidenced by fewer dead leaf clusters and fewer dead spurs and branches (Teviotdale et al., 2001). Such mild to moderate water stress results in drier hull conditions, making trees less vulnerable to fungal attack. Many almond growers in the San Joaquin Valley have adopted RDI practices to help synchronize hull split timing and reduce potential for hull rot. To monitor the degree of tree stress, these growers have implemented the University of California recommendation of trying to maintain a stem water potential between -14 to -16 bars using pressure chambers by drying down the soil rootzone (B. Sanden, Personal communication, April 5-6, 2020). The more negative the number, the more stress the tree experiences. It could take between one to six weeks to achieve this stress level, depending on soil type and irrigation systems (B. Lampinen, personal communication, April 7, 2020). Growers should take care to not to stress trees too much because that could compromise kernel size as kernels continue to grow at the onset of hull split (Doll and Shackel, 2015). After almond harvest, irrigation is critical to maximize floral bud development for the subsequent season.

During the RDI period when there is no effective leaching, irrigation application is reduced to 50 percent of the tree water requirement, and some additional salts and chlorides accumulate in the rootzone. Absent leaching, the steady-state model breaks down because the salt content in the applied water would need to be zero to maintain the same rootzone salinity. In this situation, preseason irrigation management should target an adjusted soil salinity to maintain the appropriate soil salinity thresholds and avoid crop injury.

Regulated Deficit Irrigation Analysis

The RDI analysis applied a predictive model based on timing of flowering to estimate hull split for various types of almond varieties in different parts of the Central Valley (UC Fruit & Nut Research & Information Center, 2020). From the model and historical California Irrigation Management Information System (CIMIS) data from the AEWSD weather station, hull split was determined to typically initiate around the end of June or beginning of July and, depending upon the variety, continue through mid-August (B. Sanden, personal communication, April 6, 2020). To account for potential variances in hull split initiation in the Friant Division, an 8-week period (July 1 to August 31) was assumed for this RDI analysis. Determination of water quality thresholds during the RDI practices period, or Period 2, also considered effective rootzone depth, applied irrigation water quality, soil capacity, and irrigation requirements. The RDI analysis is considered to be conservative because: (1) rainfall was not considered; (2) surface irrigation was assumed, despite the fact that crops under high frequency drip irrigation (typical for most water districts in the Friant Division) are able to tolerate higher salinity for the same assumed LF; and (3) steady-state models typically overestimate rootzone salinity (Corwin and Grattan, 2018).

The RDI analysis was completed for both EC and chloride. Salt accumulation was quantified as a percentage increase, and then rootzone and applied irrigation water thresholds (assuming 20 percent maintenance leaching) were adjusted to maintain maximum EC_{et} or Cl^{-}_{et} through the season. Assuming steady-state leaching, the analysis targeted maintenance of rootzone salinity at soil salinity thresholds of 150 mg/L for chloride, and 1,500 µS/cm for EC, resulting in adjustments to Cl^{-}_{w} and EC_w thresholds.

The RDI calculation assumed the effective rootzone to be between three and five feet (UC Almond Rootzone Workgroup, 2015). Soil was considered to be at field capacity meaning that volumetric soil moisture content was 25 percent, based on monthly average ET or irrigation water requirements for mature almonds in Kern County during months of July and August, 9.5 inches and 8.8 inches, respectively (Sanden, personal communication, April 6, 2020; Goldhamer 2012). The RDI calculation included soil water concentration thresholds of 300 mg/L for Cl^{-}_{sw}, and 3,000 µS/cm for EC_{sw}, or twice that of the thresholds expressed on a saturated soil paste basis.

During the RDI period, water was assumed to be applied at 50 percent ET_c. The total amount of irrigation water required for 100 percent irrigation application, in inches, was calculated but then halved to account for 50 percent deficit irrigation. The amount of irrigation water during RDI periods was then multiplied by the irrigation water concentrations of salt and chloride to determine the percentage increase above the salt and chloride concentrations in the rootzone. Calculating the percentage increase of chloride in the rootzone meant first determining irrigation water and soil water amounts.

For example, 50 percent of the total ET for July and August was 9.1 inches, and the total water in the effective rootzone was 15 inches (rootzone depth (5 ft, or 60 inches) * 25 percent water content = 1.25 feet, or 15 inches). The 15 inches of soil water had 300 mg/L chloride at the beginning of the RDI period. After 9.1 inches of water was applied, adding salts to the soil water in the rootzone, the irrigation water concentration was 55 mg/L. The percentage of additional salt was determined by calculating the ratio of the salt added in the deficit irrigation water to that in the soil water, (9.1 inches x 55 mg/L) / (15 inches x 300 mg/L) = 11 percent. If the salt level in the rootzone remained at critical soil threshold levels at the end of the RDI period, the Cl^{-}_{e} at the beginning of RDI period would have needed to be proportionally lower than the critical soil salinity threshold of 150 mg/L, such that the 150 mg/L threshold concentration would be achieved at the end of the season. Thus, the Cl^{-}_{et} is reduced to 122 mg/L and the corresponding Cl^{-}_{w} becomes 102 mg/L.

WATER QUALITY THRESHOLDS

This section presents the RDI analysis-based chloride and EC thresholds and proposed flexible thresholds for chloride, boron thresholds, turbidity and TSS thresholds, and SAR and sodium thresholds.

Chloride and Electrical Conductivity Thresholds

Tables 11a and 11b show the RDI analysis for a variety of applied irrigation water qualities for chloride and EC, respectively. In consideration of historical water quality data representative of Kern-Fan or CVC programs that currently introduce water into the FKC, as well as temporal water quality trends, an applied irrigation water threshold for the RDI period was selected to be 55 mg/L Cl^{-}_{w}. The Cl^{-}_{w} value of 55 mg/L during the RDI period correlated to an adjusted Cl^{-}_{w} of 102 mg/L for the remainder of the year, assuming a three-foot (36 inch) effective rootzone – a conservative assumption as the effective rootzone is assumed to be three to five feet (Table 12a).

The same logic described above for Cl^{-}_{w} thresholds was applied to determine RDI EC_w and adjusted EC_w thresholds. The chloride threshold for the RDI period (55 mg/L) was approximately 49 percent greater than the average historical water quality of representative Kern-Fan programs for all year types during months of July and August (37 mg/L). The average EC_w during July and August for all year types representative of Kern-Fan programs was 300 μS/cm, and a 49 percent increase is 447 μS/cm. Rounding up, the RDI threshold for EC_w is 500 μS/cm, and, in order to maintain an EC_{et} of 1,500 μS/cm, the adjusted EC_w for the remainder of the year was 1,000 μS/cm.

Table 11a. Regulated Deficit Irrigation Analysis for Chloride

Cl^-_w (mg/L)	Effective Rootzone (in)	Sum ET_c Average (in)[1]	RDI %	RDI Water (in)	Rootzone Water (in)[2]	% Cl^- Increase	Adjusted Cl^-_e Needed (mg/L)	Adjusted Cl^-_w (mg/L)
10	36	18.3	50%	9.2	9	3.4%	145	121
10	60	18.3	50%	9.2	15	2.0%	147	122
20	36	18.3	50%	9.2	9	6.8%	140	117
20	60	18.3	50%	9.2	15	4.1%	144	120
30	36	18.3	50%	9.2	9	10.2%	135	112
30	60	18.3	50%	9.2	15	6.1%	141	117
40	36	18.3	50%	9.2	9	13.6%	130	108
40	60	18.3	50%	9.2	15	8.1%	138	115
50	36	18.3	50%	9.2	9	16.9%	125	104
50	60	18.3	50%	9.2	15	10.2%	135	112
55	36	18.3	50%	9.2	9	18.6%	122	102
55	60	18.3	50%	9.2	15	11.2%	133	111

Notes:
[1] ETc averages from Sanden and Goldhamer based on water use of mature almond trees in Wasco area for July and August (Goldhamer and Girona 2012).
[2] Rootzone at field capacity is 25 percent by volume.
Key:
Cl^- = chloride
Cl^-_e = chloride concentration in saturated soil paste or rootzone chloride
Cl^-_w = chloride concentration in applied irrigation water
ET_c = evapotranspiration or tree water use
in = inches
mg/L = milligrams per liter
RDI = regulated deficit irrigation

Table 11b. Regulated Deficit Irrigation Analysis for Electrical Conductivity

EC_W (µS/cm)	Effective Rootzone (in)	Sum ET_c Average (in)[1]	RDI %	RDI Water (in)	Rootzone Water (in)[2]	% EC Increase	Adjusted EC_e Needed (µS/cm)	Adjusted EC_w (µS/cm)
200	36	18.3	50%	9.2	9	6.8%	1,400	1,120
200	60	18.3	50%	9.2	15	4.1%	1,440	1,150
300	36	18.3	50%	9.2	9	10.2%	1,350	1,080
300	60	18.3	50%	9.2	15	6.1%	1,410	1,130
400	36	18.3	50%	9.2	9	13.6%	1,300	1,040
400	60	18.3	50%	9.2	15	8.1%	1,380	1,100
500	36	18.3	50%	9.2	9	16.9%	1,250	1,000
500	60	18.3	50%	9.2	15	10.2%	1,350	1,080
600	36	18.3	50%	9.2	9	20.3%	1,200	960
600	60	18.3	50%	9.2	15	12.2%	1,320	1,050

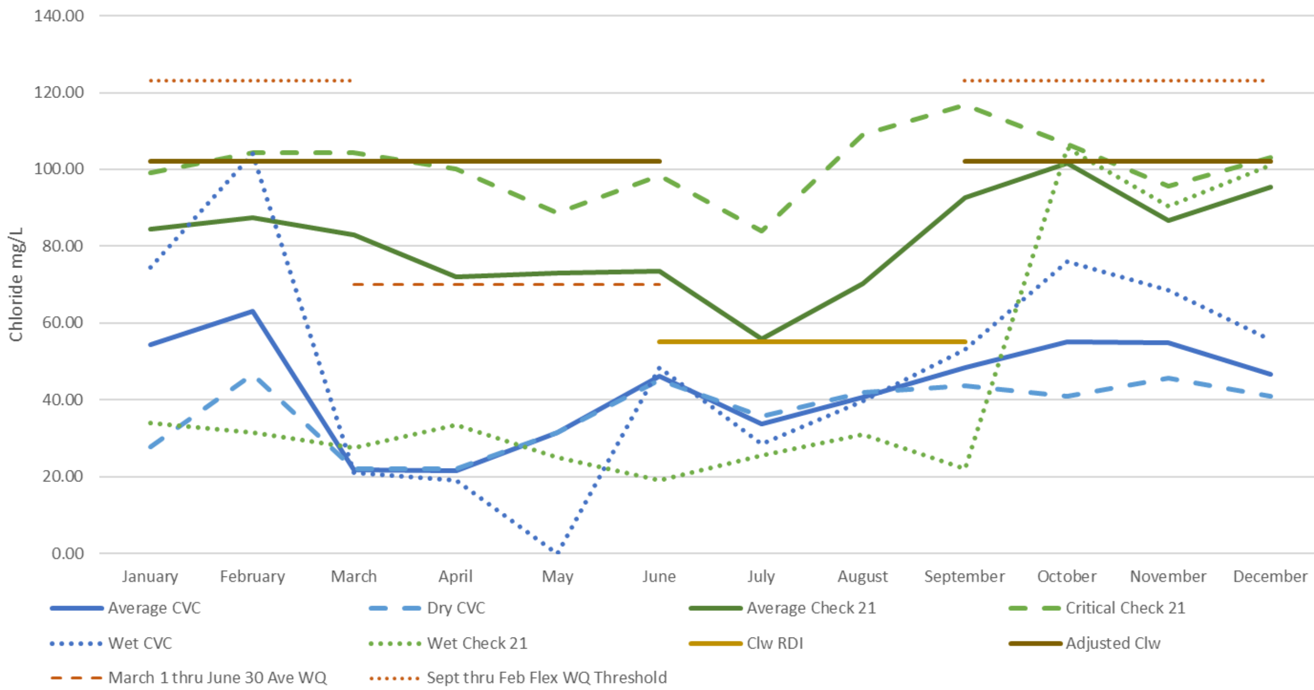
Notes:
[1] ET_c averages from Sanden and Goldhamer based on water use of mature almond trees in Wasco area for July and August (Goldhamer and Girona 2012).
[2] Rootzone at field capacity is 25 percent by volume.
Key:
µS/cm = microsiemens per centimeter
EC = electrical conductivity
EC_e = electrical conductivity of saturated soil paste or rootzone salinity
EC_w = electrical conductivity of applied irrigation water
ET_c = evapotranspiration or tree water use
in = inches
RDI = regulated deficit irrigation

By adjusting the Cl^{-}_{e} and EC_e thresholds for non-RDI irrigation periods, LR volumes for the assumed 20 percent leaching were adjusted by default, as LR is a function of the saturated soil paste concentration. Adjusted LR volumes and constituent thresholds affect the mitigation curve slope for each constituent. The adjusted curves for chloride and EC were plotted and were below the governing line, so the mitigation curve remained unchanged and further confirmed the conservative nature of the mitigation curve in ensuring that all constituents would be sufficiently mitigated.

Chloride Threshold Flexibility

In evaluating and comparing the developed, in-prism water quality thresholds with temporal water quality trends during Period 1 (March 1 to June 30), or prior to the RDI period (July 1 to August 31), observed average constituent concentrations were typically below the proposed thresholds. If water with lower constituent concentrations was applied to a crop for the first four months of the growing season, assuming that the rootzone concentration was properly maintained, the rootzone concentration would decrease below the threshold and, even with reductions in irrigation and LFs, could allow the application of higher irrigation water concentrations during the post-RDI period. The period following RDI, or Period 3 (September 1 to February 28), is often used for reclamation leaching; however, it is also the period in which new sources of water may be available for the Friant Division. Thus, having flexibility in the allowable irrigation water quality could be opportune for increasing supply reliability for the region.

Based on the RDI analysis and evaluation of water quality temporal trends, the Guidelines define an alternative water quality threshold for chloride for Period 3 to provide flexibility for irrigation management. Determination of whether the alternative chloride threshold for Period 3 is applied is based on the average chloride concentration of the irrigation water during Period 1. The alternative value was developed considering historical, temporal water quality trends and applying a weighted average calculation to meet the targeted rootzone chloride threshold. If the average measured chloride concentration for Period 1 is less than or equal to 70 mg/L, the allowable chloride concentration threshold increases from 102 mg/L to 123 mg/L for Period 3. If the measured average chloride concentrations for Period 1 exceed 70 mg/L, the chloride threshold remains at 102 mg/L for Period 3. Figure 10 shows the proposed thresholds compared to the chloride water quality trends for CVC and California Aqueduct water sources by year type.



Key:
Average = Average of all San Joaquin Index year types and excludes months where there is mixing.
Cl^{-}_{w} = chloride concentration of applied irrigation water
CVC = Cross Valley Canal
Dry= Monthly average for San Joaquin Index year types dry and critical and excludes months where there is mixing.
mg/L = milligrams per liter
RDI = regulated deficit irrigation
Wet = Monthly average for San Joaquin Index year types below normal, above normal, and wet and excludes months where there is mixing.

Figure 10. Chloride water quality trends by source water and year type with proposed water quality thresholds

Because the average water quality for Kern-Fan or CVC programs for Period 1 (March 1 to June 30) was approximately 30 mg/L (see Table 2), 70 mg/L was chosen as a midpoint between the adjusted Cl^{-}_{w} threshold determined in the RDI analysis and the average historic water quality. Using a weighted average approach, if 70 mg/L water was applied for the four months in Period 1, assuming an LR of 20 percent, the resulting Cl^{-}_{e} would be 84 mg/L. With the target weighted average for Cl^{-}_{e} of 122 mg/L, the necessary Cl^{-}_{e} for Period 3, the six months post-RDI (September 1 – February 28) was determined using the following equation:

$$84\frac{mg}{L} * .4 + Cl_{e} * .6 = 122$$

The resulting Cl^{-}_{e} was 147 mg/L, correlating to a Cl^{-}_{w} of 123 mg/L with an assumed 20 percent LR. This approach was conservative in that observed chloride concentrations for Kern-Fan programs were significantly lower than 70 mg/L, and these calculations did not consider rainfall or any reclamation leaching applied in addition to the assumed 20 percent maintenance leaching.

Note that adjusting the Cl^{-}_{e} thresholds for non-RDI irrigation periods (Period 1 and Period 3) would adjust the LR volumes for the assumed 20 percent leaching provided by the mitigation curve. Adjusted curves were plotted and it was confirmed that even with a reduced Cl^{-}_{e}, the established mitigation curve would provide adequate mitigation.

Boron Thresholds

Table 12 shows B_w thresholds for tree and vine crops above which injury occurs under differing irrigation management practices, or LF values of 10 and 20 percent. Grapes have a boron tolerance of 0.4 mg/L when the LF is between 10 to 25 percent (Grattan et al., 2015). The actual boron threshold tolerance range is 0.3-

0.5 mg/L if one considers different combinations of the soil water threshold (B_{sw}) tolerance (0.5 - 0.75 mg/L) and LF (10 - 25%).

The maximum in-prism water quality threshold for boron was set at 0.4 mg/L for all three irrigation periods (Periods 1, 2, and 3). Grapes were used as the representative crop for boron sensitivity because of their prevalence in the Friant Division, serving as a surrogate for other sensitive crop types, such as apricot, fig, and most citrus. The applied threshold assumed conventional irrigation with a LF of 10-25 and was used rather than the LR concept that was used in development of the mitigation curves.

Table 12. Boron Tolerance of Various Crops

CROP	BORON CONCENTRATION OF APPLIED WATER (B_w) (mg/L)	
	Leaching Fraction 10%	Leaching Fraction 25%
Alfalfa	2.0	2.8
Apricot	0.4	0.4
Asparagus	4.8	6.7
Barley	1.4	1.9
Bean (kidney, lima, mung)	0.4	0.6
Bean, snap	0.5	0.6
Beet, red	2.0	2.8
Bluegrass, Kentucky	1.2	1.7
Broccoli	0.5	0.6
Cabbage	1.2	1.7
Carrot	0.7	0.9
Cauliflower	1.6	2.2
Celery	3.8	5.3
Cherry	0.4	0.4
Clover, sweet	1.2	1.7
Corn	1.2	1.7
Cotton	3.1	4.3
Cucumber	0.7	0.9
Fig, Kadota	0.4	0.4
Garlic	1.7	2.4
Grape	0.4	0.4
Grapefruit	0.4	0.4
Lemon	<0.3	<0.4
Lettuce	0.6	0.8

Note: Adapted from data in Grattan, S.R., F.J. Diaz, F. Pedrero and G.A. Vivaldi. 2015. Assessing the suitability of saline waste waters for irrigation of citrus: Emphasis on boron and specific ions interactions. Agric Water Manag. 157:48-58.

Key:
mg/L = milligrams per liter

In addition, the applied B_w threshold of 0.4 mg/L was far more conservative than those defined in literature by Ayers and Westcot (1985). This analysis indicated that B_{sw} could be used as protective irrigation water thresholds (B_e) because of the complexities related to boron adsorption and equilibrium concentrations with the soil water. Historical water quality data also indicate that CVC or California Aqueduct water would be below this threshold.

Turbidity and Total Suspended Solids Thresholds

Turbidity and TSS are of concern to water users in the Friant Division. Turbidity and TSS are not agronomic constituents of concern, but elevated levels are problematic for water management infrastructure and facilities, specifically spreading and groundwater recharge basins. TSS and Turbidity are also less of a concern in water supplies introduced via the Intertie and apply more to water being introduced via gravity flow to the FKC during high-flow or flood events.

The precedent for the defined thresholds was established under the environmental compliance documentation Final Initial Study/Negative Declaration for the Warren Act Contract and License and Operation and Maintenance Agreement to Introduce Floodwaters from Reclamation District 770 into the Friant-Kern Canal (DL770 Contract). As part of the agreement, water introduced into the FKC by Delta lands

Reclamation District 770 would not cause in-prism water quality to exceed 40 nephelometric turbidity units (NTU) of turbidity or more than 20 parts per million (ppm) of TSS (Delta Lands Reclamation District 770 2017). These same thresholds are included in the Guidelines.

The TSS and turbidity thresholds defined are based on operational and maintenance practices for spreading and groundwater recharge basins in the region. AEWSD has an allowable upper limit for TSS, 25 ppm, for water applied to spreading basins in their district (Bookman-Edmonston Engineering, Inc. 1972). A value of 20 rather than 25 ppm is included in the document to be protective of this upper, allowable limit. Monitoring of TSS requires lab analysis of water quality samples and thus management cannot be done in real time, however turbidity can be measured with a handheld meter and can be done in real time. Although the numerical relationship between turbidity and TSS can be affected by water source location, seasonal timing, and flow velocities (Meozzi 2011), a generalized relationship between the two constituents was developed to facilitate real-time water quality management. The defined turbidity threshold of 40 NTU correlates with the 20 ppm TSS value based on correlation analysis that AEWSD performed between 2011 and 2016.

SAR and Sodium Thresholds

The established SAR and sodium thresholds defined in the Guidelines are designed to be managed together. As detailed under the Agronomic Effects section, sodium by itself can be potentially problematic and cause direct toxicity to tree crops. However, because of the importance of adequate Ca^{2+} in the soil water as a means of stabilizing root cell membranes and maintaining selective ion uptake by tree crops, the sodium-calcium ratio in the soil solution is often a better indicator of Na^{+} toxicity. Therefore, SAR of the applied irrigation water has been used as a surrogate for the sodium-calcium ratio. The general rule is an SAR less than 3 is not problematic. However an SAR threshold on its own was not acceptable to water managers and water users as there are concerns related to potential acute crop injuries due to observed spikes in sodium concentrations of applied irrigation water. A combination approach to sodium management was developed, where if the measured SAR value exceeds 3 and the measured sodium concentration exceeds 69 mg/L, introduced water would need to be managed. The SAR threshold of 3 is from Ayers and Westcot Table 1 and assumes surface irrigation. The sodium concentration threshold of 69 mg/L is also derived from Ayers and Westcot Table 1 and suggests that irrigation waters < 3 meq/L (69 mg/L) [2] is suitable for crops that are sprinkler irrigated. Crops that are sprinkler irrigated are more susceptible to salt damage than by other irrigation methods as sodium can accumulate in the leaves by direct foliar absorption in addition to root absorption processes. Surface and low-pressure irrigated crops (i.e.. drip and mini-sprinklers), on the other hand, can only accumulate sodium in leaves by root absorption and translocation. The defined thresholds are conservative as the assumed sprinkler irrigation and more salt-damaging method is not widely used for crops within the Friant Division, as growers tend to use more efficient, on-the-ground irrigation methods.

The defined thresholds are designed to address sodium toxicities and although SAR is also used to assess the infiltration hazard (described previously), it assumed that given the wide range of observed SAR values relative to water supply source, growers already appropriately manage SAR through the application of gypsum to increase EC and maintain adequate infiltration.

[2] The value assumes that calcium and magnesium are both at or above 2 meq/L (40 mg/L Ca^{2+} and 24 mg/L Mg^{2+}) where equivalent concentration of Ca^{2+} is greater or equal to Mg^{2+}. It is further assumed that this condition is met as the protection of these divalent constituents is their presence in the rootzone soil water. Nearly all growers in the region apply amendments such as gypsum ($CaSO_4$), and thus soil water concentrations would meet the criteria. (Maas and Grattan, 1999).

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Attachment D. Ledger Standard Operating Procedures

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ACRONYMS AND ABBREVIATIONS

Ad hoc Committee	Ad hoc Water Quality Committee
CVC	Cross Valley Canal
CVP	Central Valley Project
EC	electrical conductivity
FKC	Friant-Kern Canal
Friant Contractor	Friant Division long-term contractor
Friant Division	Friant Division of the Central Valley Project
FWA	Friant Water Authority
Guidelines	Friant-Kern Canal Water Quality Policy Guidelines
Ledger	Friant Kern Canal Water Quality Ledger
Policy	Friant-Kern Canal Water Quality Policy
Pool	Section of the Friant-Kern Canal between Check Structures
Reclamation	U.S. Department of the Interior, Bureau of Reclamation
RWA	Recovered Water Account
SJRRP	San Joaquin River Restoration Program
SOP	Standard Operation Procedures
URF	Unreleased Restoration Flow

PURPOSE

This document describes the proposed standard operating procedures for implementing the Friant-Kern Canal Water Quality Ledger (Ledger) that is associated to the Guidelines for Accepting Water into the Friant-Kern Canal (Guidelines). The concept for the Ledger was developed in late 2019 with the Ad hoc Water Quality Committee's (Ad hoc Committee) Small Workgroup during development of the Guidelines. The Ledger determines the required mitigation for introducing water of lesser quality in the Friant-Kern Canal (FKC). An initial, proof-of-concept version of the Ledger included a calculation of the pump-in mitigation percentage, total volume of mitigation water to be added to the FKC, and distribution of mitigation water to affected water users. As the Guidelines move toward implementation and the Ledger is fully developed, it is important that the defined Ledger process integrates with Friant Water Authority's (FWA) operations and accounting.

This Standard Operating Procedures (SOP) document for implementing the Ledger is intended to serve two purposes:

1) Define the complete process for pump-in project operations and agency (i.e., FWA and U.S. Department of the Interior, Bureau of Reclamation (Reclamation)) responsibilities relating to project approval, notification, mitigation water accounting, and reporting.

2) Document Ledger calculation assumptions.

PROCESS FOR IMPLEMENTING WATER QUALITY GUIDELINES

The Guidelines identify the need to develop standard operating procedures for a mitigation program and its administration. The processes and procedures for FWA implementation and management of the Guidelines will directly impact Ledger development, including the assumptions and calculations within the Ledger tool itself. The process for the implementation of the Ledger as part of the Guidelines includes:

- Approve pump-in projects.
- Measure, report, and track pump-in water quality.
- Collect pump-in project delivery data.
- Calculate preliminary mitigation water distribution.
- Final water accounting.
- Report volumetric deliveries and balance to Reclamation.

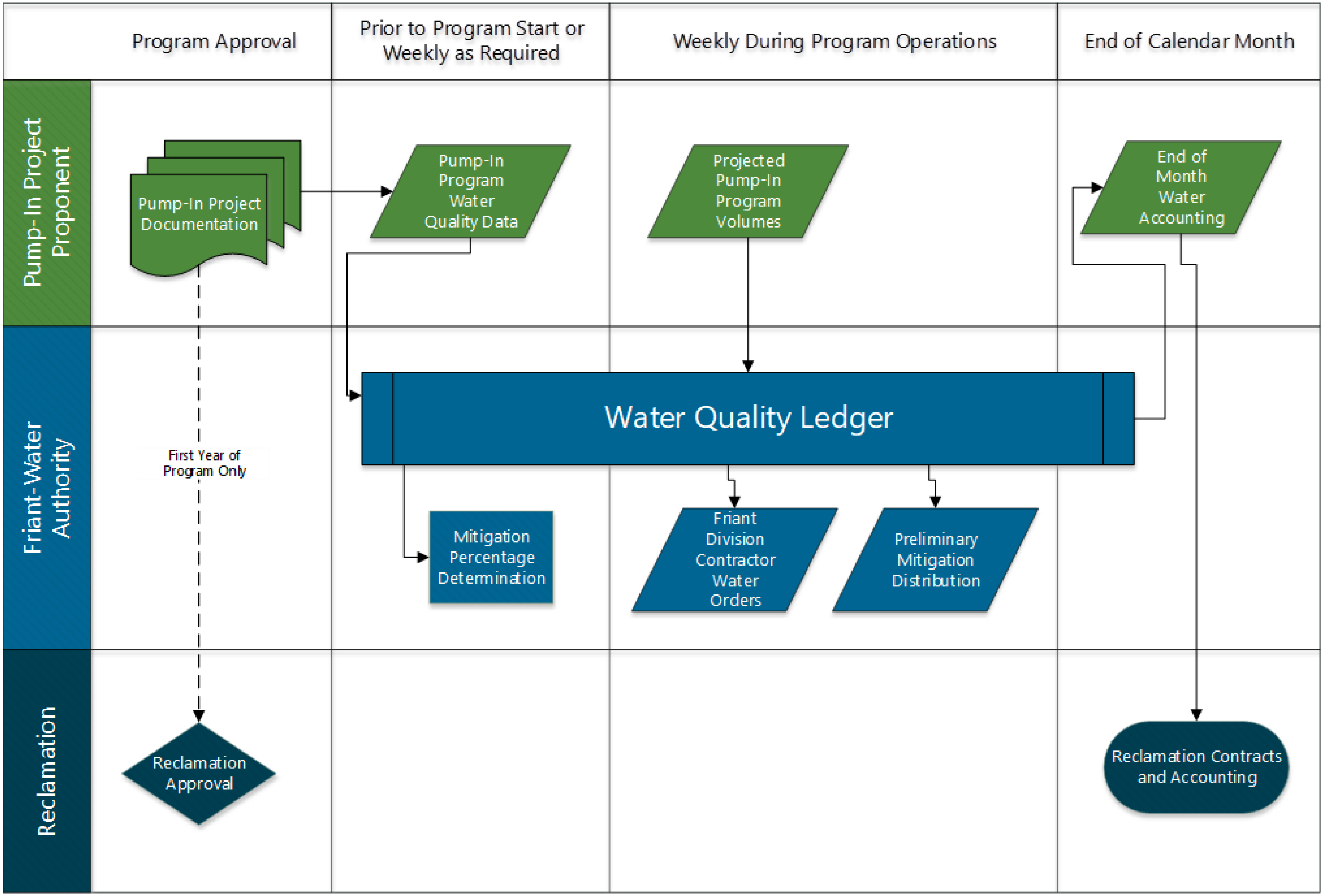


Figure 1. Water Quality Guidelines Implementation Process

PUMP-IN PROJECT APPROVALS

In consideration of the Ledger, a pump-in project (or program) is any project that introduces water into the FKC from a source other than Millerton Lake. Reclamation, with acknowledgement from FWA, provides the final approval for any pump-in project once the Warren Act Contract, other agreements, and environmental documentation is completed. Because the Warren Act Contract and environmental documentation for a pump-in project may have different effective durations, Reclamation will approve the necessary documentation to implement a pump-in project at the appropriate times. Each pump-in project will have a defined duration and maximum volume that can be introduced into the FKC. The pump-in project proponent will identify a point of contact who will work with FWA to coordinate required responsibilities outlined in the Guidelines.

PUMP-IN PROJECT WATER QUALITY

As described in Section B2 of the Guidelines, all waters discharged into the FKC must be tested at least annually. Pump-in projects that introduce a single source water quality and pump-in projects that bring water into the FKC via the Cross Valley Canal (CVC) will have different methods for collecting and reporting water quality data.

Mitigation Percentage Determination

Pump-in project water quality will be an input to the Ledger to determine the required mitigation water percentage and corresponding mitigation volume per pump-in project volume. Groundwater and CVC water quality are input to the Ledger at different frequencies as described below.

Single-Source Pump-In Projects via the FKC – Single-source pump-in projects include projects with Warren Act Contracts that introduce surface water or banked groundwater into the FKC. Before an approved pump-in project begins, FWA will work with the proponent to collect water quality data for the potential introduced surface water or groundwater to determine the required mitigation water percentage to be applied to the volume moved through the FKC. The determination of the required mitigation percentage will be calculated using the Ledger. Collection of the water quality data will follow requirements outlined in the Guidelines for Accepting Water into the FKC.

Pump-In Projects via the CVC - As described in Section B2 of the Guidelines, weekly water quality sampling will be performed by FWA during reverse flow pump-back operations and water quality data will be provided to Reclamation. Mitigation will be based on either the weekly average electrical conductivity (EC) concentrations measured continuously at the terminus of the FKC at the Kern River Check or the weekly grab samples collected from the CVC, whichever is deemed more appropriate by FWA. The CVC water quality conditions may represent multiple pump-in projects and will be updated in the Ledger at a greater frequency than once per year. FWA will coordinate with the pump-in project proponents regarding the required mitigation water percentage as determined by changes in water quality conditions.

The Ledger will document the water quality conditions for all pump-in projects and calculate the required mitigation percentage for each.

Ledger Calculations

As described above, pump-in project water quality data will be input to the Ledger. For each pump-in project, the Ledger will calculate the required mitigation water percentage. FWA will communicate this mitigation percentage to pump-in project proponents prior to operation and introduction.

Assumptions

- Water quality conditions for each pump-in project will be measured at least once per year or at a set frequency agreed to in the Guidelines and/or the Pump-In Project Approval and will determine the required mitigation water percentage.
- The Mitigation Percentage process follows the approach outlined in the Guidelines.

Friant-Kern Canal Water Quality Monitoring and Management

All pump-in projects must adhere to the water quality monitoring requirements stipulated in the Guidelines. FWA will implement continuous, real-time monitoring of in-prism water quality conditions in the FKC and at the FKC/CVC Intertie during reverse flow pump-back operations. Continuous, in situ measurements of EC will provide real-time data on incremental water quality changes and mixing in the FKC and will assist in water quality threshold management. If water quality thresholds are exceeded, FWA shall incrementally direct pump-in project proponents to cease operations of pump-in projects in order of greatest mass loading of the critical water quality constituent until the water quality drops below defined thresholds. Furthermore, if water quality monitoring results show an exceedance of 80% of the threshold for any water quality constituents, weekly monitoring will occur until four consecutive grab samples show consistent water quality results.

PUMP-IN PROJECT DELIVERY VOLUMES

During a contract year in which a pump-in project will be operated, FWA will work with the pump-in project proponent to implement the requirements stipulated in the Guidelines. This includes the addition of mitigation water to the FKC consistent with the pump-in project water quality conditions and quantity delivered. Pump-in project forecasted deliveries, calculated projected mitigation water, and all coordination related to pump-in project operations will be completed on a weekly basis.

Ledger Calculations

FWA will coordinate with pump-in project proponents to obtain an estimated volume of water to be introduced and conveyed in the FKC. The required mitigation water volume for the pump-in project is assumed to be included as part of that estimated volume. FWA will calculate losses, when appropriate, based on the total volume of water to be introduced into the FKC. The mitigation volume will be based on the total volume minus the calculated losses. The Ledger uses the mitigation water percentage for each pump-in project based on measured water quality and the net pump-in project volume to determine the projected mitigation volume requirement.

Assumptions

- Mitigation volumes are calculated based on projected weekly volume of a pump-in project and verified using measured volumes at the end of each month.
- Mitigation volumes are added to the FKC in real time with other pump-in project deliveries.
- FWA will have weekly volume, or weekly average flow, projections from pump-in project proponents.

PRELIMINARY MITIGATION DISTRIBUTION

The Ledger will be used to distribute mitigation water volumes to the impacted Friant Division long-term contractors (Friant Contractors). As described in the Pump-In Project Delivery Volumes section, mitigation water is introduced into the FKC simultaneously with the pump-in project volume introduction. FWA will add weekly water order data to the Ledger to distribute the mitigation volume based on volumetric proportioning. The preliminary, weekly mitigation distribution will be used by the FWA **for communication purposes only** (i.e., as the best available estimate of end-of-month mitigation requirements when communicating internally and with Friant Contractors). The mitigation water distribution will be updated at the end of each calendar month based on quality-controlled delivery data.

Ledger Calculations

The FWA will input water order data into the Ledger to be used in the mitigation water distribution calculations. The Ledger will determine the average weekly mixing interface position based on the weekly volumes for periods during FKC pump-back operations. An option to manually set the mixing interface position will also be available in the Ledger.

Assumptions

- Deliveries will be aggregated by Friant Contractor, and divided into pools, defined as the canal section between check structures.
- The division of deliveries by a Friant Contractor that has turnouts in multiple pools will be based on historical deliveries.
- Only Central Valley Project (CVP) (Class 1, Class 2, 215, and San Joaquin River Restoration Program (SJRRP) Recovered Water Account (RWA) and Unreleased Restoration Flow (URF)) deliveries for the Friant Contractors will be used to calculate the mitigation distribution.
- The interface, or location along the FKC that receives water from both gravity and reverse flow, will be determined using a weekly mass balance. An option will also be included to manually define the interface.
- The FKC Pool with the Interface will be assumed to be fully mixed with gravity and reverse flow.

END OF MONTH WATER ACCOUNTING

At the end of each month that a pump-in project is operating, the preliminary mitigation water distribution will be updated based on quality-controlled delivery data for both the pump-in project and Friant Contractors. The updated mitigation distribution volume will be shared with impacted Friant Contractors and included as part of their normal water accounting. The mitigation volume will be assumed to be the first water taken for their monthly deliveries. For pump-in project proponents that take more water than pump-in project delivery minus the mitigation volume, proponents will be assumed to make up that delivery with their CVP contract supply. For pump-in projects that end with water delivery to a Friant Contractor, adjustments for mitigation volumes are not needed.

For pump-in projects that do not end with delivery to a Friant Contractor, there is potential need for a mitigation volume adjustment. For these pump-in projects, FWA will track pump-in project water introduced into the FKC and deliveries to the non-Friant Contractor. If the volume of mitigation water is not equal to the expected volume, FWA will contact the pump-in project proponent to either increase the mitigation volume or increase their own delivery.

Ledger Calculations

FWA will add quality-controlled data to the Ledger at the end of each calendar month. The Ledger will replace the preliminary data and recalculate the mitigation water distribution to determine the monthly volumes of mitigation delivery, pump-in project delivery, and CVP delivery.

Assumptions

- Mitigation water delivery to impacted Friant Contractors is the first water to be delivered.
- If delivery to a pump-in project proponent exceeds pump-in project input to FKC minus the mitigation volume, the remainder will be accounted for as CVP delivery.

FINAL WATER ACCOUNTING

The end of the month water accounting will be provided to the Friant Contractors for confirmation and their use for accounting with Reclamation. Friant Contractors will clearly show mitigation on their accounting reports as a separate volume of water. As needed, Friant Contractors will work with Reclamation to revise reporting in a timely manner. Mitigation volumes should be rounded and reported as a whole number in acre-feet.

WATER QUALITY ANNUAL REPORTING

The water quality for each year will be maintained in a database by FWA. The mitigation curve developed for the Ledger, as part of the Guidelines, uses relationships between water quality constituents of concern and in-prism measurements of EC. At the conclusion of each year, the relationships will be updated with new water quality data collected during the year. The updated relationship will be shared with the Friant Contractors. Reclamation may also propose and/or require modifications to the Guidelines in coordination with FWA. Additionally, the Guidelines may be re-evaluated if any of the following conditions occurs:

- A future regulatory cost or equivalent fee is imposed on Friant Contractors and a portion of such fee can reasonably be attributed to the incremental difference of water quality conditions in the FKC.
- When Friant Division Class 1 contract allocation is less than or equal to 25 percent, the Water Quality Advisory Committee will convene as outlined in Attachment A of the Guidelines. In these years, mitigation will be accounted for as presented in these Guidelines, but will be deferred to a mutually agreed to later date unless those responsible for the put and take mutually agree to put and take the mitigation in the critical year. All monitoring requirements will remain as presented in the Guidelines.
- There is a significant, regulatory change or scientifically based justification and three out of the following five Friant Contractors agree and work with the Water Quality Advisory Committee to recommend a change: (1) Arvin-Edison Water Storage District, (2) Shafter Wasco Irrigation District, (3) Delano-Earlimart Irrigation District, (4) South San Joaquin Municipal Utility District, and (5) Kern-Tulare Water District.

Attachment E. FKC Water Quality Guidelines Cost Allocation

Special Project
Summary Sheet
Budget Sheet

Project Title: Friant-Kern Canal Water Quality Guidelines

Job Code: 6370

Project Location: Friant-Kern Canal (entire 152 miles)

Project Description: Friant Water Authority implementation and administration of the Friant-Kern Canal (FKC) Water Quality Guidelines (Guidelines). The Guidelines include requirements of discharge of water into the FKC, monitoring and reporting requirements, management, mitigation, communications, and forecasting.

Estimated Annual Project Costs (x1000): $189.4

Materials and Laboratory
The continuous, real-time sampling of electrical conductivity (EC) at each of the specified check structures requires FWA to install a total of fourteen (14) Seametrics CT2X conductivity meters in the canal, at each structure. Costs for purchase and installation of the real-time water quality monitoring equipment, including integration with IOS, are approximately $60,477 ($1,898 per unit cost and total of $33,905 for installation). It is assumed the useful life of a Seametrics CT2X conductivity meter is about 10 years at an interest rate of 3%. Additionally, FWA staff will maintain two (2) existing handheld Hanna DIST5 conductivity meters. Real-time water quality monitoring equipment and handheld conductivity meters will be calibrated and maintained according to manufacturer recommendations. Costs for maintenance of equipment is estimated to be about 10% of the capital cost ($6,048 annually, shown as Item 5 in Table 1 below).

Table 1 summarizes the annual materials and lab costs of each monitoring requirement. Specifically, the item numbers in Table 1 refer to the sample source/type item numbers presented in Attachment B – Monitoring Program Summary. Details regarding assumptions are outlined in the narrative following Table 1.

Table 1: Materials and laboratory costs associated with monitoring activities.

Item[1]	**Description**	**Estimated Annual Cost**
5	Annual maintenance of equipment for continuous, real-time sampling of electrical conductivity at each specified check structure	$6,048
6	Estimated exceedance testing	$936
8	Weekly testing at FKC-CVC Intertie during pump-back operations	$23,788
9	Testing during initiation of FKC-CVC Intertie pump-back operations	$11,490
	Materials and Lab Testing Subtotal:	**$42,262**

[1] Item numbers refer to sample source/type item numbers presented in Attachment B.

Most requirements of the monitoring program (items 6 through 9 in Table 1) require FWA to collect samples and send them to labs for testing. Testing can include a full list of Tittle 22 constituents in Table 1 of the Guidelines, the short list of constituents in Table 4 of the Guidelines, or single constituents. Testing costs can vary significantly by lab. To be conservative, it was assumed that testing for full Title 22 constituents would be \$5,745, testing for the short list of constituents in Table 4 of the Guidelines would be \$915, and testing for single constituents would be \$59/constituent.

For a given year, it was assumed that single constituents would exceed the thresholds for two months per year and would result in 16 tests annually (4 weekly tests for each month with an exceedance, and 4 weekly tests below the threshold after the exceedance). This results in a total cost of \$936 for testing because of exceedances (item 6 in Table 1). Costs for EC testing during operations outages were not included as this will be done with the handheld units by FWA staff. It was assumed that pump-back operations would occur during 6 months of the year, which would require 26 samples of the full list of constituents in Table 4 of the Guidelines. This results in a total cost of \$23,788 for testing because of pump-back operations (item 8 in Table 1). Finally, it was assumed that full Title 22 testing due to initiation of pump-back operations or anticipated Cross Valley Canal operations that will impact water quality will occur two times per year and will cost \$11,490.

Annualized Capital Install and Replacement of Equipment Subtotal: *\$7,090*

Annual Materials and Lab Testing Subtotal: *\$42,262*

Friant Water Authority Staff

For implementation of the Guidelines, the following activities will be required of FWA staff:

- Maintain and calibrate conductivity meters on a bi-weekly basis
- Perform water quality sampling during pump-in operations
- Coordinate laboratory water quality testing
- Coordinate with Friant Division Long-Term Contractors on water quality data monitoring and analysis
- Manage water quality and operations database
- Perform weekly water quality reporting and forecasting using FKC Water Quality Model
- Perform weekly analysis to determine mitigation and distribution to respective Friant Division Long-Term Contractors using the FKC Water Quality Mitigation Ledger
- Coordinate with U.S. Department of the Interior, Bureau of Reclamation's South-Central California Area Office on water quality reporting, mitigation, and contractual requirements
- Coordinate and facilitate FWA committee on water quality

The annual cost for FWA Executive Team and Operations staff is estimated below:

Executive Team (WRM)………104 hrs @\$111.43/hr	\$11,589
Water Operations (Senior Engineer)………1664 hrs @\$77.16/hr	\$128,400

Annual Staff Labor Subtotal: *\$139,989*

General Justification: The Board of Directors, at the request of the Water Quality Ad Hoc Committee requested that staff develop new water quality guidelines for non-Millerton water introduced into the FKC. This plan originally stemmed from the environmental compliance requirements of both the Long-Term Recapture and Recirculation Plan and the FKC Reverse Pump-back Project.

Operating Impact: This estimate assumes implementation of the Guidelines will occur. Although the costs for finalizing the Guidelines, agreements, and environmental compliance will be applied separately, the administration and water quality monitoring outlined in the Guidelines will be applied to 6370. A portion of these costs will be reimbursed through a surcharge applied to those Friant contractors that introduce water into the FKC once the Guidelines are implemented.

Cost Allocation: Costs for implementation and administration of the Policy will be paid initially by the subset of Friant Division Long-Term Contractors who pay for FKC O&M to the FWA and subsequently will be reimbursed by contractors that introduce water (Put) into the FKC (Contributor). The Contributor will pay a dollar per acre-foot ($/acre-foot[AF]) surcharge, or 'Guidelines Surcharge,' that will be credited back to the Friant Division Long-Term Contractors who pay for O&M to the FWA. The Guidelines Surcharge will be calculated by dividing the total annual costs incurred for administration of the Guidelines Program by the total annual deliveries of pump-in programs into the FKC. The Guidelines Surcharge will be applied to all introduced water even if it is not required to provide mitigation as defined in the Guidelines. Surcharge estimates can be provided for budgeting purposes on an annual basis. FWA will bill contractors for reimbursement of Guidelines Program costs based on actual volumes and costs incurred.

Guidelines Surcharge Estimate: Current pump-in programs pump approximately 36.6 thousand acre-feet (TAF) per year into the FKC based on recent 5-year average (2013-2018) as shown in Table 2.

Table 2: Current Pump-In Program 5-year Average (2013-2018)

Source	Annual Average (TAF)	Annual Maximum[1] (TAF)
Sierra Water	17.8	344
Groundwater	14.7	117
CVC	4.1	149
Total Annual Average	**36.6**	**610**

[1] Based on existing compliance and approvals and anticipated renewals.

The potential annual maximum is much greater than the annual average; however, for purposes of setting an initial Guidelines Surcharge, an estimated 40 TAF per year of pump-ins is assumed to occur. This estimate includes the recent average of existing programs and anticipated 10% initial increase due to new programs or greater use of existing programs.

Monitoring and lab costs can be allocated based on location or source of introduced water. It is assumed that all monitoring and lab costs associated with operations at the CVC Intertie will be allocated to a surcharge applied only to water being brought in from the CVC. All other monitoring and lab costs (e.g., lab costs associated with exceedances) will be allocated to other pump-ins. Other costs (e.g., annual maintenance of equipment, staff time) would be allocated to all pump-ins via a surcharge base.

Based on this approach, the estimated **Guidelines Surcharge would average about $10.73 per AF for CVC Water and $3.88 per AF for other pumps ins**. Each surcharge would increase about $0.70 per AF if the surcharge were to consider recovering CEQA compliance costs over 10 years. The surcharge applied at the end of every year will be based on actual costs and deliveries, and methods for allocation can be reassessed every year by the Water Quality Advisory Committee.

Extraordinary Maintenance Projects
Cost Summary

Project Title: Friant Kern Canal Water Quality Program

Project Location and Department: Friant-Kern Canal (entire 152 miles) / Operations Department

Estimated Total Project Cost (x1000): $189.4

Estimated Total Material Cost (Including Fuel Costs, x1000): $49.4

<u>Breakdown of Estimated Costs</u>

All costs outside of Friant staff costs for CEQA compliance are not covered as part of this program cost budget.

Materials and Laboratory

Annualized Capital Install and Replacement of Equipment	$7,090
Annual Materials and Lab Testing	$42,246
	Subtotal: $49,336

Regular Labor (Hours and Cost):

Executive Team (WRM)………. 104 hrs @$111.43/hr	$11,589
Water Operations (Senior Engineer)………1664 hrs @$77.16/hr	$128,400
	Subtotal: $139,989

Total: $189,325

Guidelines Surcharge (CVC) $10.73 per AF

Guidelines Surcharge (All other) $4.58 per AF

Friant-Kern Canal
Conveyance Fees for Non Friant-Kern Canal Contractors
Effective March 1, 2024 - February 28, 2025

Note *- These Conveyance rates apply to all classes of water deliveries (Project & Non-Project) that are conveyed on the Friant-Kern Canal on behalf of any non-Long-Term Contractor of the FKC*

References	
FY24 FKC OM&R Budget	$ 12,442,000
MRCCP Phase 1 Budget	$ 326,600,000
Avg. Last Two Wet Years Class 1, Class 2, & 215 Deliveries (2017 & 2019)	$ 1,040,622
10-Year Rolling Avg Class 1 Deliveries (FY12 - FY21)	375,643

	215 / Flood Water Conveyance (Non-Long-Term) Routine OM&R Component	
Numerator:	Current OM&R Budget	$ 12,442,000
Denominator:	Avg W (2017 & 2019)	1,040,622
Rate / AF		$ 11.96

	215 / Flood Water Conveyance (Non-Long-Term) Replacement Component	
Numerator:	Annual MRCCP Phase 1 SLD	$10,886,666.67
Denominator:	Avg W (2017 & 2019)	1,040,622
Rate / AF		$ 10.46

215 / Flood Water Composite Conveyance Rate (FY 2024)	**$ 22.42**	*Previous Year: $21.65*

Notes:

1/ This conveyance charge is for 215/Flood Water conveyed by a non-long-term Contractor.

2/ 215 & Flood Water Conveyance Charge reflects anticipated wet year conveyance and is differentiated from Conveyance of All other Water by NLT FKC Contractors

	Non-215/Flood Water Routine OM&R Conveyance Rate Component	
Numerator:	Current OM&R Budget	$ 12,442,000
Denominator:	10-Year Rolling Average Class 1	375,643
Rate / AF		**$ 33.12**

Notes:

1/ Rolling Average of Class 1 is representative of annual use of canal and includes use during dry/critical years

2/ Rolling Average of Class 1 approach maintains relatively stable rate from year to year for budgeting purposes

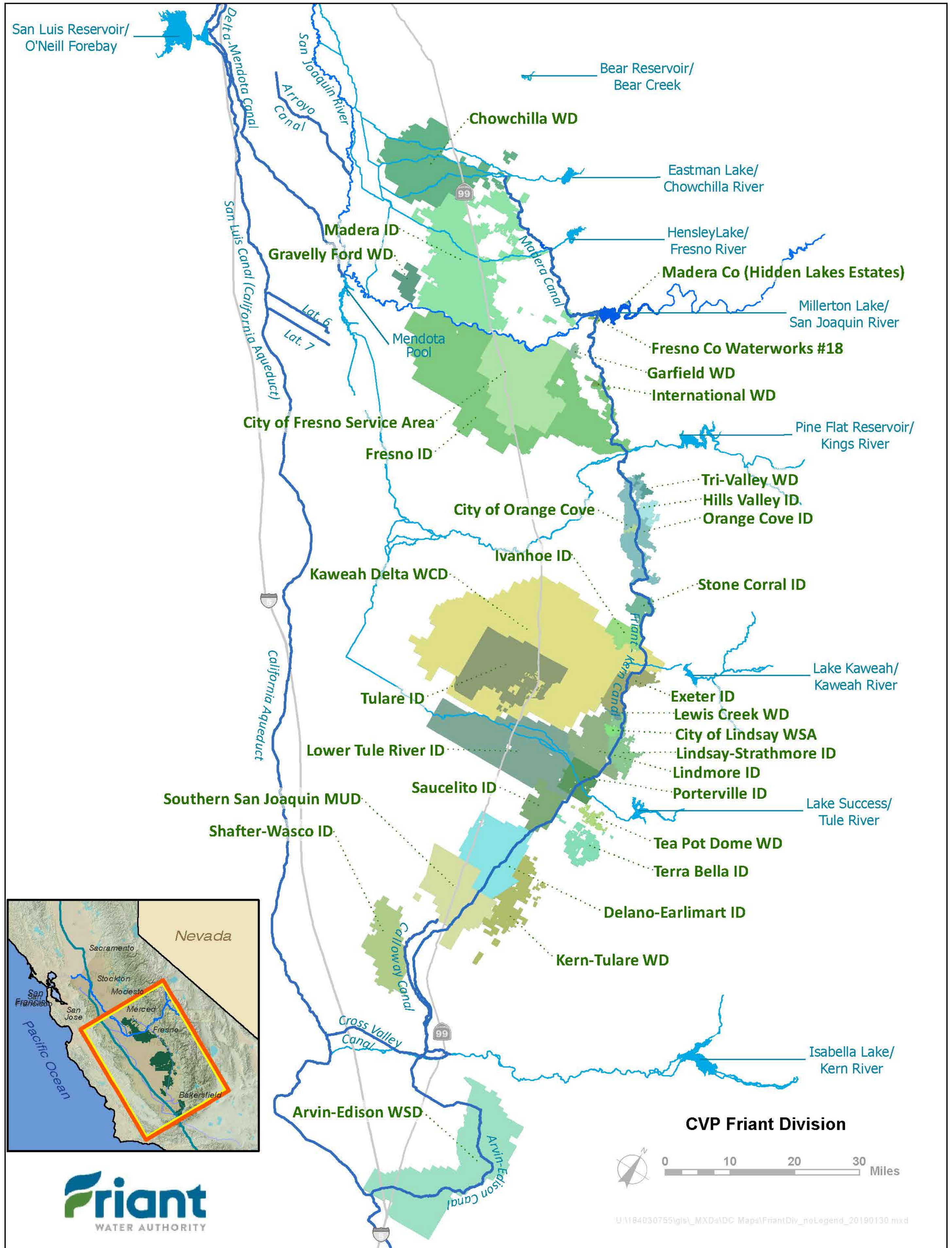
	Non-215/Flood Water Replacement (XM) Conveyance Rate Component	
Numerator:	Annual MRCCP Phase 1 SLD	$10,886,666.67
Denominator:	10-Year Rolling Average Class 1	375,643
Rate / AF		**$ 28.98**

Notes:

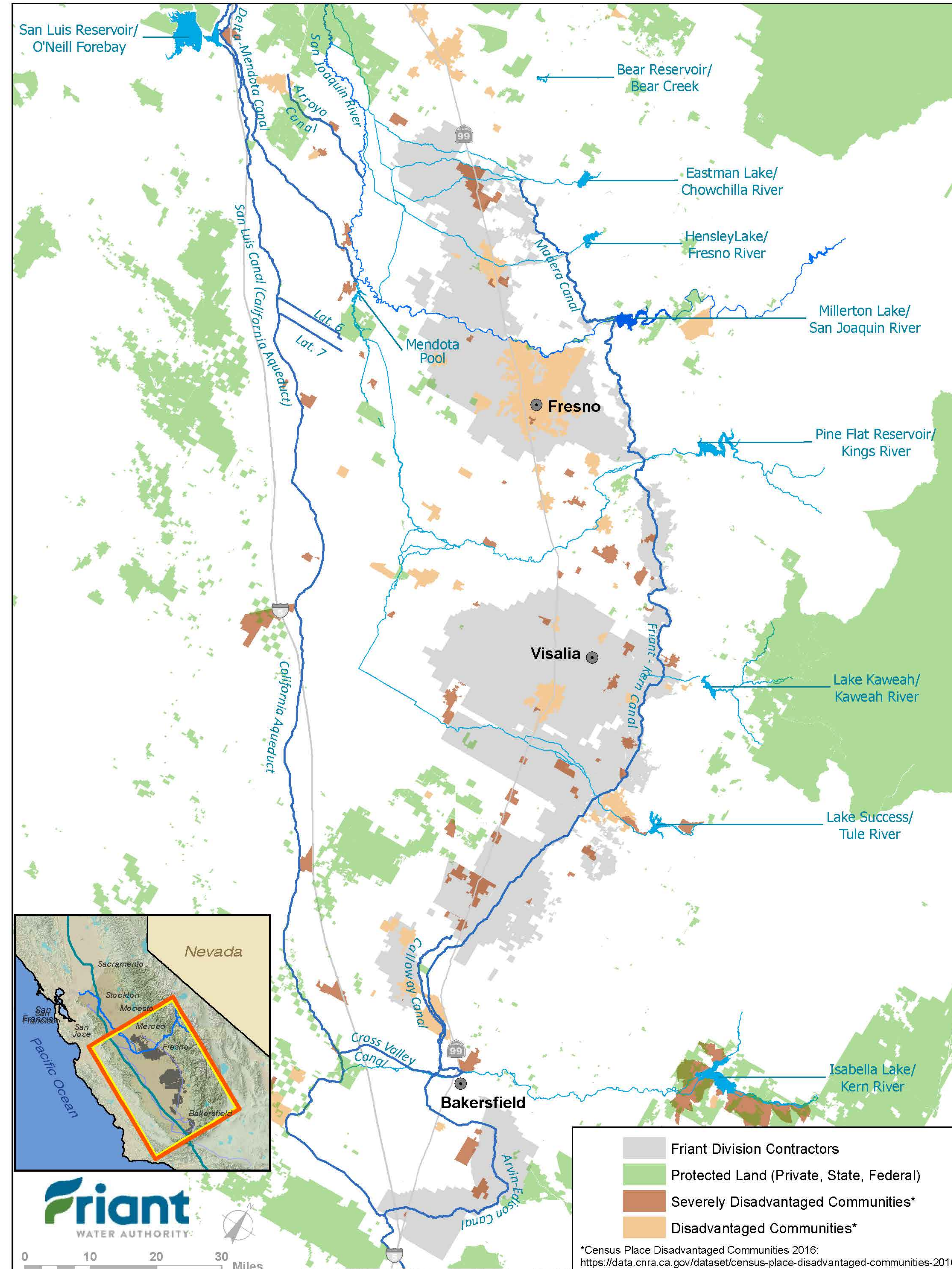
1/ Used Straight-Line Depreciation of MRCCP Phase 1 Cost over 30 years, no salvage value

Non-215/Flood Water Composite Conveyance Rate (WY 2024)	**$ 62.10**

Previous Year: $54.79



San Luis Reservoir/
O'Neill Forebay
Delta-Mendota Canal
San Joaquin River
Arroyo Canal
Bear Reservoir/
Bear Creek
Chowchilla WD
Eastman Lake/
Chowchilla River
Madera ID
Gravelly Ford WD
HensleyLake/
Fresno River
Madera Canal
Madera Co (Hidden Lakes Estates)
San Luis Canal (California Aqueduct)
Lat. 6
Lat. 7
Mendota Pool
Millerton Lake/
San Joaquin River
Fresno Co Waterworks #18
Garfield WD
International WD
City of Fresno Service Area
Fresno ID
Pine Flat Reservoir/
Kings River
Tri-Valley WD
Hills Valley ID
City of Orange Cove
Orange Cove ID
Ivanhoe ID
Kaweah Delta WCD
Stone Corral ID
Friant - Kern Canal
Lake Kaweah/
Kaweah River
California Aqueduct
Tulare ID
Exeter ID
Lewis Creek WD
City of Lindsay WSA
Lower Tule River ID
Lindsay-Strathmore ID
Lindmore ID
Saucelito ID
Porterville ID
Southern San Joaquin MUD
Lake Success/
Tule River
Shafter-Wasco ID
Tea Pot Dome WD
Terra Bella ID
Delano-Earlimart ID
Kern-Tulare WD
Nevada
Sacramento
Stockton
Modesto
San Francisco
San Jose
Merced
Fresno
Pacific Ocean
Bakersfield
Calloway Canal
Cross Valley Canal
Isabella Lake/
Kern River
Arvin-Edison WSD
CVP Friant Division
Arvin-Edison Canal
0 10 20 30 Miles
Friant
WATER AUTHORITY



San Luis Reservoir/
O'Neill Forebay
Delta-Mendota Canal
San Joaquin River
Arroyo Canal
Bear Reservoir/
Bear Creek
Eastman Lake/
Chowchilla River
HensleyLake/
Fresno River
Madera Canal
San Luis Canal (California Aqueduct)
Lat. 6
Lat. 7
Mendota Pool
Millerton Lake/
San Joaquin River
Fresno
Pine Flat Reservoir/
Kings River
Visalia
Friant - Kern Canal
Lake Kaweah/
Kaweah River
California Aqueduct
Lake Success/
Tule River
Nevada
Sacramento
Stockton
Modesto
San Francisco
San Jose
Merced
Fresno
Pacific Ocean
Bakersfield
Calloway Canal
Cross Valley Canal
Bakersfield
Isabella Lake/
Kern River
Friant Division Contractors
Protected Land (Private, State, Federal)
Severely Disadvantaged Communities*
Disadvantaged Communities*
*Census Place Disadvantaged Communities 2016:
https://data.cnra.ca.gov/dataset/census-place-disadvantaged-communities-2016
Arvin-Edison Canal
Friant
WATER AUTHORITY
0 10 20 30 Miles


Trinity Dam
Shasta Dam
Redding
Whiskeytown Dam
Nevada
Tehama Colusa Canal
Sacramento River
Feather River
Folsom Dam
Sacramento
American River
Tracy Pumping Plants
San Francisco
Stanislaus River
Tuolumne River
Delta Mendota Canal
Merced River
Madera Canal
Friant Dam
B.F. Sisk Dam
San Joaquin River
Fresno
Mendota Dam
Friant Kern Canal
Pacific Ocean
California Aqueduct
Kern River
Cross Valley Canal
Bakersfield
Arvin-Edison Canal
A.D. Edmonston Pumping Plant
Oregon
Nevada
Sacramento
Stockton
Modesto
Merced
San Francisco
San Jose
Fresno
Bakersfield
Major California Water Infrastructure
Pumping Plant
River or Stream
River/Stream Carrying CVP Water
Reservoir or Lake
CVP Reservoir
CVP/SWP Reservoir
Friant Division Contractors
Operator
CVP/SWP
Central Valley Project (CVP)
State Water Project (SWP)
Locally Funded Projects
Friant
WATER AUTHORITY
N
0
10
20
30
40
50
Miles

Appendix P: Opinions of Probable Construction Costs

PROVOST&PRITCHARD
CONSULTING GROUP

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

California State Water Resources Control Board - NORTHEAST TULARE COUNTY REGIONALIZATION FEASIBILITY STUDY

ALTERNATIVE 1 –INDIVIDUAL SYSTEM IMPROVMENTS AND PHYSICAL CONSOLIDATION LOOP

PRELIMINARY

August 21, 2025

Item No.	Item Description	Quantity	Unit	Unit Price	Amount
GENERAL CONDITIONS[/4]					
1	Mobilization/Demobilization, Bonds and Insurance and Permits (5%)	1	LS	$ 984,000	$ 984,000
2	Worker and Public Protection (2%)	1	LS	$ 394,000	$ 394,000
3	Miscellaneous Facilities and Operations (5%)	1	LS	$ 984,000	$ 984,000
4	Traffic Control	1	LS	$ 132,000	$ 132,000
5	Dust Control	1	LS	$ 5,000	$ 5,000
6	Prepare SWPPP	1	LS	$ 10,000	$ 10,000
7	Utility Potholing	1	LS	$ 66,000	$ 66,000
8	Clearing and Grubbing	1	LS	$ 20,000	$ 20,000
9	Unknown Utility Conflicts	1	LS	$ 10,000	$ 10,000
				Subtotal	**$ 2,605,000**
FIELD COSTS					
	Water mains				
10	12" C900 PVC (Yettem to Monson)	26,400	LF	$ 175	$ 4,620,000
11	12" C900 PVC (Sultana to Orosi)	18,480	LF	$ 175	$ 3,234,000
12	12" C900 PVC (East Orosi to Yettem)	21,120	LF	$ 175	$ 3,696,000
13	8" C900 PVC in Railroad ROW (Seville)	10,560	LF	$ 240	$ 2,535,000
14	12" Isolation Valves (1/2 mile intervals)	28	EA	$ 5,000	$ 140,000
15	Permanent Trench Resurfacing	66,000	LF	$ 55	$ 3,630,000
	Site Improvements				
16	Relocate PRV Sultana to Monson	1	LS	$ 25,000	$ 25,000
17	Install New PRV at Monson	1	LS	$ 50,000	$ 50,000
18	8" C900 PVC Off site piping (Monson)	1,250	LF	$ 165	$ 207,000
19	Demo 60,000-gallon bolted Steel Tank and apurtanences	1	LS	$ 15,000	$ 15,000
20	Demo 150,000-gallon Bolted Steel Tank and apurtanences	1	LS	$ 37,500	$ 38,000
21	Rebowl Monson Well	1	LS	$ 50,000	$ 50,000
22	New Monson Well Motor (50 HP)	1	LS	$ 25,000	$ 25,000
23	Hydropneumatic Tank	1	LS	$ 220,000	$ 220,000
	Electrical and Controls Modification				
24	Well Site Instrumentation and Controls modifications (budgetary)	1	LS	$ 200,000	$ 200,000
25	Furnish and Install Back Up Generators (East Orosi)	2	EA	$ 350,000	$ 700,000
26	Install new PSV and Site Piping (Tank Fill)	4	EA	$ 50,000	$ 200,000
27	Install new Check Valve and Tank Fill modifications	4	EA	$ 25,000	$ 100,000
	Well Destruction				
28	Yettem and Seville, Y1, Y2, S1, and S2	4	EA	$ 50,000	$ 200,000
		CONSTRUCTION SUBTOTAL			**$ 22,490,000**
		CONTINGENCY (30%)			**$ 6,747,000**
		CONSTRUCTION TOTAL			**$ 29,237,000**
NON-CONSTRUCTION COSTS					
	Non-Construction				
29	Property Costs	0	AC	$ 75,000	**$ -**
30	Engineering Design (12%)	1	LS	$ 3,508,000	**$ 3,508,000**
31	Construction Management and Inspection (7%)	1	LS	$ 2,047,000	**$ 2,047,000**
32	Enviromental, Legal, and Administration (5%)	1	LS	$ 1,462,000	**$ 1,462,000**
		NON-CONSTRUCTION SUBTOTAL			**$ 7,017,000**
		CONTINGENCY (30%)			**$ 2,105,000**
		NON-CONSTRUCTION TOTAL			**$ 9,122,000**
				GRAND TOTAL	**$ 38,359,000**

Notes & Assumptions

/1	This estimate represents the opinion of probable cost based on the engineer's experience with prior projects, recent bid canvasses, and cost sources such as RS Means.
/2	Costs presume work will be publicly bid as a public works project.
/3	Amount totals rounded up to the nearest one-thousand dollars.
/4	Percentages are of the Field Costs.
/5	Construction costs based on current dollars. Construction schedule may impact construction cost.
/6	Construction costs do not include mitigation measures for the biologist or construction observation.
/7	Construction costs do not include PG&E overhead work.

PROVOST&PRITCHARD
CONSULTING GROUP

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

California State Water Resources Control Board - NORTHEAST TULARE COUNTY REGIONALIZATION FEASIBILITY STUDY

ALTERNATIVE 2 – 2 MGD SWTP, SYSTEM IMPROVEMENTS AND PHYSICAL CONSOLIDATION LOOP

PRELIMINARY

August 21, 2025

Item No.	Item Description	Quantity	Unit	Unit Price	Amount
GENERAL CONDITIONS[/4]					
1	Mobilization/Demobilization, Bonds and Insurance and Permits (5%)	1	LS	$ 2,093,000	$ 2,093,000
2	Worker and Public Protection (2%)	1	LS	$ 837,000	$ 837,000
3	Miscellaneous Facilities and Operations (5%)	1	LS	$ 2,093,000	$ 2,093,000
4	Traffic Control	1	LS	$ 132,000	$ 132,000
5	Dust Control	1	LS	$ 5,000	$ 5,000
6	Prepare SWPPP	1	LS	$ 10,000	$ 10,000
7	Utility Potholing	1	LS	$ 66,000	$ 66,000
8	Clearing and Grubbing	1	LS	$ 20,000	$ 20,000
9	Unknown Utility Conflicts	1	LS	$ 10,000	$ 10,000
				Subtotal	**$ 5,266,000**
FIELD COSTS					
	Surface Water Treatment Plant				
10	18" C900 PVC Raw Water pipeline	18,480	LF	$ 240	$ 4,436,000
11	FKC Turnout	1	LS	$ 700,000	$ 700,000
12	Raw Water Screening Structure	1	LS	$ 340,000	$ 340,000
13	Raw Water Pumping Station	1	LS	$ 260,000	$ 260,000
14	Packaged Filtration System	1	LS	$ 1,500,000	$ 1,500,000
15	Transfer and Backwash Pumping Station	1	LS	$ 300,000	$ 300,000
	Finished Water Storage Tank	1	LS	$ 475,000	$ 475,000
	Blending Tank	1	LS	$ 1,390,000	$ 1,390,000
16	Chemical Storage Building and Equipment	1	LS	$ 1,500,000	$ 1,500,000
17	High Service Pumping Station	1	LS	$ 640,000	$ 640,000
18	Operations and Controls Building	1	LS	$ 625,000	$ 625,000
19	Washwater Equalization Basin	1	LS	$ 300,000	$ 300,000
20	Reclaim Pumping Station	1	LS	$ 150,000	$ 150,000
21	Clarifier	1	LS	$ 500,000	$ 500,000
22	Sludge Holding Tank	1	LS	$ 100,000	$ 100,000
23	Screw Press Skid	1	LS	$ 500,000	$ 500,000
	Yard Piping	1	LS	$ 1,500,000	$ 1,500,000
	Site Fencing and Access Gates	1	LS	$ 80,000	$ 80,000
24	Site Demo, Clearing and Grubbing	1	LS	$ 60,000	$ 60,000
25	Site Grading, Paving and Surfacing	1	LS	$ 600,000	$ 600,000
26	Site Painting, Coating, and Signage	1	LS	$ 250,000	$ 250,000
27	Electrical, Scada & Controls	1	LS	$ 3,000,000	$ 3,000,000
28	Emergency Generator	1	LS	$ 350,000	$ 350,000
	Water mains				
29	8" C900 PVC Blending piping (Orosi Well 8)	5,000	LF	$ 160	$ 800,000
30	8" C900 PVC Blending piping (Orosi Well 10)	1,400	LF	$ 160	$ 224,000
31	8" C900 PVC Blending piping (East Orosi Well 3)	1,000	LF	$ 160	$ 160,000
32	12" C900 PVC (Yettem to Monson)	26,400	LF	$ 180	$ 4,752,000
33	12" C900 PVC (Sultana to Orosi)	18,480	LF	$ 180	$ 3,327,000
34	12" C900 PVC (East Orosi to Yettem)	21,120	LF	$ 180	$ 3,802,000
35	8" C900 PVC in Railroad ROW (Seville)	10,560	LF	$ 240	$ 2,535,000
36	16" C900 PVC Finished Water pipeline	3,000	LF	$ 210	$ 630,000
37	Relocate PRV Sultana to Monson	1	LS	$ 25,000	$ 25,000
38	Install New PRV at Monson	1	LS	$ 50,000	$ 50,000
39	12" Isolation Valves (1/2 mile intervals)	28	EA	$ 5,000	$ 140,000
40	Permanent Trench Resurfacing	73,400	LF	$ 55	$ 4,037,000
	Site Improvements				
41	Relocate PRV Sultana to Monson	1	LS	$ 25,000	$ 25,000
42	Install New PRV at Monson	1	LS	$ 50,000	$ 50,000
43	8" C900 PVC Off site piping (Monson)	1,250	LF	$ 165	$ 207,000
44	Demo 60,000-gallon bolted Steel Tank and apurtanences	1	LS	$ 15,000	$ 15,000
45	Demo 150,000-gallon Bolted Steel Tank and apurtanences	1	LS	$ 37,500	$ 38,000
46	Rebowl Monson Well	1	LS	$ 50,000	$ 50,000
47	New Monson Well Motor (50 HP)	1	LS	$ 25,000	$ 25,000
48	Hydropneumatic Tank	1	LS	$ 220,000	$ 220,000
	Electrical and Controls Modification				
49	Well Site Instrumentation and Controls modifications (budgetary)	1	LS	$ 200,000	$ 200,000
50	Furnish and Install Back Up Generators (East Orosi)	2	EA	$ 350,000	$ 700,000
51	Install new PSV and Site Piping (Tank Fill)	4	EA	$ 50,000	$ 200,000
52	Install new Check Valve and Tank Fill modifications	4	EA	$ 25,000	$ 100,000
	Well Destruction				
53	Yettem and Seville, Y1, Y2, S1, and S2	4	EA	$ 50,000	$ 200,000
		CONSTRUCTION SUBTOTAL			**$ 47,334,000**
		CONTINGENCY (30%)			**$ 14,200,000**
		CONSTRUCTION TOTAL			**$ 61,534,000**
NON-CONSTRUCTION COSTS					
	Non-Construction				
54	Property Costs	4.1	AC	$ 75,000	**$ 308,000**
55	Engineering Design (12%)	1	LS	$ 7,384,000	**$ 7,384,000**
56	Construction Management and Inspection (7%)	1	LS	$ 4,307,000	**$ 4,307,000**
57	Enviromental, Legal, and Administration (5%)	1	LS	$ 3,077,000	**$ 3,077,000**
		NON-CONSTRUCTION SUBTOTAL			**$ 15,076,000**
		CONTINGENCY (30%)			**$ 4,523,000**
		NON-CONSTRUCTION TOTAL			**$ 19,599,000**
		GRAND TOTAL			**$ 81,133,000**

Notes & Assumptions

/1	This estimate represents the opinion of probable cost based on the engineer's experience with prior projects, recent bid canvasses, and cost sources such as RS Means.
/2	Costs presume work will be publicly bid as a public works project.
/3	Amount totals rounded up to the nearest one-thousand dollars.
/4	Percentages are of the Field Costs.
/5	Construction costs based on current dollars. Construction schedule may impact construction cost.
/6	Construction costs do not include mitigation measures for the biologist or construction observation.
/7	Construction costs do not include PG&E overhead work.

PROVOST&PRITCHARD
CONSULTING GROUP

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST

California State Water Resources Control Board - NORTHEAST TULARE COUNTY REGIONALIZATION FEASIBILITY STUDY

ALTERNATIVE 3 – 4.5 MGD SWTP, SYSTEM IMPROVEMENTS AND PHYSICAL CONSOLIDATION LOOP

PRELIMINARY

August 21, 2025

Item No.	Item Description	Quantity	Unit	Unit Price	Amount
GENERAL CONDITIONS/4					
1	Mobilization/Demobilization, Bonds and Insurance and Permits (5%)	1	LS	$ 2,146,000	$ 2,146,000
2	Worker and Public Protection (2%)	1	LS	$ 859,000	$ 859,000
3	Miscellaneous Facilities and Operations (5%)	1	LS	$ 2,146,000	$ 2,146,000
4	Traffic Control	1	LS	$ 100,320	$ 100,000
5	Dust Control	1	LS	$ 5,000	$ 5,000
6	Prepare SWPPP	1	LS	$ 10,000	$ 10,000
7	Utility Potholing	1	LS	$ 50,160	$ 50,000
8	Clearing and Grubbing	1	LS	$ 20,000	$ 20,000
9	Unknown Utility Conflicts	1	LS	$ 10,000	$ 10,000
				Subtotal	**$ 5,346,000**
FIELD COSTS					
	Surface Water Treatment Plant				
10	18" C900 PVC Raw Water pipeline	18,480	LF	$ 240	$ 4,436,000
11	FKC Turnout	1	LS	$ 700,000	$ 700,000
12	Raw Water Screening Structure	1	LS	$ 300,000	$ 300,000
13	Raw Water Pumping Station	1	LS	$ 260,000	$ 260,000
14	Packaged Filtration System	1	LS	$ 2,800,000	$ 2,800,000
15	Transfer and Backwash Pumping Station	1	LS	$ 400,000	$ 400,000
	Finished Water Storage Tank	1	LS	$ 475,000	$ 475,000
	Blending Tank	1	LS	$ 1,390,000	$ 1,390,000
16	Chemical Storage Building and Equipment	1	LS	$ 1,500,000	$ 1,500,000
17	High Service Pumping Station	1	LS	$ 840,000	$ 840,000
18	Operations and Controls Building	1	LS	$ 625,000	$ 625,000
19	Washwater Equalization Basin	1	LS	$ 300,000	$ 300,000
20	Reclaim Pumping Station	1	LS	$ 150,000	$ 150,000
21	Clarifier	1	LS	$ 500,000	$ 500,000
22	Sludge Holding Tank	1	LS	$ 100,000	$ 100,000
23	Screw Press Skid	1	LS	$ 500,000	$ 500,000
	Yard Piping	1	LS	$ 1,500,000	$ 1,500,000
	Site Fencing and Access Gates	1	LS	$ 80,000	$ 80,000
24	Site Demo, Clearing and Grubbing	1	LS	$ 60,000	$ 60,000
25	Site Grading, Paving and Surfacing	1	LS	$ 600,000	$ 600,000
26	Site Painting, Coating, and Signage	1	LS	$ 250,000	$ 250,000
27	Electrical, Scada & Controls	1	LS	$ 3,000,000	$ 3,000,000
28	Emergency Generator	1	LS	$ 350,000	$ 350,000
	Water mains				
29	8" C900 PVC Blending piping (Orosi Well 8)	5,000	LF	$ 160	$ 800,000
30	8" C900 PVC Blending piping (Orosi Well 10)	1,400	LF	$ 160	$ 224,000
31	8" C900 PVC Blending piping (East Orosi Well 3)	1,000	LF	$ 160	$ 160,000
32	12" C900 PVC (Yettem to Monson)	26,400	LF	$ 180	$ 4,752,000
33	12" C900 PVC (Sultana to Orosi)	18,480	LF	$ 180	$ 3,327,000
34	12" C900 PVC (East Orosi to Yettem)	21,120	LF	$ 180	$ 3,802,000
35	8" C900 PVC in Railroad ROW (Seville)	10,560	LF	$ 240	$ 2,535,000
36	16" C900 PVC Finished Water pipeline	3,000	LF	$ 210	$ 630,000
37	Relocate PRV Sultana to Monson	1	LS	$ 25,000	$ 25,000
38	Install New PRV at Monson	1	LS	$ 50,000	$ 50,000
39	12" Isolation Valves (1/2 mile intervals)	28	EA	$ 5,000	$ 140,000
40	Permanent Trench Resurfacing	73,400	LF	$ 55	$ 4,037,000
	Site Improvements				
41	Relocate PRV Sultana to Monson	1	LS	$ 25,000	$ 25,000
42	Install New PRV at Monson	1	LS	$ 50,000	$ 50,000
43	Demo 60,000-gallon bolted Steel Tank and apurtanences	1	LS	$ 15,000	$ 15,000
44	Demo 150,000-gallon Bolted Steel Tank and apurtanences	1	LS	$ 37,500	$ 38,000
	Electrical and Controls Modification				
45	Well Site Instrumentation and Controls modifications (budgetary)	1	LS	$ 200,000	$ 200,000
46	Furnish and Install Back Up Generators (East Orosi)	2	EA	$ 350,000	$ 700,000
47	Install new PSV and Site Piping (Tank Fill)	4	EA	$ 50,000	$ 200,000
48	Install new Check Valve and Tank Fill modifications	4	EA	$ 25,000	$ 100,000
	Well Destruction				
49	Yettem and Seville, Y1, Y2, S1, and S2	4	EA	$ 50,000	$ 200,000
		CONSTRUCTION SUBTOTAL			**$ 48,472,000**
		CONTINGENCY (30%)			**$ 14,542,000**
		CONSTRUCTION TOTAL			**$ 63,014,000**
NON-CONSTRUCTION COSTS					
	Non-Construction				
50	Property Costs	4.1	AC	$ 75,000	**$ 308,000**
51	Engineering Design (12%)	1	LS	$ 7,562,000	**$ 7,562,000**
52	Construction Management and Inspection (7%)	1	LS	$ 4,411,000	**$ 4,411,000**
53	Enviromental, Legal, and Administration (5%)	1	LS	$ 3,151,000	**$ 3,151,000**
		NON-CONSTRUCTION SUBTOTAL			**$ 15,432,000**
		CONTINGENCY (30%)			**$ 4,630,000**
		NON-CONSTRUCTION TOTAL			**$ 20,062,000**
		GRAND TOTAL			**$ 83,076,000**

Notes & Assumptions

/1	This estimate represents the opinion of probable cost based on the engineer's experience with prior projects, recent bid canvasses, and cost sources such as RS Means.
/2	Costs presume work will be publicly bid as a public works project.
/3	Amount totals rounded up to the nearest one-thousand dollars.
/4	Percentages are of the Field Costs.
/5	Construction costs based on current dollars. Construction schedule may impact construction cost.
/6	Construction costs do not include mitigation measures for the biologist or construction observation.
/7	Construction costs do not include PG&E overhead work.

Appendix Q: DDW Letter Re. Governance Term Sheet and Project Alternative Selections

State Water Resources Control Board

Division of Drinking Water

August 7, 2025

Orosi Public Utility District
Cutler Public Utility District
East Orosi Community Services District
Yettem Water System
Seville Water Company
Monson Water System
Sultana Community Services District

Subject: Governance Term Sheet and Project Alternative Selections

Dear Water Systems:

The State Water Resources Control Board (Board) has funded a draft regional consolidation feasibility study for the Northeast Tulare County (NTC) region. The water systems included in the regional study include Cutler PUD, Orosi PUD, East Orosi CSD, Yettem, Seville Water Company, Monson, and Sultana CSD. The Board in partnership with local and regional stakeholders, remains committed to supporting a long-term, sustainable drinking water solution to address the ongoing water quality and quantity issues in the region. Your participation in the early stages of this regional project has been instrumental in identifying potential infrastructure and governance alternatives to address ongoing challenges in the region. Furthermore, ongoing commitment to and implementation of a regional governance structure and drinking water infrastructure should allow the region to provide a sustainable source of safe drinking water resilient to future challenges such as changes in climate, water quality and economic conditions.

To consider any further investment in a **regional drinking water project**, the Board requests that each participating utility submit the following two items by **December 19, 2025**:

1. Selected Project Alternative

We request that each water system submit its preferred infrastructure alternative from among those presented in the feasibility study completed by Provost & Pritchard Consulting Group. Alternative 1: Individual System Improvements and Physical

Consolidation Loop, Alternative 2: Regional Surface Water Treatment Plant Partial Supply, and Alternative 3: Regional Surface Water Treatment Plant. The selected alternative should represent a viable solution that addresses your water system's current and projected water service needs, while balancing technical feasibility, financial sustainability, and long-term operational resilience.

2. Joint Governance Term Sheet

We request a draft Governance Term Sheet be developed jointly among all participating water systems. This document should outline the preliminary agreements regarding the governance structure that will support the implementation and long-term management of the regional project. The draft Governance Term Sheet is a collaborative product. We request that each water system individually review and formally sign off on a collaborative draft Governance Term Sheet and submit it to us by December 19th, 2025.

A draft Governance Term Sheet is a non-binding, foundational document that summarizes the key terms, intentions, and proposed structure of a future governance agreement. It typically includes:

- The proposed governance model to be pursued (e.g. MUD, CSD, CSA)
- The preliminary structure for board representation and decision-making
- A general timeline and next steps for implementation (e.g., LAFCO process, legal reviews, public outreach)
- Points of agreement and areas still under discussion

The purpose of the Governance Term Sheet is to ensure mutual understanding, build alignment, and establish a path forward as the water systems move toward formal consolidation.

Governance Recommendation and Principles

The Board believes that the success of a regional project depends not only on physical infrastructure, but also on the establishment of a unified, durable, and inclusive governance structure. Fragmented or temporary governance arrangements present long-term risks to operational stability, financial integrity, and equitable service delivery, particularly for small or disadvantaged communities.

To guide the development of a successful governance proposal for the draft Governance Term Sheet, the Board offers the following principles for sustainable utility governance, aligned with the state's expectations for Technical, Managerial, and Financial (TMF) Capacity:

- **Unified Governance:** A single governing body with clear legal authority to manage infrastructure, oversee finances, and make operational decisions across the service area. This unified structure improves coordination, strengthens technical oversight, and supports long-term regulatory compliance. It ensures that all parts of a system, from source through the distribution system to customer service, are overseen with equal responsibility, equitable representation, and access to resources.

- **Financial Resilience:** A unified financial structure across the region promotes responsible funding of operations, maintenance, and capital improvements; enables long-term rate stability; and increases access to external funding. While there may be infrastructure improvement areas or zones that have different timebound investment needs for transition projects, ultimately a unified financial structure provides a broad, stable financial foundation to maintain adequate infrastructure and services.

- **Permanence:** The governance structure should be designed for permanence. Long-term operational financial and legal stability are essential to protecting public health, maintaining service continuity, and avoiding the need for future reorganization. A permanent structure promotes regulatory confidence, community trust, and sustained investment.

Recommended Governance Structures

While the specific preferred governance proposal that is chosen to be included in the draft term sheet should be developed collaboratively by the local communities, we want to be clear that there are restrictions and priorities within the Board's funding and permitting that must be accounted for in order to be competitive for any further investment in a regional project. In response to participant feedback from the series of regional discussions thus far, we want to clarify how the governance principles outlined above effectively narrow the governance options that we would consider for further investment.

The Board recommends that any governance proposal included in the draft Governance Term Sheet be **a single, unified, independent special district**. There are a variety of types of special districts that may be appropriate for the region. In the interest of furthering a successful regional project, the board recommends that a draft Governance Term Sheet include the specific type or structure for a single independent special district that is appropriate for the region. To help with that discussion, the following are our recommendations for types of special districts that we believe may be most appropriate for the needs in this region. Each of these are locally governed and able to sustainably provide multiple utility services.

In the State Water Board's experience, the model most likely to provide sustainable and successful governance for the North Tulare County region is a Municipal Water District, followed by a Community Services District and finally a County Water District.

- **Municipal Water District (MWD):** A special district that provides public services, primarily water and wastewater services, to communities. MWDs are governed by a board of directors, which may be elected or appointed, depending on the district's structure.

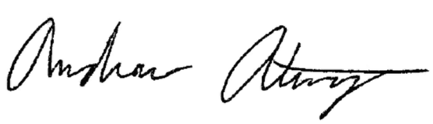
- **Community Services District (CSD):** A locally governed special district that can provide water, sewer, street lighting, and other services, with flexible board representation and service zone structures.

- **County Water District (CWD)**: A special district that provides water and/or sewer services to areas, typically outside of incorporated cities, within a county. CWDs are governed by an elected board or a similar body that makes decisions about water rates, infrastructure development, and other related matters.

In addition to the required elements, these governance options can ensure that there is equitable representation of all the communities involved and public accountability. They also offer the opportunity for different ways to transition into the final governance form and can ensure fairness in cost distribution. Finally, they offer the greatest access to financing options and structures that would address the need for long-term financial stability.

To proceed with the next phase of the regional project, please submit both the Selected Project Alternative and a draft Governance Term Sheet by December 19, 2025. If no submissions are made, the Board will terminate technical assistance for a regional project under the assumption that the parties are unable to agree on a governance structure or project alternative. We appreciate your continued partnership and look forward to continuing to work with you on the Northeast Tulare County Regional project.

Sincerely,



Andrew Altevogt, P.E.
Assistant Deputy Director
State Water Resources Control Board, Division of Drinking Water

cc:

Cutler Public Utility District
cutlerpud@sbcglobal.net

Orosi Public Utility District
orosipud@sbcglobal.net

East Orosi CSD Administrator
dengland@tularecounty.ca.gov

Monson Water System & Sultana Community Services District
sultanacsd@gmail.com

Yettem Water System & Seville Water Company
CVPerez@tularecounty.ca.gov

Ben Giuliani
Tulare County LAFCo
bgiuliani@tularecounty.ca.gov

Paige Kadavy
Self-Help Enterprises
paigek@selfhelpenterprises.org

Shawn Demmers
Division of Drinking Water
shawn.demmers@waterboards.ca.gov

James Garrett
Division of Financial Assistance
james.garrett@waterboards.ca.gov

Appendix R: Comment Resolution

No.	RECEIVED FROM	COMMENT	RESPONSE
1	Cutler-Orosi FS Review – SWRCB DFA	There is currently an executed Expedited Drinking Water Grant (EDWG) for the EOCSD – OPUD Consolidation Project	Added this information to Section 1.4.2
2	Cutler-Orosi FS Review – SWRCB DFA	Usage of DDW where SWRCB should be utilized	Replaced some instances of DDW with SWRCB
3	Cutler-Orosi FS Review – SWRCB DFA	The DWSRF IUP restricts eligible contingency to 20%	The Feasibility Study uses 30% contingency as a basis for comparing alternatives at a low level of project definition. For a DWSRF funding application, an Engineering Report will be required where contingency will be reduced to 20% reflecting a better defined project.
4	Cutler-Orosi FS Review – SWRCB DDW	The capacity of Cutler Well 10 needs to be updated.	The estimated capacity of Well C10 has been updated to 750 GPM per the project specifications.
5	Cutler-Orosi FS Review – SWRCB DDW	The CPUD blending tank was constructed in October 2019, but has not been operable because it needs Well 10 to be equipped.	Revised Section 2.1.2.2 to include the construction date of CPUD's blending tank.
6	Cutler-Orosi FS Review – SWRCB DDW	It is estimated for the CPUD Well 10 Project to be completed in 2026 or early 2027. Cutler PUD anticipates going out to bid for the final portion which includes equipping Well No. 10, installing booster pump station, a hydro tank and appurtenances all before Summer 2025. The Board, Department of Water Resources and Tulare County have provided funding for this project.	Revised Section 2.1.2.1 to reflect the estimated completion date for the CPUD Well 10 Project. Bidding is now anticipated in the Fall 2025.
7	Cutler-Orosi FS Review – SWRCB DDW	The contingency line item for each table should be revised to reflect that only 20% contingency is currently eligible for funding. Contingency should only be included in one line item.	See response to Comment 3. 30% contingency has been consolidated into a single line item.
8	SWRCB DDW	Requested clarification of the plant vs site capacity, accounting for ratio of groundwater and surface water blended at the site and total site output in Alternative 2.	Section 6.2.2 has been revised to clarify Alternative 2 includes production of 1,400 GPM treated surface water. 700 GPM groundwater would be piped to the SWTP for blending with treated surface water. The site would typically provide 2,100

			GPM of the system demand. The remainder of the total 3,150 GPM system demand would be from other existing groundwater wells within the overall system. These would not need to be piped to the SWTP site prior to distribution.
9	CWC NTCRWP Comment Letter	CWC requested inclusion of their efforts to address acute and long-term domestic well needs for properties surrounding Cutler, Orosi, and East Orosi	Included Domestic Well Study in Current Projects (1.4.5).
10	CWC NTCRWP Comment Letter	CWC requested consideration of other domestic well users in a potential regionalization project	Domestic well users are outside the existing service areas, requiring extra territorial service agreements with the existing districts or a boundary change approved by LAFCo. Language has been added to that effect in the governance section indicating that consideration could be given to domestic well owners at formation and in drawing the boundaries of a new Independent Special District. It is beyond the scope of this study to attempt to determine demands, however a surface water alternative would potentially be expandable to accommodate increased demand. Alternative 1 supply is limited by the existing groundwater wells and the ability to drill additional wells in the region.
11	Community Question	Are the rates presented in Table 8-6 total rates or in addition to our current rates?	It is important to note that these are preliminary estimates and will need to be refined as the project becomes better defined. However, the estimated rates are intended to be the total average monthly rates required.
12	Community Question	Is it possible to phase the project?	Yes, the alternatives are set up in a naturally phased approach. Alternative 1 would be the initial phase of interconnecting all of the community systems. Then, Alternative 2 would be construction of a surface water treatment plant to supplement the existing groundwater wells. Alternative 3 could then be implemented to expand the surface water treatment plant.